(REVIEW ARTICLE)

Digital transformation of tax in academic research: A literature review

Vu Thi Lan Huong *, Nguyen Thi Tuyet Van and Vu Thi Thanh Huyen

Department of Law, University of Labour and Social Affairs, Hanoi, Vietnam.

Abstract

This study aims to systematize previous research on digital transformation in the tax industry, make statistics, and evaluate according to the most influential authors in research on digital transformation in the tax industry. Research data was collected and analyzed from the Google Scholar database on VOSviewer 1.16.19 software with 76 articles for the keyword "digital transformation in the tax industry" filtered in abstract and title form. The results show that research on digital transformation in the tax industry has gradually increased since 2014 and the number peaked in 2021 (20 articles). The study also shows the most influential authors according to the number of citations and number of articles, the keywords of most interest in digital transformation research in the tax industry. The research results have contributed to synthesizing a system of research documents on digital transformation in the tax industry. At the same time, keyword analysis identified much content that will be important research points for future research.

Keywords: Digital Transformation; Tax; Literature Review; Vosviewer.

1. Introduction

The fourth industrial revolution marked huge changes in business activities. These changes incorporate internet use and other disruptive technologies in all walks of life. The tax industry is undergoing a comprehensive transformation, leading to digitized operations. Digital transformation in the tax industry makes an important contribution to implementing budget collection tasks, promoting socio-economic development, contributing to improving the investment and business environment, enhancing provincial competitiveness, creating favorable conditions for people and businesses to participate in digital transformation, helping people and businesses reduce costs, save human resources, and save time in fulfilling tax obligations. Based on digital transformation trends, the digital maturity level of tax administrative procedures around the world is generalized, allowing the implementation of a global digital space for tax administration, integration of digital infrastructure and digitization of tax processes, information interaction, tax data information sources and tax legal regulations, organizational and management mechanisms as well as the formation of responsibilities digital transformation at many levels in tax administrative procedures.

In the context of global digital transformation, digital transformation in the tax industry is receiving great attention. Many studies in recent years have chosen digital transformation content in the tax industry for synthesis and analysis. Providing a comprehensive picture of digital transformation research in the tax industry in the period from 2014 to the present is necessary to understand the research content of this issue.

Within the scope of the article's research, the authors want to systematize research on digital transformation in the tax industry conducted from 2014 to October 2023. This research aims to contribute to the theoretical basis of digital transformation in the tax industry, the number of statistical works on digital transformation in the tax industry, and the most influential authors with many articles and publications that have the highest number of citations on digital

* Corresponding author: Vu Thi Lan Huong

transformation in the tax industry. The research is divided into parts: defining the conceptual foundation, applied methods, research results, and concluding remarks.

2. Literature review

Digital transformation can be defined as "the most profound and rapid transformation of operations, processes, capabilities, and business models to take advantage of the changes in digital technology and the impact them in a prioritized and strategic way" (Hamidi et al., 2018). The main goals of digital transformation can be described as customer-centric processes, increased operational flexibility, and reduced costs (Junge, 2019). The enablers of digital transformation are cloud computing, mobile computing, fog computing, big data, data science, business analytics, social computing, the Internet of Things, systems virtual reality, etc.

At the heart of digital transformation are changes within and between organizations and their transformations at different levels including governance, strategy, people, leadership, culture and technology (Heilig et al., 2017). This 21st-century model has brought a new way of thinking about innovation in businesses. Digital transformation connects with digital innovation, in which information technology plays a key role and engages different stakeholders, and in which transformation, knowledge management, and demand-driven supply chains are leading characteristics (Bernardi and Exworthy, 2019). Heinzelmann (2019) emphasized that digitalization refers to the digital transformation of business operations. The transformation is driven by the application of efficient technologies in the organization's work processes (digitizing paper-based work processes, invoices, etc.) and by the use of new technologies. New breakthroughs in existing business models (Uber, booking.com, etc.) Digitalization is so pervasive that 'no aspect of business today is unaffected by digital technology.' (Bhimani & Willcocks, 2014). Korchagina, Kalinina, Burova, and Ostrovskaya (2020) suggest that when digitally transforming, at least four changes are needed in a business enterprise: first, changes in the context in which the business operates; second, changes in the business's relationship with key stakeholders (customers, suppliers, contractors, employees, etc.); third, changes in business processes; and fourth, the sophistication added to the products manufactured or services provided.

