

# **DIGITAL ENTREPRENEURSHIP- A BIBLIOMETRIC ANALYSIS**

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**Abstract:** Digital entrepreneurship is a novel concept that adds insights to the traditional view towards entrepreneurship. It brings change to the entrepreneurial practice as the business and people adopt digital technology in their day to day affairs. An attempt is made to explore the trend in literature in terms of digital entrepreneurship. The trend in digital entrepreneurship research is examined through bibliometric analysis such as “citation analysis, co-citation analysis, bibliographic coupling network analysis, and term co-occurrence analysis”. The study resulted in finding most influential authors, works, sources, and terms in the digital entrepreneurship research.

**Keywords:** Digital Entrepreneurship, Digitalization, Bibliometric Analysis, Bibliographic Data

## **Introduction**

Entrepreneurship is an economic activity where a business idea is conceived, required factors of production are assembled and ultimately a new enterprise is brought into existence. It facilitates the socio-economic development of a nation through undertaking production and distribution activities, creating job opportunities, ensuring optimum utilization of resources, raising the standard of living of people, etc. Entrepreneurship appears in various forms, one of such is digital entrepreneurship.

In the modern dynamic business world, technological adaptation plays a vital role in bringing and sustaining an enterprise in the mainstream. The advancement of information technology as well as communication technology have paved way for growth of a new version of entrepreneurship termed digital entrepreneurship. Digital entrepreneurship is a business idea that incorporates digital technology in its course of action. It is a product of digitalization.

There was an imbalance in the entrepreneurial activities between rural and urban areas where rural was unaware of the novel entrepreneurial opportunities arising in the market, modern trends evolved, and

was not having any idea of goods and services that can be newly introduced. But now in the digital era, the rural people are exploring new avenues in entrepreneurship. This calls for special attention towards digital entrepreneurship.

Digital entrepreneurship is a novel phenomenon that enables entrepreneurs to make use of sophisticated technology and technological products in their course of action. The paper focuses to explore digital entrepreneurship topic and to find major contributors to this field, effective works etc.

## **Review of literature**

**Dong (2019)** undertaken a study to assess the relevance of digitalized entrepreneurship in the restricted atmosphere. The study followed an in-depth longitudinal design. It revealed that digital start-ups are successful in sporting, seizing numerous opportunities in the entrepreneurship field within a restricted environment. Further, it facilitates entrepreneurship activities in the sectors such as health and pharma sector, energies, tobacco and alcohol, and communication sector. In addition to this demand-driven disruption can be easily handled with digital entrepreneurship in a regulatory environment.

**Bisht et al., (2019)** gave a conceptual paper elucidating the factors to be considered by a digital entrepreneur in serving the people where rural have an upper hand over the urban. It further states that the factors such as awareness, availability, affordability, and acceptability have bearing on the decision-making of the people while using the digital platform.

**Hansen (2019)** in his paper aimed at investigating the impact of digitalization on entrepreneurship revealed that digitalization along with institutional support from government and related agencies is the key for entrepreneurial growth in china.

**Basly and Hammouda (2020)** undertook the study to know how barriers to digital entrepreneurship in a family based business can be resolved. The study highlights that undertaking risk, innovativeness, and creativity are three key elements that need to be adopted in family firms to reap the advantage of digital entrepreneurship.

**Elia, Margherita, and Passiante (2020)** have studied the effect of novel technologies on entrepreneurship in the selected area and process of establishing the novel business. The paper views the digital entrepreneurship atmosphere as a combination of certain technological aspects including digital output. The technological aspects and entrepreneurial activities in this area are related to one another.

**Ahmad et al., (2021)** did a study on digital rural entrepreneurship. It is discovered that financial support from the government, digital technology infrastructure, education for digital rural entrepreneurship are core elements of digital rural entrepreneurship while personal traits and characteristics, inability to bear risk, lack of technological up-gradation are the major challenges to digital rural entrepreneurship.

