THE ADVANTAGES AND RISKS OF ORGANIZATIONAL DECISION-MAKING DIGITALIZATION: A COMPARATIVE BIBLIOMETRIC APPROACH TO AN EMERGENT LITERATURE

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Abstract
With the digitalization of the decision-making process being a relatively new topic, the specialized literature is still in the process of formation, setting trends and highlighting the advantages and risks that come with it. Like any new field of research, this one also faces a lack of studies as well as limited interest among researchers in exploring the subject. Moreover, in emerging areas, the benefits that a new practice can bring or the dangers it can cause are often among the first and most relevant questions that arise and are analysed. Therefore, the central objective of the paper appears, namely, to examine trends in the specialized literature regarding the advantages and risks of the digitalization the decision-making process. Thus, the paper will focus on conducting and comparing two bibliometric analyses that reflect the two central contexts of the research and will aim to confirm the novelty of the subject, as well as to identify the area of higher interest between the two. Regarding the methodology, the analyses will be carried out using data extracted from the Web of Science Core Collection and will be processed mainly via VOSviewer software. The research results may be used in the future as reference points for a more updated literary base, but at the same time, they will also serve as identifiers of current directions.

Keywords
Digitalization, decision-making, advantages, risks, and bibliometric analysis.

JEL Classification
D20, D81, M10, M15, O32, O33

Introduction

The popularity of digitalization and its increasingly frequent use in organizations, more precisely in managerial practice, have led to both the emergence of studies that aim to identify the advantages of this phenomenon and to research focused on identifying the

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potential or even current risks of these new practices that are rising in the business area. Hence, such analyses are not to be seen only as a matter of current affairs, but rather as something that is required in a context of uncertainties and prejudices that still linger in managers' perceptions.

In this sense, when it comes to management, it must be noted that a manager is forced by the nature of his position to know and to be aware of the advantages and risks of digitalization, especially when it comes to the decision-making process and the use of the digital environment to make the most optimal decisions. Not only that it is required of him to be aware of the risks, but he must also be able to recognize them whenever he is using digital tools. This approach is essential not only for understanding the potential risks but also for accurately weighing each factor, thereby ensuring that the optimal decision is reached.

Because of these considerations but also specific to any new trend, the specialized literature of recent years, especially since the pandemic period, has begun to examine managerial practices and to present the advantages and risks offered by the digitalization of the decision-making process, however, like any relatively new subject, there are still many unexplored considerations, gaps, or even low numbers of research in this area. Therefore, to confirm these reasonings and to underscore the novelty of digitalized decision-making, a comparative bibliometric analysis will be conducted, analysis which will be addressing the current gaps regarding the risks and benefits in this field.

Thus, the main objective of this paper is to present research trends in the chosen domain of study, focusing on identifying which area is of greater interest, that of the benefits brought by digitalization or that of the dangers. In this sense, the final results aim to contribute to clarifying the situation regarding the focus of the works as well as highlighting possible literary gaps.

1. Review of the scientific literature

Looking at digitalization both from a general context and from a specific one, such as the use of various digital tools like AI (artificial intelligence), has raised questions among researchers from various fields. With concerns ranging from education (Kaur and Trifan, 2024) to conceptions related to the impact of digitalization on strategic decision-making (Bondar et al., 2024), researchers are trying to demonstrate whether this new way of doing things is beneficial or not and whether the risks taken are worth it. This is why it can be said that this indicates a universal concern about the benefits and risks of using digitalization to accomplish tasks, whether simple tasks such as those in education or workplace-specific tasks such as decision-making.

But here comes the main question of the research, more precisely, "How well do the authors manage to capture these two counterarguments when it comes to the use of digitalization in the decision-making process in organizations?". Therefore, in the following, the two perspectives on the digitalization of the decision-making process will be analysed from the point of view of scientific literature, determining the advantages identified by the literature as well as the risks.

As two relatively modern and new trends, digitalization and sustainability are often encountered in literary practice in the same context, which is why works that analyse

whether the digitalization of the decision-making process brings the benefit of improving sustainability are frequently encountered (Tumpa and Naeni, 2025) (El Hilali, El Manouar and Janati Idrissi, 2020).

