



Islamic Azad University  
Science and Research  
Branch  
Faculty of Management and  
Economics

**International Journal of Finance,  
Accounting and Economics Studies**  
Journal homepage: <https://ijfaes.srbiau.ac.ir>



## Analyzing and Drawing the Co-word Map of Competitive Intelligence in First-Level Technical Universities of Tehran

Mandana Yavari <sup>1</sup>, Parivash Jafari <sup>2\*</sup>, Nadergholi Ghourchian <sup>3</sup>

<sup>1</sup> PhD student in Higher Education Management, Department of Higher Education Management, Science and Research Branch, Islamic Azad University, Tehran, Iran [m\\_yavari@alborz.kntu.ac.ir](mailto:m_yavari@alborz.kntu.ac.ir)

<sup>2\*</sup> Department of Educational Administration, School of Management and Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran [pjaffari@yahoo.com](mailto:pjaffari@yahoo.com)

<sup>3</sup> professor, Department of Higher Education, Science and Research Branch, Islamic Azad University, Tehran, Iran, [n.ghorchian@srbiau.ac.ir](mailto:n.ghorchian@srbiau.ac.ir)

### Article History

**Submission Date:** 07 January 2023

**Revised Date:** 26 February 2023

**Accepted Date:** 07 March 2023

**Available Online:** April 2023

### JEL Classification:

### Keyword:

University  
Competitive Intelligence  
Co-Wordanalysis  
Scientometrics  
Research Clustering.

### Abstract

In recent years, the academic ecosystem of the country has witnessed extensive changes. The significant and sudden increase in the number of students and focus on degree attainment has led to a tremendous growth of higher education institutions in the country. By accurately understanding the factors emphasized in these studies and applying them to the country's academic environment, we can achieve a better understanding of intellectualism in the university system. Therefore, considering the wealth of studies and research background on competitive intelligence, this research employs scientometric methods and co-word analysis to provide a complete and comprehensive picture in this field. The present study is an applied research, and the data collection method involves content analysis research. The research data was gathered from the Science Direct database covering the years 2015 through the end of 2021. Data analysis was conducted using co-word analysis and the Vosviewer software. The findings of the research revealed a total of 18 keywords, 4 clusters, and 54 links with a strength of 87. The results indicate that the concepts of competitive intelligence, knowledge management, big data, business intelligence, strategic management, organizational learning, social networks, competitive advantage, and optimization are the most frequently used words in this field. Based on the results of the present study, it is suggested that the country's universities establish a foundation for competitive intelligence by adopting a strategic view that incorporates big data analysis and development-focused activities. It should be noted that knowledge management plays an essential role and can guarantee the university's competitive advantage through effective competitive intelligence practices.

\* Corresponding Author: [pjaffari@yahoo.com](mailto:pjaffari@yahoo.com)

## Introduction

Having competitive power is the basis of any organization's survival, and "competitive intelligence" helps organizations make informed decisions about all their affairs. Competitive intelligence is a continuous process that provides useful information to managers (Madureira et al., 2021). The main goal of competitive intelligence is to obtain data and information about the environment, competitors, and the market. Therefore, information about competitors alone is not enough, and there must be enough information about the environment, industry, regulatory laws, technological, political, and economic developments (van den Berg, Coetzee & Mearns 2020).

Competitive intelligence helps managers acquire and analyze the information of their surrounding environment faster and more accurately, store the results usefully, and make them available to the decision-makers and planners of the organization when needed. The unique advantages of competitive intelligence and the strengthening of the internal and external structure of companies have caused the trend towards this constructive intelligence to increase every day (Hassanzadeh et al., 2021).

Competitive intelligence is a technical framework that increases the efficiency of the organization and the integration of processes, ultimately focusing on decision-making processes at different organizational levels. This type of intelligence implies the process of increasing the profitability and performance of the organization in the competitive market by intelligently using the available data in the decision-making process (Feizi and Babaei, 2021). For this reason, in recent years, competitive intelligence has become one of the important concepts of management and has been integrated into the culture of leading organizations. This issue accelerates the process of information

and knowledge exchange within the organization and significantly improves the effectiveness of the collective thinking and decision-making process (Safavi et al., 2021). On the other hand, it collects data and information from a very broad perspective and allows the organization to predict what will happen in the competitive environment. Therefore, instead of a reactive mode, the organization will have an active mode in predicting market development and by improving strategic decisions and marketing effectiveness, it will increase its competitive power (Ranjan and Foropon, 2021).