**Krivokuck, Cockalo, and Bakator (2021)** carried on a study to ascertain the relevance of digital entrepreneurship on business activities in the context of Serbia. The study adopted a combination of secondary and primary data approaches for attaining the objectives. The positive approach towards digital entrepreneurial initiatives favourably contributes to the intention with regard to business activities.

The available studies on the area is based on examining its various components, the effect of digital technologies and relevance of digitalization, etc. Hence there lacks studies that particularly focus on the trend of digital entrepreneurship research. So the present paper aims to cover this gap by finding the “most influential contributors, publications, journals, and terms in the field of digital entrepreneurship” research.

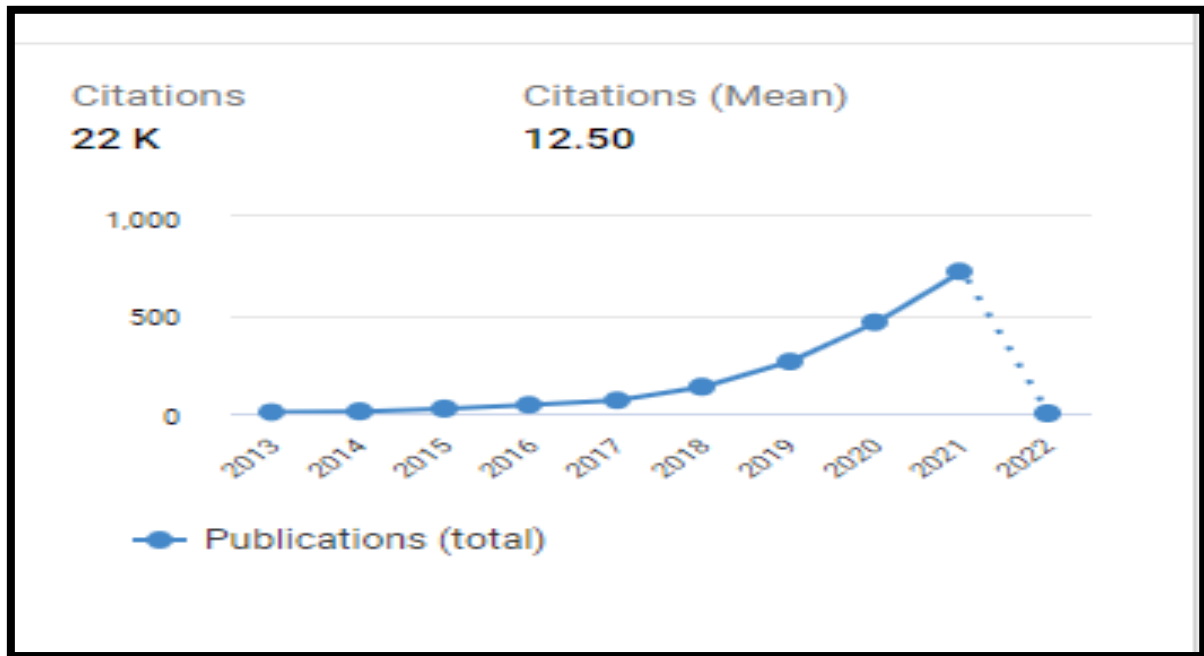
## **Research Methodology**

To meet the objectives of the current study it made use of bibliographic data on digital entrepreneurship.

### **Bibliographic data**

The data on digital entrepreneurship is obtained from the “Dimensions database”. The keyword employed to extract the bibliographic data is “**Digital Entrepreneurship**” and the search resulted in 4056 full data documents, but in order to reduce the count the publication year was limited to 10 years from 2011 to 2021, and it produced 3356 full data documents. However, to be more precise the publication type of the documents was limited to article and it gave 1743 articles. The bibliographic data on 1743 articles were extracted by sorting them based on citations. In addition to this, the data corresponding to the sources of digital entrepreneurship research is also extracted from Scopus Preview. The figure 1 depicts the publication matrix on the topic digital entrepreneurship.

