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A Bibliometric Analysis of Upper Echelon Theory: Mapping Two Decades of Research Evolution and Emerging Trends (2004-2024)

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ABSTRACT

This study employs bibliometric analysis to systematically review 2,427 publications related to Upper Echelon Theory (UET) from 2004 to 2024. The research is based on the Web of Science Core Collection database and analyzed through keyword, author, country, citations, publications, universities and journals. The findings reveal a significant increase in UET-related publications over the past two decades, particularly after 2010, signaling growing scholarly interest in the theory. The study highlights a surge in international collaborations, underscoring the global reach of UET research. Notably, U.S. and Chinese researchers have been leading contributors, with key authors such as Donald C. Hambrick and Mariano Heyden shaping the field. Keyword co-occurrence analysis reveals that the top management team, corporate governance, and organizational performance are central topics in UET research. Furthermore, the analysis of findings identifies the emerging research themes, particularly the growing integration of UET with environmental, social, and governance (ESG) factors, green innovation, and sustainability. This study also presents an overview of UET's intellectual structure, providing insights into emerging trends and offering recommendations for future research directions.

Keywords: Bibliometric analysis; web of science; upper echelon theory; top management team; organizational performance

INTRODUCTION

The top management team of an organization is the driving force behind its strategies and achievements, with their decisions shaping not only the company's trajectory but also its long-term success. Understanding the characteristics of these executives is key to unlocking the secrets of organizational performance. Upper Echelon Theory (UET), introduced by Hambrick and Mason (1984), provides a theoretical foundation for this understanding, asserting that the characteristics and experiences of top executives profoundly influence their perceptions, decisions, and, ultimately, the outcomes of their organizations. Originally conceived as a unified framework that drew on diverse disciplines such as psychology, sociology, and economics, UET aimed to understand the relationship between individual executives and organizational dynamics. Over time, however, the theory has given rise to multiple niche research streams, complicating efforts to identify a cohesive body of literature (Bromiley & Rau 2016).

The field of UET has become highly specialized, with research delving into various dimensions, such as the demographics of executives (Hambrick et al. 1996), their personalities (Nadkarni & Herrmann 2010), and cognitive factors (Kaplan 2008). Although this specialization has generated valuable insights within specific domains, it has created fragmentation that challenges efforts to maintain a unified theoretical framework. This complexity has led scholars to call for more systematic and comprehensive reviews of the literature to capture the full spectrum of UET's theoretical development and its evolving directions (Carpenter et al. 2004; Neely Jr et al. 2020).

While UET has generated a substantial body of research, a comprehensive understanding of its intellectual evolution, thematic trends, and emerging research frontiers over the past two decades remain insufficient. Many studies have applied UET to investigate the influence of top management teams as well as their characteristics on corporate behavior and organizational outcomes, for instance, while studies like Peterson et al. (2003) examined CEO personality traits and their effect on top management team dynamics, Zhang and Rajagopalan (2010) studied the impact of different types of CEOs on the level of corporate strategic change and corporate performance, while Chatterjee and Hambrick (2007) found that CEO narcissism has a certain impact on corporate strategy and performance. But few have systematically mapped the broader scholarly landscape to identify key developments, knowledge clusters, and underexplored areas. The rapid growth of UET research has only intensified the challenge of synthesizing a cohesive view of the theory's evolution and future directions (Bromiley & Rau 2016). The reliance on traditional literature review methods has compounded this issue, limiting our ability to understand UET's theoretical trajectory and its contributions to the broader field of corporate and organizational studies.

With the rapid expansion and specialization of UET research, there is an urgent need for periodic reviews of the intellectual structure of the field. This has rendered traditional qualitative reviews increasingly difficult. An effective literature review is essential to understand the development of UET, identify existing gaps, and guide future research (Lim et al. 2022). To address these concerns, this study employs bibliometric methods to offer a comprehensive and data-driven overview of the UET literature. By using a quantitative, replicable, and objective approach, bibliometric analysis allows

us to map UET's intellectual structure, identify key contributors, track emerging trends, and assess the overall development of the field (Vogel & Güttel 2013). In this study, we seek to address several important research questions:

RQ_1 How has research output related to UET evolved over the past 20 years in terms of publication volume and active journals?
RQ_2 Which authors, institutions, and countries have made the most significant contributions to UET research, and what are the global trends in collaboration?
RQ_3 What are the most highly cited documents in the field of UET research, and what are the key themes and topics that they address?
RQ_4 What are the major research themes and key knowledge clusters that have emerged within UET research over the last 20 years?
RQ_5 How can the findings from UET research inform future directions, and what are the underexplored areas that warrant further investigation?

To achieve these objectives, this study employs bibliometric analysis using the Web of Science (WoS) database rather than Scopus. WoS offers comprehensive citation tracking and includes long-term historical data, making it well-suited for analyzing the evolution of a theoretical framework like UET over several decades (Leydesdorff & Bornmann 2016). Its detailed citation metrics and prestigious journal coverage provide a more accurate reflection of a paper's academic impact, which is crucial when examining influential research in the field. Our bibliometric approach integrates multiple analytical techniques, including co-word analysis, co-citation analysis, collaboration network analysis and keywords analysis. The multi-method approach allows for triangulation of findings.

Through this study, we contribute to the UET literature. Unlike prior reviews such as White and Borgholthaus (2022), which examined only 811 articles from 1984-2020, our analysis of 2,427 articles from 2004-2024 captures the significant expansion and evolution of UET research during its period of most rapid growth. Our approach differs from existing reviews in two important ways: first, we provide a more comprehensive temporal mapping of emerging research themes, particularly the integration of UET with sustainability, ESG, and digital transformation literature that has flourished since 2020; second, we offer a more detailed international perspective on UET applications across diverse institutional contexts. This allows us to highlight the evolution of UET, explore the interconnections between different subdomains. Finally, our analysis also reveals significant research gaps in critical contemporary domains, particularly digital transformation, artificial intelligence, and technology-driven innovation, which remain largely unexplored. The following sections of the paper outline the methodology used for our bibliometric analysis, present the findings of the analysis, discuss the implications of these results, and conclude with a set of recommendations for advancing the UET literature.

LITERATURE REVIEW

Upper Echelon Theory (UET), introduced by Hambrick and Mason in 1984, posits that the characteristics of top executives—including their experiences, values, and cognitive biases—play a pivotal role in shaping strategic decision-making and organizational outcomes. Over the years, UET has expanded to incorporate a broader range of individual-level traits, such as demographics, personality, cognitive styles, and psychological factors (Hambrick 2007).

Furthermore, contemporary UET research has moved beyond static, one-dimensional measures of performance (such as profitability or growth), incorporating broader and more dynamic organizational outcomes. Researchers have begun to explore competitive dynamics, innovation, and long-term organizational resilience as critical areas influenced by top executives' characteristics (Hill et al. 2019). This shift marks a broader expansion of UET from its original focus on performance metrics to a more comprehensive view of organizational success, highlighting the diverse ways in which executive characteristics affect both short-term outcomes and long-term organizational strategies.

Methodologically, UET research has diversified, incorporating qualitative case studies, surveys, and increasingly advanced quantitative methods, including regression analysis and machine learning (Brunzel 2021a). While this has enabled deeper exploration of specific dimensions of UET, such as the impact of cognitive diversity within TMTs, it has also led to fragmentation within the field. This fragmentation complicates efforts to track the development of research themes and identify emerging trends.

However, UET faces important theoretical critiques that warrant consideration. A key debate concerns whether the theory overemphasizes individual executive agency at the expense of structural and environmental constraints. Critics argue that while executive characteristics matter, their influence may be more bounded than initially theorized, particularly in highly regulated industries or during periods of environmental turbulence where external forces may dominate strategic choices (Finkelstein & Hambrick 1996). Additionally, questions remain about whether observable demographic characteristics serve as reliable proxies for underlying cognitive processes and decision-making patterns, suggesting the need for more nuanced measurement approaches.