There are also researchers who have identified the potential of digitalization in terms of enhancing decision-making (Tawil et al., 2023), highlighting, as long-term benefits, the possibility for managers to make much more accurate and faster decisions (Van Hoa et al., 2023). Other studies point to transparency as an advantage brought by digitalization and note its importance through the fact that it will eventually lead to much more informed decisions (Ibrahim, 2019). Moreover, by reporting on the benefits brought by it, not only those related to the activity itself are highlighted, but the advantage brought in terms of profitability is also identified, thus presenting the idea that digitalization also plays an important role in making profitable decisions (Kaur, 2023).

On the other hand, one of the biggest fears when it comes to the digital environment is that of data breach, and when it comes to management, this risk is not absent (Ciekanowski et al., 2024). Keeping data safe and unaltered is essential for managers who want to use it for decision-making purposes, or a threat to its integrity is extremely high and would have a significant impact on the decisions they make, with cyberattacks being seen as one of the greatest contemporary risks (Strelicz, 2021).

Another problem that the digitalization of the decision-making process may entail is the lack of skills necessary for managers to master it, with some authors drawing attention to a possible burnout among managers (Du Plooy et al., 2025). Moreover, a challenge brought by the digital age and which is talked about very little is that of the human factor's willingness to adapt and work with these new technologies, with some authors noting personnel's adaptation to automation as an important risk (Ivanova et al., 2019). Also, on the premise that managers may have adaptation problems, the literature highlights a series of disadvantages that middle-level managers may face, including: affecting the execution time of the budget procedure, making uninformed budget decisions and the inability to make strategic decisions (Van Doorn et al., 2023).

In addition to the fact that managers may be more reluctant about new decision-making methods, some authors are of the opinion that they may also have problems with collaboration due to the emergence of conflicts, but also with confusion created by digital technologies (Bencsik, Hargitai and Kulachinskaya, 2022).

2. Research methodology

The chosen study method is that of bibliometric analysis, therefore quantitative (Gupta and Bhattacharya, 2004), applying not one but two analyses, whose construction is identical. Thus, the data used for the practical part are extracted exclusively from the Web of Science Core Collection, the two sets being built around both a few identical and some different keywords, meant to reflect the two general contexts of the research. Therefore, the first database had the following structure in terms of the topics used for generation:

- "digitalization" OR "AI-assisted" OR "digital"; "decision-making" OR "decision process" OR "organizational decision-making"; "organization" OR "enterprise" OR "business" OR "corporation"; "benefits" OR "advantages" OR "opportunities", all of which were combined using the AND operator.

The use of words such as benefits, advantages, and opportunities is intended to broaden the scope of the search and not to limit the results to just the idea of advantages, as these three terms are often used interchangeably.
The second data set had a similar construction, the only difference being that instead of the last set of keywords, the following one was used:

- "risks" OR "challenges" OR "threats", which is one that reflects the opposite context of the previous one.

It must be noted that the same filters were applied to the two searches to obtain the final results, hence, selecting only Articles and Proceedings Papers written in English. This is why as a result; the first set generated a total of 604 papers and the second 679. It is also important to emphasize that no year filters were applied, precisely in order to be able to present the interest in the two topics over the years, and also to indicate the period when it began in each case.
Regarding the analysis itself, direct studies were carried out on data extracted from the Web of Science using the VOSviewer program, thus creating network maps, year maps and also country maps.
For network maps, a sorting was performed according to keywords and a minimum appearance of 5 times was required for each of them to be included in the network and based on the results obtained, their dispersion by year was also evaluated for the period 2015-2025; for distribution by country, a classification was applied according to authors and their country of origin, requiring a maximum number of 5 countries per work and a minimum appearance of 5 times for each country to be included. These three maps aim to present the size of each data set, the distribution of works in each sphere by country and also the trends of publications in terms of publication year. Subsequently, after the data was interpreted with VOSviewer, it was synthesized and examined in several tables, generating the following categories of information: a list of the top 10 items; distribution of publications by year.
This arrangement is intended to provide a more accessible perspective on the differences between the two data sets and, at the same time, it also aims to confirm or deny the existence of differences in the interest given to each individual topic.

