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Global Trends in Digital Literacy and Women Entrepreneurship: Insights from a Bibliometric Analysis

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Abstract

Digital literacy has become a key driver of women's entrepreneurship in the evolving digital economy, enabling access to information, markets, and financial resources. Despite increasing academic attention, the research landscape at the intersection of digital literacy and women entrepreneurship remains fragmented. The aim of this study is to provide a detailed bibliometric analysis to map the global trends in research, the intellectual structures and emerging themes in this field. The analysis is performed based on publications published in the Scopus database from 2021 to 2026. The performance analysis and science mapping techniques are used to analyse the growth of publications, leading authors, influential journals and country level contributions. Collaboration analysis using co-authorship, co-citation and keyword co-occurrence methods are performed to detect the co-authorship patterns and thematic clusters in the literature. The results show that there is a considerable increase in research activity over the last few years, which points to an increase in research interest in digital inclusion and women's economic empowerment globally. The paper covers the studies on financial inclusion, e-commerce adoption, financial empowerment, and financial skill development. The analysis also yields an impression of regional imbalance, with more publications from developed countries and less from developing economies, notwithstanding their context. The present study helps in this regard in providing a structured overview of the knowledge domain and highlighting the research gaps. It offers insights and relevance for researchers, policy makers and practitioners on how the transformative potential of digital literacy in promoting inclusive and sustainable women-led entrepreneurship.

Keywords: Digital Literacy, Women Entrepreneurship, Bibliometric Analysis, Gender Empowerment, Digital Inclusion

1. Introduction

Digital transformation has proven to be an essential socio-economic development factor that is transforming the manner in which people engage in education, employment, entrepreneurship, and governance. In this regard, digital literacy has become the focus of attention as a basic capacity that allows individuals to be successful in terms of accessing, utilizing, and benefiting digital

technologies. Digital technologies are developing at a fast pace, changing the international economy and the way businesses work, and also supplying new chances for entrepreneurship. In the changing digital economy, digital literacy has become a necessary competency for accessing, assessing and using information from a digital platform (Ng, 2012). Digital literacy is a key enabler for women to transcend the long-standing challenges that constrain their entrepreneurial participation in

the world, including limited access to information networks, financial services and markets (UN Women, 2019). The world has experienced tremendous digital transformation that has transformed economic structures, the communication systems, and the activities of the entrepreneurs. The growing presence of digital technologies in the lives of people has brought about new possibilities of economic engagement, innovation, and social growth. In this changing environment, the concept of digital literacy has become a crucial skill that allows one to gain access to and review and put digital technologies to the maximum use (UNESCO, 2018). One of the areas where digital literacy is a key factor is the empowerment of women, in particular women living in the rural and marginal societies, who can gain access to digital resources, markets, and financial services through this means (Hilbert, 2011; Van Deursen and Van Dijk, 2014). Women entrepreneurship has become a critical driver of economic growth, employment of women, and reduction of poverty (Brush et al., 2009; Minniti and Naudé, 2010). Women entrepreneurs are also known to contribute to local economic development, innovation, and welfare of the community. Nevertheless, as the role of women entrepreneurs increases, it is likely that numerous of them will encounter various structural obstacles, such as inadequate access to education, finances, technology, and business connections (Ahl and Nelson, 2015; Jennings and Brush, 2013). Digital technologies in return help many of these challenges as they will allow women entrepreneurs to receive information, access markets, and handle financial transactions digitally. Digital literacy has become a crucial enabler of women's entrepreneurial participation and economic empowerment (Nambisan, 2017; OECD, 2019). Research has increasingly focused on examining the role of digital literacy, digital inclusion, and technological capabilities in promoting women's entrepreneurship and reducing gender disparities in economic participation (World Bank, 2021; UN Women, 2019).

The role of women entrepreneurship in overall economic growth, poverty alleviation and social development has been extensively recognised. It has a significant impact on job creation, innovation, and inclusive economic participation (Minniti, 2010). Yet, gender disparities persist in terms of the impact of gender bias, education, limited digital capability, and access to financial resources for women entrepreneurs (Brush et al., 2019). In this context, digital literacy becomes an enabler to facilitate women to use digital platforms for business creation, business marketing and financial inclusion (OECD, 2019). To women entrepreneurs, especially among the tribal and rural communities, digital literacy is essential towards eliminating the structural disadvantages based on geography, gender rules, and reduced access of the

market. The available sources emphasize that digital inclusion has the potential to create entrepreneurship, financial inclusion, and women-led development, hence, playing a role in gender equity and inclusive growth (UNESCO, 2018; World Bank, 2021). Interest in the topic of digital literacy and women entrepreneurship has been growing in recent years. It has been found that digital skills promote entrepreneurial intentions, boost business performance, and enable engagement with the digital economy (Selvakumar et al., 2025). Moreover, digital platforms, ecommerce and fintech solutions have opened up additional avenues for women entrepreneurs to grow their businesses and expand beyond geographical barriers (Nambisan, 2017). There is a fragmented literature available, with the studies often addressing the subject from a particular perspective, for example financial inclusion, digital skills, gender empowerment, without offering a comprehensive view on the field.