The rapid growth of UET literature has also given rise to an increasing specialization in the field. While earlier reviews attempted to summarize a wide range of executive characteristics, the complexity of the UET literature has led to a narrowing of focus in more recent works. Qualitative reviews now tend to concentrate on specific subdomains, such as

executive personality traits (Kerr et al. 2018), or even delve into individual traits like narcissism (Brunzel 2021b). As UET continues to evolve, the need for a more systematic and comprehensive review of the field has become increasingly urgent.

As summarized in Table 1, although notable reviews by Escribá-Esteve (2014), Bromiley and Rau (2016), Neely et al. (2020), and White and Borgholthaus (2022) have made substantial contributions to summarizing key aspects of UET research, they have several limitations. The most recent bibliometric analysis by White and Borgholthaus (2022) examined 811 articles spanning from 1984 to early 2020, identifying five distinct literature clusters and expressing concern about theoretical insularity within the field. However, their analysis predates the significant explosion of UET publications in the past four years, particularly in areas related to sustainability, ESG, and digital transformation.

Early studies were mainly based on the systematic literature review analysis method, with certain limitations in the number of research samples. For instance, Neely et al. (2020) reviewed studies from 1984 to 2019 but examined only a limited number of articles (35), leaving many developments unaddressed. Yamak et al. (2014) focused on the external environmental influences on UET, but their study was limited by the inclusion of only 60 articles, and their coverage ended in 2012. Similarly, while Bromiley and Rau (2016) explored studies from 2005 to 2014, their methodology lacked advanced bibliometric techniques, which may have led to missed trends and insights. While systematic literature reviews like these offer advantages in depth of qualitative analysis, theoretical interpretation, and narrative synthesis of complex relationships between variables, they typically examine fewer articles and may introduce subjective bias in paper selection and analysis. In contrast, bibliometric analysis provides quantitative, objective mapping of larger datasets, capturing citation patterns and collaboration networks that might remain invisible in qualitative reviews.

TABLE 1. Summary of previous studies related to literature review and upper echelon theory

Author & Year	Title	Time Span of Literature	Data Source & Coverage	Research Gaps	Total Documents Examined
White & Borgholthaus 2022	Who's in charge here? A bibliometric analysis of upper echelons research	1984-2020	Web of Science	Lack of analysis of themes after 2020	811
Neely et al. 2020	Metacritiques of Upper Echelon Theory: Verdicts and Recommendations for Future Research	1984-2019	Web of Science, Google Scholar	Limited documents examined	35
Bromiley & Rau 2016b	Social, behavioral, and cognitive influences on upper echelons during strategy process: A literature review	2005-2014	Web of Science, Google Scholar	Without using advanced methods of literature analysis	149
Yamak et al. 2014	The Role of External Environment in Upper Echelons Theory: A Review of Existing Literature and Future Research Directions	1985-2012	Scopus, Web of Science	Without using advanced methods; small sample size	60

In response to these challenges, bibliometric analysis has emerged as a powerful tool for mapping the intellectual structure of UET research. By analyzing a larger corpus of publications, bibliometrics can identify trends, intellectual clusters, and the influence of various research streams over time. This approach helps to systematically map UET's evolution, revealing how research themes have developed and how they are interconnected. Furthermore, bibliometric analysis enables the identification of emerging trends and key contributors to the field, offering a comprehensive view of UET's intellectual landscape (Waltman et al. 2010).

This study leverages bibliometric methods to bridge these gaps by mapping UET's intellectual structure and identifying key research themes over the past two decades. By examining a broader and more representative corpus of literature, this study provides a clearer understanding of the current state of UET research and its future directions. The results will not only contribute to advancing UET theory but also provide practical insights into the role of upper echelons in strategic decision-making and organizational performance.

RESEARCH METHODOLOGY

METHOD

Bibliometric analysis, as employed in this article, is a quantitative method that analyzes citation data, authorship patterns, and publication networks to assess the development and intellectual structure of a research field over time (Van Eck & Waltman 2014). This approach has been widely recognized for its ability to provide objective, replicable insights into scholarly impact and the evolution of academic domains (Waltman et al. 2010). Techniques such as co-citation analysis, keyword co-occurrence, and citation network mapping are commonly used to identify key contributors, influential papers, and emerging trends (Zupic & Čater 2015). Scholars like Vogel and Güttel (2013) have highlighted the effectiveness of bibliometric analysis in mapping complex theoretical fields, while (Tandon et al. 2021) note that it offers transparent and systematic assessments of research impact. Additionally, Waltman et al. (2010c) emphasize that bibliometric methods allow for the identification of intellectual clusters and thematic developments within a field, making it particularly useful for understanding the trajectory and future opportunities in research areas such as UET. This method's ability to avoid subjectivity makes it a valuable tool for providing comprehensive and accurate analyses of a research field's growth and intellectual connections.

DATA SOURCES, SEARCH STRATEGIES, AND ANALYTICAL METHODS

The data source and search strategy for this bibliometric study on UET were meticulously designed to ensure a comprehensive and rigorous selection of relevant academic documents. The search was conducted on the Web of Science Core Collection (WoSCC) with a temporal filter applied to include publications from January 1, 2004 to December 31, 2024. While UET was first introduced by Hambrick and Mason in 1984, the research before 2004 was very limited, with only 26 articles able to be retrieved in WoSCC, making it insufficient to analyze the trends. Therefore, it was not included in this research. The WoS database was selected for this search due to its vast collection of over 85.9 million entries from various publications, including journals, books, and conference proceedings (Salama et al. 2024). Besides, multidisciplinary coverage spanning science, social science, arts, and humanities with over 33,000 indexed journals (Aria & Cuccurullo 2017).

The search terms employed in the Title, Abstract, and Keywords (TS) field were: ("upper echelons theory" OR "upper-echelon theory" OR "upper-echelon" OR "upper echelons") AND ("company" OR "firm" OR "organization"). These terms were carefully chosen to capture the full breadth of research related to the UET in the context of organizational and corporate studies.

To enhance the comprehensiveness of the dataset, our search primarily focused on peer-reviewed articles and review papers published in English, including selected book chapters, early access articles, and conference proceedings that met our quality criteria (Öztürk et al. 2024). English is the predominant language in academic publishing, particularly in fields like organizational theory, ensuring a comprehensive and globally recognized dataset (Waltman et al. 2010). Additionally, we removed duplicates and incomplete articles to avoid over-representation and ensure that only fully published, high-quality studies were included in the analysis, as recommended in bibliometric research (Benevene et al. 2021). This resulted in the identification of a total of 2,314 articles and 113 review articles, which form the basis for the subsequent bibliometric analysis. The selected documents serve as the foundation for a detailed examination of multiple facets of UET, including trends in publication output, geographic distribution of research, institutional and author contributions, journal impact, reference patterns, and the evolution of key research topics through keyword analysis. The specific process is illustrated in Figure 1.