**Figure 1**  
**Publication Matrix**



*Source: Dimensions database*

## **Bibliometric Analysis**

The objectives of the study to ascertain the most influential authors, works and sources on the topic of digital entrepreneurship is achieved through the bibliometric analysis of bibliographic data on digital entrepreneurship using “VosViewer Software”. Exploring various bibliometric tools resulted in finding the most relevant authors, articles, journals, most coupled publications, and most used terms on the topic of digital entrepreneurship.

## **Result and Interpretations**

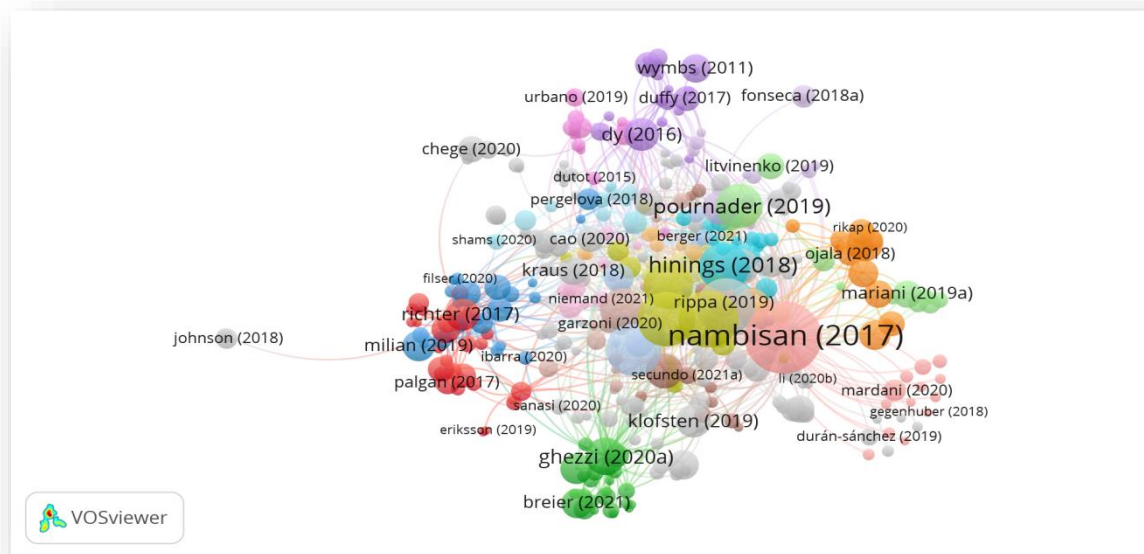
### **1. Citation Analysis**

It is performed to ascertain the most influential works, authors, and institutions on the basis of citations received. It is carried on by taking different items as unit of analysis.

## 1.1 Document Citation Analysis

It is undertaken with documents as basis of analysis. Here criterion number of citations of a document is fixed 10. Among the total 1743 documents, 517 documents met the criteria. However, as connection of items was found only for 407 documents; hence they are selected for the analysis.

**Figure 2**  
**Graphical View of Document Citation Analysis**



**Table 1**  
**Document Citation Analysis**

Author	Title	Citations
Nambisan, Satish (2017)	“Digital entrepreneurship: toward a digital technology perspective of entrepreneurship”	655
Autio (2018)	“Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems”	397
Nambisan (2019)	“The digital transformation of innovation and entrepreneurship progress, challenges and key themes”	386
Acs et al., (2017)	“The lineages of the entrepreneurial ecosystem approach”	367
Warner (2019)	“Building dynamic capabilities for digital transformation: an ongoing process of strategic renewal”	333