While a number of studies have emerged in the last several years on digital literacy and women entrepreneurship, available literature is scattered and does not provide a comprehensive synthesis. There is no clear bibliometric study, which systematically maps out the intellectual structure, key players, thematic development and emerging trends on the global level. Earlier studies reveal a geographical bias in favour of developed economies with little information from developing economies where empowerment of women through digitalization is most needed. To fill these gaps, a comprehensive bibliometric analysis was carried out to get a holistic picture of the field and to come up with future research directions.

1.2 Concept of Digital Literacy

Digital literacy may be generally referred to as the capacity to find, judge, create, and disseminate information on digital technologies critically and responsibly (Gilster, 1997). Digital literacy can be defined as the knowledge and skills to utilize, analyze, produce, and share information with the use of digital technologies. The notion has developed over the years where computer literacy is no longer a one-dimensional concept, but has instead taken a multidimensional nature that is inclusive of technical skills, cognitive skills and also socio-cultural competencies (Eshet-Alkalai, 2004). New models prioritize functional skills (operations with devices and apps), informational skills (finding and analyzing content in the Internet), and applied skills (using digital tools to achieve economic and social outcomes) (UNESCO, 2018). Digital literacy in developing and rural settings is also strongly connected with access to infrastructure, education and institutional support and, thus, a primary factor of digital inclusiveness and socio-economic engagement (Imran and Mydin, 2026). It also

covers various skills such as technical skills, information management, communication skills and critical thinking (Ng, 2012).

UNESCO (2018) considers that, in order to be included in the digital economy and knowledge society, one must be digitally literate. Scholars have conceived digital literacy as a multi-dimensional concept that entails technological literacy, information literacy, and media literacy (Govender 2025; Van Dijk, 2020). The competencies will help them successfully negotiate digital spaces, use digital tools and communicate and collaborate online. Digital literacy especially concerns the disadvantaged people like women living in the rural set ups, who tend to have a narrow access to information and economic resources (Hilbert, 2011). Research shows that digital literacy improves the accessibility of educational resources among women, online learning opportunities, and entrepreneurship (OECD, 2019). In addition, digital literacy is pivotal in empowering people to access digital financial services and transact business in e-commerce sites, as well as dealing with online businesses. Consequently, digital literacy has become an important engine of economic inclusion and entrepreneurship (World Bank, 2021).

1.3 Digital Literacy and Women Entrepreneurship

In the last several years, there has been an upsurge in scholarly interest in the connection between digital literacy and women entrepreneurship (Kumar et al., 2026). The research also shows that digital literacy helps women business owners to find new markets, minimize the reliance on intermediaries, and increase awareness via digital platforms (Nambisan, 2017). Social media, e-commerce, and mobile apps are digital technologies, which ease customer communication, marketing, and networking of businesses, thus enhancing the entrepreneurship among women (OECD, 2021).

Digital literacy has a great impact on the capacity of women to engage in entrepreneurial activities and exploit digital markets. The growth of internet sources, social networking, and online shopping platforms has opened some new possibilities to female entrepreneurs to market and run their business (Nambisan, 2017). Studies show that women entrepreneurs are more digital literate, the more digital literate they are, the more likely they are to use digital marketing, online marketplaces, and be digital networkers (Ahl and Nelson, 2015). Digital technologies limit geographical boundaries and allow women to access broader markets and target customers outside their local community. Digital literacy is also available to access business information, training, and financial services.

Women entrepreneurs are able to use the digital platform to engage in online training programs, mentorship networks, and entrepreneurial communities to aid in business development (OECD, 2019). In addition, digital entrepreneurship has become a significant aspect of women economic involvement. Digital entrepreneurship is the process of establishing and operating businesses with the help of the digital technology, online platforms, and digital innovation (Nambisan, 2017). Research demonstrates that women-owned businesses that are digitally literate increase innovation in entrepreneurship, productivity, and competitiveness (Tariq et al., 2026). In rural and tribal settings, digital literacy has the potential of alleviating mobility restrictions and geographical isolation to enable women to engage in economic activities outside the local threshold. The differences in digital skills still pose a challenge to the full entrepreneur potential of most women, a fact that solidifies gender-based inequality in the development of enterprises. This study aims to offer a structured overview of the field and pinpoint potential research trends by investigating the trends in publications, influential papers, interconnections among researchers, and the thematic shifts across the field. The results will feed into scholarly debates and will provide insights for policy makers, practitioners and stakeholders who aim at digital inclusion and women's economic empowerment.

2. Bibliometric Analysis of Research on Digital Literacy and Women Entrepreneurship

Bibliometric analysis has become an increasingly popular methodological approach for systematically analyzing the structure and evolution of scientific research within a specific domain (Donthu et al., 2021). It allows researchers to examine publication development in the academic community in terms of the rising number of studies on the area of digital technologies, gender empowerment, and entrepreneurial development (Aaria and Cuccurullo, 2017). Since the process of digital transformation is affecting the activity of economies and the organization of society, in the last ten years of the bibliometrics field, a significant increase in bibliographic analysis has been observed when analyzed using VosViewer (Van and Waltman, 2010) and Biblioshiny (Bibliometrix package, R, Aria and Cuccurullo, 2017).

