

## **A Bibliometrics Analysis of Digital Entrepreneurship**

Purnomo M Antara, Aini Hayati Musa, Sarah Mardhiah  
Selamat, Farrah Nadia Baharuddin, Asiah Ali, Raja Mayang  
Delima Mohd Beta

Faculty of Business and Management, Universiti Teknologi MARA Cawangan Negeri  
Sembilan, Malaysia

**To Link this Article:** <http://dx.doi.org/10.6007/IJARBSS/v14-i5/21621>

DOI:10.6007/IJARBSS/v14-i5/21621

**Published Date:** 17 May 2024

### **Abstract**

The usage of digital technology in entrepreneurial activities has consistently increased year by year. This paper aims to provide an overview of the research landscape in the field of digital entrepreneurship. The study utilises a systematic approach to map and analyse the scholarly output related to digital entrepreneurship through bibliometric analysis. The database from ISI Web of Science was extracted to conduct the analysis. A total of 2545 was extracted, and 1690 remained after data cleaning. There is an upward trend in digital entrepreneurship publications. This study is expected to guide researchers interested in digital entrepreneurship studies. The findings of this bibliometric analysis shed light on the pivotal role of digital technologies in shaping contemporary entrepreneurial practices. It is recommended that future research explore the impact of digital technology on business performance or innovation behaviour.

**Keywords:** Digital, Entrepreneurship, Bibliometric

### **Introduction**

Digital entrepreneurship has emerged as a significant area of interest at the intersection of digital technologies and entrepreneurship (Nambisan, 2017). It involves the integration of digital elements in the entrepreneurial process, offering a wide range of platforms for pursuing digital-related career options (Ahmad et al., 2022). This modern branch of entrepreneurship reconciles traditional entrepreneurial practices with the contemporary ways of creating and conducting business in the digital era (Adam et al., 2022). The introduction of digital technologies in entrepreneurship has revealed a bright side for entrepreneurs, providing opportunities for innovation, economic growth, job creation, and the transformation of products and services (Giones & Brem, 2017; Antonizzi & Smuts, 2020; Basly & Hammouda, 2020). Furthermore, digital entrepreneurship is considered essential for economic growth and innovation, playing a crucial role within the innovation system

(Satalkina & Steiner, 2020; Antonizzi & Smuts, 2020). Digital entrepreneurship represents a modern approach to entrepreneurship that leverages digital technologies to create, innovate, and conduct business in the digital era. It encompasses a wide range of opportunities, from career options to regional development, and plays a vital role in economic growth, innovation, and addressing contemporary challenges. Despite the emergence of interest in digital entrepreneurship, however, the recent analysis on current trends of digital entrepreneurship is scarce. This paper aims to conduct a bibliometrics analysis on digital entrepreneurship using the Web of Science database to explore the current trends in digital entrepreneurship research.

### **Literature Review**

The concept of digital entrepreneurship extends beyond the mere introduction of digital technologies in business. It requires the creation of new conceptual models to efficiently manage entrepreneurial ventures and take advantage of modern market opportunities (Krivokuća et al., 2021). This is particularly important as digital entrepreneurship can manifest not only in new ventures but also in existing businesses through the introduction of new digital technologies or the novel use of technologies that revolutionise products or services (Basly & Hammouda, 2020). Moreover, the potential of digital entrepreneurship is not limited to specific regions, as it is considered an important element of the transition to the digital economy and a factor in accelerating regional development (Korchagina et al., 2019).

From an educational perspective, the emergence of digital technologies has led to integrating digital entrepreneurship modules into existing entrepreneurship courses, emphasising the need to equip individuals with the necessary skills for digital business ventures (Zainal & Yong, 2020). Additionally, the effectiveness of digital entrepreneurship education has been examined, particularly in terms of its impact on developing soft skills among undergraduates (Zainal & Yong, 2020). In the context of the COVID-19 pandemic, digital entrepreneurship has gained significance, especially in the healthcare sector, where the introduction of ICT has accelerated the dissemination of awareness and improved access to health information through digital health entrepreneurship (Khandelwal et al., 2021). This highlights the adaptability and relevance of digital entrepreneurship in addressing contemporary challenges and opportunities.

