ORIGINAL RESEARCH PAPER

Management

THE IMPACT OF BUSINESS INTELLIGENCE AND COMPETITIVE INTELLIGENCE IN MANAGEMENT: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

The research in management field from the last decades showed that both knowledge and intelligence are considered as some of the most important assets which help business organizations achieve the competitive advantage in a certain market. In our current times, determined by uncertainty and ambiguity, leaders and managers are in a constant need of valuable and timely information that is required for taking the most desirable decision for the company. Given so, researchers and practitioners developed certain tools and activities in order to achieve the information necessary to decision making process, from both inside and outside the company, known as business intelligence and competitive intelligence. Therefore, this article contains a literature review about the connections between business intelligence, competitive intelligence, on one hand, and management, on the other hand. Using the specialized software VOSviewer, this research presents the bibliometric analysis based on the co-occurrences of certain keywords, which demonstrates the inter-correlation of some specific research fields. The data examined using VOSviewer was retrieved from Web of Science core collection, the world`s largest bibliographic database for scientific research.

INTRODUCTION

Intelligence is often described as the process of data collection and analysis in order to achieve useful information that can be used by the decision maker in order to ensure a decision advantage and to better understand a specific subject (MacGaffin & Oleson, 2016; Pili, 2018)*. After the analysis and understanding process,* the data becomes knowledge or foreknowledge, *(*Waltz, 2003). Thus, *intelligence results depends on knowledge* (Kent, 1949; Spender, 1996), which is essential in achieving the competitive advantage within a specific market (Porter, 1985; Bratianu, 2022).

*Although in the literature bussiness intelligence and competitive intelligence are often confused, referring to one another as they are the same concept (*Ivan, 2016; McGonagle, 2016), these two domains are completely different in terms of target (internal/external) and practices (Alnoukaria & Hanano, 2017).

Business intelligence is focused on the internal activities, performance and problems of a company, its sole purpose being to improve its capabilities, processes and activities *(*Ivan, 2016). Also, business intelligence helps companies transform large quantities of raw data into useful information for decision makers (Alnoukaria & Hanano, 2017).

According to Botos & Radu (2017), business intelligence uses the following processes: descriptive analytics, process analysis, data mining and performance benchmarking. Being based mostly on analytic tools, these processes create useful information for the decision maker about the company capabilities and deficiencies, being extremely useful in strategy and objectives formulation.

Competitive intelligence is oriented on all the competitive environment, respectively suppliers, competitors (present and potential ones) and customers, without neglecting the political, economic and legal environment (McGonagle, 2016). Being external oriented, competitive intelligence has the purpose of collecting data about competitors capabilities, performances, strength and weaknesses, business and legal environment modifications, possible opportunities an threats, interpreting and analyzing it in order to obtain valuable information that could enhance the company own results in the market (Alnoukaria & Hanano, 2017; Botos & Radu, 2017; Bratianu, 2002, 2018).

It is important to be stated that competitive intelligence is not business espionage. Besides business espionage, which is illegal, competitive intelligence is legal and ethical, using only public information from open sources, respectively press releases, investment reports, political reviews, annual reports, analyst reports, articles, interviews and other similar sources (Fleisher & Blenkhorn, 2001; Ivan, 2016).

METHODOLOGY

This research presents a bibliometric analysis using VOSviewer capabilities, respectively the analysis and visualization of similarities between certain domains from the specialty literature, respectively business intelligence, competitive intelligence and decision making.

Therefore, the bibliometric analysis was obtained using the co-occurrence investigation procedure, which helps us find the inter-correlation between certain keywords that appear in a specific number of times in abstract, title or keywords from publications indexed in Web of Science core collection.

The databases for this research were retrieved from Web of Science core collection in 20.12.2023, using "All fields", "All types" and "All languages" searching options. Also, the data was exported using the following expressions: "business intelligence – decision making", "competitive intelligence – decision making" and "business intelligence – competitive intelligence – decision making" (see Table 1).

Table – 1 Keywords Used For Searching In Web Of Science Core Collection

Keywords	Total number of publications
"business intelligence – decision making"	1575
"competitive intelligence – decision making"	163
"business intelligence – competitive intelligence – decision making"	30

Source: Authors` own research.

The databases generated by Web of Science core collection were exported under the ".ris" extension, using the "Full record" option, and were processed, visualized and analyzed using the specialized software VOSviewer.

RESULTS AND DISCUSSIONS

The objective of this research is to identify the inter-correlation of business intelligence, competitive intelligence and decision making fields in the specialty literature, by analyzing the maps and links strength generated by

VOSviewer. Therefore, it must be mentioned that the specialized software places the keywords at specific distance and clusters and connects them using links of different strength, based on how closely related they are.

For the database exported from Web of Science core collection for the "business intelligence – decision making" expression, VOSviewer generated 4966 keywords. Given the large number of keywords, the minimum number of occurrences was set at 20, 58 of them meeting the threshold. VOSviewer placed this 58 keywords in 5 clusters (Figure no. 1).
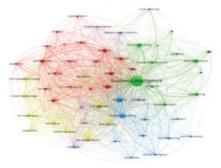

Figure 1: *The map generated by VOSviewer using the keywords for* "business intelligence – decision making"

Source: Authors' own research

The specialized software placed *"business intelligence" in the green cluster, where it can also be found the "decision making" keyword, with a link strength of 64 between these two. Also, the keyword "decision-making" (same understanding of the concept, the only difference being the spelling) is placed in the blue cluster, being connected with a link strength of 95 with "business intelligence".*

Also, the "management" keyword is placed in the yellow cluster, connected as well with "business intelligence" by a 82 link strength. In the yellow cluster is found, as well, the "competitive advantage" term, being connected to "business intelligence" with a 20 link strength.