In the bibliometric research, Scopus is often employed due to its large coverage of quality journals, and the indexing of citations is reliable (Donthu et al., 2021). After the preliminary search, retrieved documents were selected according to the relevance to the research subject (Kharel and Lama, 2026). The screening was done using titles, abstracts and keywords to eliminate irrelevant studies that were not based on digital literacy or women

entrepreneurship. The dataset did not include duplicate records and unrelated publications.

This process ensured that only relevant and high-quality studies were included in the final bibliometric analysis and used the following search query to retrieve the data from Scopus. Table 2.1 shows the data retrieval process and the count of articles retrieved.

(ALL ((“digital literacy” OR “digital skills” OR “digital inclusion” OR “digital divide”)) AND ALL ((“women entrepreneurs” OR “women entrepreneurship” OR “female entrepreneurship”)) AND ALL ((“tribal women” OR “rural women” OR “indigenous women”)) AND ALL ((“women-led development” OR “women empowerment” OR “gender equity”))) AND PUBYEAR > 2020 AND PUBYEAR < 2027

Table 1: Data Retrieval Process

Inclusions	Article Count
Initial: All fields	199
Year 2021-2026	177
Subject Area Social Sciences, Business, Management and Accounting, Economics, Econometrics and Finance, Multidisciplinary, Decision Sciences, Computer Science	170
Document Type Article, Book chapter, Book, Conference paper, Review	169
Language English	168

Source: Author's Compilation

The following research questions have been addressed using bibliometric techniques.

RQ1. What are the publication trends and growth patterns in research on digital literacy and women entrepreneurship during 2021–2026?

RQ2. Who are the most influential papers, authors, journals, and countries contributing to this research domain?

RQ3. What are the key thematic areas and keyword clusters in the existing literature?

RQ4. What are the emerging research trends in Digital Literacy and Women Entrepreneurship?

3. Discussion

RQ1. What are the publication trends and growth patterns in research on digital literacy and women entrepreneurship during 2021–2026?



Figure 1: Main Information

Source: Biblioshiny

Figure 1 shows the bibliometric review of the chosen literature (2021-2026) reveals the trends of the research and academic activity in this field. One hundred and sixty-eight documents were gathered and 126 sources were utilized meaning that there were numerous publication sources. The data samples 482 authors, and only 17 are single-authored papers, which are collaborative to conduct research, as expected by the mean number of 2.98 co-authors per article.

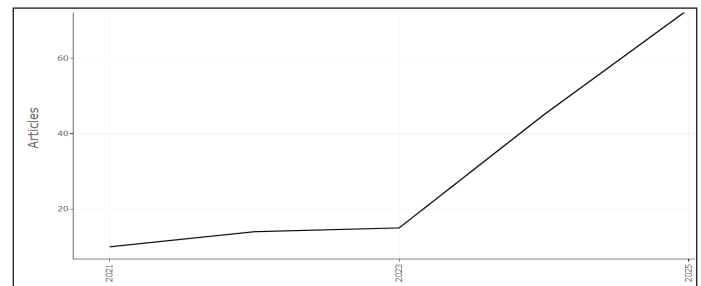


Figure 2 Annual Scientific Production

Source: Biblioshiny

Figure 2 demonstrates the number of articles published annually in the chosen dataset in the period between 2021 and 2025. The publications list demonstrates that the annual numbers have been raising slowly between 2021 and 2023, which means that the topic of research is getting more attention. The number of publications can be seen to rise notably in 2025, reaching approximately 70 articles, which implies that there is a steep rise in research interest and involvement in the field within the past few years.

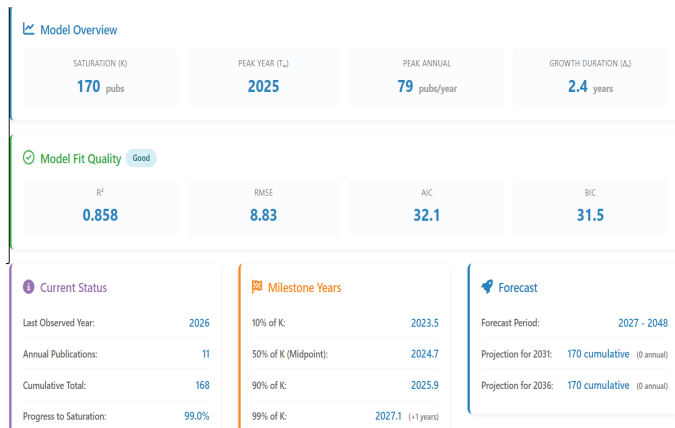


Figure 3: Life Cycle of Scientific Production

Source: Biblioshiny

Figure 3 presents the model summary and forecasting analysis of the trend of publications in the research area of selection. The model estimates the level of saturation (K) to be 170 publications, which is the maximum number of publications a dataset is supposed to have. It is estimated that the highest year will be 2025 and the

