

JEL Classification: M41, K42**Khalid Djeflal*,**

University of Oum El Bouaghi, Algeria
<https://orcid.org/0000-0002-4506-2198>
khaled.djeflal@univ-oeb.dz

Adel Khaldi,

University of Oum El Bouaghi, Algeria
<https://orcid.org/0000-0003-2123-7587>
adel.khaldi@univ-oeb.dz
*Corresponding author

FORENSIC ACCOUNTING RESEARCH TRENDS: A COMPREHENSIVE REVIEW OF KEY THEMES AND FUTURE DIRECTIONS

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Abstract. *This study explores the evolving landscape of forensic accounting research (FAR) through a combined content and bibliometric analysis. Utilizing the Scopus database and focusing on publications from 1991 to 2023, and further analysed 16 literature reviews to extract key themes and trends, we identified key research themes and trends within FAR. Our analysis reveals a shift towards technology-driven fraud detection and prevention methods, emphasizing the use of data analytics, artificial intelligence, and blockchain. Additionally, there is a growing recognition of the human element in fraud, prompting research into behavioural and psychological factors influencing fraudulent activities. The study also highlights the need for standardized forensic accounting education and training programs to equip professionals with the necessary skills to combat increasingly sophisticated financial crimes. Addressing regional disparities in expertise and fostering international collaboration are crucial for advancing the field and promoting global financial integrity. This research provides valuable insights for academics, practitioners, and policymakers seeking to understand current trends and future directions within FAR.*

Keywords: *forensic accounting, fraud detection and prevention, research trends, bibliometric analysis, content analysis.*

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Introduction

Forensic accounting is a rapidly growing discipline applying accounting, audit, and investigative skills with the objective of examining financial irregularities and, eventually, exposing fraud (Rezaee, 2005; Singleton & Singleton, 2010). This, therefore, may be considered one of the contributions of the forensic accountants to the maintenance of financial systems integrity, either through financial crime investigations or in litigation and dispute resolution support (Brennan, 2005; Van Akkeren et al., 2013). In the recent past, the demand for forensic accounting services has increased significantly with the sophistication of fraud schemes and the increased awareness of financial misconduct (Honigsberg, 2020; Alshurafat et al., 2021a).

Forensic accounting research (FAR) represents one of the most important activities in support of the development of the profession and effectiveness in the fight against fraud. Additionally, FAR gives insights into trends in fraud, creates new techniques in fraud detection, and describes how forensic accounting practices influence outcomes for practitioners, policymakers, and educators. (DiGabriele & Huber, 2015; Ozili, 2023). FAR, on the other hand, allows a wider berth for the explanation and rationalization of motives to commit fraud, otherwise useful for the design

in even greater efficiency in fraud prevention strategies (Free & Murphy, 2015; Alshurafat et al., 2023a).

In fact, several studies find literature review to be the value of the subject. For example, Smith (2015) outlined in detail the history of development, elaborating on the current state of the profession while Kramer et al. (2017) outline the evolving landscape of education in forensic accounting. More recently, Kaur et al. (2022) undertook a systematic review on the contributions of forensic accounting towards fraud detection and prevention. These reviews contribute fantastic ideas within the box of a particular aspect. However, still, a comprehensive and recent analysis of the global FAR scope is still lacking.

This research seeks to contribute toward filling this gap by conducting a literature review that combines content and bibliometric analysis. This study reports a systematic review of academic publications in the field of FAR, identifying major research themes and trends. We will also use bibliometric methods to evaluate the diverse research contributions. This mixed-method approach properly considers and summarizes the different perspectives of the current state of FAR and the promising avenues for further research. This research may provide valuable insights into a dynamic research environment and, therefore, shall prove a good source of information, much needed to be looked upon by the researchers, practitioners, and policymakers interested in advancing the area of forensic accounting and raising its effectiveness in fraud deterrence around the world.

Methods

The study was conducted within the scope of preparing a literature review on forensic accounting, which amalgamated both content analysis and bibliometric analysis. These analytical approaches were combined to deliver a comprehensive overview of the current research landscape in forensic accounting, while emphasizing main trends, research gaps, and potential avenues for future inquiry.