### **Methodology**

This study applied bibliometrics analysis, consisting of statistical methods, to determine qualitative and quantitative changes in a scientific research topic (DeBakker et al., 2005). Bibliometrics analysis can reveal the emerging trends in publications on a specific topic. It includes gaining an overview, identifying knowledge gaps, deriving novel investigation ideas, and positioning a contribution to the field (Donthu et al., 2021). The Web of Science (WOS) database on the related topic was extracted on 29 January 2023. WOS offers data on output, dissemination, collaboration, and impact (DeBakker et al., 2005). This study analysed documents based on title, topic, and abstract related to the topic of digital entrepreneurship and resulted in 2545 documents. However, the screening process was employed by excluding the year 2024 publication since there is no exact date for the publication (Antara et al., 2023). Then, this study focuses on the article type of publication only and the remaining 1918 articles. Then, the study removed all early access to prevent the system error, resulting in the remaining 1690 documents. The final database (n=1690) was then exported and analysed

using VosViewer software to display large bibliometric maps in an easy-to-interpret way (Maier et al., 2020).

**Results and Discussions**

**Publication Trends**

A total of 1690 documents from the ISI WoS database were analysed for this study. The first paper on digital and entrepreneurship was published in 2003 by Foster and Lin (2003). This paper examines the individual differences in learning entrepreneurship and their implications for web-based instruction in e-business and e-commerce. Then, the publication trends show an upward trend. The trends are expected to keep increasing in 2024 (Figure 1).

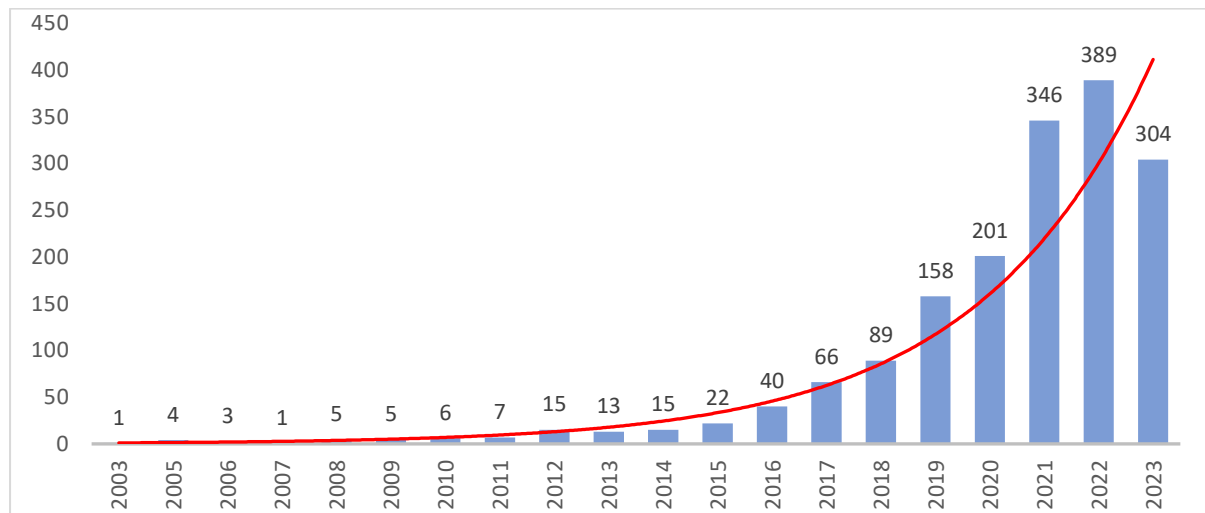


Figure 1: Number of Digital Entrepreneurship Publications by Year

On the other hand, the most productive country producing articles on digital entrepreneurship is the People’s Republic of China, with 274 publications, followed by the USA with 251 (Table 1). The number of publications for the top 10 most productive countries is at least 60 documents. Besides, English is the most used language for digital entrepreneurship publications (Table 2).