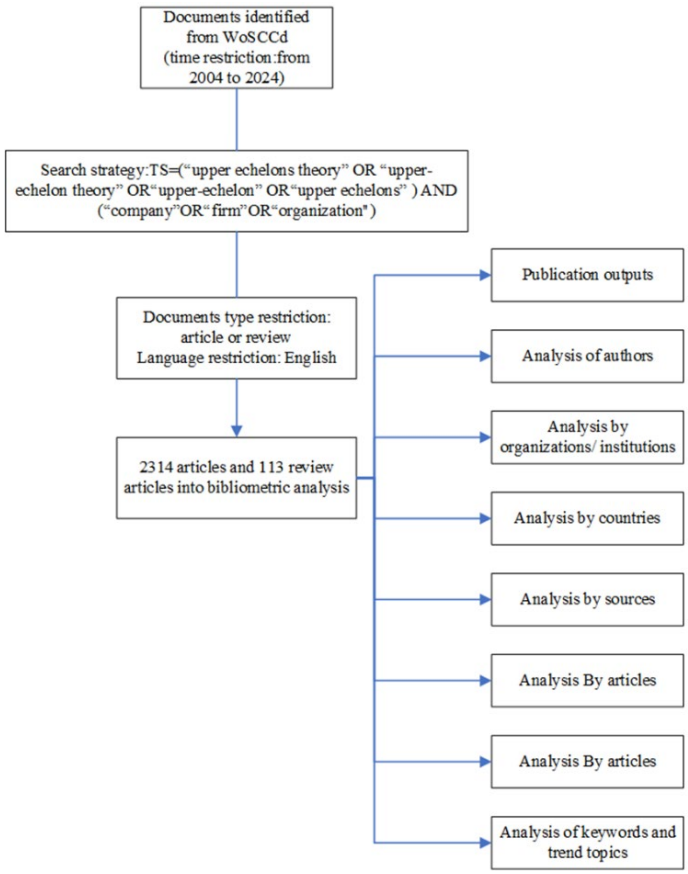

FIGURE 1. Flow diagram of the search strategy

The retrieved bibliometric data were exported from WoSCC in plain text and BIB formats, encompassing metadata such as article titles, authors, publication years, institutions, countries, keywords, abstracts, and references. These data were then subjected to rigorous analysis using a suite of established bibliometric tools. CiteSpace is employed to identify

keyword bursts and generate keyword timeline maps, enabling an exploration of emerging trends and research frontiers. VOSviewer facilitated the visualization of collaboration networks among authors, institutions, and countries, as well as keyword co-occurrence networks, providing insights into scholarly interactions and thematic connections (Van Eck & Waltman 2010). Furthermore, the Bibliometrix package in R was utilized for the quantitative evaluation of bibliometric indicators, offering additional analytical depth. Excel and Bibliometrix were applied to create clear and impactful visualizations, including line and bar charts that depicted annual publication volumes and citation trends over time. This multi-tool methodological approach ensured a comprehensive and rigorous examination of publication outputs, geographical and institutional contributions, journal performance, reference patterns, and the evolution of research topics. Together, these tools and methods ensure that the bibliometric analysis provides a comprehensive and visually enriched understanding of the research trends and contributions related to UET.

RESULTS AND ANALYSIS

As shown in Table 2, the dataset for the period 2004-2024 contains 2,427 documents published across 590 sources, with an annual growth rate of 23.05%. The average age of the documents is 5.38 years, indicating a focus on recent developments in the field. On average, each document has been cited 35.69 times. In terms of authorship, there are 5,029 authors, with 200 single-authored documents, suggesting that the majority of publications are collaborative. The average number of co-authors per document is 2.94, and 36.84% of articles involve international co-authorships, highlighting a significant degree of global collaboration. Regarding document types, the majority of the articles (2,136) are journal articles, followed by book chapters (43) and early access articles (121), suggesting that journals remain the primary medium for disseminating research in this field.

TABLE 2. Background information

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2004:2024
Sources (Journals, Books, etc)	590
Documents	2427
Annual Growth Rate %	23.05
Document Average Age	5.38
Average citations per doc	35.69
References	0
DOCUMENT CONTENTS	
Keywords Plus (ID)	3156
Author's Keywords (DE)	5207
AUTHORS	
Authors	5029
Authors of single-authored docs	200
AUTHORS COLLABORATION	
Single-authored docs	221
Co-Authors per Doc	2.94
International co-authorships %	36.84
DOCUMENT TYPES	
article	2136
article; book	1
article; book chapter	43
article; early access	121
article; proceedings paper	13
review	107
review; book chapter	2
review; early access	4

PUBLICATION OUTPUTS

Over the past two decades, research on the UET has gained significant momentum, with a total of 2,136 articles and 107 review papers published in the Web of Science Core Collection. Figure 2 illustrates the growth in both publications and citations related to UET over a span of two decades, from 2004 to 2024. As shown in the figure, there has been a significant increase in the number of publications in this area, with notable jumps occurring around 2014 and beyond, culminating in 2024 with 443 publications. Simultaneously, citations have grown exponentially, mirroring the increasing volume of publications. Citations remain relatively modest in the early years but begin to spike notably after 2016, reflecting growing scholarly attention to UET. In 2024, the total citations reached an impressive 18,000, underscoring the substantial academic impact and influence of the research on UET.

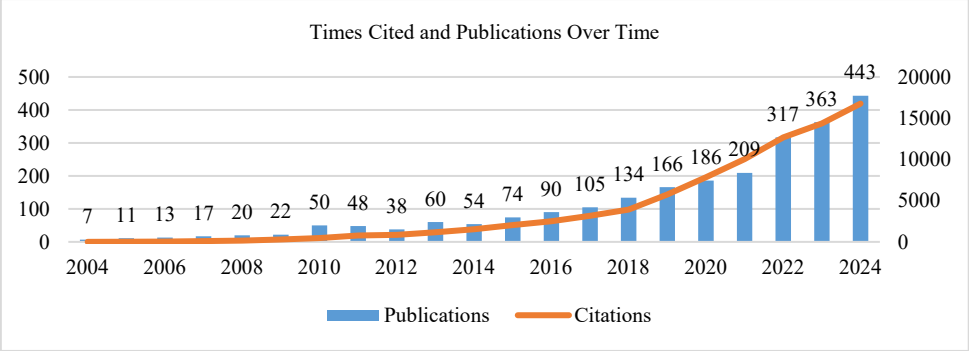

FIGURE 2. Total publications and citations by year

The information presented in Table 3 reveals a clear upward trajectory in the number of publications related to Upper Echelon Theory (UET) from 2004 to 2024. However, a closer examination of the total citations per article (TC/Article) indicates a notable decline over time. In 2004, each article received an average of 305.57 citations, while by 2024, this figure had dropped dramatically to 2.72. This decline may be attributed to the increasing volume of UET-related literature, which could have led to a dispersion of citations across a larger pool of articles, thus reducing the citation impact of individual papers. Furthermore, total citations per year (TC/Year) follow a similar pattern, peaking in the early years (2011–2015) and gradually decreasing in subsequent years. The decrease in citation impact could also be linked to the lag effect in citation accumulation for newer publications, which may not yet have had sufficient time to gain recognition in the field. The number of citable years has also been on the decline, with the most recent years showing fewer citable publications, further highlighting the shift in citation patterns as the field matures.

TABLE 3. Annual publication trend

Year	N	TC/Article	TC/Year	Citable Years
2004	7	305.57	13.89	22
2005	11	134.73	6.42	21
2006	13	196.00	9.80	20
2007	17	195.88	10.31	19
2008	20	189.45	10.52	18
2009	22	126.36	7.43	17
2010	50	127.06	7.94	16
2011	48	72.21	4.81	15
2012	38	91.45	6.53	14
2013	60	95.28	7.33	13
2014	54	65.17	5.43	12
2015	74	85.03	7.73	11
2016	90	64.12	6.41	10
2017	105	46.71	5.19	9
2018	134	39.40	4.92	8
2019	166	37.17	5.31	7
2020	186	33.32	5.55	6
2021	209	21.28	4.26	5
2022	317	13.86	3.46	4
2023	363	9.29	3.10	3
2024	443	2.72	1.36	2

Note: N=number; TC/Art: total citations per article; TC/Y: total citation per year.