3. Results and discussion

The research results and discussion part will be divided into two distinct sections, the first reflecting the advantages brought by the digitalization of the decision-making process and the second the risks. This way, the particularities of each data set will be analysed and, at the same time, the comparison of the second set with the first will be easier to perform.

1. Advantages

The set of 604 research papers generated on the structure of the advantages of digitalization was first introduced into VOSviewer and interpreted; after that, the data was extracted from the software and structured into pivot tables, generating, as a starting point, a network map (Figure no. 1).

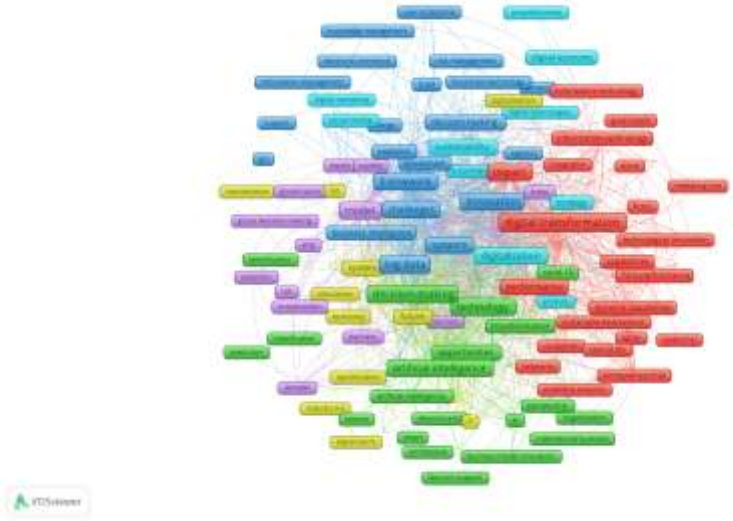

Figure no. 1. Network map 1st data set
Source: Own processing in VOSviewer

The network map of the dataset related to the advantages of digitalization of the decision-making process is somewhat balanced, not having any item that stands out from the rest due to its very large size. It can also be noted that there are not many clusters, which can be seen through the colours present in the map. At the same time, there does not seem to be a very obvious central focus, as is sometimes found in other analyses, such as in the work entitled *"Evaluation of the Digital Management Literature Through the Bibliometric Analysis Method"*, where digital transformation is a fundamental landmark of the network (Dulkadir and Kırpık, 2025). Thus, by correlating the example provided with the results of this research, it is highlighted that digitalization is often less visible than digital transformation, which may also be due to the fact that these terms are often used interchangeably in the literature (Polyvana, Kyrylieva and Lutsenko, 2022).

An interesting aspect is that of the keywords present in Figure no. 1, as there do not seem to be many that indicate or that are related to the advantages brought by digitalization. A fact that represents, to a certain extent, the hypothesis that research in the field is not yet as elaborate or, better said, is not as focused on advantages as it is on the general context. Therefore, it can be marked that more detailed analyses are required in order to confirm or to refute these assumptions.

In addition to the points discussed above, the differences between the items and implicitly that of digitization and digital transformation, as well as the central focus of this data set, can be seen through the prism of the first 10 most frequent items of the network, a list that was also generated for this research (Table no. 1).

Table no. 1. First 10 items of 1st data set

First 10 items	Occurrence
digital transformation	81
management	63
big data	62
decision-making	60
innovation	59
artificial intelligence	50
model	49
framework	48
impact	47
digitalization	45
Total	**564**

Source: Own processing

The ranking of the first 10 keywords does not bring a significant contribution in terms of identifying the advantages that the digitalization of the decision-making process implies, as only the innovation item and, to some extent, the impact item can be considered as being part of this category. It can be observed that the rest of the items in the list reflect very much the general contexts of research focused on benefits, such as management and framework, but also involve specific components of digitalization often encountered in practice, namely big data and artificial intelligence. Furthermore, in order to determine the trend in terms of the area of origin of the research, a map of the distribution of research by state was also created (Figure no. 2).

