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## Digital Economy in Business & Economics

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## **Digital Economy in Business & Economics: A Systematic Literature Review and Bibliometric Analysis**

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### **ABSTRACT**

This study reviews the evolving research literature of the Digital Economy in Business & Economics (DEBE) through a bibliometric analysis. By exploring 1,273 papers from the Scopus database (2013–2022), we uncover trends and progress in the field.

Our findings show substantial growth in DEBE-related research between 2017 and 2022, with contributions from around 3,300 researchers across 80 countries. We highlight major journals, prominent countries, and key research themes, providing valuable insights on areas that deserve further exploration.

This study is particularly useful for academics and professionals looking to stay informed, collaborate, or shape future research in Business, Economics, and Digital Transformation. Beyond mapping the existing literature, our work aims to inspire further studies and meaningful collaborations in this rapidly growing field.

**KEYWORDS:** Digital Economy, Bibliometric Data Analysis, Digital technologies

### **1 INTRODUCTION**

The digital economy, a recently emerging economic paradigm, has its roots in networked intelligence and can be traced back to the late 1990s (Lane, 1999; Nalebuff and Brandenburger, 1997). Only in recent years it has distinctly defined that the digital economy, centered around IT and utilizing modern networks as a conduit, results from a series of economic endeavours aimed at the efficient utilization of communication technology and enhancements in economic structure. At present, global economic governance is undergoing a new phase with the advent of digital transformation (Pan et al., 2022). The resulting innovations in digital economy business models have fundamentally altered consumer expectations and behaviours, exerting pressure on traditional companies, and causing disruptions in numerous markets (Verhoef et al., 2021).

Considering literature reviews on Digital Economy, the initial highly cited approaches focused either on business strategy (Nalebuff & Brandenburger, 1997), or environmental (Sui and Rejeski, 2002) issues. More recent reviews study educational (Siddoo et al., 2018), innovation (Luyanda Dube, 2021; Sultana et al., 2021; Yu et al., 2023), labour (Doellgast and Wagner, 2022; Hackney et al., 2022), law (Capobianco & Nyeso, 2018; Moreno, 2013; Wiebe, 2017), regional (Balcerzak and Pietrzak, 2017, Xu et al., 2022; Maji and Laha, 2020), or sustainability (Liu et al., 2021) related topics on Digital Economy.

Furthermore, miscellaneous literature reviews on IT-Business related issues utilizing scientometric methods, techniques and software are included in recently published works in relation to AI & Machine Learning (Bitzenis et al., 2025a, 2025b), Big Data (Bitzenis and Koutsoupias, 2024), or regarding digital entrepreneurship platforms (Fernandes et al., 2022), blockchain technologies (Hakami, et al., 2023), Cryptocurrency (Sousa et al., 2022), the internet (Chatterjee et al., 2023), digital transformation (Pizzi et al., 2021), social media (Capitello et al., 2014) and Sustainability (Apostolidis et al., 2022). A more general, yet less comprehensive review on Digital Economy research is provided by Zaitsef (2019) in *Public Administration Issues Journal*. As a reflection, there has been no comprehensive review to date that consolidates the findings from these research trends into a single study, using a variety of methods. Consequently, the present research aims to address this gap by adopting a distinctive approach, combining both bibliometric analysis (Bellis, 2009; Donthu et al., 2021) and content analysis (Stemler, 2000; White and Marsh, 2006) with the utilization of state-of-the-art software (Aria and Cuccurullo, 2017), as applied in economics and international business contexts in papers of Bitzenis and Koutsoupias (2023a,b) and Thomos et al. (2023).

We conduct a comprehensive review of published studies that examine the Digital Economy within the context of Business and Economics (DEBE). The primary aim is to chart the conceptual landscape of this field and pinpoint potential avenues for future research. Consequently, we set forth four research objectives. The first objective is to ascertain the presence of the Digital Economy as a distinct research domain within the realm of Business and Economics. The second objective is to discern the principal journals, articles, and countries that play pivotal roles in this research domain, as well as to identify the most frequently utilized author keywords within the body of studies. The third objective is to extrapolate insights into past, present, and future research directions within this field. The final objective. is to delineate the conceptual structure of DEBE by uncovering and exploring the underlying research themes.