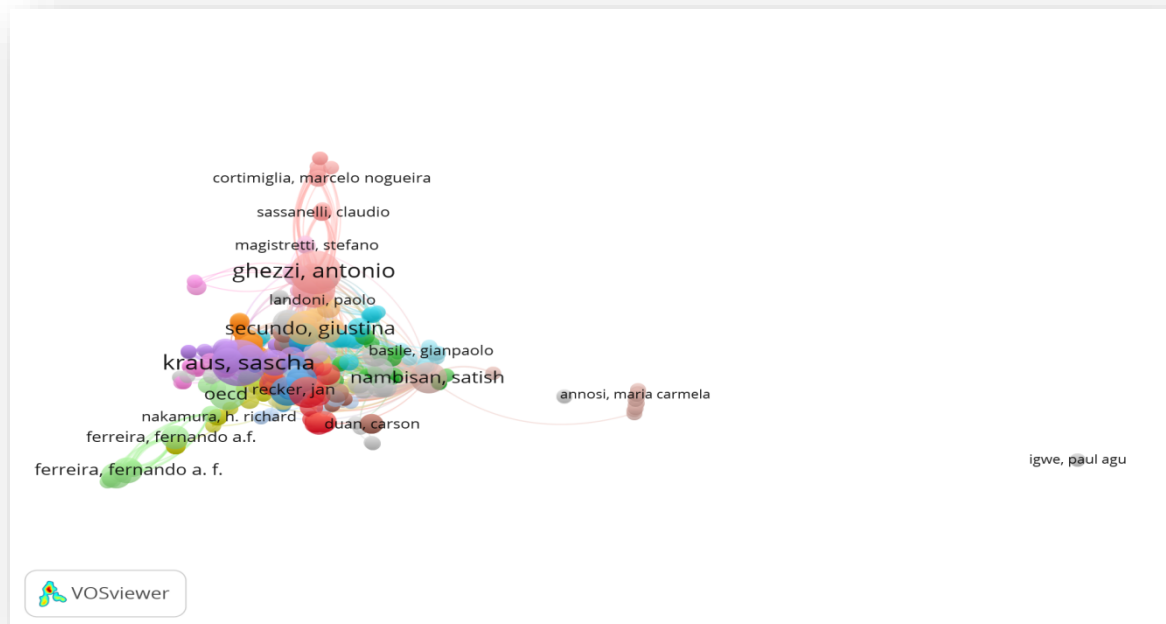
Source: VosViewer

Figure 2 and table 1 depicts the result of document citation analysis. The top 5 works based on the citations received are listed in the table. The work of Nambisan, Sathish (2017) titled “Digital entrepreneurship: toward a digital technology perspective of entrepreneurship” stands top with 655 citations.

## 1.2 Author Citation Analysis

It is performed with minimum 2 documents of an author and with 5 minimum citations of an author. Of the 3965 authors, 427 satisfied the criteria. Since, largest set of connected items found 392 authors they went the analysis.

**Figure 3**  
**Graphical View of Author Citation Analysis**



**Table 2**  
**Author Citation Analysis**

Author	Documents	Citations
Nambisan, Satish	10	1764
Ghezzi, Antonio	20	1764
Kraus, Sascha	23	845
Cavallo, Angelo	14	513
Secundo, Giustina	12	337

Source: VosViewer

Figure 3 and table 2 deals with the result of author citation analysis. The top 5 influential authors are listed in the table based on the citations received. Nambisan, Satish stands on the top with 1764 citations for 10 documents.