2.1. Bibliometric analysis

The first part of our analysis of the research area was through the use of bibliometric analysis using VOSviewer. Definitely, for bibliometric analysis, it has some strength in displaying research trends in forensic accounting and thus providing critical information on how the context has changed over time. The conventional literature reviews buzz with such a quantitative approach to provide objective, data-driven research trend insights (Ellegaard & Wallin, 2015; Zupic & Cater, 2015). One example of how the bibliometric analysis is useful is in the co-occurrence study of author keywords. This is another very powerful technique to ascertain research trends. It enables the extraction of clusters of terms that appear related and emerging research areas of forensic accounting by finding out how specific keywords appear closely together with each other at high frequency in publications (Cobo et al., 2011; Mingers & Leydesdorff, 2015). This approach would illuminate the existence of hidden associations between apparently diverse topics and thereby bring out the subtler dimensions of the intellectual structure in the field. The second approach applied in the bibliometric analysis makes use of the co-occurrence of terms between titles and abstracts; this method is yet another valuable approach in the identification of research trends. Titles and abstracts are short summaries of research papers. Analysing term co-occurrence with that section gives us a way to obtain the topics and themes that interest researchers (Rafols et al., 2010; Aria & Cuccurullo, 2017). This might be particularly helpful in identifying emerging trends, as researchers often would go to lengths to make evident the novelty and importance of their work in the title and abstract.

We looked through the literature, using the Scopus database with the term "forensic accounting" in the titles, abstracts, and keywords, to be able to extract data. Some fields of research have been specified under the following heads: Business, Management, and Accounting; Economics, Econometrics, and Finance. The year 2024 has been dropped since complete data was not available for that year. This allowed data from 234 publications from 1991 to 2023. The below identifier demonstrates how the search was made: TITLE-ABS-KEY ("forensic accounting") AND

(EXCLUDE (PUBYEAR, 2024)) AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON")).

2.2. Content analysis data

To further analyse the research area, the Content analysis was applied as a second part. Literature reviews are useful frames in learning about research topics, especially when they are analysed systemically. They offer a comprehensive overview of a given field or topic by synthesizing the current knowledge in the area, showing the key findings, theoretical perspectives, and methodological approaches (Boote & Beile, 2005). The content of literature reviewed is to be analysed in such a way that the trends of research and gaps in knowledge or areas which call for more investigation can be found (Pare & Kitsiou, 2017). This critical analysis also has the potential to reveal conflicting pieces of evidence and diverse theoretical perspectives, thereby making room for the growth of critical thinking, as it is utilized to give a nuanced discussion on the subject (Webster & Watson, 2002). Thus, content analysis of literature review is a formidable means of knowledge that could be effectively utilized in gaining knowledge, identifying research opportunities, or understanding complex research topics.

After the extraction of the bibliometric data, we decided to analyse the literature review for the next step. We then reviewed the articles from forensic accounting literature we have selected for our review. At first, our search was limited to 234 studies but included 2024 studies after our review. After a comprehensive investigation, only sixteen papers were selected to form part of the evidence that aligns with the objectives set for the investigation. Table 1 below, the literature reviewed for the analysis of content and their scope are indicated.