In the current period, tax management is essentially an information management activity. This is strongly supported by information and communication technology. Technological change impacts organizational structures, business processes, and human resource policies. In addition to applying technology, true digitalization in tax administration requires a comprehensive approach to legal and institutional transformation. This process includes all the necessary adjustments to transform traditional operating models to achieve long-term and sustainable efficiency, deliver new and improved services to taxpayers, and develop new capabilities in key areas such as digital invoicing, tax payments, digital financialization, advanced data analytics, and value chain and factoring. Such developments allow tax and customs administrations to process large volumes of information and increase the reliability, accuracy and timeliness of processed information, which radically reduces administrative costs.

3. Research method

This study uses the systematic literature review method SLR (Systematic Literature Review) of Tranfield et al. (2003). Sample selection for the study was based on PRISMA (priority items for systematic reviews and meta-analyses) originally proposed by Liberati et al. (2009) and updated in 2021 by Page et al. (2021). The PRISMA flow diagram is based on three steps: identification, screening, and study inclusion.
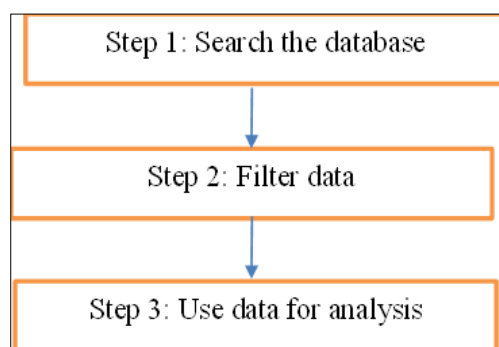

Figure 1 Research diagram

Step 1: The authors synthesize previously published overview documents related to digital transformation in the tax industry and introductory documents on the nature and role of digital transformation in the tax industry from data sources on Google Scholar. This collection aims to explain the urgency of the research, overview the research, and point out research gaps. Data was collected on October 4, 2023, with the use of the following keywords "digital transformation" and "tax". The Boolean operator AND is placed between keywords in the search. A total of 83 results were found from the Google Scholar site from 2014 to 2023.

Step 2: The author group has screened to remove inappropriate documents through technical screening and content screening. For technical screening, documents of the following types: Encyclopedia, Editorials, Short communications, Mini reviews, Book chapters have been eliminated. For content screening, documents are pre-read to remove documents with irrelevant content even though they contain search keywords. The results after filtering showed that 76 results met the filtering conditions for inclusion in the study.

Step 3: The number of remaining documents after the two steps is analyzed by the SLR (systematic literature review) document system and put into VosViewer 1.16.19 software to analyze keywords and co-citation analysis. The results of SLR analysis are presented in tables and graphs. The results of bibliometric analysis will be presented in visual form. From the analysis results, the study finds popular research directions, names the research directions, and suggests future research directions. The data collected in this software is used to analyze and answer the following research questions:

- Q1: What is the number of articles on digital transformation in the tax sector from 2014 to 2023?
- Q2: What topics are the keywords used grouped into?
- Q3: Are keywords changed and emphasized over time?
- Q4: Do the authors have many affiliations and do they come together over time?

4. Results

4.1. Statistics on the year of publication

From 2014 - 2023, there were a total of 83 articles on digital transformation in the tax industry indexed in Google Scholar with citations of 197. The average number of citations per year is 21.89. Of the 83 articles, 7 articles did not meet the research content requirements so they were eliminated.