Table 1

*Top 10 Countries in Digital Entrepreneurship Publications*

Rank	Countries/Regions	Number of Publications
1	PEOPLES R CHINA	274
2	USA	251
3	ENGLAND	186
4	ITALY	141
5	GERMANY	125
6	SPAIN	110
7	AUSTRALIA	107
8	FRANCE	81
9	RUSSIA	67
10	PORTUGAL	60

Table 2

*Top 10 Publication Languages*

Rank	Languages	Record Count
1	English	1592
2	Spanish	41
3	Russian	19
4	Portuguese	16
5	French	8
6	Italian	2
7	Malay	2
8	Turkish	2
9	Ukrainian	2
10	Bulgarian	1

***Journal and Research Area Analysis***

Table 3 shows the top 10 journals on digital entrepreneurship publications. The Sustainability Journal is the most frequently published journal on digital entrepreneurship, with 123 articles found, followed by the Journal of Technological Forecasting and Social Change and Entrepreneurship and Sustainability Issues, with 61 articles. Most of the journals are in management, marketing, and entrepreneurship domains. In terms of research areas, the business economics topic is the most published article on digital entrepreneurship in the WOS database, as shown in Table 4.

Table 3

*Top 10 Journal on Digital Entrepreneurship Publications*

No.	Publication Titles	Record Count
1	Sustainability	123
2	Technological Forecasting And Social Change	61
3	International Journal Of Entrepreneurial Behavior Research	38
4	Journal Of Business Research	36
5	Frontiers In Psychology	30
6	Small Business Economics	23
7	Technology In Society	17
8	Technovation	17
9	International Entrepreneurship And Management Journal	14
10	Entrepreneurship And Sustainability Issues	11

Table 4

*Research Area for Digital Entrepreneurship Publications*

No.	Research Areas	Record Count
1	Business Economics	899
2	Environmental Sciences Ecology	166
3	Science Technology Other Topics	163
4	Education Educational Research	119
5	Computer Science	104
6	Information Science Library Science	104
7	Public Administration	90
8	Social Sciences Other Topics	86
9	Engineering	82
10	Communication	77

**Citation Analysis**

In terms of citation analysis, Table 5 shows the top 10 most influential articles in the study of digital entrepreneurship. Kitchin's (2014) article "The Real-time City? Big Data and Smart Urbanism" shows the highest citation number in this research topic with 2102 citations. It was then followed by Nambisan et al. (2017) titled "Digital Innovation Management: Reinventing Innovation Management Research In A Digital World" with 1045 citations. Most of the top 10 articles focus on the important application of digital technologies in entrepreneurial activities.

Table 5

*Top 10 Most Influential Articles on Digital Entrepreneurship Topic*

Ran k	Author(s )	Article Title	Journal	Number of Citation
1	Kitchin (2014)	The real-time city? Big data and smart urbanism	Geojournal	2102
2	Nambisa n et al. (2017)	Digital Innovation Management: Reinventing Innovation Management Research In A Digital World	MIS Quarterly	1045
3	Nambisa n (2017)	Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship	Entrepreneur ship Theory and Practice	927
4	Warner & Wäger (2019)	Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal	Long Range Planning	709
5	Nambisa n et al (2019)	The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes	Research Policy	692
6	Rosenbla t & Stark (2016)	Algorithmic Labor and Information Asymmetries: A Case Study of Uber's Drivers	International Journal of Communicati on	607