Table 1. The literature review used in content analysis

Author/Year	Scope
Kasum (2012)	The study reviewed literature on financial malpractices in developing countries, particularly focusing on the Nigerian context.
Tiwari & Debnath (2017)	The study reviewed literature on the skills and knowledge required for forensic accounting practice, as well as the role of education and training in developing these skills.
Botes & Saadeh (2018)	The study reviewed a wide range of publications, including academic articles, websites, and media reports, to analyse how the term "forensic accounting" is used and defined in Australia, New Zealand, and South Africa.
Selimoğlu & Altunel (2020)	The study reviewed academic research on forensic accounting and fraud audit conducted in Turkey during 2008–2018, including master's theses, PhD theses, articles, and books.
Akinbowale, et al. (2020)	The study reviewed literature on effective forensic accounting techniques and anti-economic crime policies.
Honigsberg (2020)	The study reviewed literature, spanning from 1980 to 2013, on various quantitative and behavioural techniques utilized in forensic accounting to predict financial misconduct.
Al Shbeil et al. (2022)	The study reviewed literature on various aspects of the forensic accounting profession, including its definition, scope of services, required skills, and educational frameworks.
Ismail, et al. (2022)	The study reviewed literature on behavioural theories related to fraud, specifically the fraud triangle theory and the triangle of fraud action theory, and their application.
Kaur et al. (2022)	The study reviewed the literature on various techniques and challenges associated with applying forensic accounting in fraud detection and prevention.
Malik & Al-Sartawi (2023)	The study reviewed literature on fraud detection and prevention techniques used in forensic accounting, as well as the role of education and training in this field.
Alsadah & Al-Sartawi (2023)	The study reviewed literature on the application of forensic accounting techniques in the context of cybersecurity and cybercrime investigations.
Capraş & Achim (2023)	The study reviewed literature on forensic accounting techniques and their application in detecting and preventing financial statement manipulation in the Turkish context.
Ozili, P. K. (2023).	The study delved into research spanning from 2004 to 2022, encompassing a wide array of facets within forensic accounting globally, such as fraud motivation, consequences, detection methodologies, theoretical frameworks, skills, education, and jobs.
Alshurafat et al. (2023a)	The literature review juxtaposed forensic accounting with Islamic Sharia and law in the Jordanian context, emphasizing the incorporation of Islamic principles to enhance fraud detection and prevention.
Ebrahim & Al-Sartawi (2024)	The study reviewed literature on the theoretical foundations of forensic accounting and compared it to traditional auditing practices.
Mejeran & Al-Sartawi (2024)	The study reviewed literature on the application of criminal accounting techniques in combating fraud and corruption, particularly in the public sector.

Results

The study's findings and their discussions are presented in this section. We first give the findings from the bibliometric analysis, represented by the keyword co-occurrence analysis, and the findings from the analysis of textual data. Next, we provide the content analysis's findings.

3.1. Research trends from key words Co-occurrence result

Table 1 contains information about the keyword co-occurrence within clusters regarding the field of forensic accounting. The table has four clusters, which focus on diverse research areas. The Table 2 contains keywords, total link strength (TLS), occurrences (OC), average publication year (APY), and research focus/new research trends. This table offers insights into the distribution of research topics and their evolution over time. In key words Co-occurrence result, Cluster 1 focuses on fundamental concepts such as fraud detection, corporate governance, and internal control in forensic accounting. The average publication year for this cluster ranges from 2016 to 2022, indicating a continuous evolution of these foundational topics. For example, keywords such as "fraud detection" and "corporate governance" exactly reflect the continued research interest in such critical areas. Cluster 2 focuses on education and professional development in accounting. The mean publication year is from 2014 to 2021. This supports that there is continuity with professional development activities to raise the level of expertise and knowledge of forensic accountants. Cluster 3 focuses on "accounting education" and "professional development". Further, for fraud and auditing, it is related to money laundering, corruption, and cyber fraud. In terms of 2017-2022, within the last five years, the average year of cluster publications will show a recent increase in interest in the cluster "Fraud" and its emerging topics. Meanwhile, the concepts of "money laundering" and "corruption" are those that actually underline the need for the development of issues relating to modern forensic accounting. Cluster 4 of the analysis examines those specific fraud and financial crimes topics with the frameworks of the fraud triangle and the fraud diamond.

Table 2. Keyword Co-occurrences by cluster

Clusters	Key Words	TLS	OC	APY	Research focus /new research trends
Cluster 1	forensic accounting	219	128	2018	<ul style="list-style-type: none"> This cluster represents the core of forensic accounting research, encompassing fundamental concepts like fraud detection, corporate governance, and internal control. It also highlights the field's expansion into emerging areas such as information technology, skill development, and specific regional contexts like Jordan
	fraud detection	32	13	2018	
	corporate governance	17	9	2018	
	internal control	13	7	2016	
	expert	11	7	2017	
	crime	12	6	2016	
	Benford's law	8	6	2019	
	Jordan	9	6	2022	
	public sector	11	5	2017	
	information technology	10	5	2020	
	skills	13	5	2021	<ul style="list-style-type: none"> Average Publication Year: 2016-2022
	fraud examination	6	4	2013	
	financial reporting	12	4	2020	
	fraud prevention	12	4	2021	
	economic crime	8	4	2022	
	expert witness	4	3	2012	
	problem-based learning	7	3	2013	
	information management	7	3	2014	
	literature review	7	3	2019	
	experiential learning	5	3	2019	
Cluster 2	forensic audit	7	3	2021	<ul style="list-style-type: none"> This cluster centers on the education and professional development of forensic accountants. It explores topics like accounting education, ethical considerations, data analytics skills, and the evolving role of the profession. Average Publication Year: 2014-2021
	terrorist financing	6	3	2023	
	accounting education	19	9	2014	
	forensic accountant	24	9	2016	
	ethics	9	5	2015	
	education	15	5	2018	
	data analytics	11	5	2021	
	fraud investigation	11	4	2013	
	regulation	11	4	2015	
	governance	7	4	2016	