ANALYSIS OF AUTHORS

Table 4 presents the most influential authors in the field of UET, highlighting their productivity and academic impact. Hambrick, Donald C. is the most prolific, with 14 publications and a total of 4397 citations, resulting in an average of 308.726 citations per year. This high citation count underscores his significant academic influence in the field, supported by a strong h-index of 45. Heyden, Mariano L. M. follows with 13 publications and 786 total citations, averaging 109.932 citations per year, indicating his steady contribution to the field. Adomako, Samuel has 12 publications, accumulating 283 citations, with an average of 50.272 citations per year, reflecting a moderate impact compared to the top two authors. Among the other top authors, Tang, Yi stands out with 1536 citations, showing a robust influence despite having 11 publications. Other authors, such as Seoki Lee and Zeki Simsek (USA), have fewer publications but high citation totals, reflecting their influence within the field. This data illustrates the prominent role of scholars from the USA in UET research, with notable contributions from authors in Australia, the UK, and China.

TABLE 4. Top 10 authors contributed to the publications on upper echelon theory

Row Labels	Country	TP	TC	h-index	TC/Y
Hambrick, Donald C.	USA	14	4397	76	308.726
Heyden, Mariano L. M.	AUSTRALIA	13	786	16	109.932
Adomako, Samuel	UK	12	283	32	50.272
Agnihotri, Arpita	USA	11	152	14	21.781

Tang, Yi	CHINA	11	1536	11	147.879
Volberda, Henk W.	USA	11	885	53	87.018
Bhattacharya, Saurabh	UK	10	148	10	21.448
Hill, Aaron D.	USA	10	712	21	65.276
Lee, Seoki	USA	9	130	37	22
Simsek, Zeki	USA	9	1072	30	89.406

Note: TP=total publications; TC=total citations; TC/Y: total citation per year.

ANALYSIS BY INSTITUTIONS

Table 5, examining the institutions that have contributed to the UET literature between 2004 and 2024, reveals a notable concentration of academic output from universities in the United States. Pennsylvania Commonwealth System of Higher Education (PCSHE) stands out with the highest number of total publications (TP = 73) and total citations (TC = 7021), demonstrating both a significant scholarly output and a broad academic impact within the field. Similarly, State University System of Florida show considerable academic output and influence, further consolidating the role of U.S. institutions in this research area. The year of publication analysis also shows that research on UET began early at several U.S. institutions, started contributing around 2004.

TABLE 5. Top 5 publishing institutions according to publications

Institution	Country	TP	TC	C/P	H-index	Pub. Year Start
Pennsylvania Commonwealth System of Higher Education (PCSHE)	USA	73	7021	96.18	29	2004
State University System of Florida	USA	61	2585	42.38	22	2004
University of Texas System	USA	53	2858	53.92	24	2005
University System of Georgia	USA	48	4674	97.38	26	2006
Texas A&M University System	USA	44	3,178	72.23	25	2004

Note: TP=total publications; TC=total citations; C/P=average citations per publication; Pub. Year Start=publication year start.

Figure 3 illustrates a significant increase in research output on UET from 2004 to 2022, with notable contributions from several major university systems. Pennsylvania Commonwealth System of Higher Education (orange line) exhibits the most substantial growth, particularly from 2015 onward, establishing itself as a leader in this field. Similarly, the State University System of Florida (green line) and the University of Texas System (blue line) demonstrate strong upward trends after 2021, indicating intensified research efforts. These trends suggest a growing academic focus on the theory, driven by key research hubs, particularly in the United States, which have significantly influenced its evolution over the past two decades.

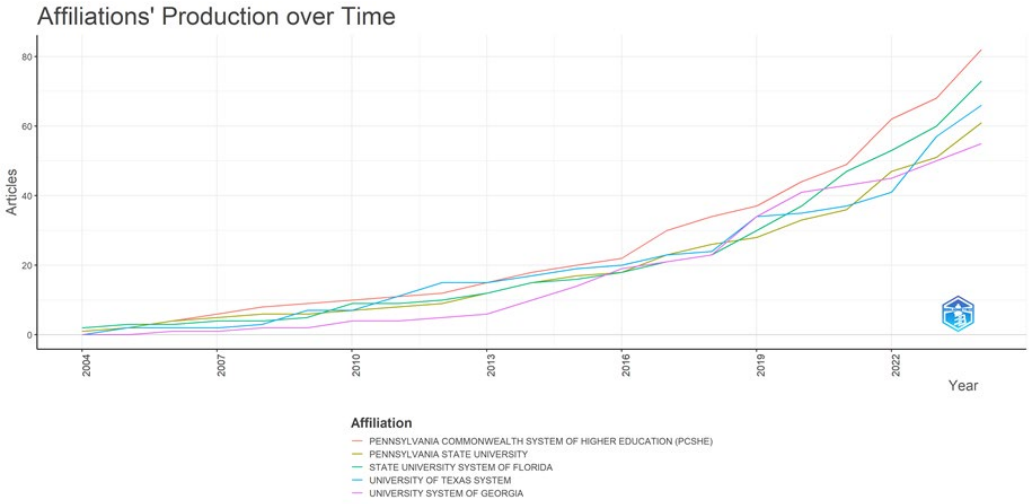

FIGURE 3. Affiliations' production over time

ANALYSIS BY COUNTRIES

Table 6 presents the distribution of articles by country, showcasing the number of articles, their percentage contribution to the total, as well as the breakdown into single-country publications (SCP) and multi-country publications (MCP). The USA leads with 614 articles, accounting for 25.3% of the total publications, followed closely by China with 538 articles, or 22.1%. The USA's contributions are heavily weighted towards single-country publications, with 467 SCPs (76% of its total), while China demonstrates a higher proportion of international collaborations, with 169 MCPs (31.4% of its total). Other notable contributors include the United Kingdom, Germany and Spain. The map (Figure 4) illustrates the geographic distribution of scientific production, with darker shades of blue indicating higher levels of output. This reinforces the dominance of the USA and China.

TABLE 6. Top 10 Countries contributed to the publications

Country	TP	TP %	SCP	MCP
USA	614	25.3	467	147
CHINA	538	22.1	369	169
UNITED KINGDOM	127	5.2	53	74
GERMANY	122	5	78	44
SPAIN	97	4	58	39
AUSTRALIA	67	2.7	23	44
ITALY	64	2.6	41	23
CANADA	53	2.2	22	31
KOREA	52	2.1	30	22
INDONESIA	45	1.9	39	6

Note: TP=total publications; SCP=single country publications; MCP=multiple country publications.

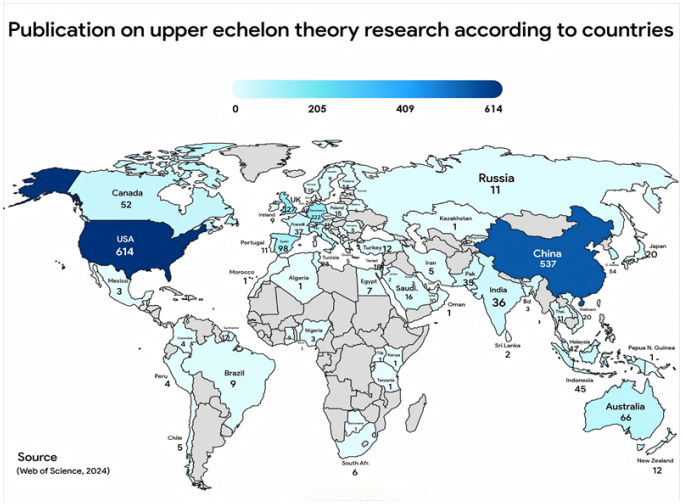

FIGURE 4. Worldwide scientific production indexed by Web of Science on upper echelon theory.
Generated using iipmaps.com/

The country collaboration network (Figure 5) further emphasizes the central roles of the USA and China in UET research. These two countries form the core of a wide-reaching network, with numerous collaborations spanning across Europe, Asia, and Oceania. The network visualization for the period 2018-2022 (Figure 6) highlights a growing trend of international collaboration, the USA engaged in a significant amount of collaborative research earlier (around 2018 and 2019, indicated by the darker blue color), while China saw a noticeable increase in collaboration in 2022 (shown by the yellow color). These visualizations highlight the USA and China as key players in UET research, with an increasing trend of global cooperation and a diversified range of contributors in the field.