Citation	metrics
Publication years:	2014-2023
Citation years:	9 (2014-2023)
Papers:	83
Citations:	197
Cites/year:	21.89
Cites/paper:	2.37
Cites/author:	91.13
Papers/author:	50.88
Authors/paper:	2.17

Figure 2 Citation metrics

Articles published in 2020 have the most citations, articles in 2014 have the lowest citations. The number of citations increases over time, and content about digital transformation in the tax industry is an area of interest over time.
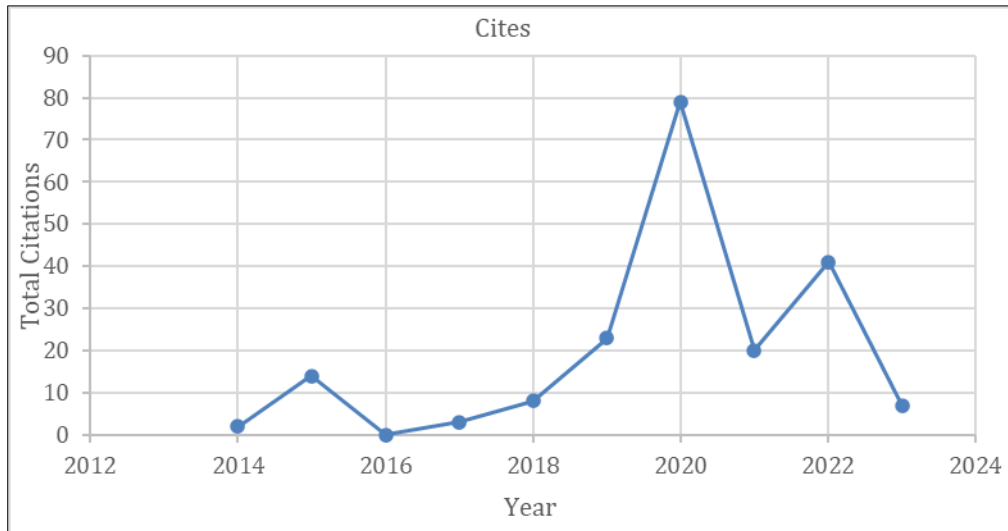
Figure 3 Citation statistics

The lowest number of articles was in 2014 and 2017 (1 article published). In 2016 alone, no articles about digital transformation in the tax industry were published. And in 2021, it is the year with the highest number of articles published (20 articles). Statistical results of the year of publication show that researchers are paying a lot of attention to digital transformation in the tax field. Over the past 5 years, the number of publications related to digital transformation in the tax field has increased significantly.
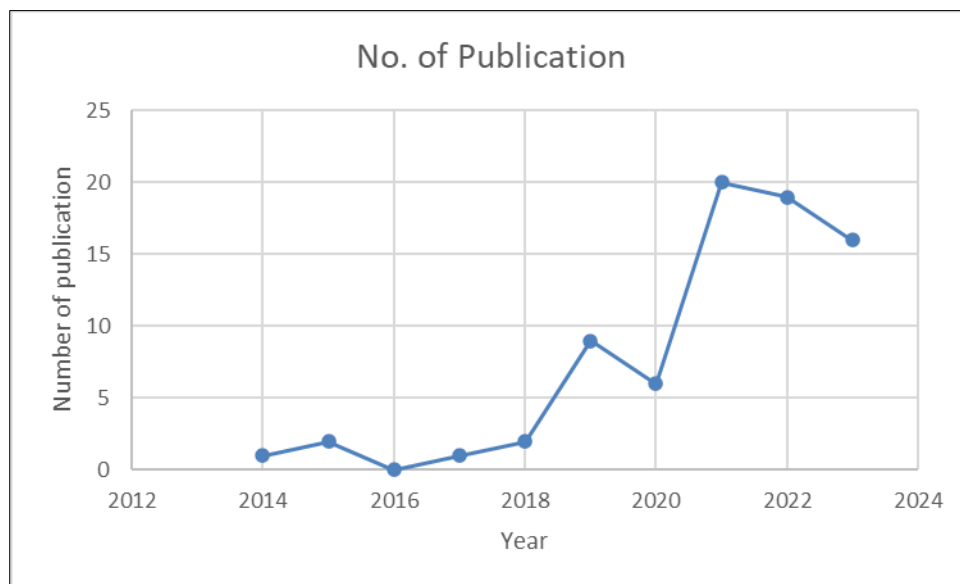
Figure 4 Chart of the number of studies over the years

5. Keyword analysis results

In the keyword analysis section, research and select keywords that appear 5 times or more. Keywords are evaluated by the software based on the number of occurrences and total link strength. There are a total of 11 keywords that appear 5 times or more, including the keywords "corporate tax avoidance", "tax incentive", "tax administration", "digital transformation", "use", "term", "tax system ", "tax authority", "influence", "tax policy", "economy". The keyword "digital transformation" appears the most with 135 times. The keyword "tax administration" appears the second most with 39 times. These are important keywords in research on digital transformation in the tax field.