Universities operate while participating in a competitive local, regional, national, and global market for attracting students. To attract more students and compete effectively against other universities, higher education institutions should properly monitor the actions of their peers and make the necessary predictions in this field. Such monitoring and forecasting depend on the competitive intelligence of senior managers of higher education organizations (Brankovic, 2018).

With the rapid growth in the number of universities and the decrease in the number of applicants, the demand for higher education has significantly decreased. On the other hand, many universities, not benefiting from fixed budgets and government facilities, have faced an economic crisis. From this perspective, competitiveness is a key lever for the survival of universities in the country's higher education system (Shahmohammadi and Kiani, 2018). According to the official announcement of the Sanjesh Organization in 2021, a total of 1,326,006 people participated in the entrance examination, of which 1,082,900 people, i.e., more than 82%, were allowed to choose a field. Of course, it should be kept in mind that about 500,000 people can also be admitted to universities without entrance exams and using different quotas. Also, another

important point is that only 523,671 of the authorized candidates have chosen a field (statistics of the Sanjesh organization, 2021). It means that only 48% of qualified people have continued the admission process in universities. This shows that the number of students continuing their studies is less than the available capacities in the country's universities.

In recent years, the academic ecosystem of the country has witnessed extensive changes. The huge and sudden increase in the number of students and focus on degree orientation in the country has caused significant growth in higher education institutions. These centers have provided infrastructure with the aim of providing profit in addition to education. However, with the decline in the young population and lack of interest in university degrees in recent years, many of these institutions have faced the risk of bankruptcy and elimination. Success and survival in this field have become a fierce and real struggle among the country's universities. The key to success in such intense competition depends on making the right decisions against the moves of competitors. The knowledge-oriented nature of universities is another factor that has caused intelligence to be considered an essential element in competition. Since there have been many studies in the field of competitive intelligence, it seems that a better understanding of competitive intelligence in the university system can be achieved by correctly understanding the factors emphasized in these studies and generalizing them to the academic environment of the country. Of course, it should not be overlooked that the large volume of studies and research conducted makes it difficult to review and analyze all these studies. Therefore, new methods should be used to monitor the existing studies. One of the new analytical methods that have provided many possibilities for examining large scientific databases is co-

word analysis. By using this method, the underlying factors of the investigated phenomenon can be identified systematically and effectively. Therefore, in the present study, the basic factors of competitive intelligence in the higher education system will be identified using co-word analysis."

### **Competitive Intelligence**

The text contains some grammatical errors and inconsistencies. I'll correct them while maintaining the original meaning:

The first article in the field of "competitive intelligence" was recorded by Gelb et al. (1991). Of course, they adapted this concept from Prescott's (1989) study, which was presented at a conference. It seems that the main root of this concept comes from the "intelligence of competitors" which was proposed by Fuld (1985). There are several definitions of competitive intelligence. One of the most comprehensive definitions is provided by "Benjamin Gilad," a renowned expert in this field. According to Gilad (2001), competitive intelligence is all the knowledge that a company has about the environment in which it competes, and it results from analyzing countless pieces of information that bombard the company every day. In one definition, competitive intelligence is described as gathering, storing, and analyzing information from competitors, the environment, and customers to gain a competitive advantage. In another definition, competitive intelligence is defined as targeted monitoring of the competitive environment in which organizations operate and compete, with the aim of making strategic decisions to gain a competitive advantage (Tarokh, 2019). Competitive intelligence is a systematic and ethical program to collect, analyze, and manage external information of the organization that affects the company's plans, decisions, and operations (Markovich et al., 2019). Unlike mental and

emotional intelligence, competitive intelligence focuses on monitoring the competitive environment, and its goal is to create an operational intelligence that provides a competitive edge for the company. Competitive intelligence is a crucial tool for strategic planning and management processes. It forms the basis for collecting and processing information related to environmental factors, and it also integrates with the paradigm of information processing theory. Additionally, competitive intelligence gathers data and information from a broad perspective, allowing the company to predict what will happen in the competitive environment (Lopez et al., 2020).