annual output of publications will be the most with 79 publications annually. The growth rate is predicted to be 2.4 years, thus indicating a relative fast expansion of the research area. The quality of the model fit is good, with the value of R² standing at 0.858, which implies that the model captures a considerable percentage of the change in the pattern of publications in the study. Other fit measures like RMSE (8.83), AIC (32.1) and BIC (31.5) also confirm the reliability of the model since the last year observed is 2026, and the annual publications are 11, which has a total of 168 publications which means that the field has already reached 99% of its estimated level of saturation. The milestone analysis shows that about 10 percent of the saturation level is met around mid-2023, the middle (50 percent) around 2024.7 and 90 percent around 2025.9. The forecast findings also suggest that the cumulative number of publications will stabilize at about 170 publications between 2027 and 2048, which means that the research field will approach maturity and that there will be minimal growth of publications in the next few years.

RQ2. Who are the most influential papers, journals, authors and countries contributing to this research domain?

Table 2: Ten most cited papers

Author	Journal	Title	Citation Count
Raman et al. (2022)	Sustainability (Switzerland)	"Women Entrepreneurship and Sustainable Development: Bibliometric Analysis and Emerging Research Trends"	124
Hasan et al. (2023)	International Journal of Social Economics	"Financial inclusion – does digital financial literacy matter for women entrepreneurs?"	76
Pécot et al. (2024)	Tourism Management	"From empowering women to being empowered by women: A gendered social innovation framework for tourism-led development initiatives"	46
Shukla et al. (2021)	Journal of Enterprising Communities	"Role of ICT in emancipation of digital entrepreneurship among new generation women"	46
Saluja et al. (2023)	Humanities and Social Sciences Communications	"Barriers and interventions on the way to empower women through financial inclusion: a 2 decades systematic review (2000–2020)"	44
Yeyouomo et al. (2023)	Women's Studies International Forum	"Fintechs and the financial inclusion gender gap in Sub-Saharan African countries"	44
Padilla-Meléndez et al. (2022)	Entrepreneurship and Regional Development	"Indigenous Entrepreneurship. Current issues and future lines"	36
Pei & Chib (2021)	New Media and Society	"Beyond the gender (dis)empowerment dichotomy: The mobile phone as social catalyst for gender transformation in the Global South"	34
Shao et al. (2023)	Telecommunications Policy	"An in-depth analysis of the entrepreneurship of rural Chinese mothers and the digital inclusive finance"	28
Santos & Neumeyer (2021)	Journal of Developmental Entrepreneurship	"Gender, poverty and entrepreneurship: A systematic literature review and future research agenda"	25

Source: Author's own findings

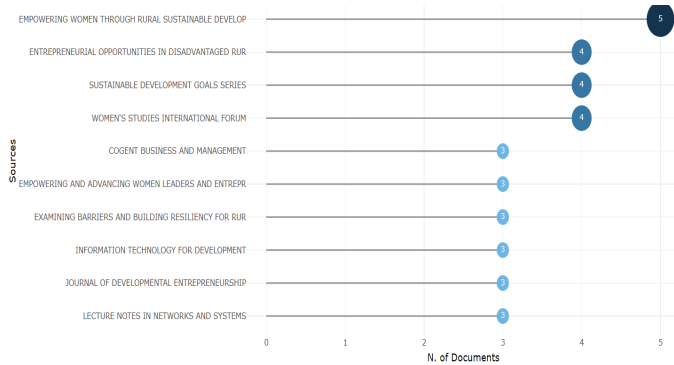


Figure 4: Most Relevant Sources

Source: Biblioshiny

Figure 4 displays the most pertinent sources that form the chosen literature in accordance with the number of published documents. The findings show that Empowering Women through Rural Sustainable Development is the most contributing one with 5 documents. Other sources that provided 4 documents included Entrepreneurial Opportunities in Disadvantaged Rural Areas, Sustainable Development Goals Series, and Women's Studies International forum, which provided 3 documents each. Such distribution shows the wide spectrum of journals and publications in favour of research on women entrepreneurship, empowerment, and sustainable development.

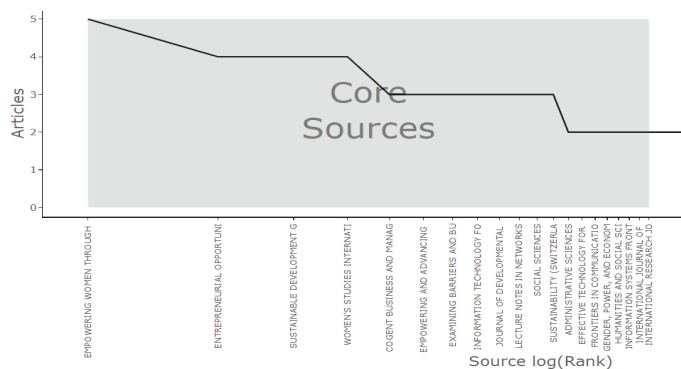


Figure 5: Core Sources by Bradford's Law

Source: Biblioshiny

Figure 5 depicts Bradford Law of Scattering, which indicated the core sources used to compute the chosen literature. Key core sources include Empowering Women through Rural Sustainable Development, Entrepreneurial Opportunities in Disadvantaged Rural Areas, Sustainable Development Goals Series, and Women's Studies International Forum, which contribute the highest number of articles.