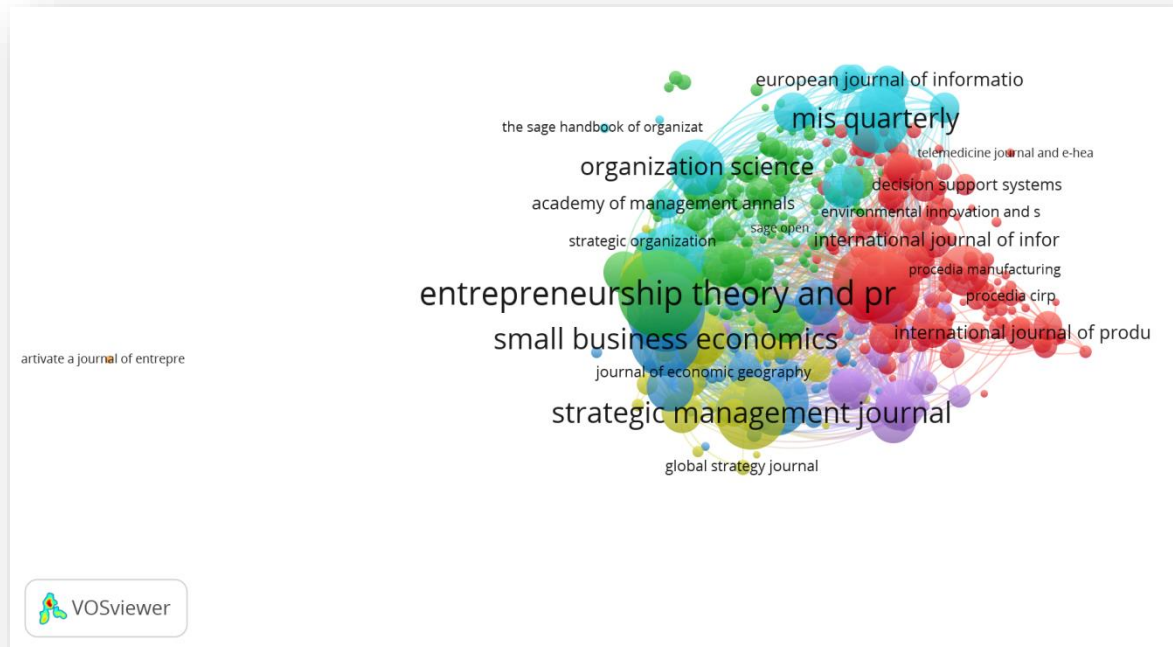
## 2. Co-citation analysis

It intends to explore the connection among the works, journals on the basis of the works or journals quoted the other sets of works or sources.

### 2.1 Co-citation Analysis of Cited Sources

Cited sources are considered as basis of analysis. The minimum requirement of citations fixed 20 and of the 7313 items, 511 met the condition.

**Figure 4**  
**Graphical View of Co-citation Analysis of Cited Sources**



**Table 3**  
**Co-citation Analysis of Cited Sources**

Journal	Citations
Entrepreneurship Theory and Practice	2247
Journal of Business Venturing	1897
Journal of Business Research	1605
Strategic Management Journal	1550
Small Business Economics	1476

Source: VosViewer

It cited sources shows that “Entrepreneurship Theory and Practice” is the most impactful source in terms of digital entrepreneurship literature with 2247 citations. The top 5 journal sources according to the co-citation analysis are given in the table 3. The detailed matrix of the journals is given in the table 4.



**Table 4**  
**Journal Details**

Journal	Publisher	TP	TC	Cite Score	SNIP	SJR
1. "Journal of Business Venturing"	Elsevier	217	3167	14.6	4.534	5.829
2. "Entrepreneurship Theory and Practice"	Wiley-Blackwell	163	2235	13.7	3.353	3.353
3. "Strategic Management Journal"	Wiley-Blackwell	405	5334	13.2	4.29	9.443
4. "Journal of Business Research"	Elsevier	2707	30303	11.2	3.089	2.316
5. "Small Business Economics"	Springer Nature	497	5330	10.7	3.101	2.63
"TP= Total Publications    TC= Total Citations    SNIP= Source Normalised Impact per Paper    SJR= SCImago Journal Rank"						