In recent years, competitive intelligence has become an important concept in management and has been integrated into the culture of leading organizations. Increasing competitive intelligence enables organizations to analyze information about their surroundings faster and more accurately, store the results effectively, and make them available to decision-makers at the appropriate times. This accelerates the flow of information and knowledge exchange within the organization, significantly improving the effectiveness of collective thinking and decision-making processes (Shapira, 2021). Competitive intelligence shifts the organization from a reactive mode to an active mode in predicting market development, allowing it to maintain its competitive power by making better strategic decisions. Marketing effectiveness, which emphasizes how a company can enter the market to improve its marketing power and achieve better short and long-term results, is also related to competitive intelligence (Amarouche et al., 2015). The importance of competitive intelligence for organizations is widely accepted globally, and nowadays, using this tool has become a necessity. However, the comprehensive and complex implementation of competitive

intelligence in a company depends on the desired benefits of that company, including improving the quality of information, enabling quick decision-making, systematically improving organizational processes, enhancing organizational efficiency, reducing costs, promoting information sharing, saving time, and quickly detecting threats and opportunities (Naseri et al., 2018). By developing a better understanding of competitors and the challenging competitive environment, executive managers can analyze information about competitors' capabilities, strengths, weaknesses, and intentions, and then choose appropriate strategies. An intelligent organization can predict competitors' strategies better and faster, learning from their successes and failures. It enables senior managers to systematically assess the competitiveness of the organization, thereby making better-informed strategic decisions. In this context, this study aims to gather all the existing studies in the field of competitive intelligence through a systematic review method, resulting in 434 scientific articles. The collected articles' general information and the research conducted in the field of competitive intelligence have been analyzed using the co-word analysis method.

### **Co-word analysis**

Co-occurrence analysis of words was first developed in the 1980s through the collaboration of two scientific and research centers in France. In 1986, Calvin and his colleagues published a book titled "Mapping the Dynamics of Science and Technology," which is considered an outstanding work in the field of co-word analysis. Since then, the co-word analysis method has received considerable attention in various research areas, and many researchers have used this method to draw conceptual networks in various scientific fields (Hazeri et al., 2015). In Persian, synonyms are conceptually equivalent to

co-word or co-occurrence. Co-word analysis is based on the co-occurrence of words and is classified as a content analysis method within the category of scientometric methods. Co-word analysis is sometimes considered as a substitute for co-citation analysis. It is an example of a graphical modeling method that employs relationship analysis of ideas. This method serves as a powerful tool in discovering knowledge and drawing bibliographic maps (Ahmadi and Assar, 2016).

Over the past fourteen decades, research in the field of information science and epistemology has experienced exponential growth. This growth has occurred in various aspects, such as the volume of research, internationalization, specialization, and interdisciplinary relationships. Consequently, the databases and directories that collect these research papers have also significantly expanded. Scientometric analysis methods, such as co-word analysis, help to analyze the information sources indexed in these scientific databases quickly and efficiently (Soheili et al., 2017). The increasing number of specialized journals and the provision of diverse data have highlighted the need to find relationships and analyze them over time. Co-word analysis has emerged as an efficient method for analyzing the volume of scientific publications, and it has been widely used in recent decades. Finding relationships and analyzing scientific data can help in evaluating and better understanding the studied phenomenon. Therefore, the tendency to use co-word analysis has increased today for goals such as evaluating research activities, understanding the current situation, and comparing it with other fields of study (Khaseh et al., 2019). Co-word analysis is one of the bibliometric methods used to discover links between concepts, people, and research in a specific field based on the frequency analysis of co-occurring words or terms. It enables the visualization of

scientific progress and tracking. During the last two decades, there has been an increasing effort to use scientometric methods (Dai and Zhang, 2020).