Selected	Term	Occurrences	Relevance ∨
✓	corporate tax avoidance	7	2.69
✓	tax incentive	9	2.69
✓	tax administration	39	1.43
✓	digital transformation	135	1.39
✓	use	6	0.68
✓	term	5	0.49
✓	tax system	23	0.46
✓	tax authority	11	0.42
✓	influence	5	0.35
✓	tax policy	8	0.33
✓	economy	7	0.06

Figure 5 Frequency of keyword appearance

The keyword network is shown in Figure 6. Note that the larger the circle, the more times it appears; the thicker the line connecting two keywords, the greater the frequency of occurrences. Related keywords are grouped into groups, each group is a separate color. Looking at the image, it can be seen that the keywords are divided into 4 groups with 24 links and the total link strength is 281. Group 1 is represented by red links with 5 keywords, including economy, influence, tax policy, tax system, and term. Group 2 is represented by green links with 4 keywords, including tax administration, digital transformation, tax authority, and use. Group 3 is represented by green links with the keyword corporate tax avoidance. Group 4 is represented by yellow links with the tax incentive keyword. With 4 research directions and 11 popular keywords (Figure 6), the results show that research content on digital transformation in the tax field is receiving a lot of attention in recent years.
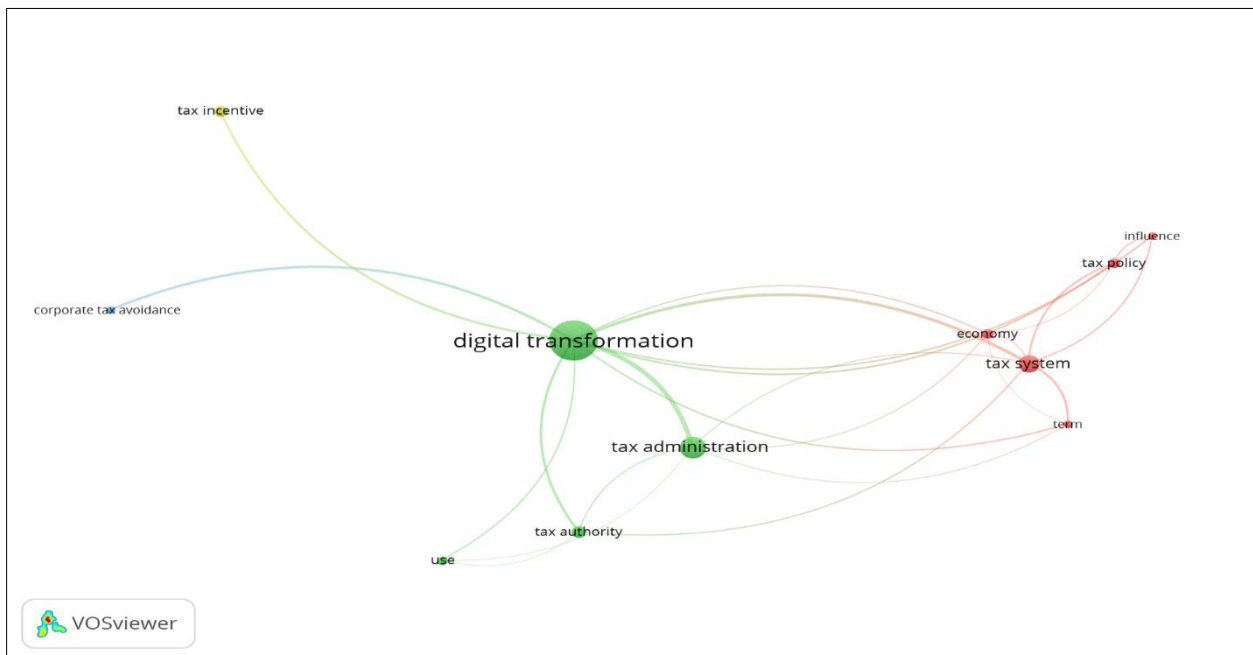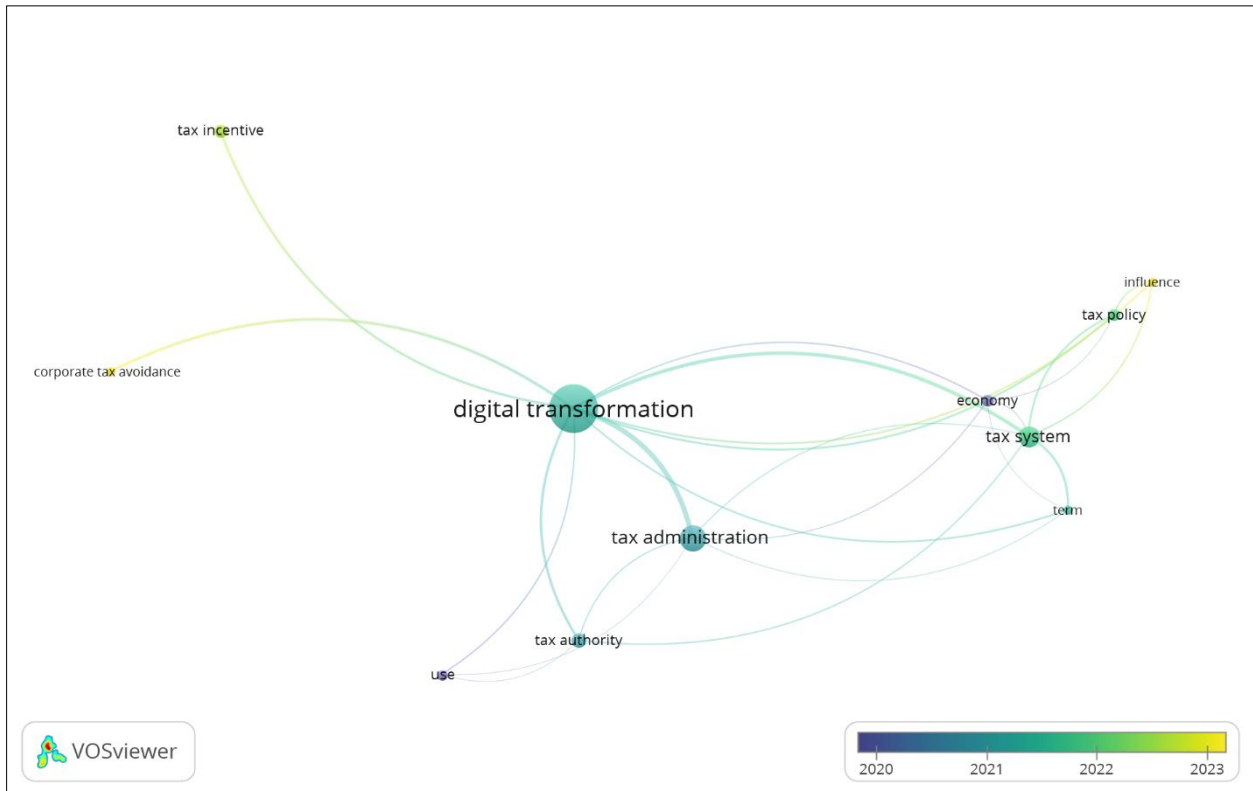

Figure 6 Co-occurrence networks

Figure 7 Time of keyword appearance

In addition, the results from the VOSviewer tool have shown the time of keywords appearing. Dark colors represent keywords that were researched in the early years; in recent studies, keywords have appeared in brighter colors. The keyword appearance time chart shows that digital transformation is the most interested keyword with the largest circle size, and this keyword was the content of interest in the years 2021–2022. In 10 months in early 2023, the keywords influence, tax incentive, and corporate tax avoidance received more attention.

5.1. Co-authorship analysis

Out of a total of 76 publications reviewed, 153 authors contributed to the article. Among them, 12 authors have participated in writing 2 or more articles. The two authors Malau and Meita are the authors of 3 publications related to digital transformation in the tax field.

