

Research article

CROSS-CULTURAL COMMUNICATION STRATEGIES IN THE DIGITAL ERA: A BIBLIOMETRIC ANALYSIS

Edward Owusu, Jones Lewis Arthur, and Kwaku Amofah

Abstract. The growth of global industrialisation, migration, international trade, industrygovernment-industry-academia academia collaboration. collaboration. internationalisation of institutions and business entities has led to an expansion of crosscultural communication strategies and digitalisation across the world. Because of this, a lot of scientific research publications have been done on cross-cultural communication and digitalisation. Therefore, the purpose of this study was to assess authors' citations, affiliations, and bibliometric coupling on cross-cultural communication and digitalisation within ten years, between 2014 and May 2023. The purpose of this paper was to identify the countries and disciplines with the most and least scientific publications on cross-cultural communication and digitalisation from 2014 to May 2023. Since the design of the paper was qualitative, the descriptive approach was used. The data (scientific publications) were electronically sampled from Scopus using three key phrases ("cross-cultural" or "communication" or "digitalisation"). In the first instance, a total of 122,461 data were collected from 2014 to May 2023. However, a sample size of 5,493 scientific publications was collected after filtering the initial data with the open-access option. The data collected from Scopus were then analysed with the 1.6.13 version of the VOSviewer software. The results of the study indicate that between 2014 and May 2023, Chang L. is the author with the highest number of scientific Scopus-indexed publications (13 papers) on cross-cultural communication and digitalisation. Also, the United Kingdom is the country with the highest number of scientific publications on cross-cultural communication and digitalisation from 2014 to May 2023. Still, on the results, the United Kingdom with total documents of 674 is the country with the highest number of bibliometric couplings on cross-cultural communication and digitalisation from 2014 to May 2023. In terms of authors with the highest citation within the period studied, Hofstede recorded 546 during ten years. The study recommends that more collaborative research should be done on cross-cultural communication and digitalisation among authors from various disciplines.

Keywords: cross-cultural, communication strategies, digitalisation, bibliometric analysis

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1. Introduction

Communication is the lifeblood of every organisation. Without communication, it is practically impossible for organisations, and institutions to promote their mission, vision, core values, goods, and services. Communication is the practice of conveying information, ideas, attitudes, views, and opinions from one individual to another [1]. Usually, the culture of a community determines the type, nature, and communication strategies used. In a cosmopolitan society with multiple cultural practices, different communication strategies exist. Such communities have high cases of different strategies for cross-cultural communication. Cross-cultural communication is one of the emerging subject matters in most disciplines. In the United States, after the first world war, cross-cultural communication research started emerging [2]. From that time up to this period, this subject matter has gained popularity in academia and the world of business. Communicating clearly about the numerous issues and results is important to excel in cross-cultural communication strategies. So, the leaders' competence in communication, in general, is a vital approach to efficaciously implementing cross-cultural communication strategies [3–11].

this digital era, several cross-cultural communication strategies abound. In Hofstede et al [12,13] offer a profound examination of perspectives of cultures in other countries, which represent sovereign policy for a country over another country, and this helps to differentiate one country from another country. Hofstede's model has six dimensions. These dimensions high-power individual / collectivism, are low and distance, masculinity / femininity, uncertainty, and avoidance, long-term / short-term orientation, and indulgence / restraint [12,13]. Another cross-cultural communication strategy in this era is digitalisation. Digitalisation is the use or upsurge in the adoption of computer or technological know-how by an association, a business, or a nation [14–20]. The scholars [21–24] have highlighted the function that digitization plays in a lot of setups. Therefore, the purpose of the study is to examine the various cross-cultural communication strategies used by institutions, organisations, and countries in this digital era as indicated by some Scopus-indexed empirical research papers. The objectives of the study are to:

- assess the affiliation(s) of authors with the highest number of publications on cross-cultural communication and digitalisation,
- identify the countries with the highest scientific publications on cross-cultural communication and digitalisation for the past decade (2014 2023),
- identify countries with the highest collaborative research (bibliometric coupling) on cross-cultural communication and digitalisation between 2014 and May 2023,
- find authors whose Scopus-indexed papers on cross-cultural communication have been cited the most in the past decade, and
- find out the disciplines (subject areas) with the highest and lowest scientific papers on cross-cultural communication and digitalisation.