### **Methodology**

The current research is an applied research with a descriptive-survey data collection method. Scientometric analysis, specifically the co-word method, has been utilized. Co-word analysis was conducted using network analysis methods, descriptive and analytical statistics, and visualization techniques.

The primary unit of information in this study comprises articles published in the field of "competitive intelligence." The Science Direct database, a reliable and well-known scientific reference, was used along with the Publon software to collect information. Articles that include the term "competitive intelligence" in their titles were cited. As competitive intelligence is a relatively new concept, the results of scientific production cover the period from the beginning of 2015 to the end of 2021.

In the co-words section, graphic analysis of the co-occurrence of words and the creation of the knowledge tree of competitive intelligence were pursued. The index of inclusion and the index of proximity, which measure the strength of relationships between concepts based on the frequency of co-occurrence of words, were used. Concepts were clustered into groups and displayed in network maps. This technique, employed by many research groups, is a powerful tool for knowledge discovery in databases (He, 1999). Quantitative data analysis was performed using Excel software, and graph theory and VOSViewer analysis software were used to draw a co-occurrence map. The statistical population of the research includes all the scientific productions of researchers worldwide in the field of competitive intelligence indexed in the Science Direct database. The records for this research were retrieved from the Advanced Search section

of the Science Direct database on 9/20/2021.

VOSViewer software generates scientometric maps and illustrates scientific literature. It utilizes a unified approach for mapping and clustering based on the co-occurrence matrix of normalized words and calculates the strength of association between words. Words that are closely related are clustered and displayed using similar colors. The adjacency of token terms is interpreted based on the similarities of the context in which they occur. Additionally, the software adjusts font size and bounding rectangles, with larger fonts and rectangles representing terms with high frequency (Darwish et al., 2017; Kameli et al., 2019).

The retrieved records were downloaded and saved as Excel files, and text analysis was conducted. For clustering, illustrating, and assessing the frequency of word occurrences, co-authorship networks, and citation analysis, the full report information of articles, such as title, abstract, keywords, sources, number of pages, authors, and journal information, was saved in the RIS format from Science Direct and analyzed using VOSViewer software. The table 1 presents the search strategy used in the Science Direct database.

*Table 1- Advanced search settings in Science Direct*

Scientific input	Time span	Search entry	word
Research articles Review articles Conference abstracts	from 1991 to 2021	keywords	Competitive intelligence

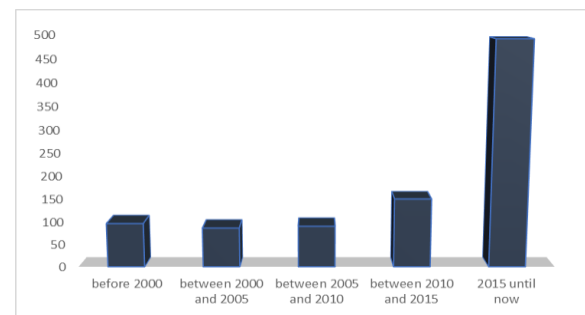
## Findings

In total, 837 articles with the keyword "competitive intelligence" were identified, out of which 79 articles specifically used the keyword "competitive intelligence" in their titles. These articles were indexed in the ScienceDirect database between 1991 and 2021. All retrieved scientific productions are in English. The research

findings and their analysis are presented in various sections below.

## Dynamics and Process of Publishing Articles

Figure 1 illustrates the publication process of articles in the field of competitive intelligence since 1991 until the present time. The graph indicates that scientific productions in this field began in 1991 and have continued to grow over the years. The first article in the field of "competitive intelligence" was recorded by Gelb et al. (1991), marking the inception of research in this area. However, the graph 1 also shows that there have been fluctuations and variations in the number of publications throughout these years. Despite these ups and downs, research in the field of competitive intelligence has remained active and ongoing.



*Chart 1: Fluctuations and changes in competitive intelligence research*

The trend chart of published articles on competitive intelligence in the Science Direct database indicates a significant growth in this field, especially from 2015 onwards. The focus of this study is on articles published between the beginning of 2015 and the end of 2021. Out of the total published articles, 504 articles, which make up 60% of the total, belong to this period. Moreover, the articles published during these years are closely related to new management and marketing concepts.