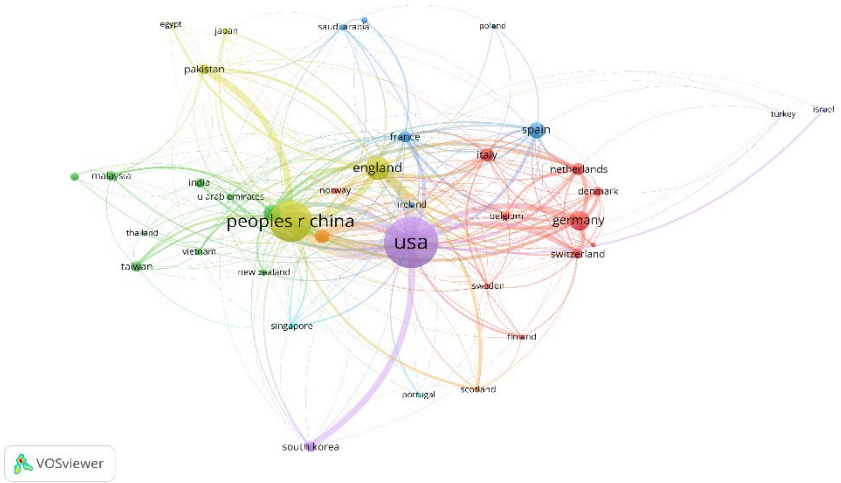

FIGURE 5. Network visualization map of the countries' collaboration.

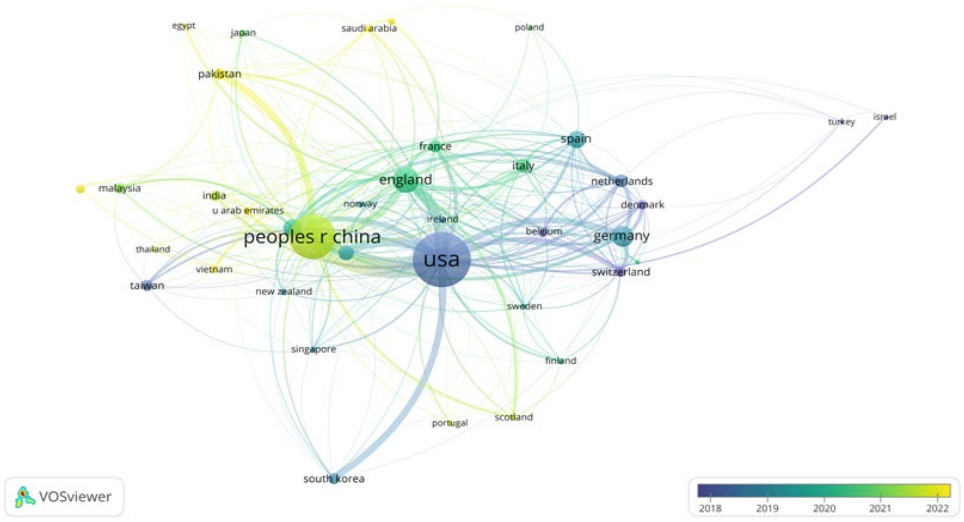

FIGURE 6. Overlay visualization map of the countries' collaboration.

ANALYSIS BY SOURCES

Table 7 provides an overview of the key academic journals contributing to the research on UET. Strategic Management Journal stands out with 81 publications, 10,995 total citations, and an h-index of 56, making it the most influential source in this field. Journal of Business Research follows closely with 76 publications and 3,049 citations and also has a relatively high h-index of 32. Both journals are firmly established as central to UET research, with substantial citation impacts. Sustainability (69 publications, 918 citations) and Journal of Management (63 publications, 6,700 citations) also play significant roles, although they emerged more recently in this field. Notably, Sustainability began publishing UET articles only in 2017, reflecting the growing interdisciplinary interest in the theory, especially in relation to sustainability, ESG, Corporate Social Responsibility and organizational studies. The h-index and g-index values across these journals reflect their scholarly influence, and all the listed journals fall under Zone 1, indicating the credibility and importance of these sources in advancing the theoretical and empirical development of UET.

The results from analysis of the sources show obvious absence of UET research in digital transformation, technology, and innovation journals. This suggests substantial potential for methodological advancement and theoretical expansion into digital governance and AI-augmented decision-making domains (Bevilacqua et al. 2025). The Fourth Industrial Revolution has fundamentally transformed the executive decision-making landscape, top executives now operate in environments characterized by real-time data analytics, algorithmic decision support systems, and AI-powered strategic recommendations (Pinski et al. 2024). This technological revolution has created new dimensions of executive cognition and decision-making that extend far beyond the traditional demographic and psychological characteristics emphasized in classical UET research. For instance, executives' digital fluency, algorithmic literacy, and data interpretation capabilities have emerged as critical upper echelon characteristics that significantly influence organizational outcomes (Xu & Zhang 2023).

TABLE 7. Top 10 Journals contributed to the publications

Source	TP	TC	h	g	Pub. Year Start	Zone
Strategic Management Journal	81	10995	56	81	2004	Zone 1
Journal of Business Research	76	3049	32	54	2005	Zone 1
Sustainability	69	918	17	27	2017	Zone 1
Journal of Management	63	6700	35	63	2004	Zone 1
Journal of Business Ethics	47	2866	25	47	2004	Zone 1
Academy of Management Journal	39	9088	34	39	2005	Zone 1
Corporate Social Responsibility and Environmental Management	37	1411	20	37	2013	Zone 1
Long Range Planning	37	1054	17	32	2010	Zone 1
Leadership Quarterly	34	2165	23	34	2004	Zone 1
Journal of Management Studies	32	2068	18	32	2006	Zone 1

Note: TP=total publications; TC=total citations; h=h-index; g=g-index; Pub. Year Start=publication year start.

Figure 7 illustrates a consistent upward trend in the publication output of journals contributing to UET, with Strategic Management Journal (purple line) maintaining a dominant position throughout. A significant surge in publications is evident starting around 2016, signaling a marked increase in scholarly interest in the theory. This rise is particularly pronounced in journals such as Strategic Management Journal (purple line), Long Range Planning (light-blue line), and Journal of Business Research (grass-green line), highlighting the theory's expanding interdisciplinary appeal. However, after 2023, the pace of growth begins to slow, indicating a leveling off in publication output. This shift reflects the

maturation of the field, as research on UET transitions from rapid expansion to a steady consolidation of its scholarly contributions.