The paper is structured into five main parts. Part one provides the introduction to the paper. Here, the background to the study of cross-cultural communication and digitalisation has been outlined. Part two highlights the theoretical and empirical literature review of the study. Part three showcases the various methods that were used in collecting, and analysing the data. This

part also provides readers with information about the focus of this bibliometric study. Part four summarises the results and discusses the objectives of the study. Part five, the conclusions, highlights the main revelations of the paper with specific reference to the objectives. This section also deliberates on the limitation of the study and provides direction for future studies.

2. Literature Review

2.1. Theoretical Literature Review

Classical literature defines culture as the way of life of a group of people [25]. Thus, the culture of every community represents its lifestyle. This includes their dress code, food, dance, language, music, norms, systems, orientation, values, and rules. Therefore, culture is a group's system of beliefs, norms, and values, that is learned [26]. Usually, societal systems of communication and culture and intertwined. Thus, there is a symbiotic relationship between culture and communication. Usually, in an environment where different participants with diverse orientations exist, there are bound to be exhibitions of activities that border on culture. One such activity is communication. People may communicate based on their cultural orientation. Therefore, cross-cultural communication is the interaction of entities from diverse cultures that borders on information dissemination; interpersonal, mass, group, and person-togroup communication, as well as the flow, sharing, infiltration, and transfer of various cultural elements in the world [27]. Thus, cross-cultural communication takes place when people who speak different languages come into contact with one another. When this happens, they display a lot of cultural practices both in their communication and general conduct. Considering to the studies [28-42] cross-cultural communication plays a significant role in the green development of a country [28,38–40,42] and the success of businesses in terms of stakeholderoriented value [29], institutional components [30-32], globalization [33-35], economic growth [36–37], and sustainable development [40–42].

Cross-cultural communication skills are the skills that enable someone to successfully intermingle with people from different cultural groupings [43]. Cross-cultural communication deals with how people from dissimilar cultures communicate when they deal with each other either on a remote or face-to-face basis [2]. Thus, this communication can comprise verbal, printed, and non-verbal language. On a remote basis, various electronic communication media (both print and electronic) are used for cross-cultural communication. These may include websites, social media handles and pages, telecommunication systems, books, journals, magazines, and others.

2.2. Empirical Literature Review

Moton [44] used semi-structured interviews and document analysis to solicit data from four (4) managers of different fast-food restaurants about cross-cultural communication strategies that engage employees and increase productivity. These restaurants were situated in the Southern region of the United States of America. Grounded in Hofstede's Cross-Cultural Dimensions theory, this qualitative multiple-case study research sought to explore strategies that managers of small fast-food restaurants deploy to improve employee engagement. The study revealed that low employee engagement can negatively impact productivity for small

fast-food restaurants in the USA. Again, small fast-food managers who do not engage employees' experience, usually decrease employee productivity. Four thematic areas emerged from the study: (1) developing relationships, (2) empathy, (3) mindfulness and respect for others, and (4) training and communicating. The study recommended that managers should train employees on cross-cultural communication issues.

There is another study that looked at the effect of culture on marketing communication through the websites of four multinational fast-food companies operating in the USA and Malaysia [45]. This qualitative study used a content analysis design to assess the websites of four (4) fast-food international restaurants namely: Burger King, KFC, McDonald's, and Domino's Pizza operating in both the USA and Malaysia. The objective of the study was to find out how cultural differences and various dimensions of culture affect the design of the websites of these multinational companies. The study revealed that the sampled websites reflected the local cultural values of the location of the various companies. The design of the websites portrayed the national culture of both countries. Also, the use of animations and sounds attracted local customers. The study recommended culture-preferred websites for companies, especially those in Pakistan. This may go a long way to attract customers.