The outcomes of this study bear significant implications for both the scholarly and industrial communities. This study offers academics and practitioners engaged in DEBE, an initial exploration of the research landscape, acquainting readers with essential studies, sources, countries, concepts, and emerging trends.

Furthermore, it can be used by IT companies and regulatory bodies to leverage the identified concepts and methodologies and enhance coordination among key stakeholders, optimize resource allocation, and enhance sustainability and digital transformation. Bitzenis et al. (2023) utilizes the same approach to deliver a systematic literature review on Data Mining in Business Research.

The remainder of this study is structured as follows: Section 2 provides an overview of the research methodology and presents initial findings. Section3 exhibits the results of the bibliometric analysis. Section4 delves into the research themes and explores past, and present research directions. Finally, Section5 offers a concluding section that includes a critical reflection.

## **2 METHODOLOGY AND DATA DESCRIPTION**

For the selection of research published in the field of DEBE, we employed Scopus' online search service. As illustrated in Figure 1, the article selection is based on Prisma 2020 statement (Page, et al., 2021). Our initial query, using the search term "Digital Economy" returned (\*) a substantial dataset of over 9,000 records. To narrow our focus, we applied filters (\*\*) in the "Business and Economics Subject areas", the "Journal" option, for the decade from 2013 to 2022, resulting in a refined dataset of 1,273 Scopus-indexed journal articles within the studies domain. Once this dataset was compiled, we utilized bibliometrix (Aria & Cuccurullo, 2017), an R language package specialized in scientometrics, to further analyze and extract insights from the collected data. The full catalogue of the explored corpus of articles is available at the OSF Open Data Repository (Koutsoupias, 2023).

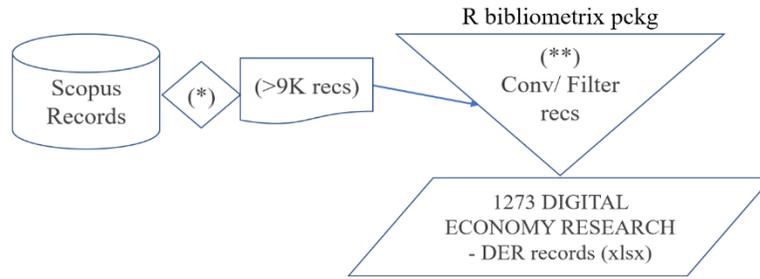


Figure 1: Data Selection Framework following Prisma 2020 Statement

Table 1 presents the key findings derived from the analysis of the publications, offering crucial insights into the dataset.

Table 1: Main Information about Data

Timespan	2013:2022
Sources (Journals, Books, etc)	503
Documents	1273
Annual Growth Rate %	47.02
Document Average Age	3.06
Average citations per doc	10.08
Keywords Plus (ID)	1626
Author's Keywords (DE)	4128
Authors	3289
Authors of single-authored docs	269
Single-authored docs	285
Co-Authors per Doc	2.91
International co-authorships %	16.18

In greater detail, it underscores various significant factors, including an impressive annual growth rate in publication creation of nearly 47%, a substantial number of authors and co-authors amounting to approximately 3,200, and an average co-authorship rate of 16.18% per document.

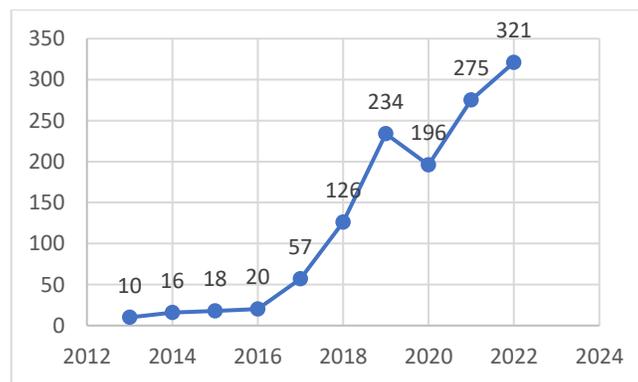


Figure 2: Annual DEBE Scientific Production

Figure 2 portrays a noticeable upward trajectory in the annual interest in DEBE research. Notably, it is evident that over half of the articles within the dataset were published between 2019 and 2022, underscoring a substantial surge in research output during this time frame.