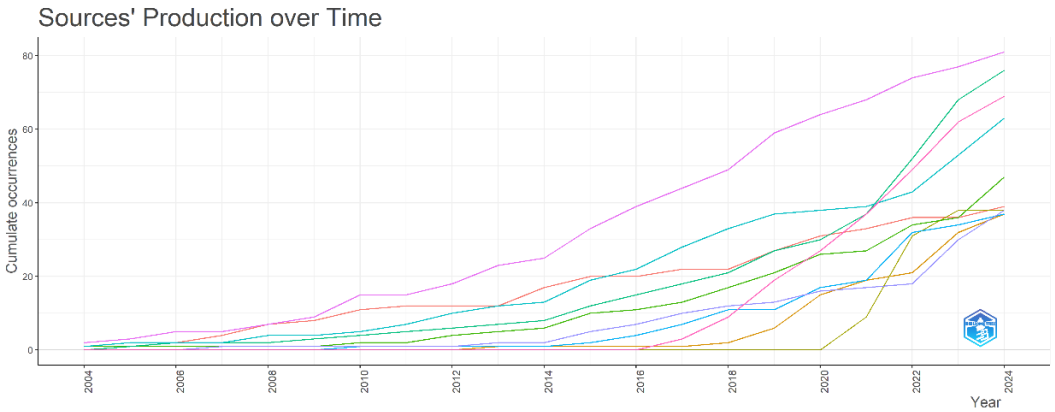

FIGURE 7. Top 10 Sources of production from 2004 to 2024

ANALYSIS BY ARTICLES

Table 8 presents key highly-cited articles in the field of UET, illustrating the foundational research that has shaped the discourse from 2004 to 2024. Carpenter et al.'s (2004) article, "Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition," stands as the most cited with 1,354 citations. This article reviews the literature on top management team (TMT) composition and extends UET. It argues that observable characteristics of TMT members (such as age, education) reflect their underlying cognitive biases and values, which ultimately influence strategic decisions and organizational performance. Other influential works include Chatterjee and Hambrick's (2007) article on CEO narcissism, which has been cited 1,233 times, which explores the effects of narcissistic CEOs on company strategy and performance, further deepening the understanding of leadership behavior in organizations. As the field has progressed, newer research, such as Petrenko et al.'s (2016) study on CSR motivations, has also gained traction, with 598 citations, indicating the increasing integration of social responsibility considerations within the Upper Echelon framework. This body of highly-cited work demonstrates how UET has expanded its scope from team composition to include individual traits and their broader organizational and societal impacts.

TABLE 8. Top 10 highly cited documents

Author(s)	Title	Source Title	TC	C/Y	DOI
Carpenter, M. A., Geletkanycz, M.A. & Sanders, W.G. (2004a)	Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition	Journal of Management	1354	61.55	10.1016/j.jm.2004.06.001
Chatterjee, A. & Hambrick, D. C. (2007)	It's all about me: Narcissistic chief executive officers and their effects on company strategy and performance	Administrative Science Quarterly	1233	64.89	10.2189/asqu.52.3.351
Post, C. & Byron, K. (2015)	Women on boards and firm financial performance: A meta-analysis	Academy of Management Journal	972	88.36	10.5465/amj.2013.0319
Joshi, A. & Roh, H. (2009)	The role of context in work team diversity research: A meta-analytic review	Academy of Management Journal	849	49.94	10.5465/AMJ.2009.41331491
Dezsö, C.L. & Ross, D.G. (2012)	Does female representation in top management improve firm performance? A panel data investigation	Strategic Management Journal	779	55.64	10.1002/smj.1955
Hitt, M.A., Beamish, P.W., Jackson, S.E. & Mathieu, J.E. (2007)	Building theoretical and empirical bridges across levels: Multilevel research in management	Academy of Management Journal	738	38.84	10.5465/AMJ.2007.28166219
Li, J. & Tang, Y.I. (2010)	CEO hubris and firm risk taking in China: The moderating role of managerial discretion	Academy of Management Journal	723	45.19	10.5465/AMJ.2010.48036912
Chin, M.K., Hambrick, D. C. & Treviño, L.K. (2013)	Political ideologies of CEOs: The influence of executives' values on corporate social responsibility	Administrative Science Quarterly	710	54.62	10.1177/0001839213486984
Bamber, L.S., Jiang, J. & Wang, I.Y. (2010)	What's my style? The influence of top managers on voluntary corporate financial disclosure	The Accounting Review	648	40.5	10.2308/accr.2010.85.4.1131
Petrenko, O.V., Aime, F., Ridge, J. & Hill, A. (2016)	Corporate social responsibility or CEO narcissism? CSR motivations and organizational performance	Strategic Management Journal	598	59.8	10.1002/smj.2348

Note: TP=total publications; TC=total citations.

ANALYSIS BY CO-AUTHORSHIP

For the analysis of collaboration between authors on UET, authors with at least five publications were included, resulting in 114 authors meeting the threshold. The analysis identifies six distinct clusters of researchers, with only a few central

authors connecting the clusters as shown in Figure 8. Cluster 1 is the largest, comprising six authors, including Cannella Albert A. Jr., McNamara Gerry, and Devers Cynthia E. Cluster 2 contains five authors, including Chen Guoli and Tang Yi. Cluster 3 includes four authors, such as Boivie Steven, Harrison Joseph S., and Withers Michael C. Cluster 4 consists of three authors: Gupta Abhinav, Mannor Michael J., and Wowak Adam J. Cluster 5 also includes three authors, including Hambrick Donald C., Chin M. K., and Graf-Vlachy Lorenz. Cluster 6 includes Kashmiri Saim, Krause Ryan, and Whitler Kimberly A. Existing research within UET covers several key areas, including the theory's development, its global application, the impact of executive behavior on organizational outcomes, CEO decision-making processes, and the strategic implications of CEO personality traits. These clusters underscore the collaborative and interdisciplinary nature of the field's ongoing evolution.

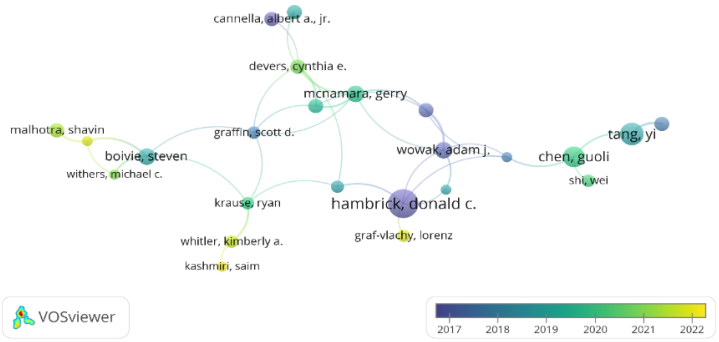

FIGURE 8. Overlay visualization map of author co-author network

ANALYSIS OF KEYWORDS AND TREND TOPICS

In the co-occurrence analysis of UET from 2004 to 2024, we analyzed 5,275 author keywords. Among these, 325 (6.16%) were used five times, 118 keywords (2.24%) were used ten times, and 67 (1.27%) were used fifteen times. Additionally, we enabled the overlay visualization mode in VOSviewer and set the minimum occurrences of a keyword to 20. After relabeling synonymous single words and congeneric phrases for mapping, 40 keywords met the condition of having a minimum of 20 occurrences. As shown in Figure 9, these author keywords were grouped into five distinct clusters, each reflecting a unique dimension of UET research. The following analysis examined the five clusters, highlighting their key themes and their relationship to the broader development of UET.

The largest cluster, represented by the red cluster, contains 13 keywords and is centered around individual executive characteristics and their impact on organizational performance. Keywords such as "CEO age," "CEO overconfidence," "narcissism," "CEO power," and "CEO tenure" are central to this cluster, reflecting the foundational research of UET, which reveals a strong emphasis on CEO-specific attributes like age, overconfidence, power, and tenure. This cluster also includes terms like "entrepreneurial orientation," "family firms," "firm performance," and "human capital," pointing to an expanding interest in how executive characteristics interact with organizational factors such as business strategy, performance, and human resource management. The presence of terms like "internationalization" and "strategic change" suggests a research interest in how CEO characteristics influence major organizational decisions and outcomes. The inclusion of "family firms" and "SMEs" indicates attention to how upper echelon effects manifest in different organizational contexts.

The second largest cluster, represented by the green cluster, contains 11 keywords and focuses on corporate governance, social responsibility, and sustainability. Keywords such as "agency theory," "corporate governance," "corporate social responsibility," "green innovation," and "sustainability" reveal a shift in UET research toward understanding how external governance mechanisms and ethical considerations influence executive decision-making. This cluster also includes terms such as "executive compensation," "managerial ability," and "sustainable development," reflecting the growing integration of UET with contemporary issues like environmental sustainability, corporate ethics, and the role of boards in shaping strategic decisions. The presence of "China" as a keyword suggests significant research attention to these relationships in the Chinese context. The connection between "executive compensation" and "environmental performance" indicates a growing research interest in how leadership incentives affect sustainable business practices.