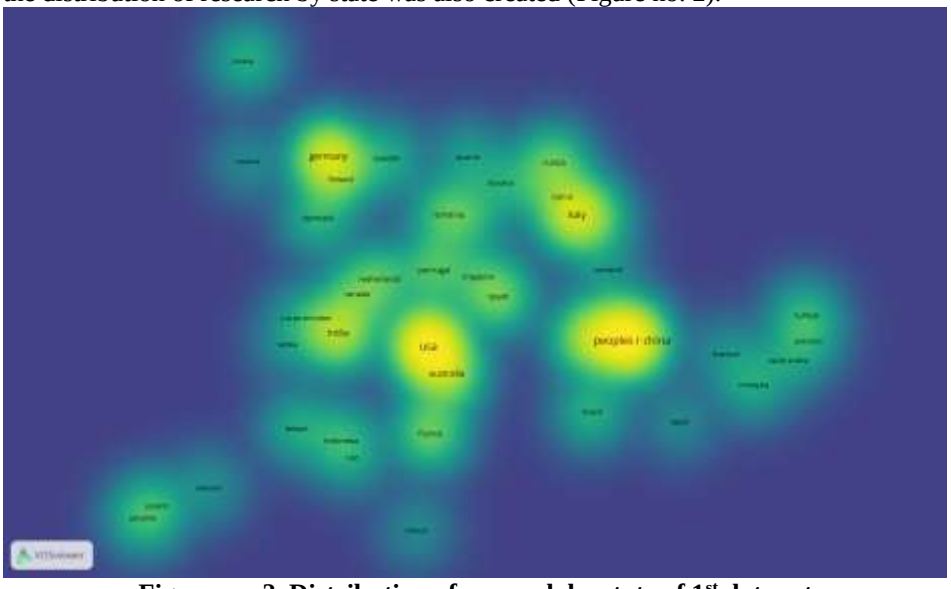

Figure no. 2. Distribution of research by state of 1st data set
Source: Own processing in VOSviewer

The distribution of research according to their country of origin highlights the very high interest found in researching the advantages of the digitalization of the decision-making process in China and also in the United States of America. It is also worth noting the presence of Romania in this analysis, which means that the Romanian state is in line with the popularity of this topic, which could also indicate that new technologies are being used in managerial practice among enterprises in this country. In the following, a third map is presented, an analysis which is meant to present publishing trends by year, showing in which years or time periods interest in the network map keywords peaked (Figure no. 3).

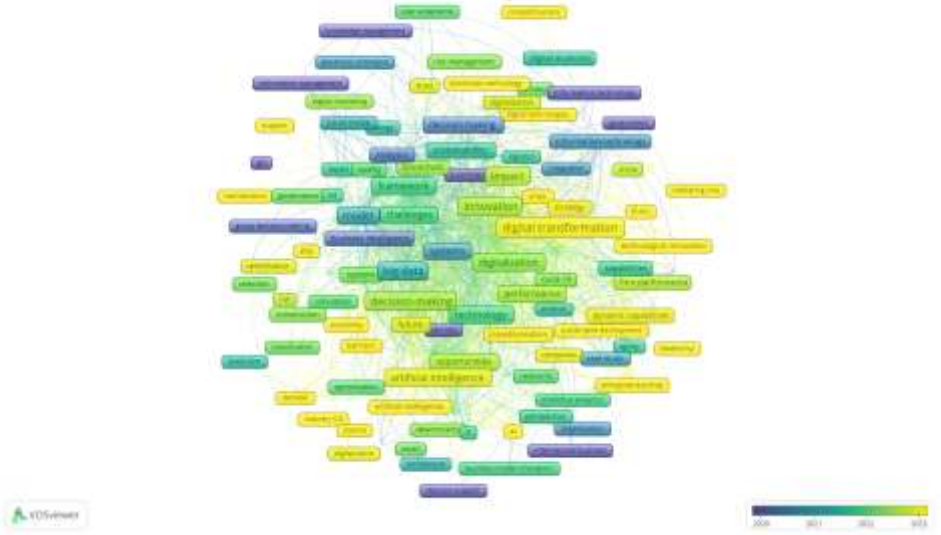

Figure no. 3. Distribution of keywords by years for the 1st data set
Source: Own processing in VOSviewer