Figure 8 Frequency of appearances by authors

To understand the trend of collaboration in digital transformation research in the tax field, this study conducted an analysis of co-authorship relationships between individual authors. According to Benoit et al. (2018), the analysis results help improve understanding of research collaboration and help discover influential researchers. Figure 9 presents the co-authorship network map. The link between two nodes represents the collaborative relationship between the two authors, and the thickness of the link represents the intensity of the collaboration. Regarding co-authorship, it is divided into 2 main groups with 11 links and a total link strength of 12. Group 1 includes 4 authors Baisalbayeva, Enden, Flores, and Tenan. Group 2 includes 2 authors Ion and Tsavdaris.
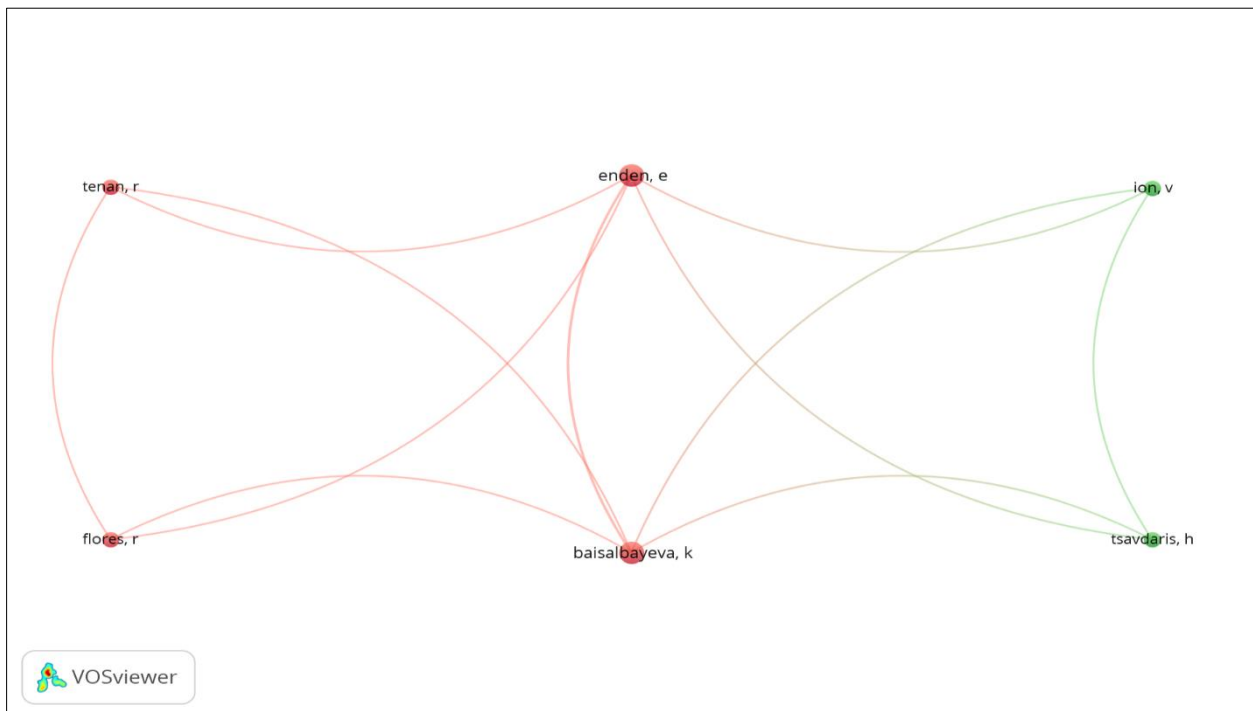