### 3 RESULTS

In this section we take a closer look at the most influential sources, countries, and articles that have shaped the field of Digital Economy in Business and Economics (DEBE). We highlight the top four journals that have made a significant impact, including some of the most widely cited papers. We also examine the most frequently used keywords, which show how the focus of DEBE research has shifted over time. Finally, we present a visual map that groups DEBE research themes into four categories, giving you a better understanding of the field's evolution and organization.

#### 3.1 Popular Sources, Countries and Articles

Among the pool of over 500 sources, originating mainly from Business, Management, Economics, and IT subject fields, the top four journals have made significant contributions to DEBE research, collectively accounting for more than 100 articles. These prominent journals are *Espacios*, *Economic Annals-XXI*, *Technology in Society*, and the *International Journal of Supply Chain Management* (as detailed in Table 2).

Table 2: Journals by Published DEBE Papers

Source	Articles	TotCit
Espacios	31	93
Economic Annals-XXI	26	101
Technology in Society	23	412
International Journal of Supply Chain Management	21	44
Intertax	20	51
Quality - Access to Success	20	74
Technological Forecasting and Social Change	18	362
European Research Studies Journal	17	186
International Journal of Economics and Business Administration	17	138

Notably, the journal with the most substantial impact is *Technological Forecasting and Social Change*, boasting a Total Citations (TotCit) to Articles ratio of 20.11. Within this journal, two of its most widely recognized DEBE papers, authored by Shahzad et al. (2020) and Watanabe et al. (2018), have each garnered over 50 references, exemplifying their significant influence in the field.

In our analysis of the explored set of DEBE papers, we identified contributions from a total of 80 countries. Remarkably, China emerges as the leading country with the highest number of citations, boasting 408 records. Following closely behind are Ukraine and the USA with 252 and 224 citations, respectively, accounting for 15.97%, 9.86%, and 8.77% of the total number of references in the dataset under examination. The United Kingdom follows with 174 references, and then there are three Asian countries in succession: Malaysia (91), India (88), and Kazakhstan (82). Furthermore, Germany, Spain, and Indonesia round out the group of countries that have each made substantial contributions, with 80 or more references in the pool of 2,555 citations within the examined set of papers.

Table 3 provides an overview of the most frequently cited papers within our DEBE research set, listing their total citation counts and the citation-per-year ratio. Impressively, Teece's (2018) article on profiting from innovation has garnered more than 400 citations, making it one of the most cited papers. Additionally, the 300-citation threshold has been exceeded by an article authored by Sebastian et al. (2020) concerning strategic information management issues, as well as by Cardona et al. (2013) in their work on ICT and productivity. Noteworthy is the contribution of Ren et al. (2022), whose paper in the *Resources Policy Journal* boasts the second-highest citation-per-year value of 63.67, underlining its significant impact in the field.

Table 3: Most Cited Papers

Paper	Total Citations	TC per Year
Teece DJ, 2018, Res Policy	421	70,17
Sebastian IM, 2017, MIS Q Exec	342	48,86
Cardona M, 2013, Inf Econ Policy	333	30,27
Täuscher K, 2018, Eur Manage J	242	40,33
Xu Z, 2016, J Bus Res	226	28,25
Scuotto V, 2016, Bus Process Manage J	200	25,00
Ren S, 2021, Energy Econ	191	63,67
Weber Ta, 2014, J Manage Inf Syst	174	17,40
Li F, 2020, Technovation	169	42,25
Townsend L, 2013, Local Econ	150	13,64

### 3.2 Frequent Terms, Trend Topics, and Thematic Map

Table 4 displays the author keywords that were used most frequently across the analyzed papers. These popular keywords, each occurring more than 25 times, apart from 'digital economy', include 'digitalization', 'digital transformation', 'innovation', 'e-commerce', 'big data', 'industry 4 0', 'digital technologies', 'artificial intelligence', and 'blockchain'.

Table 4: Most Frequent Author Keywords

Words	Occurrences
digital economy	576
Digitalization	95
digital transformation	59
Innovation	50
e-commerce	35
big data	32
industry 4 0	31
digital technologies	28
artificial intelligence	26
Blockchain	26

Figure 2 illustrates the shift in focus of author keywords from the initial emphasis on "business analytics" and "business intelligence" in DEBE to the current emphasis on "auditing" and "digital platforms."