According to figure no. 3, it can be seen that attention in studies that capture the advantages of the digitalization of the decision-making process began to grow during the pandemic period (2019-2020), this evolution being somewhat normal; precisely because during that time many jobs had to switch to working from home, also known as remote working (Buchanan et al., 2021), which also implied a much higher contact with digitalization both for organizations and for managers as well. Keywords such as blockchain technology, artificial intelligence, industry 5.0 that can be found in the map reflect the news in the area of digitalization, with managers being able to use some of them as tools and because of that, they are also present in the current literature of the last 5 years (Leng et al., 2022). Furthermore, as an important fact and in order to confirm that there has really been an increase in interest in this research topic since the pandemic, a table covering the distribution of research by year will be created and will present how many documents were published in each year (Table no. 2).

Table no. 2. Distribution of works by year for 1st data set

Publication year	Documents/Year
1994	1
2003	1
2004	1
2005	2
2006	3
2007	2
2008	3
2009	4
2010	5
2011	4
2012	7
2013	7
2014	10
2015	11
2016	6
2017	11
2018	34
2019	31
2020	39
2021	56
2022	73
2023	69
2024	135
2025	88
Total	**603**

Source: Own processing

The total number of papers in the dataset generated for this analysis was 604, after applying the minimum conditioning filters in VOSviewer and extracting data from it to produce Table no. 2, only one document did not meet the necessary conditions and is not present in the table. Therefore, regarding the advantages brought by digitalization, it can be observed that interest in this topic began as early as 1994, with minimal growth for much of the period. Another important aspect is that similar to those previously assumed, interest increased considerably around the pandemic period and afterwards. What is also worthy of attention is that 2018 recorded more works than 2019, but given that Covid-19 practically only began at the end of 2019, the hypothesis that states the attention paid to the subject began to increase from the pandemic to the present can be maintained. Thus, if at the beginning of the period, research in the field did not even reach a minimum number of 10 papers per year, in 2024, they exceeded 100, an evolution that simultaneously reflects the evolution in managerial and organizational practice.

2. Risks

In this part, the 679 papers of the dataset were taken and interpreted in the same manner as those in the first set, starting with a slightly higher number of documents, which indicates that there will be differences between the two, but whether these are considerable or not will be observed in the following. Thus, a keyword network was created to begin with (Figure no. 4).

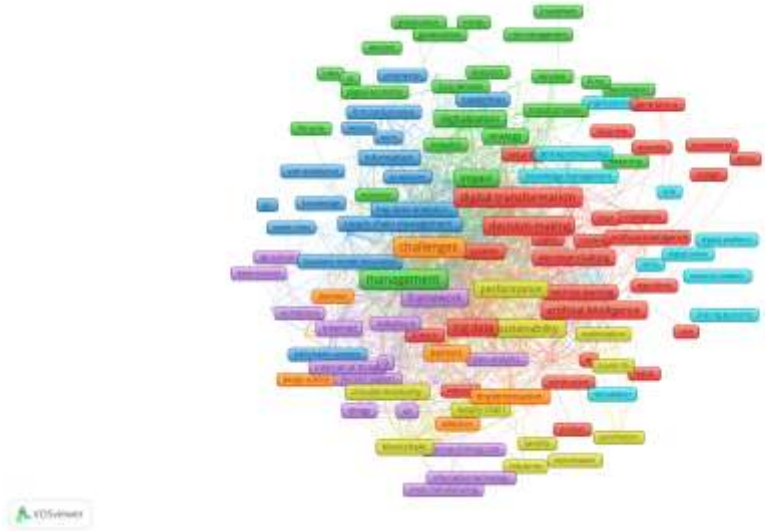

Figure no. 4. Network map 2nd data set
Source: Own processing in VOSviewer

A first visible difference between the two data sets can be observed in Figure no. 4, which has a slightly denser structure, with more clusters and more keywords being observed. Another considerable difference between research focused on the risks of digitalizing the decision-making process and those focused on the advantages is that in the case of risks, the network map has items that reflect both main keywords, such as risk and challenges, the latter being very visible, but also items that reflect some of the risks brought by digitalization. Which may indicate that, in the case of the works in this dataset, there is a real concern focused on the dangers brought by digitalization and not one focused on the general context of digitalization in organizations.