Types of Published Texts (*Table 2*):

Based on the applied filtering, the articles indexed in the database fall into different categories. Among them, 434

articles (86%) are scientific articles, 32 articles (6%) are book chapters, 24 articles (5%) are review articles, 4 articles (1%) are conference abstracts, and 10 articles (2%) are from other sources. This study primarily focuses on the 434 scientific articles.

*Table 2- Types of Published Texts about Competitive Intelligence*

Percent	Number	Type of Article
86%	4	Research-scientific
5%	24	Review
6%	32	Book
1%	4	Conference
2%	10	Other sources
100%	504	Total

### Drawing the Word Co-occurrence Network

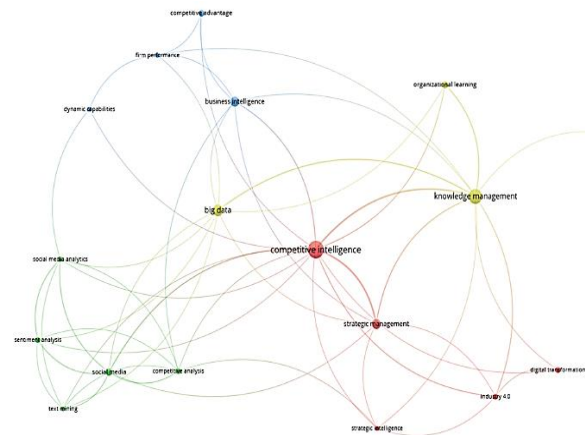
In this study, among the 692 identified keywords, the co-occurrence of words that have been repeated at least 5 times was investigated. As a result, 26 keywords and 4 main clusters were identified. The main research centers in the field of competitive intelligence include the following areas: competitive intelligence, knowledge management, big data, business intelligence, strategic management, organizational learning, social networks, competitive advantage, and optimization.

*Table 3- The main research centers in the field of competitive intelligence*

Total power in network	Frequency	Keyword
32	33	Competitive Intelligence
26	24	Knowledge Management
13	15	Big data
8	11	Business Intelligence
16	11	Strategic Management
7	6	Organizational Learning
13	6	Social Media
3	5	Competitive Advantage
3	5	Optimization

Figure 1 shows the density of articles focusing on the concepts. Based on this diagram, the concepts of knowledge management, big data, business intelligence

and strategic management are very close to the field of competitive intelligence.



*Figure 1- Clustering of keywords of researches in the field of competitive intelligence*

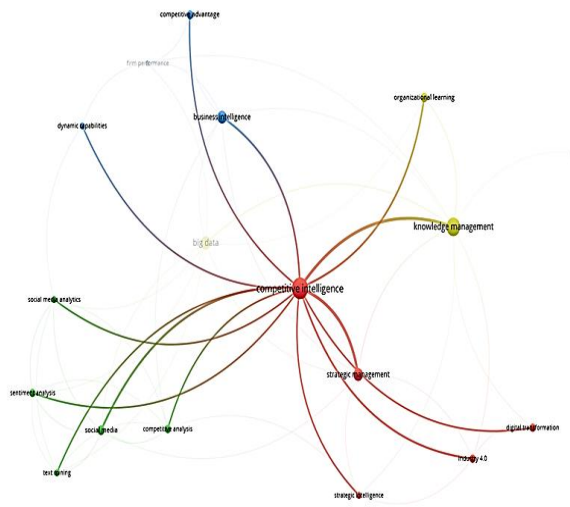
### Clustering Keywords in the Field of Competitive Intelligence

In this section, the existing clustering in research on competitive intelligence has been discussed. This clustering is drawn based on the formation of vocabulary co-occurrence matrix by VOSViewer software. A total of 18 keywords, 4 clusters and 54 links with a connection strength of 87 have been identified.

In the following analysis, the hierarchical clustering method is utilized to determine the main sub-branches of each cluster. Hierarchical clustering is a data grouping or categorization method (Najafi et al., 2016). It involves placing data into categories and subcategories based on the extent of co-occurrence. The hierarchical clustering method assigns a hierarchical and tree-like structure to the final clusters based on their generality.