7	Li (2018)	China's manufacturing locus in 2025: With a comparison of "Made-in-China 2025" and "Industry 4.0"	Technology Forecasting and Social Change	520
8	Hinings et al. (2018)	Digital innovation and transformation: An institutional perspective	Information and Organisation	452
9	Li & Mao (2018)	Digital transformation by SME entrepreneurs: A capability perspective	Information Systems Journal	324
10	Sussan & Acs (2017)	The digital entrepreneurial ecosystem	Small Business Economics	300

### **Keyword Analysis**

The keyword co-occurrence analysis conducted in VoSViewer software generated 6 clusters. This analysis helps the researchers to identify the combination of keywords frequently used by authors (Maier et al., 2020). The study aims to see the trends and patterns in the topic of digital entrepreneurship and its relationship between keywords. The higher the co-occurrence, the higher each keyword is interrelated. Figure 2 shows the interrelation among keywords of the digital entrepreneurship topic. The analysis found 256 keywords with a minimum of 10 occurrences. Cluster 1 consists of 64 items, including entrepreneurship (718 times), internet (70 times), and digital economy (56 times). Then, Cluster 2 consists of 58 items, including impact (177 times), social media (90 times) and education (75 times). Other than that, Cluster 3 consists of 50 items, including technology (191 times), digitalisation (87 times) and strategy (91 times). In Cluster 4, there are 39 items generated, including performance (233 times), digital transformation (128 times) and management (137 times). Meanwhile, in Cluster 5, 23 items were generated, including innovation (404 times), digital entrepreneurship (198 times) and perspective (122 times). Lastly, Cluster 6 consists of 22 items, including digital technology (46 times), challenges (47 times), and social entrepreneurship (51 times). Among all keywords co-occurrence analysis, the most common keyword is entrepreneurship, followed by innovation, performance, and digital entrepreneurship (Table 6).