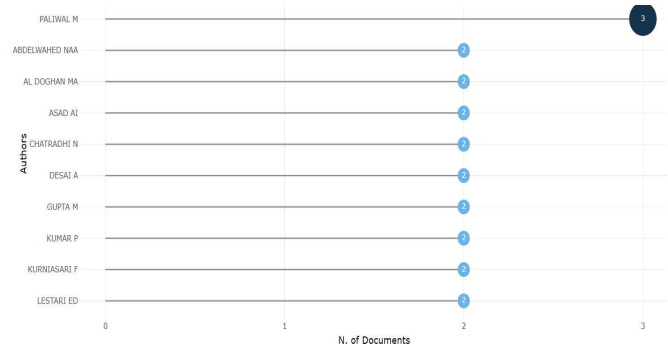


Figure 6: Most Relevant Authors

Source: Biblioshiny

Figure 6 shows the most productive authors in the selected literature based on the number of published documents. The findings show that Paliwal M. has the most publications of three articles. The distribution indicates that there are numerous contributing authors to the field of research as opposed to one scholar hence this is a collaborative and emerging research field on women entrepreneurship, empowerment, and sustainable development.

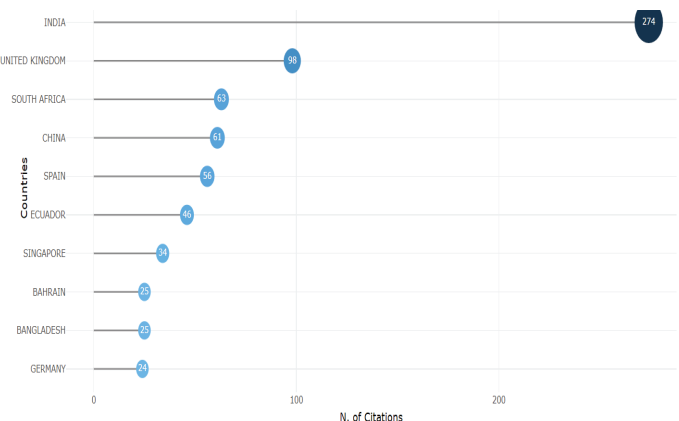


Figure 7: Most Cited Countries

Source: Biblioshiny

Figure 7 shows the most cited countries, where India ranks the topmost with citation count of 274. The trend is followed by United Kingdom with 98 citations further preceded by the South Africa with 63 citations. This trend shows that there is increased research trend in India for the digital literacy and tribal women's empowerment.

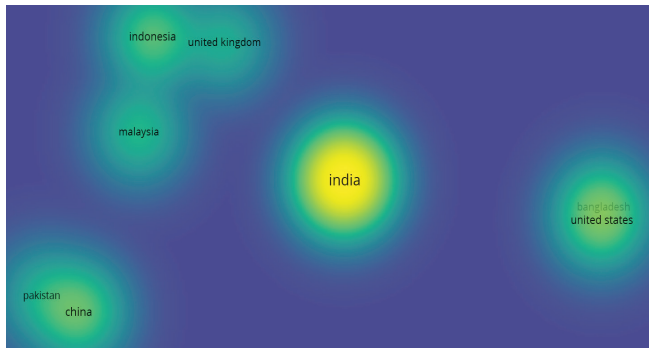


Figure 8: Co-authorship Network of Countries

Source: VosViewer

Figure 8 presents the co-authorship network of countries using VosViewer (density visualization). The colour scheme reflects the level of collaboration, with the brighter the yellow, the more intense the research activity and the stronger the co-authorship links. As can be seen from the map, India is the biggest contributor, with the highest number of researches and collaboration in this area. Other countries that are currently active include the United States, the United Kingdom, Indonesia, Malaysia, China, Pakistan and Bangladesh, but are not as strongly collaborating. From the spatial distribution, it is revealed that the research on digital literacy and women entrepreneurship is mostly limited to developing and emerging economies, with some involvement from developed countries. The network suggests moderate international cooperation, and there is potential for increased cooperation across national research institutions.

RQ3. What are the key thematic areas and keyword clusters in the existing literature?



Figure 9: Word Cloud

Source: Biblioshiny

Figure 9 is a word cloud of the most commonly occurring keywords in the chosen literature. The most significant words are the word women entrepreneur, women entrepreneurs, women empowerment, women entrepreneurship, financial inclusion, sustainable development, which means that the literature is focused on those central matters. Other keywords like rural

women, gender equality, financial literacy, digital inclusion, economic development and sustainable development goals are also common and the key word distribution shows that the literature is largely based on entrepreneurial development of women, empowerment, financial inclusion, and sustainable development especially in the rural areas.