The third largest cluster, represented by the blue cluster, contains 8 keywords and centers on board-level characteristics and their relationship with organizational innovation and performance. The co-occurrence of "board diversity," "board of directors," "diversity," "gender," and "leadership" emphasizes the increasing focus on how diversity within top management teams and boards influences decision-making processes. The inclusion of terms like "entrepreneurship," "financial performance," and "innovation" suggests that UET is evolving to consider how diverse perspectives at the top of organizations contribute to strategic decision-making and innovation outcomes.

The fourth cluster, represented by the yellow cluster, with 5 keywords, centers on strategic leadership and organizational performance. Keywords such as "CEO," "managerial discretion," "organizational performance," "strategic

leadership," and "top management team" indicate a continued focus on the role of leadership in shaping organizational outcomes. This cluster highlights the importance of understanding how executive decision-making at the highest levels influences strategic direction, organizational performance, and long-term success. It also reflects the sustained relevance of UET in examining the connection between leadership and organizational strategy.

Cluster 5 is the most concentrated cluster, represented by the purple cluster, with 3 keywords, specifically linking "CEO characteristics" to financial reporting behavior through the lens of UET. The inclusion of "earnings management" suggests a research focus on how executive characteristics influence financial reporting quality and discretionary accounting choices.

In summary, the analysis of author keyword co-occurrence reveals five major clusters in the field of UET: CEO and Organizational Characteristics, Corporate Governance and Sustainability, Board Composition and Innovation, Strategic Leadership, and CEO Characteristics and Financial Outcomes, which helps answer the RQ4. While each cluster represents a well-defined research stream, there remain opportunities for greater integration across these themes, particularly in understanding how executive characteristics simultaneously influence multiple organizational outcomes. The largest cluster's focus on CEO characteristics and their organizational impact demonstrates the field's continued adherence to its theoretical foundations, while the emergence of sustainability and governance themes in the second largest cluster reflects the theory's adaptation to contemporary business challenges. Overall, the UET would benefit from more comprehensive studies that bridge these distinct areas, especially in examining how executive characteristics interact with governance mechanisms to influence both financial and non-financial outcomes of the organization. Additionally, while the presence of U.S.- and China-specific research is notable, there is still a need for more cross-cultural studies that examine how the UET theory works across different institutional contexts and economic systems.

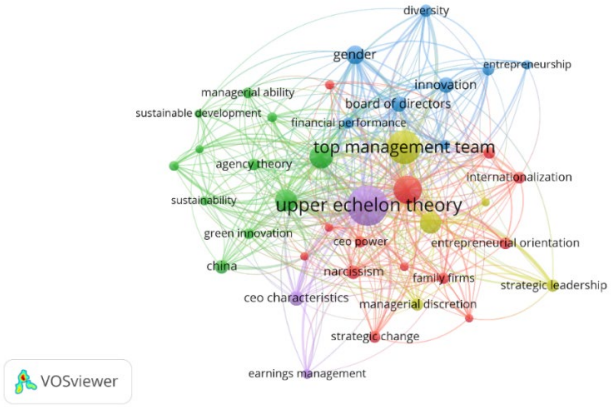

FIGURE 9. Network visualization map of author keywords' co-occurrence

Figure 10, the overlay visualization map, reveals the temporal evolution of research themes in UET from 2019 to 2024. The color gradient, ranging from purple (earlier) to yellow (more recent), illustrates how research focus has shifted over time. Earlier studies (represented in purple and blue) centered on traditional themes such as the board of directors, top management team, and entrepreneurship. Figure 10 also shows a clear transition toward sustainability-related topics in recent years (shown in green and yellow), including green innovation, sustainable development, and managerial ability. The Chinese context (indicated by the "China" node in green) has emerged as a significant research setting in recent years, suggesting increasing attention to how upper echelon effects manifest in different institutional environments. The map also reveals stronger interconnections between corporate governance mechanisms and sustainability themes in recent years, indicating an integration of traditional upper echelon research with contemporary business challenges.

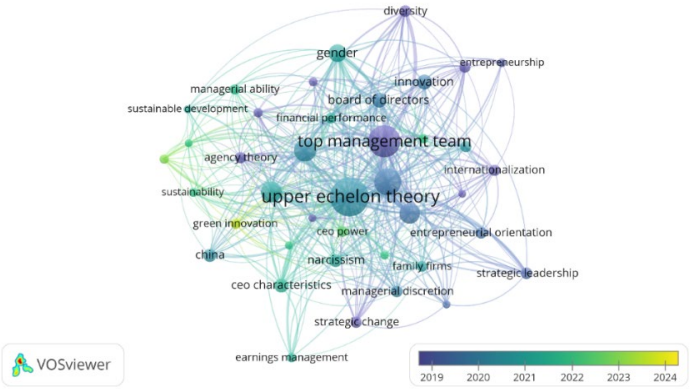

FIGURE 10. Overlay visualization map of author keywords according to year

Figure 11 presents the trend in key research topics related to upper echelon theory from 2010 to 2024. The data visualizes the shifting focus and popularity of various research terms within this domain over the past fourteen years.

At the early stage, terms such as "chief executives" and "senior management" had significant representation, indicating that the focus was primarily on top leaders and their influence on organizational outcomes. This suggests that early applications of UET were heavily concerned with the direct role of individual executives in shaping corporate strategies and performance. As we move through the years, the frequency of terms like "managerial ability," "organizational performance," and "strategic decision making" began to increase, particularly around the mid-2010s. This signals a broadening of the research focus, incorporating more nuanced aspects of executive decision-making and how it influences firm performance, rather than simply attributing organizational outcomes to individual leaders alone. Furthermore, the rise in terms such as "executive compensation" and "top management teams" hints at a growing interest in the structural and incentive-related elements of upper echelons, showing an expansion in the application of UET to various organizational dynamics beyond just individual leadership traits. The rapid increase in the frequency of terms like "ESG" (Environmental, Social, and Governance), "innovation," and "firm performance" in recent years suggests the adaptation of UET to contemporary organizational challenges, where sustainability and innovation are becoming crucial areas of concern. The frequency of terms associated with organizational structure and broader strategic decisions also reveals a shift towards understanding how the upper echelons, as a collective body, influence broader corporate strategies that align with modern global trends.