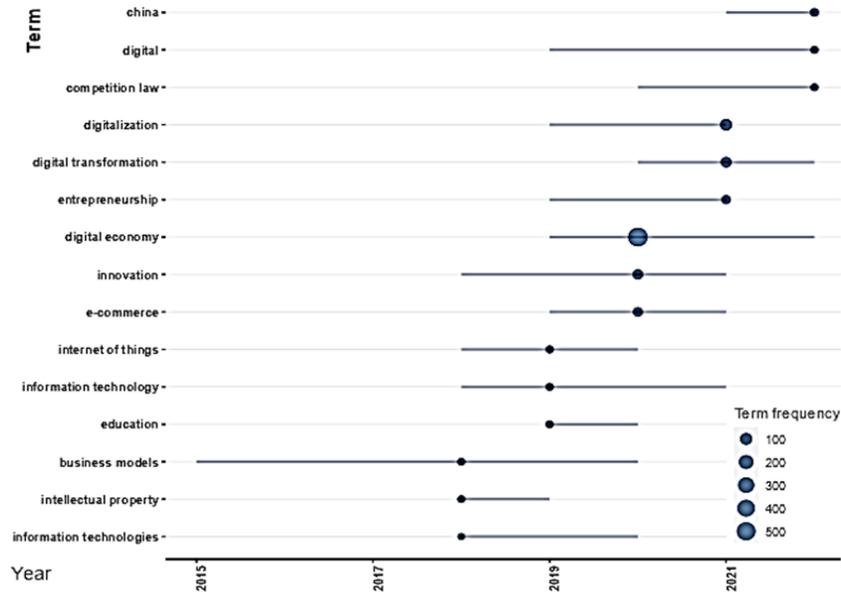


Figure 3: Trend Topics

Figure 3 provides a visual representation of the changing emphasis in author keywords within DEBE research literature. Initially, the focus was on concepts like "business models," "intellectual property," and "information technologies." However, the current emphasis has shifted towards keywords such as "China," "digital," and "competition law." Moreover, the analysis highlights the growing significance of terms like "digitization," "digital transformation," and "entrepreneurship" in recent years. This shift in emphasis becomes evident through the longitudinal study of author keywords in the set of articles under examination.

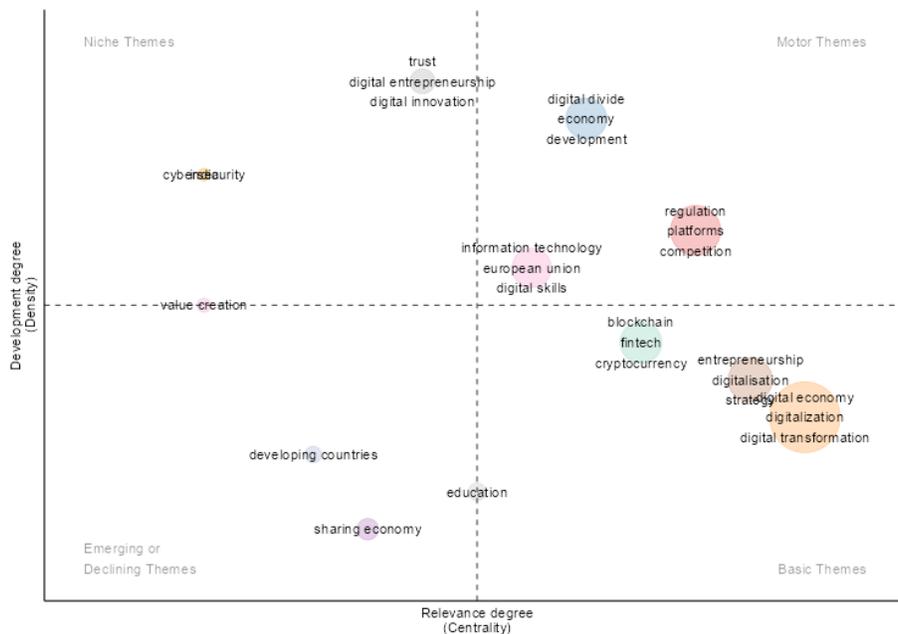


Figure 4: Thematic Map

To classify DEBE research themes, we employed co-word analysis techniques (Callon et al., 1991; Limayem and Cheung, 2008). When employing co-word analysis to chart the landscape of scientific

research, themes are identified by examining clusters of keywords and the connections between them. Each research theme is defined by two fundamental parameters: "density" and "centrality." These parameters serve as the basis for categorizing themes into four distinct groups, utilizing both the median and mean values for density and centrality.