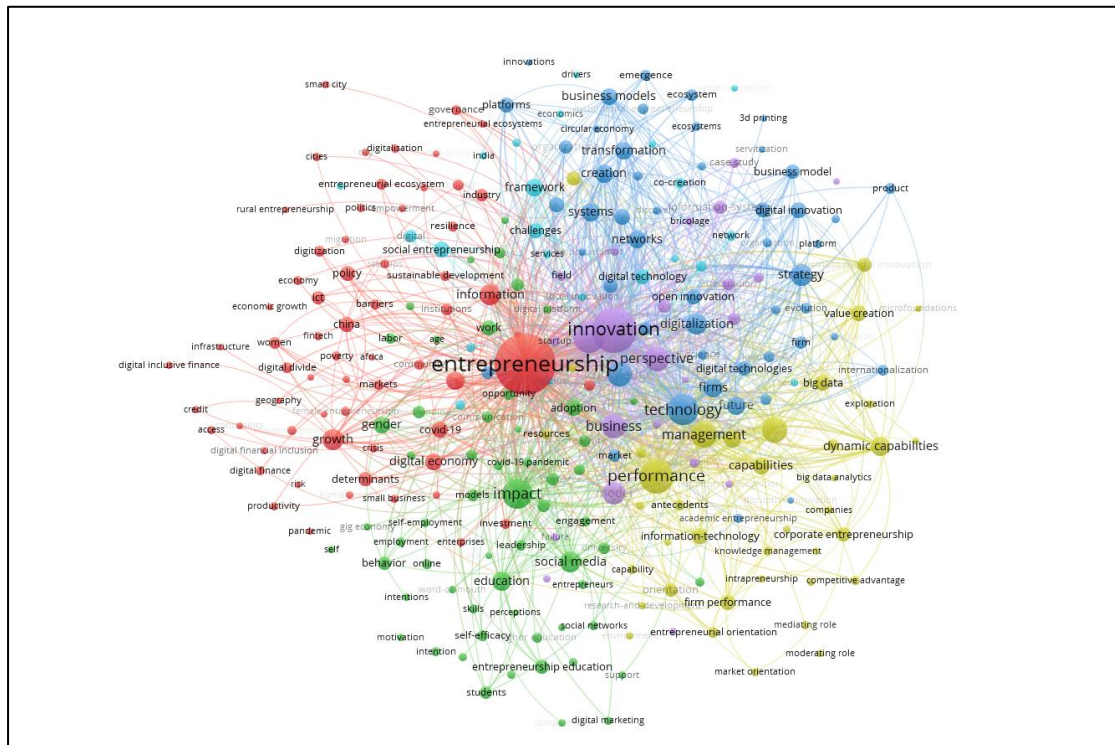


Figure 3: Keyword Co-Occurrence Analysis

Table 6  
 Top 10 the Most Occurrences Keywords

Rank	Keyword	Occurrences
1	entrepreneurship	718
2	innovation	404
3	performance	233
4	digital entrepreneurship	198
5	technology	191
6	impact	177
7	management	137
8	digital transformation	128
9	perspective	122
10	business	118

**Conclusion**

This study presents a bibliometric analysis of digital entrepreneurship research. A total of 2545 documents from the ISI WOS database were initially extracted. After the data screening, 1690 scientific articles were analysed and presented in the results section. The most popular language is English, with 1592 articles. Then, we can see that the trends of this research topic publication show an upward trend and are expected to increase year by year. Besides, the most productive country that produces scientific articles on digital entrepreneurship is the People’s Republic of China, with 274 publications.

On the other hand, the Sustainability journal shows the highest number of articles published on this topic, while business economics shows the highest number of articles published based on the research area. Besides, the most cited articles on this topic are those produced by Kitchin (2014), with 2102 citations, followed by Nambisan et al (2017), with 1045 citations.

This study reveals findings that can help guide researchers interested in digital entrepreneurship studies. There are many research areas that need to be explored in relation to digital entrepreneurship. It is recommended that future research explore the impact of digital technology on business performance and innovation.

## References

- Adam, S., Fuzi, N. M., Senin, A. A., Teo, P., & Hairon, A. M. (2022). The effectiveness of digital entrepreneurship towards higher education institution in Malaysia: the case of b40 students in southern region universities. *International Journal of Academic Research in Business and Social Sciences*, 12(6). <https://doi.org/10.6007/ijarbss/v12-i6/14088>
- Ahmad, K. S., Rahim, N. A., Samad, K. A., Mohamad, M. S., & Juhari, J. (2022). Assessing factors of digital entrepreneurial intention among young generation. *International Journal of Academic Research in Business and Social Sciences*, 12(10). <https://doi.org/10.6007/ijarbss/v12-i10/14995>
- Antara, P. M., Ibrahim, N. A., Musa, R. (2023). A Bibliometric Analysis of Social Media Influencers Studies: What Does the Future Hold for Businesses During and After COVID-19?. In: Yusoff, M.N.H. (eds) *Industry Forward and Technology Transformation in Business and Entrepreneurship*. InCEBT 2022. Springer, Singapore. [https://doi.org/10.1007/978-981-99-2337-3\\_43](https://doi.org/10.1007/978-981-99-2337-3_43)
- Antonizzi, J., and Smuts, H. (2020). The characteristics of digital entrepreneurship and digital transformation: a systematic literature review. *Lecture Notes in Computer Science*, 239-251. [https://doi.org/10.1007/978-3-030-44999-5\\_20](https://doi.org/10.1007/978-3-030-44999-5_20)
- Basly, S., and Hammouda, A. (2020). Family businesses and digital entrepreneurship adoption: a conceptual model. *The Journal of Entrepreneurship*, 29(2), 326-364. <https://doi.org/10.1177/0971355720930573>
- DeBakker, Groenewegen, & Den Hond, 2005
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *J. Bus. Res.* 133, 285–296.
- Foster, J., & Lin, A. (2003). Individual differences in learning entrepreneurship and their implications for web-based instruction in e-business and e-commerce. *British Journal of Educational Technology*, 34(4),455-465. <https://doi.org/10.1111/1467-8535.00342>
- Giones, F., and Brem, A. (2017). Digital technology entrepreneurship: a definition and research agenda. *Technology Innovation Management Review*, 7(5), 44-51. <https://doi.org/10.22215/timreview1076>
- Hinings, B., Gegenhuber, T., & Greenwood, R. (2018). Digital innovation and transformation: An institutional perspective. *Inf. Organ.*, 28, 52-61.
- Khandelwal, R., Kolte, A., & Rossi, M. (2021). A study on entrepreneurial opportunities in digital healthcare post-covid-19 from the perspective of developing countries. *Foresight*, 24(3/4), 527-544. <https://doi.org/10.1108/fs-02-2021-0043>
- Kitchin, R. (2014). The Real-Time City? Big Data and Smart Urbanism. *Geo Journal*, 79, 1-14. <https://doi.org/10.1007/s10708-013-9516-8>
- Korchagina, I., Sychjova-Peredero, O., & Korchagin, R. L. (2019). Digital technology entrepreneurship in modern regional development. *Proceedings of the International Scientific and Practical Conference on Digital Economy (ISCDE 2019)*. <https://doi.org/10.2991/iscde-19.2019.59>
- Krivokuća, M., Čočkaló, D., & Bakator, M. (2021). The potential of digital entrepreneurship in serbia. *Anali Ekonomskog Fakulteta U Subotici*, 57(45), 97-115. <https://doi.org/10.5937/anebsub2145097k>