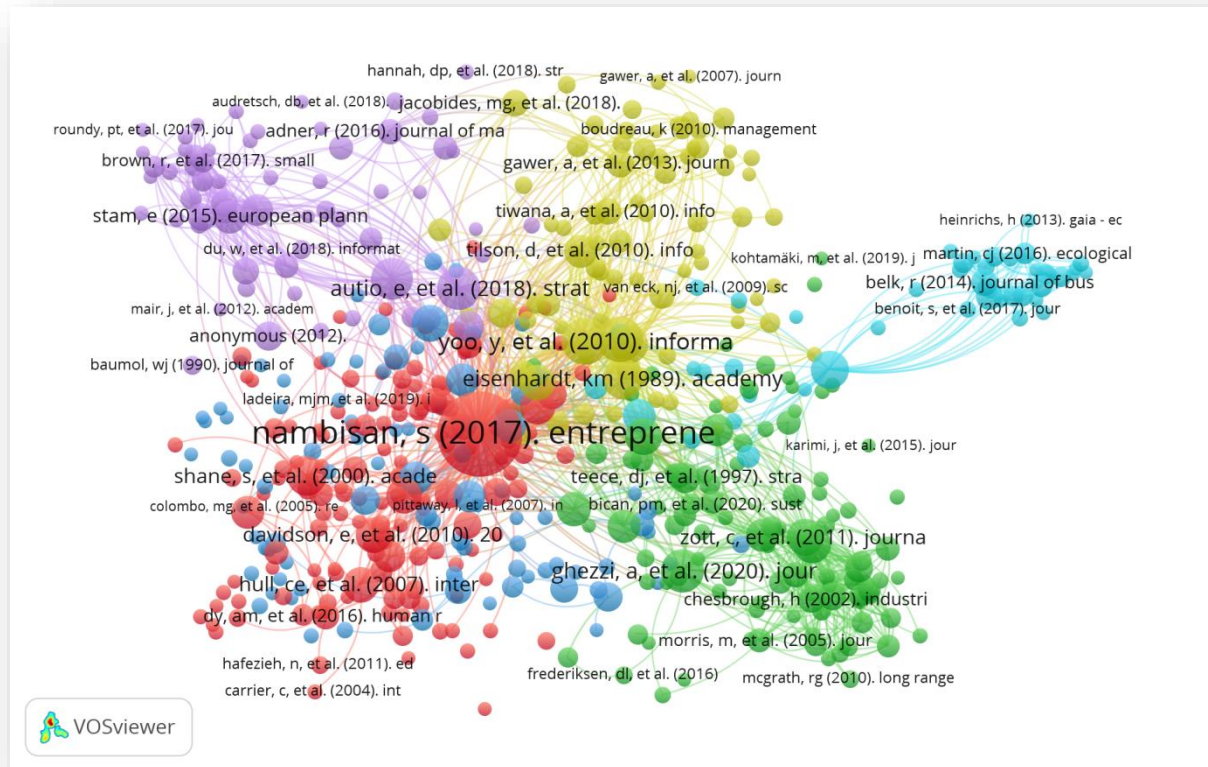
*Source: Author's Construct*

Table 4 deals with the journal details of the top 5 sources listed based on co-citation analysis. Though the journal "Entrepreneurship Theory and Practice" stands top as per the co-citation analysis, it stands second based on cite score. "Journal of business venturing" is the most impactful journal based on the cite score.

## 2.2 Co-citation Analysis of Cited References

This analysis here is carried out with 10 citations. Out of the 50630 cited references 533 met the criteria. Thus, 533 cited references went into the analysis.

**Figure 5**  
**Graphical View of Co-citation Analysis of Cited References**



**Table 5**  
**Co-citation Analysis of Cited References**

Author	Source	Citations
Nambisan (2017)	“Entrepreneurship Theory and Practice”	366
Yoo et al., (2010)	“Information Systems Research”	112
Ghezzi et al., (2020)	“Journal of Business Research”	95
Autio et al., (2018)	“Strategic Entrepreneurship Journal”	95
Sussan et al., (2017)	“Small Business Economics”	91

Source: VosViewer

The table listed the top 5 references based on co-citation analysis among which Nambisan (2017), “Entrepreneurship Theory and Practice” stands top.