Figure 10: Tree Map

Source: Biblioshiny

Figure 10 shows a tree map of most occurring keywords in the literature chosen. The frequency of every block is a representation of the relative frequency of the key word in the dataset, the most frequent is the key word women entrepreneurs with the frequency of 29 (16%), then comes the keyword women empowerment with a frequency of 19 (11%). Another common set of keywords is rural women, women entrepreneurship (17 occurrences each, 9%), and more than 14 occurrences each empowerment and financial inclusion (16 occurrences each, 9%). Moderate frequency is also observed in such key words as entrepreneur and financial literacy which the tree map suggests depict that the literature predominantly addresses women entrepreneurs, empowerment, rural development, financial inclusion, and sustainable development as the most important themes in the research field.

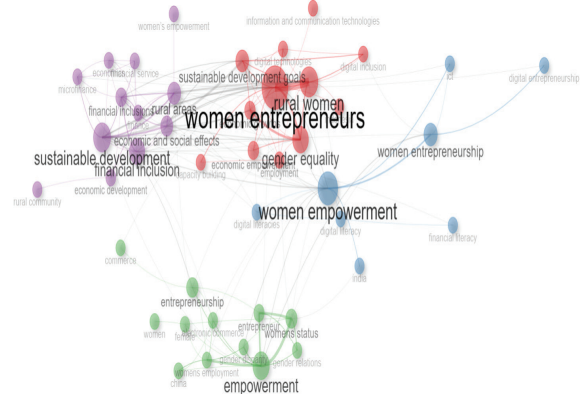


Figure 11: Co-occurrence Network

Source: Biblioshiny

Figure 11 shows co-occurrence network of keywords, which demonstrates the connections between the key research themes of the chosen literature. Each node is denoted by the frequency of the keyword whereas the lines linking the nodes show how well the terms are related to each other. Clusters of related themes of research are represented by different colours. It is determined in the analysis that the focus terms are the most central and most commonly used: women entrepreneurs, women empowerment, and financial inclusion which all denote their overbearing presence in the study area. One of them is centered on sustainable development, financial inclusion and rural regions, pointing to the connection between women entrepreneurship and sustainable economic growth. The other cluster focuses on women status, entrepreneurship and empowerment, which captures the socio-economic aspects of the development of women, is an indication that the research on the topic of women entrepreneurship is interconnected in a multidimensional way. Themes of gender equality, digital inclusion, ICT, and digital entrepreneurship also form another group of research, indicating the growing significance of technology in facilitating women entrepreneurial practices.

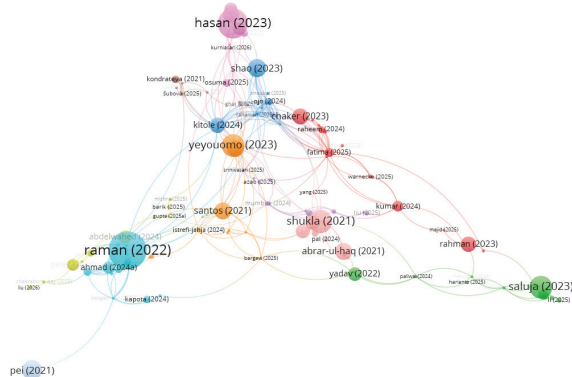


Figure 12: Bibliographic Coupling Network

Source: VosViewer

Figure 12 illustrates the bibliographic coupling network of 116 documents on digital literacy and women entrepreneurship, generated using VosViewer. In this network, each node is a document and the links between the nodes show the level of coupling as measured by common references. The nodes are sized according to their relative importance with respect to the document set, and are coloured according to the thematic clusters detected by the software. The findings led to the identification of 12 clusters, which reflects the varied and multidimensional nature of research. There are relatively many clusters, indicating that the field is still developing and has several emerging and specialized areas of

research instead of one cohesive body of knowledge. The clusters with more dense connectivity and located centrally like those headed by Yeyoumo (2023), Shao (2023) and Raman (2022) demonstrate strong influence and act as an interface between various research themes. The clusters are probably related to the main topics of digital literacy, digital inclusion, and the development of entrepreneurship for women. Other clusters such as Chaker (2023), Kumar (2024) and Fatima (2025) are themes of women empowerment, financial inclusion and socio-economic advancement. Smaller, more remote clusters like the one that led by Saluja (2023) indicate that there are specific research niches which may be related to the rural or tribal or regional context of entrepreneurship. The different clusters spread across the network indicate the interdisciplinary nature of the field, with technology, gender studies, development studies and entrepreneurship perspectives.