Given this, it can be concluded that "business intelligence", "decision making", "management" and "competitive advantage" are all related and were researched together in the specialty literature, being an attractive topic for researchers.

For the second database analysed, respectively for the "competitive intelligence – decision making" expressions, *VOSviewer generated 669 keywords. Achieving a significantly lower number of keywords than previous database, the minimun* number of occurrences was set at 5, with 23 keywords meeting the minimum threshold that were placed in 5 clusters (Figure no. 2).
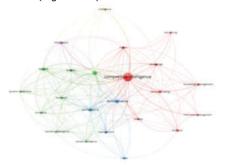

Figure 2: *The map generated by VOSviewer using the keywords for* "competitive intelligence – decision making"

Source: Authors' own research

As it can be seen, "competitive intelligence" is placed in the red cluster, among "decision making" (link strength 7), "strategy" (link strength 5) and "knowledge management" (link strength 7).

In the blue cluster it can be found "decision-making" (again, only spelling difference) keyword, that is connected to "competitive intelligence" with a link strength of 12. Also, the blue cluster contains the "management" keyword that has a 5 link strength connection to "competitive intelligence".

Although there are fewer publications indexed in Web of Science core collection, the analysis conducted using VOSviewer showed that competitive intelligence and management domain were also researched together in the specialty literature.

Moving to the database exported for the "business intelligence – competitive intelligence – decision making" expressions, *VOSviewer generated 168 keywords, with 14 that meet the minimum threshold of 3 occurrences, placed in 2 clusters* (Figure no. 3)*.*
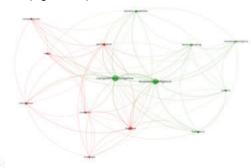

Figure 3: *The map generated by VOSviewer using the keywords for* "business intelligence – competitive intelligence – decision making"

Source: Authors' own research

"Business intelligence" and "competitive intelligence" were both placed in the green cluster, being connected by a 22 link strength. In the green cluster is also found "decision-making" expression, connected to both "business intelligence" (link strength 3) and "competitive intelligence" (link strength 3). Also, the red cluster contains keywords like "performance", "innovation", "challanges" and "competitiveness", all specific to management process and studies.

There, it can be concluded that "business intelligence", "competitive intelligence" and "decision making" are domains that were researched together, but its rather an early stage of specific literature that cover these three topics altogether.

CONCLUSIONS
This research has the purpose to deliver a bibliometric analysis about the connections and correlations between business intelligence, competitive intelligence and decision making, as well as to find if these three domains are being researched together.

Analyzing the results presented above, it can be concluded that business intelligence and competitive intelligence are an important topic in the management specialy literature, being a key factor in the management process and a driving force for achieving competitive advantage.

The main contribution of this research is the bibliometric analysis conducted using VOSviewer, which demonstrates

the correlation between business intelligence, competitive intelligecen and decision making, as well as the fact that the research state of these three domains altogether is nearly "young".

REFERENCES:

1. Alnoukaria, M. & Hanano, A. (2017). Integration of business intelligence with corporate strategic management. *Journal of Intelligence Studies in Business*, 7 (2), 5-16.
2. Botos, H.M. & Radu, G. (2017). Business counterintelligence practices. *Romanian Intelligence Studies Review*, 17-18, 165-175.
3. Bratianu, C. (2002). *Management strategic*. Craiova: Editura Universitaria Craiova.
4. Bratianu, C. (2018). A holistic approach to knowledge risk. *Management Dynamics in the Knowledge Economy,* 6(4), 593-607.
5. Bratianu, C. (2022). *Knowledge strategies*. Cambridge University Press.
6. Fleisher, C.S. & Blenkhorn, D.L. (2001). *Managing frontiers in competitive intelligence*. New York: Quorum Books.
7. Ivan, L. (2016). Characteristics of information analysis in/for business environment. *Romanian Intelligence Studies Review*, 15, 133-142.
8. Kent, S. (1949). *Strategic intelligence for American world policy.* Princeton: Princeton University Press.
9. MacGaffin, J. & Oleson, P. (2016). Decision advantage, decision confidence: The why of intelligence. In P. Oleson (Ed.), *AFIO's Guide to the Study of Intelligence* (1st ed., pp 3-12). Association of Former Intelligence Officers.
10. McGonagle, J. (2016). Competitive intelligence. In P. Oleson (Ed.), *AFIO's Guide to the Study of Intelligence* (1st ed., pp 371-381). Association of Former Intelligence Officers.
11. Pili, G. (2018). Intelligence and social knowledge: A philosophical inquiring on the social epistemological nature of intelligence as a state institution. *Romanian Intelligence Studies Review*, 19-20, 397-418.
12. Porter, M. (1985). *Competitive advantage: Creating and sustaining superior performance*. New York: Free Press.
13. Spender, J. C. (1996). Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*, 17, Special Issue, 45–62.
14. Waltz, E. (2003). *Knowledge Management in the Intelligence Enterprise*. Artech House Information Warfare Library.