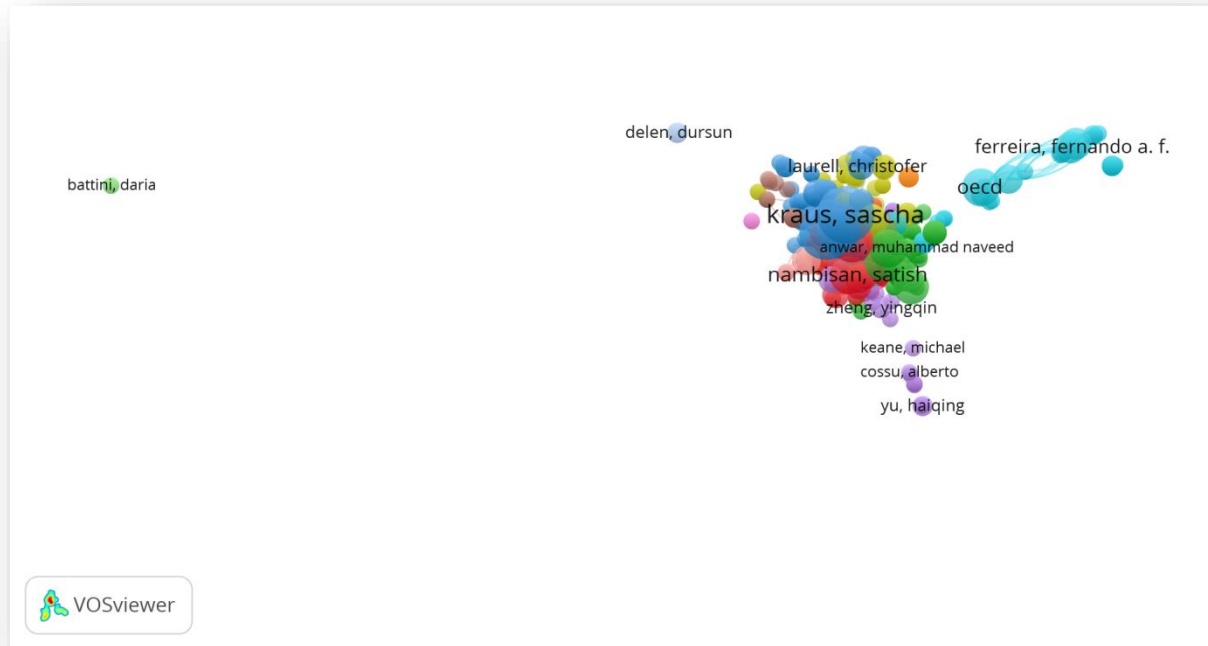
### 3. Bibliographic Coupling Network Analysis

The aim of this analysis is to identify the most coupled authors or the publications. Here it is performed with authors as unit of analysis. The minimum number of documents of an author is fixed as 2

and minimum citations of an author are fixed 5. Of the 3965 authors, 427 met the threshold. However, only 419 authors were connected and hence went to the final analysis.

**Figure 6**

**Network Visualization of Bibliographic Coupling Network Analysis**



**Table 6**

**Bibliographic Coupling Network Analysis**

Author	Documents	Citations
Nambisan, Satish	10	1764
Kraus, Sascha	23	845
Ghezzi, Antonio	20	706
Secundo, Giustina	12	337
Ratten, Vanessa	10	203