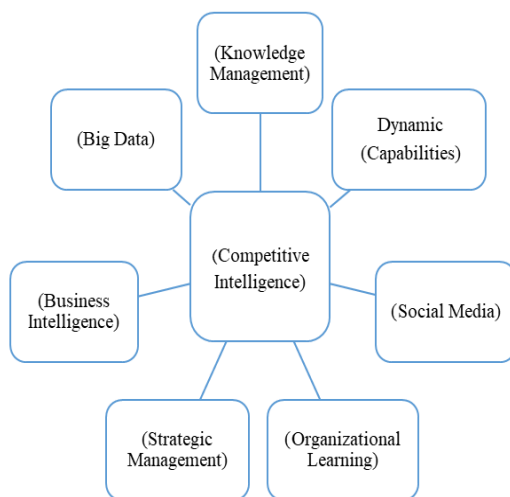
To execute this step, the concepts related to each of the clusters were analyzed independently. An example of this analysis is presented in Figure 2 for the first cluster. The figure illustrates the main sub-branches and the hierarchical relationships within the first cluster, offering a deeper understanding of the concepts within this specific research area. This process was

performed for all identified clusters to gain insights into their sub-structures and relationships.



*Figure 2- Determining the sub-clusters of competitive intelligence*

In general, based on the clustering done, the overall structure of research clusters in the field of competitive intelligence can be shown in Figure 3.



*Figure 3- Different research clusters around competitive intelligence*

## Discussion and Conclusion

The concept of competition has become a crucial element in shaping the evolution of the higher education system worldwide. Universities are now striving to recognize and attain factors that can provide them

with a competitive advantage. Over time, the mission of higher education has undergone continuous changes, transitioning from a focus on education to encompass research, innovation, commercialization, and ultimately wealth creation.

The dynamic nature of universities necessitates corresponding changes in their structures to effectively fulfill their roles and missions. However, the current state of higher education in the country faces challenges such as a lack of industry connections, non-targeted scientific productions, and a mismatch between students and the levels of education. If these problems persist, they may lead to doubts about the purpose of higher education, as society and industry, as the primary stakeholders of higher education, may not have their expectations met by the current system.

Considering the importance of gaining a competitive advantage and the educational nature of universities, competitive intelligence emerges as a valuable solution for higher education managers to achieve success in the current scientific and practical landscape. The research findings suggest that relevant managers should not overlook the significance of competitive intelligence and should inform senior university managers about its activities. Furthermore, senior university managers are advised to utilize the results of competitive intelligence in decision-making processes and support information and competitive activities to create a platform for the university's competitive intelligence.

Business intelligence is acknowledged as a powerful tool for improving productivity from a management perspective. It delivers accurate information to decision-makers, leading to improved organizational performance. In the era of digital transformation, business intelligence systems offer a suitable platform for



enhancing productivity. To provide strategic solutions and recommendations, university strategies and policies can be examined by considering the macro picture of various factors and variables influencing them. Knowledge management, organizational learning, and strategic management are among the key areas that deserve attention in this regard.

In the field of competitive intelligence, the effective management support and infrastructure for knowledge management in the higher education system can lead to an efficient and successful knowledge management system in universities. To excel in the competitive environment, universities should display creativity in various dimensions, including the roles of libraries and information technology organizations.

Organizational learning plays a critical role in developing dynamic learning skills among students to adapt to future changes. Strategic management, on the other hand, encompasses various achievements and results in services and products, contributing to intelligence in competition. The impact of big data in competitive intelligence cannot be ignored, especially in managing the vast amount of information available in the virtual space. Additionally, innovation capability and structure play an essential role in achieving competitive advantage, and the development of innovation structure in organizations should be examined. University managers are encouraged to increase the mastery of faculty members, employees, and managers in science and technology processes through basic and applied research. Furthermore, being aware of demographic changes, social preferences, and global-level actions is vital for successful competitive intelligence in universities.

In conclusion, university managers and decision-makers should embrace competitive intelligence and its capabilities in university administration. Successful

higher education institutions in developed countries already rely on competitive intelligence to gain a deeper understanding of their environment. As the future holds more challenges, embracing competitive intelligence will make universities more secure by enabling effective information collection, analysis, and navigation of the competitive landscape.