Figure 9 Co-authorship analysis by units of authors

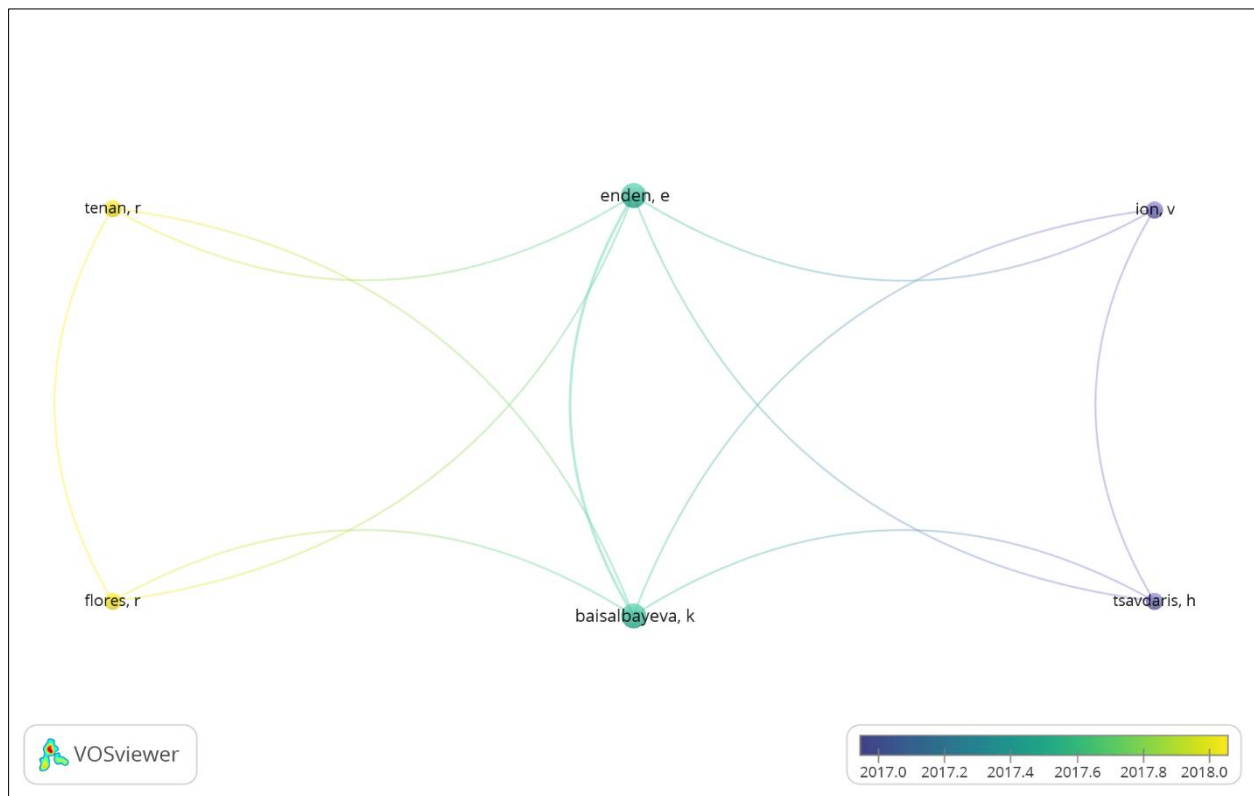The authors' trend of cooperation in digital transformation research in the tax sector focuses on 2017.

Figure 10 Co-authorship analysis over time

6. Conclusion

Based on statistical data of global publications on digital transformation in the tax industry indexed in the Google Scholar database published from 2014 to October 2023, the authors use analysis to provide provides detailed information about the number of publications, number of citations, keyword network and co-author network. This study used bibliometric methods with the help of several statistical and data visualization applications to explore research trends in digital transformation content in the tax field.

Publication statistics show that research on digital transformation in the tax field tends to increase over time, and will peak in 2021. This shows that the authors are paying great attention to the issue of digital transformation in the tax field. In published publications, the keywords "corporate tax avoidance", "tax incentive", "tax administration", "digital transformation", "use", "term", "tax system", "tax authority", "influence", "tax policy", "economy" are of most interest to authors.

From 2014 to 2023, there have been 153 authors around the world interested in the topic of digital transformation in the tax field. Together, these authors have produced 76 publications. Among the 153 authors, there are 12 authors who wrote two or more articles.

The research results have contributed to the general theoretical basis, creating statistical data as a basis for reference studies on digital transformation in the tax field. Data collected from richer sources such as Scopus or Web of Science are suggestions for further research on digital transformation in the tax field.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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