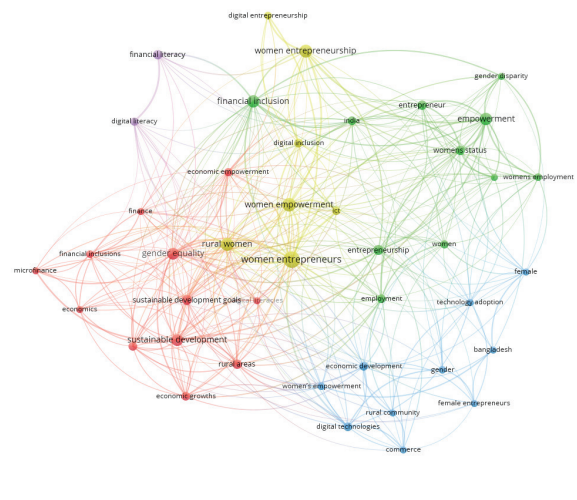


Figure 13: Keyword Co-Occurrence Network

Source: VosViewer

Figure 13 shows the keyword co-occurrence network generated using VOSviewer. The nodes correspond to keywords, and the links are proportional to the frequency of occurrence of keywords. The size of the nodes indicates their frequency and different colors indicate different thematic clusters. The analysis shows that the themes of women entrepreneurship and women empowerment as key themes are well linked with digital inclusion, financial inclusion and digital entrepreneurship. Different clusters highlight different research focus areas: empowerment and employment (green), gender equality and sustainable development (red), technology adoption and rural context (blue) and digital and financial literacy (purple). The network reflects a very multidisciplinary and interconnected field, with an emphasis on the importance of digital literacy for inclusive and women's entrepreneurship development.

RQ4. What are the emerging research trends in Digital Literacy and Women Entrepreneurship?

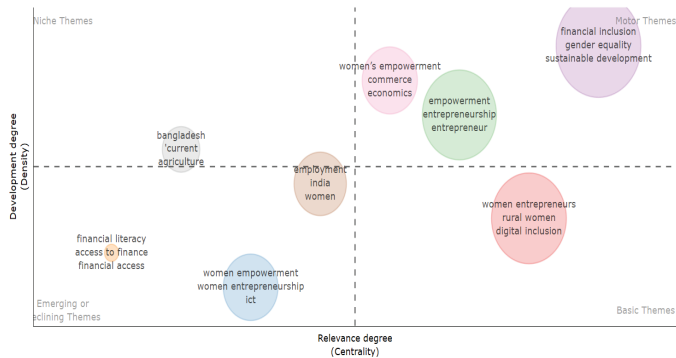


Figure 14: Thematic Map

Source: Biblioshiny

Figure 14 shows the thematic map of the research area, according to which the most important themes are classified by their centrality (relevance) and density (development level). Financial inclusion, gender equality, and sustainable development are also discussed in the motor themes quadrant, which means that they are a driving force of the research field. The basic themes quadrant has women entrepreneurs, rural women, and digital inclusion, which are critical and closely interconnected themes but still have a shallow depth of research. The thematic map reveals that the literature is primarily centred around the topic of financial inclusion, gender equality, sustainable development, and women entrepreneurship, which is the dominant structure of the research domain.

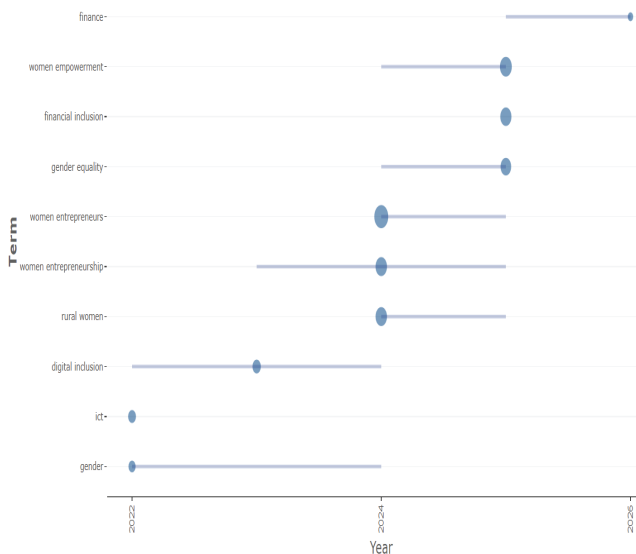


Figure 15: Trend Topics

Source: Biblioshiny

Figure 15 displays the trend topic analysis, which reveals how the main themes of research change with time (2022-2026). The horizontal lines show the time frame when each keyword was in the limelight, and the size of the circles shows the frequency or relevance of the term, which shows that the emphasis on the technological and gender-related aspects of the female development was initially done in 2022-2023. Since 2023, the theme of women entrepreneurship, women entrepreneurs and rural women have become more prevalent, which indicates that the focus of the research shifted to the involvement of women in the field of entrepreneurship, financial inclusion, and women empowerment, which became more widespread between 2024 and 2026.

The trend analysis reveals that the research started to focus on women as a participant in the world of entrepreneurship, financial inclusion, and women empowerment, which shows that the scope of the study expanded by 2024 to 2026, on average.