Within each theme, a "thematic network" takes shape, emerging from the interconnections among keywords. This network forms a graphical representation with "centrality" on the horizontal axis and "density" on the vertical axis. Nodes within this network that exhibit numerous connections with others possess higher centrality and occupy pivotal positions in the network structure. Consequently, a thematic map, constructed based on such a network, provides an intuitive visual representation where themes can be assessed according to the quadrant in which they reside.

Themes positioned in the upper-right (1st) quadrant play a pivotal role in organizing the examined research articles. Such themes are typified by terms like "regulation," "platforms," and "competition," which are both firmly established and of significant importance. Conversely, themes located in the upper-left (2nd) quadrant are characterized by well-developed internal connections but relatively inconsequential external connections, rendering them only marginally relevant to the field. Within this quadrant, themes often revolve around keywords like 'trust,' "digital entrepreneurship," and "digital innovation."

Themes found in the lower-left (3rd) quadrant are less established and somewhat marginal, frequently representing emerging or diminishing topics. In this quadrant, themes are marked by terms such as "developing countries" and "sharing economy." Lastly, the lower right (4th) quadrant encompasses critical cross-cutting themes that are still in the process of development. These themes, as observed in our study, are associated with keywords like "digital economy," "digitalization," and "digital transformation."

#### **4 CONCLUDING REMARKS**

The bibliometric method was employed for the very first time to investigate advancements and focal points within the DEBE field. The quantity of research papers published on this topic has experienced a significant surge, notably since 2016. China, Ukraine, and the United States of America emerge as the top three countries with the highest number of authored papers in this area. The sources surveyed in this analysis exceed 500 in number and primarily originate from fields such as Business, Management, Economics, and Information Technology (IT). Based on term frequencies, DEBE research primarily centers on topics related to digitization, digital transformation, and innovation. Currently, based on the trends in authorship, as indicated by the keywords they employ, there is a notable emphasis on China and competition laws within this field. Our analysis has brought to light the increasing significance of terms such as "digitization," "digital transformation," and "entrepreneurship" within papers published in 2022. This shift in emphasis becomes particularly evident when we conduct a longitudinal examination of author keywords in the articles we've scrutinized. Notably, our research reveals that over half of the papers in our dataset were published between 2019 and 2022, signifying a substantial surge in research output during this period.

In our analysis, we have also uncovered remarkable statistics, including an annual growth rate in publication creation of nearly 47%, a substantial number of authors and co-authors totaling approximately 3,200, and an average number of co-authors per document of 16.18%. Additionally, we've identified popular keywords that occur more than 25 times, apart from 'digital economy,' such as 'digitalization,' 'digital transformation,' 'innovation,' 'e-commerce,' 'big data,' 'industry 4.0,' 'digital technologies,' 'artificial intelligence,' and 'blockchain.'

Furthermore, we've observed a significant shift in the focus of author keywords, transitioning from an initial emphasis on "business analytics" and "business intelligence" to a current emphasis on "auditing" and "digital platforms." In terms of citations, China emerges as the leading country with the highest number of citations, amassing an impressive 408 records. Following closely behind are Ukraine and the USA, with 252 and 224 citations, respectively. Moreover, the journal with the most substantial impact is Technological Forecasting and Social Change, boasting a Total Citations (TotCit) to Articles ratio of 20.11. Notably, Teece's (2018) article on profiting from innovation has garnered more than 400 citations, solidifying its

position as one of the most cited papers in the field. In our forthcoming research endeavors, we have the intention of pinpointing notable institutions and sources associated with research related to the DEBE. Additionally, our objectives include delving into author collaborations and co-word networks while scrutinizing research partnerships among diverse countries.

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