	profession	12	4	2019	
	big data	9	4	2020	
	training	4	3	2015	
	certifications	9	3	2016	
	professional scepticism	7	3	2018	
	critical thinking	6	3	2019	
	fraud	100	42	2017	
	auditing	65	25	2018	
	accounting	35	13	2017	
	money laundering	23	7	2019	▪ This cluster delves into the crucial areas of fraud and auditing within forensic accounting. It covers topics like money laundering, corruption, cyberfraud, and the role of auditors in detecting and preventing financial crimes.
	auditor	11	5	2020	▪ Average Publication Year: 2017-2022
Cluster 3	forensic accounting	14	5	2021	
	education	5	4	2014	
	forensic investigation	15	4	2018	
	corruption	18	4	2021	
	cyberfraud	11	4	2022	
	banking	8	3	2018	
	big data analytics	8	3	2020	
	fraud triangle	20	9	2019	
	financial fraud	11	4	2020	▪ This cluster investigates specific types of fraud and financial crimes, including the fraud triangle framework, financial fraud, white-collar crime, and fraudulent financial reporting.
Cluster 4	white collar crime	20	4	2021	
	fraud diamond	13	4	2022	
	whistleblowing	5	3	2019	
	financial crimes	6	3	2019	
	fraudulent financial reporting	8	3	2021	▪ Average Publication Year: 2019-2022

Abbreviation: TLS: Total link strength; OC: Occurrences; APY: Average Publication Year

Table 3 provides the co-occurrences of text data by cluster, which probes deeper into the research line based on terms contained in the titles and abstracts of the 234 publications. In this aspect, it is similar to Table 2 in that its clusters are delineated by terms, TLS, OC, APY, and research focus/new research trends. Table 2 focuses on the textual contents of research publications, throwing more light on methodologies, theories, and practical implications underpinning forensic accounting research. Table 3 further elaborates themes such as research methodology, professional development, case studies, and organizational issues. These findings would recommend an interdisciplinary approach to the research of forensic accounting, which embraces insights from disciplines like psychology, law, and information technology (Alshurafat et al., 2019; Ismaila et al., 2023). In addition, it highlights practical implications and tools that further bring out research outcomes to best be of action-based results useful for practice and policy in forensic accounting (Odeyemi et al., 2024).

Table 3. Text data Co-occurrences by cluster

Clusters	Terms	TLS	OC	APY	Research focus /new research trends
Cluster 1	design methodology approach	356	47	2019	▪ This cluster highlights the growing emphasis on research methodology and professional development within forensic accounting. The keywords suggest a focus on establishing rigorous research practices, developing practical tools and techniques, and enhancing the skills and knowledge of practitioners.
	originality value	351	47	2019	
	practitioner	241	40	2018	
	literature	214	37	2019	
	auditor	202	37	2018	
	skill	246	35	2018	
	profession	226	35	2018	
	questionnaire	197	35	2019	
	practical implication	255	31	2018	
	tool	182	30	2019	▪ Average Publication Year: 2018-2019
	development	189	29	2019	
	relationship	158	29	2018	
	need	185	28	2018	
	country	159	26	2018	
	fraud detection	160	25	2017	
	sample	150	24	2020	