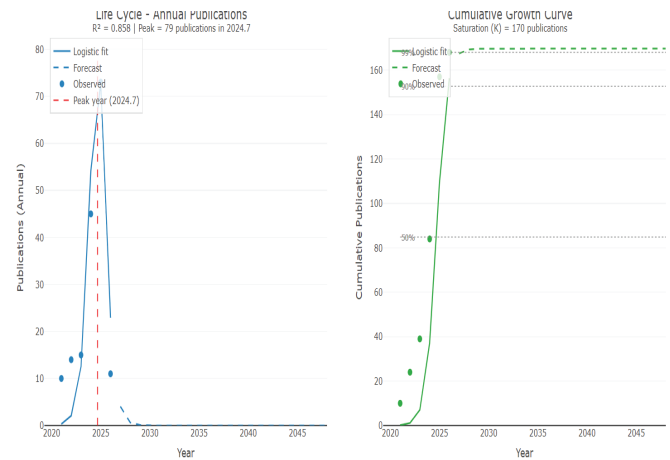


Figure 16: Life Cycle and Cumulative Growth

Source: Biblioshiny

Figure 16 depicts the life cycle and cumulative growth trend of the number of publications in the chosen sphere of research by the use of a logistic growth model. The life cycle curve indicates that there is a gradual increase in the number of publications during the years of 2021 and then a rapid rise that reaches the peak in years 2024 and 2025 with about 79 publications at the peak year (2024). The model has a good fit with R-square value of 0.858 implying that the logistic model is effective in explaining the trend in the growth of publication. The projection of the total publications is that when the peak period ends the forecast is a decrease and levelling of the annual publications implying that the field is likely to go at a certain level of saturation (K) of about 170 publications. The curve is steep in the rapid growth period between 2023 and 2025 and then the cumulative

number of publications is plateauing. According to the analysis, this plateau indicates that the research topic under consideration is in its rapid development stage as the new publications are growing slower and slower, which is the sign of the consolidation and maturity of scholarly contributions to the research topic.

4. Conclusion

The results of this bibliometric analysis illustrate that the research literature on digital literacy and women entrepreneurship has substantially increased since 2020, especially in this last decade. The growth is attributed to the growing awareness of digital technologies as vital enablers of inclusive economic development and gender empowerment on a global scale. The analysis shows that major research areas (including digital empowerment, financial inclusion, adoption of e-commerce, and skill development) are the main focus of research and scholarly discourse, pointing towards practices and mechanisms that make digital literacy a driver of entrepreneurial outcomes for women. Moreover, the presence of keywords that are grouped together highlights the fact that digital literacy has become a more multidimensional and transformative concept and consequently, is now considered in relation to other socio-economic issues such as digital inclusion, gender equality, and sustainable development. The overall structure of knowledge is moderately fragmented and gradually integrating, as shown by the bibliographic coupling network. Although there are specific thematic areas, there are a number of documents that serve as cross-connections, pointing to increased research convergence on digital literacy, gender empowerment and inclusive entrepreneurship. This also indicates that there are considerable opportunities to develop future research that will help close gaps and consolidate theory and empirical integration. The research also reveals large differences in global research contributions. Although there is some international cooperation, most publications come from developed countries and there is a geographical imbalance in the production of knowledge. This is especially crucial in the context of developing economies and especially rural and tribal areas, which have the greatest to gain from digital literacy and women entrepreneurship in the coming years. While important, these contexts have not been extensively discussed in the literature, revealing an important disconnect between research focus and the real world.

5. Implications

As a theoretical contribution, this study builds on the literature by reiterating the view of digital literacy as a multidimensional phenomenon, which goes beyond technical skills to encompass cognitive, informational and socio-economic aspects. It also enhances the embedding of digital 'skills' in the context of women entrepreneurship and empowerment. The results have practical implications, highlighting the importance of targeted interventions designed to improve women entrepreneurs' capacity in terms of digital skills. To empower women to make effective use of digital platforms, training programs must go beyond basic digital skills and include more in-depth learning on digital marketing, financial technology and e-commerce. The study underscores the need for policy interventions to remove structural barriers to women's access to digital resources from a policy perspective. Policymakers need to focus on building a digital infrastructure, access to the internet must be made available at accessible prices, and the creation of gender-inclusive digital education, especially in remote and minority areas. Digital literacy is a crucial factor in improving women entrepreneurs' economic status when integrated into entrepreneurship development programmes and in promoting inclusive growth.

6. Future Research Directions

In terms of future research, there is an obvious need to undertake more context-specific studies focusing on rural, tribal and indigenous women and their specific need and opportunities. This type of research would help fill the gap between global trends in research and local realities. Also, longitudinal research designs would be beneficial to understand the persisting effects of digital literacy over the years in women entrepreneurs on entrepreneurship outcomes, business performance, and socio-economic mobility. The interdisciplinary perspective needs to be further explored in future research as gender studies, sociology, and information systems are combined to offer a more holistic view of digital empowerment and entrepreneurial development. Examination of the emerging technologies and their role in creating new entrepreneurial opportunities for women in the digital economy is needed. Lastly, more research from developing countries is needed to provide a more representative and diverse voice of the world for future research and its relevance and applicability.

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