## References

- 1- Ahmadi, Farhad; Shahi, Sakineh; Mehr Alizadeh, Yadollah. (2019). Identifying dynamic learning dimensions in university. *Teaching Research*, 8 (3), 25-44.
- 2- Ahmadi, Hamid; Assar, Farid. (2016). An overview of the functions of co-word analysis. *National Library and Information Organization Studies*, 28(1), 125-145.
- 3- Amarouche, K., Benbrahim, H., & Kassou, I. (2015). Product opinion mining for competitive intelligence. *Procedia Computer Science*, 73, 358-365.
- 4- Brankovic, J. (2018). The status games they play: unpacking the dynamics of organisational status competition in higher education. *Higher Education*, 75(4), 695-709.
- 5- Dai, S., & Zhang, W. (2020). Knowledge map of environmental crisis management based on keywords network and co-word analysis, 2005–2018. *Journal of Cleaner Production*, 26(2), 121-168.
- 6- Darvish, Asieh; Tabibi, Jamal; Alborzi, Mahmoud. (2017). Investigating the trend of scientific productions in the field of information technology for nurses. *Nursing Management Quarterly*, 7(1), 61-72.
- 7- Dehnavi, Zahra; Jafari, Parivash; Arasteh, Hamid. (2019). Providing the ideal model of competition for educational progress in the university.

- Teaching Strategies in Medical Sciences, 13(3), 151-161.
- 8- Feizi, Mohammad; Babaei, Hadi. (2021). Investigating the effect of competitive intelligence on social responsibility and ethical behavior of employees of Melli Bank branches in Ardabil province. *Cultural Leadership Studies*, 3(6), 96-112.
  - 9- Fuld, L. M. (1985). *Competitor Intelligence: How to Get It; How to Use It*. New York: John Wiley & Sons.
  - 10- Gelb, B. D., Saxton, M. J., Zinkhan, G. M., & Albers, N. D. (1991). Competitive intelligence: insights from executives. *Business Horizons*, 34(1), 43-48.
  - 11- Gilad, B. (2001). Industry risk management: CI's next step. *Competitive intelligence magazine*, 4(3), 21-21.
  - 12- Hassanzadeh, Vahid; Hemmati, Ali; Shateri, Aref. (2021). Examining the importance of competitive intelligence in the insurance industry. *Research and Studies of Islamic Sciences*, 3 (28), 51-64.
  - 13- Hazeri, Afsaneh; Makki, Fatemeh; Beick, Farzaneh. (2015). Co-word analysis of articles extracted from Master's theses. *Information Science and Epistemology Research Journal of Science*, 2 (2), 49-62.
  - 14- He, Q. (1999). Knowledge discovery through co-word analysis. *Library Trends*, 8(1), 133-159.
  - 15- Kameli, Behrouz; Yazdani, Dirouz; Hakim, Amin; Jafari, Baqer. (2019). Delineation of the territory and clustering of knowledge management research based on co-wordsynony analysis. *Innovation Management Quarterly*, 3(10), 77-104.
  - 16- Khsseh, Akbar; Mousavi, Afshin; Moghadam, Atefeh. (2019). Co-word analysis and co-authorship of articles published in Health Information Management Journal. *Journal of Health Information Management*. 17 (2), 664-72.
  - 17- Lopez-Robles, J. R., Otegi-Olaso, J. R., Porto-Gómez, I., Gamboa-Rosales, H., & Gamboa-Rosales, N. K. (2020). Understanding the intellectual structure and evolution of Competitive Intelligence: A bibliometric analysis from 1984 to 2017. *Technology analysis & strategic management*, 32(5), 604-619.
  - 18- Madhooshi, Hamid; Razeghi, Nader; Ramezani, Ayoub. (2018). Presenting the model of establishing knowledge management in the university. *Productivity Management*, 13(50), 117-89.
  - 19- Madureira, L., Popovič, A., & Castelli, M. (2021). Competitive intelligence: A unified view and modular definition. *Technological Forecasting and Social Change*, 17(3), 121-136.
  - 20- Markovich, A., Efrat, K., Raban, D. R., & Souchon, A. L. (2019). Competitive intelligence embeddedness: Drivers and performance consequences. *European Management Journal*, 37(6), 708-718.
  - 21- Najafi, Heydar; Aghdasi, Mohammad; Teimurpour, Babak. (2016). Developing knowledge map for knowledge management research using network analysis method. *Information Technology Management Quarterly*, 9(3), 637-657.
  - 22- Naseri, Amir; Taqwa, Reza; Feizi, Kamran. (2018). Competitive intelligence based on the content of social networks and factors affecting its process. *Modern Marketing Research*, 9(34), 43-60.
  - 23- National Education Assessment Organization. (2021). News code <http://www.sanjesh.org/group.aspx?gid=1>
  - 24- Olssen, M. (2021). Neoliberal competition in higher education today: Research, accountability and impact. In