- Li, L. (2018). "China's manufacturing locus in 2025: With a comparison of "Made-in-China 2025" and "Industry 4.0"," *Technological Forecasting and Social Change*, Elsevier, vol. 135(C), pages 66-74.
- Li, L., Su, F., Zhang, W., & Mao, J. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28, 1129 - 1157.
- Maier, D., Maier, A., Aschilean, I., Anastasiu, L., and Gavris, O. (2020). The relationship between innovation and sustainability: A bibliometric Review of the Literature. *Sustainability*. 2020(12), 1-20
- Nambisan, S. (2017). Digital entrepreneurship: toward a digital technology perspective of entrepreneurship. *Entrepreneurship Theory and Practice*, 41(6), 1029-1055. <https://doi.org/10.1111/etap.12254>Nambisan et al. (2017)
- Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital Innovation Management: Reinventing Innovation Management Research in a Digital World. *MIS Quarterly*, 41(1), 223–238. <https://www.jstor.org/stable/26629644>
- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*.
- Rosenblat, A., and Stark, L. (2016) Algorithmic Labor and Information Asymmetries: A Case Study of Uber's Drivers. *International Journal Of Communication*, 10, 27. <http://dx.doi.org/10.2139/ssrn.2686227>
- Satalkina, L., and Steiner, G. (2020). Digital entrepreneurship and its role in innovation systems: a systematic literature review as a basis for future research avenues for sustainable transitions. *Sustainability*, 12(7), 2764. <https://doi.org/10.3390/su12072764>
- Sussan, F., & Acs, Z. J. (2017). The digital entrepreneurial ecosystem. *Small Business Economics*, 49(1), 55–73. <http://www.jstor.org/stable/44697212>
- Warner, K. S. R., and Wäger, M. (2019) Building dynamic capabilities for digital transformation: an ongoing process of strategic renewal. *Long Range Planning*, 52(3), pp. 326-349. (doi: 10.1016/j.lrp.2018.12.001)
- Zainal, N. T. A., and Yong, K. (2020). Examining the digital entrepreneurship education effectiveness on soft skills among undergraduates. *MANU Jurnal Pusat Penataran Ilmu Dan Bahasa (PPIB)*. <https://doi.org/10.51200/manu.vi.2112>