Cluster 2	ability	134	24	2016	<ul style="list-style-type: none"> ▪ This cluster centres around the application of forensic accounting within organizations and the broader context of business and law. The keywords suggest a focus on case studies, student learning, and understanding the role of forensic accounting in various organizational issues such as fraud, internal control, and legal compliance. ▪ Average Publication Year: 2015-2017
	experience	111	22	2017	
	detection	115	18	2019	
	research limitations implication	155	17	2019	
	forensic accounting education	131	17	2018	
	researcher	106	17	2018	
	case	468	80	2015	
	student	398	64	2016	
	area	325	44	2017	
	information	307	43	2017	
	issue	280	42	2016	
	company	189	38	2016	
	organization	247	35	2016	
	auditing	232	35	2017	
	perspective	224	31	2018	
	understanding	219	30	2017	
	law	205	30	2017	
	management	188	25	2018	
	business	181	24	2014	
	opportunity	149	24	2017	
	interest	161	22	2016	
	concept	127	22	2016	
	employee	147	21	2017	
	internal control	163	19	2016	
	forensic accounting course	91	18	2015	

Abbreviation: TLS: Total link strength; OC: Occurrences; APY: Average Publication Year

According to the findings synthesized in Tables 2 and 3, this field of FAR reflects a multi-focused domain based on theoretical frameworks for practical applications and methodological developments occurring within the same domain. Future research endeavours in the field are likely to continue exploring emerging issues such as technological innovations, regulatory changes, and global trends shaping forensic accounting practice. Second, there is a growing need for longitudinal research to be conducted, monitoring the effectiveness of the strategies to detect and deter fraud over time. Cross-national comparative research will be needed that allows for an understanding of cultural variance in forensic accounting practices. Lastly, it will be very important to further knowledge with integration through different perspectives and methodologies in finding solutions to complex challenges in forensic accounting. The average publication year for each result of the analysed table will help identify the evolution of research in forensic accounting. The following are the stages in the evolution steps:

Early Stage (Pre-2016): Foundational Phase. The main focus is on preparing foundational basics for principles, applications, and educational frameworks of forensic accounting. The key Activities in this stage focus on the development of educational resources and the preparation of case studies in organizational perspective having core concepts related to fraud, auditing, and financial investigation.

Mid Stage (2016-2019): Specialization and Expansion. This was a phase that could symbolize the teenage years for this field, with a renewed focus on new specializations and exploring new areas to apply its methodologies. The key Activities in this stage focus on developing better research methodologies, with a focus on professional development and training, looking at emerging technologies in forensic accounting and its use, and adapting them into their operations in regional settings and specific financial crimes.

Later Stage (2020-2023): Refinement and Innovation Phase. This trend of FAR will take on a progressive trend as more challenges unfold and new techniques are adopted. The key Activities in this stage focus on critical review and, where appropriate, development of new approaches and tools, competencies development for changing needs, and specific categories of financial crime (e.g., cybercrime, money laundering).

3.2. Research trends from content analysis result

In conjunction with the findings from the bibliometric analysis, content analysis provides us with an outlook complementary to current FAR trends. Four fundamental groupings serve as a summary of the research directions identified by this analysis.

A. Forensic Accounting in the Digital Age:

Some scholars, including Akinbowale et al. (2020), Kilic (2020), Ozturk and Usul (2020), and Kaur et al. (2022), take up the increasing role of technology in ensuring that detection and prevention of fraud happens. The researchers specifically delve into the respective applications of artificial intelligence (AI) and machine learning (ML) for anomalous tasks such as anomaly detection, predictive modelling, and evidence analysis. All these technologies raise very serious ethical questions, particularly with issues such as the bias in algorithms and the potential for misuse of such software (Martin, 2019). Moreover, it is becoming increasingly important that studies look into the role of forensic accountants in handling issues related to cybercrime, cryptocurrency fraud, and dark web investigations (Alsadah & Al-Sartawi, 2023). Therefore, expect further research work in this field to be conducted, focusing on research on the increased examination of the influence of selected individual digital technologies on practices in forensic accounting; among such technologies under consideration would include data analytics, AI, and blockchain. This is done through developing and testing new algorithms for fraud detection, exploring the deployment of AI in evidence analysis, and even researching how blockchain can be used in securing financial transactions to prevent fraud. Of very practical importance, these researches can, therefore, assist the forensic accountants in using technology to improve effectiveness and efficiency in carrying out fraud investigations ahead of the technology-savvy fraudsters.