- A Normative Foucauldian 19 (2), 307-327.
- 25-Pourrashidi, Zahra. (1400). The mediating role of knowledge management and organizational learning in the impact of human resource development activities on employee innovation. *Education Management and Perspectives*, 3(8), 49-76.
- 26-Prescott, J. E. (Ed.). (1989). *Advances in competitive intelligence*. Society of Competitor.
- 27-Ranjan, J., & Foropon, C. (2021). Big data analytics in building the competitive intelligence of organizations. *International Journal of Information Management*, 5(6), 202-231.
- 28-Sadri, Abbas. (2017). Establishment of knowledge management in Iranian universities. *Research in educational systems*, 12 (43), 41-63.
- 29-Safavi, Simin; Piran, Ali; Taheri, Fakhri. (2021). Investigating the relationship between competitive intelligence with employee empowerment and organizational accountability of employees. *New Researches in Entrepreneurship Management*, 2 (6), 261-288.
- 30-Shahmohammadi, Mohammad; Kiani, Parvaneh. (2018). Analytical review of the status of non-governmental higher education institutions. *New research approaches in management and accounting*, 3 (16), 1-22.
- 31-Shapira, I. (2021). The limited influence of competitive intelligence over corporate strategy in Israel: historical, organizational, conceptual, and cultural explanations. *Intelligence and National Security*, 36(1), 95-115.
- 32-Shekarzehi, Marieh; Aramesh, Hamed; Keshavarz, Soheila. (2019). Identifying factors affecting the establishment of learning in universities. *Public Management Research*, 13(47), 245-273.
- 33-Soheili; Faramarz; Khasseh, Akbar; Karanian, Parivash. (2017). Thematic process of concepts in the field of information science and epistemology of Iran based on co-occurrence analysis of words. *National Library and Information Organization Studies*, 29(2), 171-190.
- 34-Tabatabaie, Karim; Eyvazi, Hossein. (2019). Investigating the effect of competitive intelligence on the ethical behavior of Islamic Azad University employees. *Cultural Leadership Studies*, 4(5), 38-55.
- 35-Taherzadeh, Fakhreddin; Moghadam, Matineh. (2019). The importance and role of knowledge management in higher education. 3 (10), 17-28.
- 36-Tarokh, Mohammad Jaafar. (2011). *Competitive Intelligence*. Tehran: Khwaje Nasiruddin Toosi University of Technology Publications.
- 37-van den Berg, L., Coetzee, B., & Mearns, M. (2020). Establishing competitive intelligence process elements in sport performance analysis and coaching: A comparative systematic literature review. *International Journal of Information Management*, 5 (2), 102-121.

**HOW TO CITE THIS ARTICLE:**

Mandana Yavari, Parivash Jafari\*, Nadergholi Ghourchian (2023). *Analyzing and Drawing the Co-word Map of Competitive Intelligence in First-Level Technical Universities of Tehran*, 4(1): 1-12.

**DOI:**

**Url:** [https://ijfaes.srbiau.ac.ir/article\\_16607.html](https://ijfaes.srbiau.ac.ir/article_16607.html)

**Journal homepage:** <https://ijfaes.srbiau.ac.ir>