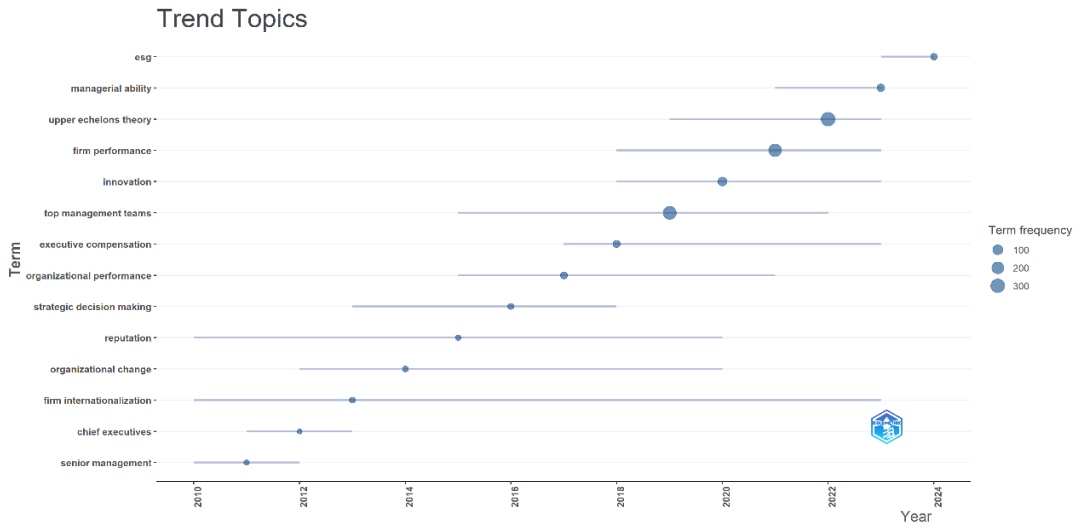

FIGURE 11. Trend topics of upper echelon theory

The word cloud visualization (Figure 12) reveals the multiple dimensions related to UET research. "Upper echelons theory" and "top management teams" represent the central theoretical pillars, while "firm performance" and "corporate governance" represent key outcome variables and institutional contexts respectively. The visualization demonstrates the theory's multi-level nature: at the individual level, terms like "CEO characteristics" and "managerial discretion" reflect executive-focused analyses; at the organizational level, concepts such as "strategic change" and "innovation" indicate broader institutional outcomes. The prominence of contemporary themes including "CSR," "gender diversity," and "board of directors" suggests the theory's evolution toward incorporating modern governance challenges and societal expectations. Furthermore, the presence of terms like "entrepreneurial orientation" and "strategic leadership" indicates the field's engagement with dynamic organizational processes. The size and color variations of the word cloud reflect the importance or relevance of different words in the subject matter, thus underscoring the central role of upper-echelon theory for understanding the relationship between executive characteristics and organizational phenomena.

FIGURE 12. Word cloud of upper echelon theory.

Figure 13 shows the evolution of research hot spots in the past two decades. In the early period (2004-2010), research primarily centered on fundamental concepts and key actors. Scholars focused intensively on chief executives and top management teams, with top management teams generating particularly strong citation activity (burst strength of 10.31) during 2009-2018. This strong burst suggests that researchers were deeply interested in understanding how executive teams, rather than just individual CEOs, influence organizational outcomes. The field then entered a period of theoretical enrichment (2010-2015). During this time, researchers began integrating complementary theoretical perspectives to deepen our understanding. Agency theory (burst strength 3.17) helped explain executive-stakeholder relationships, while attention to boards of directors (2.88) and CEO succession (2.69) reflected the growing interest in governance mechanisms and leadership transitions. A significant transformation occurred around 2015-2019, when the field began exploring more dynamic and behavioral dimensions. Research interest shifted toward understanding how executives shape organizational change through transformational leadership (burst strength 2.92) and entrepreneurial orientation (2.37). Executive compensation (3.89) remained a crucial area of inquiry, reflecting ongoing debates about incentive alignment and executive rewards. The most recent period (2019-2024) marks a decisive turn toward sustainability and stakeholder-oriented research. New citation bursts in stakeholder theory (2.84), environmental dynamism (2.8), and corporate sustainability (3.05) reflect how UET is adapting to address contemporary challenges. This shift suggests that researchers are increasingly interested in understanding how top executives influence their organizations' responses to environmental and social challenges.

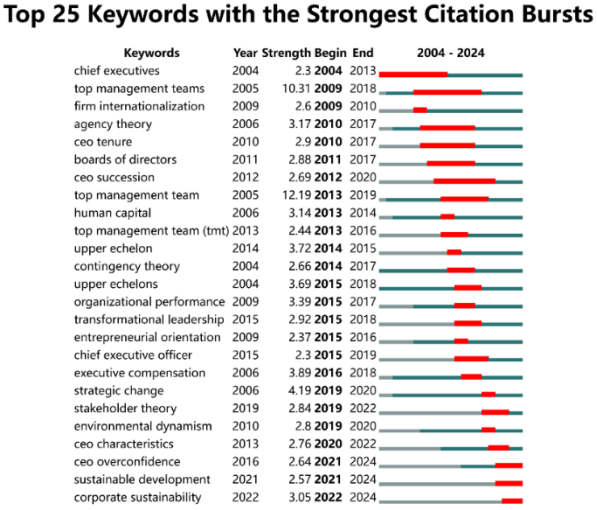

FIGURE 13. Top 25 keywords from 2004 to 2024

Based on the hot keyword analysis, several underexplored areas emerge that warrant further investigation to address RQ5. Digital transformation represents the most significant research gap, with keywords related to artificial intelligence, algorithmic decision-making, and digital governance notably absent despite the Fourth Industrial Revolution's fundamental impact on executive decision-making environments. These underexplored areas represent significant opportunities for future UET research to address contemporary organizational challenges while expanding the theory's explanatory power across diverse contexts and decision-making scenarios.

CONCLUSION

This bibliometric analysis provides a comprehensive overview of the Upper Echelon Theory (UET) literature from 2004 to 2024, revealing significant growth in both research output and citation impact over the past two decades. The results indicate that UET research has expanded rapidly, particularly after 2014 with a notable acceleration in publications following 2021. Key contributing countries, particularly the United States and China have led the development of UET, with top authors like Donald Hambrick and Mariano Heyden at the forefront of this scholarly progression. The study also highlights the pivotal role of leading institutions in driving UET research, with U.S. universities contributing the most in terms of volume and academic influence.

The study identifies several major research themes, including the influence of CEO characteristics, top management team dynamics, and organizational performance, alongside emerging interests in sustainability, corporate governance, and innovation. The increasing intersection of UET with contemporary business challenges such as green innovation, environmental sustainability and corporate social responsibility reflects a broader shift in organizational thinking. These trends suggest that UET is evolving to address complex, multi-dimensional organizational problems. Moreover, the study reveals a growing trend toward international collaboration, with an expanding network of scholars contributing to UET research across different geographic regions. This global discourse reflects the widespread relevance of UET, as research has moved beyond individual-level executive characteristics to encompass broader organizational and environmental

factors. The study also underscores the importance of key emerging trends, including the increasing focus on sustainability and innovation, which are reshaping the theoretical landscape of UET.

The findings contribute to Upper Echelon Theory in several important ways. Theoretically, our findings reveal UET's evolution from a focus on individual executive characteristics to a more comprehensive framework incorporating sustainability, governance, and stakeholder perspectives. The identification of five distinct research clusters demonstrates the theory's theoretical maturation and diversification, while the temporal analysis reveals how UET has adapted to contemporary organizational challenges, particularly the integration with ESG and sustainability. Practically, these findings offer valuable insights for organizational leaders and policymakers. The prominence of sustainability and governance themes in recent research indicates that executives must increasingly consider environmental and social factors in their decision-making processes, especially international collaboration patterns. For practitioners, the research trends highlight the importance of developing diverse leadership teams, implementing robust governance mechanisms, and integrating sustainability considerations into strategic planning. Additionally, the identified research gaps in digital transformation present opportunities for scholars and organizations to pioneer new approaches to AI-augmented executive decision-making and digital governance frameworks.

However, this study has several limitations, particularly in the scope of data sources. The analysis was limited to the Web of Science Core Collection, and publications indexed after 2024 were excluded. Additionally, the study only considered publications written in English, which may exclude valuable insights from non-English literature, although the number of non-English publications was very small. Furthermore, only articles and article reviews were included in the analysis, excluding other document types. While these limitations are acknowledged, they do not significantly affect the study's conclusions.

In light of these findings, future research on UET should focus on several key areas. On one hand, the emergence of sustainability themes in recent years indicates continued potential for integrating UET with ESG factors, green innovation, and stakeholder capitalism frameworks. On the other hand, digital transformation still represents the most significant future direction with keywords related to artificial intelligence, algorithmic decision-making, and digital governance notably absent despite the Fourth Industrial Revolution's fundamental impact on executive decision-making environments. As noted in the journal analysis, the absence of UET research in technology and innovation journals suggests substantial potential for examining how executives' digital fluency, algorithmic literacy, and data interpretation capabilities influence organizational outcomes in AI-augmented decision-making contexts.

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