Regarding the similarities between the two, it can be seen that there is a high interest in digital transformation in the data of the second set as well. At the same time, the network presented in Figure no. 4 does not have a very central point either, which makes it similar to the one in the first section. However, the differences in terms of keywords can be observed even better through the table with the first 10 items of this data set (Table no. 3).

Table no. 3. First 10 items of the 2nd data set

First 10 items	Occurrence
challenges	110
management	101
digital transformation	75
decision-making	74
big data	69
technology	60
framework	60
innovation	53
artificial intelligence	51
industry 4.0	50
Total	**703**

Source: Own processing

Table no. 3 confirms that regarding the risks brought by the digitalization of the decision-making process, the focus is much higher. The presence of the item at the top of the list is an argument in this sense. What is again very relevant is the lack of the item digitalization from this ranking. Also very important is the list of the first 4 items, which include both management and decision-making, thus showing that for the research in this data set, they represent a central point, unlike the first, where big data was ranked better than decision-making. Moving forward, the analysis will examine the distribution of works by state (Figure no. 5).

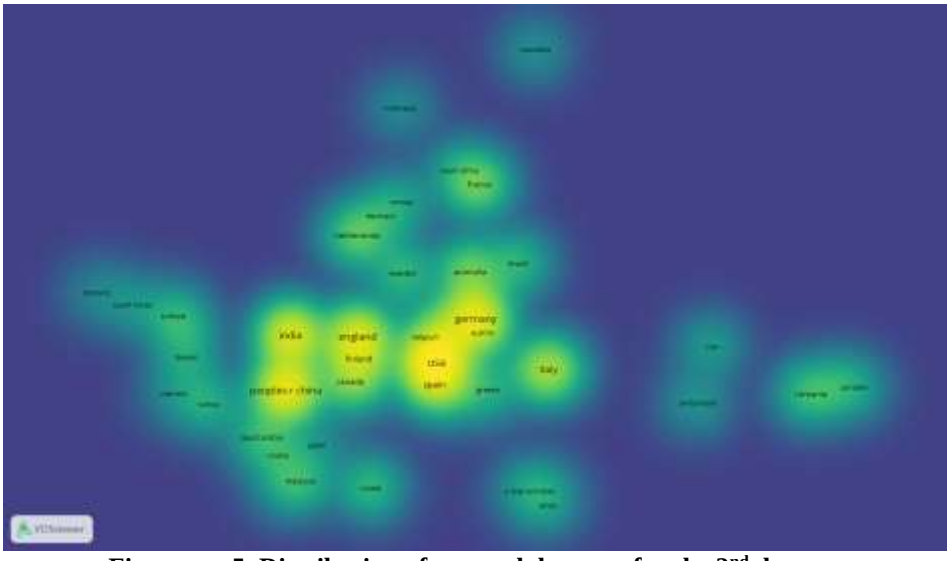

Figure no. 5. Distribution of research by state for the 2nd data set
Source: Own processing in VOSviewer

The distribution of the papers in the 2nd data set by country further highlights the differences between the two sets. Therefore, if in the case of advantages, the focus on this topic was greater in China and the United States of America (USA), this time it seems that the situation is different, and Europe, through its states, has a more significant contribution. Countries such as Germany and England have a much greater concern with the risks of digitalization than they had with the advantages. A matter that could be explained by the gaps that existed between the USA and Europe in terms of digital competitiveness, and due to which Europe was somewhat behind (Młynarzewska-Borowiec, 2022). Thus, by approaching digital practices later, European states were able to observe real examples from the USA, which could have caused their focus not to be on the advantages but on the risks they identified and that the former did not anticipate. That is why it is very important to analyse the distribution of works by year, as this can confirm or refute the fact that there was a later approach in this field (Figure no. 6).