B. The Human Element in Fraud:

Studies such as Murphy & Dacin (2011), Schrand and Zechman (2012), Honigsberg (2020), Kaur et al. (2022), and Alshurafat et al. (2023a) all stressed the behavioural and psychological aspects in fraud. The psychological and behavioural aspects of fraud would be interpreted and used as a tool to develop applicable strategies for its prevention. The research would further consider what the influence of personality traits and cognitive bias, along with organizational culture, exercises on influencing factors towards fraud would be. On the other hand, the role of social and cultural factors would need to be further assessed within different regions. This would provide an opportunity for designing the targeting interventions among which include ethics training programs and corporate governance reforms among others that would be able to help in reducing the level of fraud. From a pragmatic view, this research will help organizations develop a more focused and effective fraud prevention strategy based on the human element associated with fraudulent behaviour.

C. Forensic Accounting Education and Training:

The work of Seda and Kramer (2014, 2015), Kern and Weber (2016), Kaur et al. (2022), and Alshurafat et al. (2023b), relate to improved and standardized training in forensic accounting. The current direction in research is to evaluate the effectiveness of current programs on forensic accounting and outline those that need standardization with theoretical knowledge, practical skills, technology, digitization analysis, and analytical proficiency. This could also mean the development of new, creative didactic approaches in teaching, like case-based learning or simulations, that strengthen student involvement and at the same time enable teaching the students how to handle such situations in real life. Moreover, one must also think of the necessity of introducing innovations in the curriculum such as data analysis software and virtual reality environments. The practical significance of these studies is that they would make sure that forensic accounting professionals are being subjected to the training of high-quality and uniform, which, in turn, would prepare them with sufficient skills for countering fraud.

D. Addressing Regional Disparities in Forensic Accounting:

Studies by Huber (2012), Modugu and Anyaduba (2013), Mojsoska and Dujovski (2015), and Kaur et al. (2022) indicated the uneven development of the forensic accounting profession in

various regions. Research in this category focused on a few areas. These included exploring the reasons behind regional discrepancies in forensic accounting, such as looking into the availability of educational resources and training and development opportunities for professionals; hence, there is a call for a concentrated research effort to be able to find out the reasons that lead to the uneven development of expertise in forensic accounting in regions. Comparative studies, therefore, contribute to the best practices and models of success, applicable to adopt for promoting the profession among the population in underserved areas (Alshurafat, 2021). Additionally, investigating the impact of legal frameworks, regulatory environments, and cultural factors on the development of forensic accounting can inform targeted interventions and capacity-building initiatives. International collaboration and knowledge-sharing programs may be able to play a critical role in bridging this gap to promote more harmonization of standards and practices. In practical significance, these studies will go a long way toward bridging the gap concerning forensic accounting expertise among regions.

Conclusion

This review of FAR illuminates exposing the dynamism currently characteristic of the field. The study establishes some of the key themes and trends that signal a marked shift from foundational concepts to tech-driven methods of fraud detection and prevention. data analytics, AI, and blockchain emerge as new tools for forensic accountants in constant battle against ever more sophisticated financial crimes Far also acknowledges the persistence of the human element in fraud. A good understanding of the behavioural and psychological influencing factors for corrupt activities gives a huge motivation toward developing targeted interventions to foster ethical decision-making within organizations.

Thus, several promising paths for continued exploration and growth suggest that FAR is likely to take a future trajectory. Continual refinement and innovation will be required in the technological tools, all while addressing ethical considerations and misuses. Furthermore, the integration of psychological, criminological, and data science research would be a way of rounding up the understanding of fraud and a way through which effective approaches to fraud prevention can be improved. Education and training are some of the most outstanding features of FAR development. There should be general programs of education providing these specialists with all the necessary competencies and knowledge for the area of operation. This will further bridge the regional expertise disparities through international collaboration and knowledge-sharing initiatives that will spur global financial integrity and harmonization of standards. The increasing need for skilled forensic accountants, therefore, requires strengthened partnerships between academia and industry practitioners, including the regulatory bodies. This is likely to help research findings be translated into practical applications that will affect the future impact of the field.

Finally, FAR has a very promising growth and influence in the near future. In an environment in which financial crimes continue to morph into more convoluted variants, forensic accounting will also develop new and creative ways that use technology and interdisciplinary know-how to protect the integrity of financial systems as a contribution to a just and ethical global economy.

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