Source: VosViewer

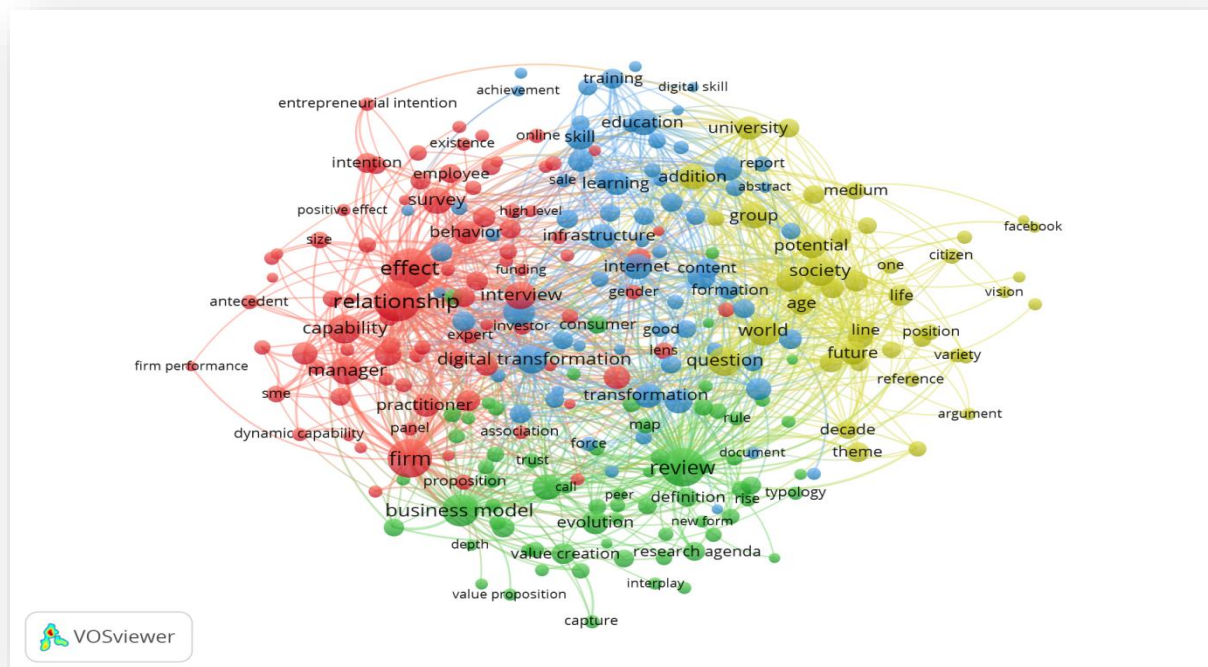
Figure 6 and table 6 depicts the result of bibliographic coupling network analysis. It shows that Nambisan, Satish are the most coupled authors in digital entrepreneurship literature with 1764 citations for 10 documents.

#### 4. Term Co-occurrence Analysis

It aims to identify the most used terms in the digital entrepreneurship research. For the purpose of this analysis both the title and abstract fields are extracted. The minimum number of occurrence of a term is fixed 15. Of the 30485 terms, 547 met the condition. After checking the relevance score 320 items out of 547 were selected. However, on account of data cleaning certain items were eliminated. Finally 265 terms went to the analysis.

**Figure 7**

**Network Visualization of Term Co-occurrence Analysis**



**Table 7**

**Term Co-occurrence Analysis**

Terms	Occurrences
Relationship	236
Effect	228
Firm	215
Review	214
Business Model	146

Source: VosViewer

Term co-occurrence analysis revealed the most used terms in digital entrepreneurship research. The term relationship is the most used one with 236 occurrences.

## Conclusions

The present study aimed to ascertain the research trend on the topic of digital entrepreneurship. The bibliometric analysis performed on the bibliographic data on digital entrepreneurship presented various insights such as the impactful contributors to the field of digital entrepreneurship literature, the significant works in terms of citations, the most referred journals, the most coupled publications, and the most employed terms. The work of Nambisan, Satish (2017) is the most cited one according to the document citation analysis and they are also the most influential authors as per author citation analysis. The co-citation analysis reveals that “Entrepreneurship Theory and Practice” and “Journal of Business Venturing” are the most impactful journals in the field of digital entrepreneurship. The publication of Nambisan, Satish in 2017 is the most coupled publication as per bibliographic coupling network analysis. Further, term co-occurrence analysis shows that “Relationship” is the most occurred term in digital entrepreneurship research.

The study will add insights to the existing literature of the digital entrepreneurship arena. Besides, it will act as a foundation for budding researchers who want to explore the field of digital entrepreneurship research.

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