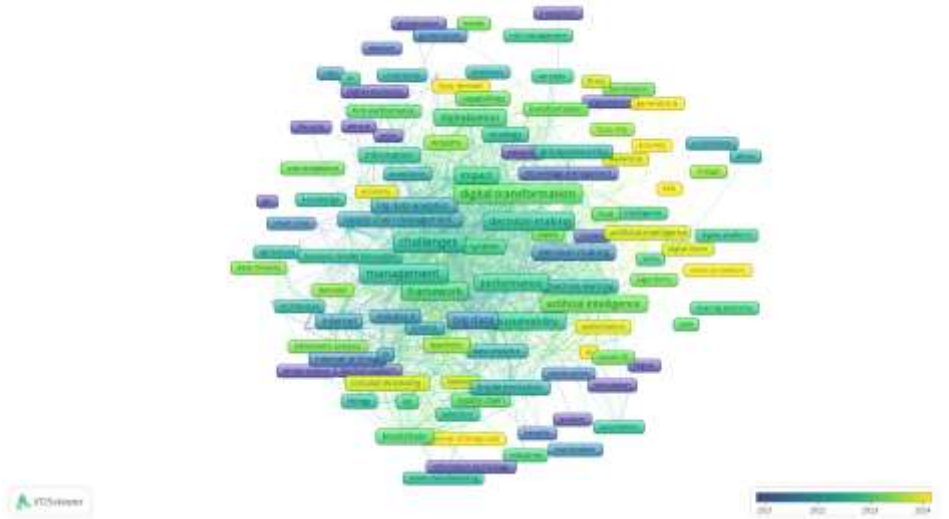

Figure no. 6. Distribution of keywords by years for the 2nd data set
Source: Own processing in VOSviewer

In terms of keywords interest over the years, Figure no. 6 highlights a somewhat different situation than of Figure no. 3 and if in that case one could discuss an increase in interest during the pandemic period, in the case of the second set of data it can be said that there was a greater focus only since 2021, so most likely after work went remote and managers and organizations began to face the challenges of digitalization, while researchers began to think more about what risks it entails than what advantages it can bring. For a more thorough examination of these considerations, a table of the distribution of works by year will be constructed (Table no. 4).

Table no. 4. Distribution of works by year for the 2nd data set

Publication year	Documents/Year
2002	1
2007	2
2008	2
2009	4
2010	1
2011	2
2012	8
2013	6
2014	7
2015	12
2016	10
2017	18
2018	29
2019	37
2020	47
2021	42
2022	86
2023	81
2024	158
2025	125
Total	**678**

Source: Own processing

Table no. 4 allows us to clearly establish the trend in terms of the periods in which research on the two topics appeared, but also when the interest started to differentiate. Thus, if in the case of advantages, researchers began to pay attention to them around 1994, in terms of risks, it seems that curiosities came much later, about 8 years apart. It also confirms that differences in volume between the two began to appear around 2022, indicating that researchers began to examine the organizational practice for more insights into the risks that the digitalization of the decision-making process imply.

Conclusions

The research results indicate some of the trends of the digitalization of the decision-making process, including that curiosity in studying the advantages emerged much earlier than in studying the risks. This could reflect practice in the field and indicate that with the increasingly frequent use of the digital environment, more and more concerns about the dangers it can cause have begun to emerge. The second trend identified is that of areas of interest, more precisely, the fact that in the case of the study of benefits, the focus is much more concentrated in the United States of America and China, while in the case of the challenges, it can be noted that Europe also appears in the equation through its states. Furthermore, when it comes to the directions of the specialized literature, it can be said that the risks of digitalization are becoming increasingly studied and that the literature could focus more on this side than on the advantages brought by

digitalization. At the same time, the paper also confirms other notable problems, such as using the term "digital transformation" with the idea that it would reflect the same thing as digitalization, a common misconception in the literature. Finally, the most relevant finding is that when it comes to identifying the so-called benefits and dangers of the digitalization of the decision-making process, the literature is still insufficient, being relatively small in volume. This is supported by the extremely low number of papers in both datasets (604 and 679), reiterating the fact that no year filter was applied. Thus, tracking their volume over time and bringing into context the popularity of digitization since 2020, the field of study should be broader. In conclusion, it can be noted that it is more than necessary to supplement the literature with the most current directions and, at the same time, with important studies that reflect managerial practice. Accordingly, future research could expand this scope by conducting bibliometric analyses on databases like Scopus, thereby identifying potential variations in the volume of literature present in those repositories.

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