However, cross-cultural communication has some barriers. For example, Sylaj [46] investigated cross-cultural communication barriers in international organizations. The objective of the study was to assess whether a preference for a supportive management style and a directive management style was a result of highly individualistic, highly masculine, and low uncertainty avoidance societies. The participants for the study were fifty-two employees who were surveyed. Out of this number, six (6) were interviewed. The findings of the study showed that preference for a supportive management style was not significantly related to highly individualistic and low uncertainty avoidance societies. The study revealed that preference for a directive management style was not significantly related to highly masculine societies. The results of the interview showed that preference for a supportive management style was related to individualistic culture societies but do not show a trend that preference for a supportive management style was related to low uncertainty avoidance societies.

Riyanto et al. [47] investigated the intercultural communication challenges among Indonesian seafarers with foreign crews at international shipping companies. With a mixed-questionnaire method, this descriptive analysis study collected data (consisting of 10 items) from 171 respondents (seafarers) through Google Forms from June 30, 2022, to July 19, 2022. The study aimed to examine the experiences of these seafarers in onboard intercultural communication related to personal job duties and daily social interactions. The findings of the study revealed that the language barrier was a significant issue among Indonesian seafarers. Thus, they had challenges communicating and socialising with onboard multinational crews, and this challenge was overcome by body language.

Chudnovskaya & Millette [48] studied the intercultural experiences of 16 Chinese graduate students at U.S. Universities. The methodology used was a focus group (n=8) and personal interviews (n=8) conducted at a southeastern university. The results of the study revealed how international Chinese students dealt with variances in expectations for the classroom environment, excellence in schoolwork, and non-verbal norms during their time studying in the U.S. The findings aligned with the three cross-cultural dimensions of Hofstede's theory:

Power Distance, Individualism versus Collectivism, and Indulgence versus Restraint. Again, the work brought to light that despite some cultural shifts shown by newly introduced dimensions collectivism-Individualism and duty-joy, cultural differences still posed some problems for the participants studied.

3. Methods

Various methods were used in this study. Based on its efficacy by several authors [49–57], the bibliometric analysis design was applied by using the key phrases in the objectives of this study. The main keywords used in Scopus in soliciting the data are "cross-cultural" or "communication" or "digitalisation". Since the design of the paper was descriptive, the 1.6.13 version of the VOSviewer software was used in analysing the data collected from Scopus. VOSviewer is a 21st-century software tool for constructing and visualising bibliometric networks. This software uses data from Scopus in analysing journals, researchers, and countries of authors. VOSviewer software uses one of three data types – network, bibliographic, or text – to create maps and graphics for analysis. In creating maps, five types of analysis options are available for users. These are co-authorship, co-occurrence, citation, bibliographic coupling, and co-citation.

Using the three main keywords ("cross-cultural" or "communication" or "digitalisation") in Scopus, a total of 122,461 data were initially exhumed. However, a sample size of 5,493 document results was used based on the open-access filtering option. They were the relevant scientific publications on "cross-cultural", "communication", and "digitalisation" published within the past decade of 2014 and May 2023.

4. Results and Discussion

In Figure 1, the dynamics of the scientific publication activity show rapid growth in publication since 2014. Thus, in 2014, about 200 scientific publications were done on cross-cultural communication and digitalisation. This number gradually increased to over 1000 publications in 2022. In the first quarter of 2023, about 400 scientific publications were done.

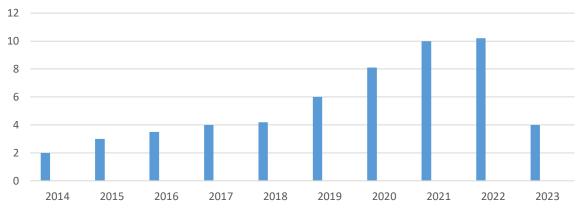


Figure 1. The Dynamics of Scientific Publication on Cross-Cultural Communication and Digitalisation Published from 2014-2023

Source: Compiled by the authors based on the Scopus database.

Therefore, it is anticipated that by the end of 2023, over 1200 scientific papers on cross-cultural communication and digitalisation would have been published in Scopus. This trend corroborates the assertion that in the United States, after the first world war, cross-cultural communication research started emerging [2].

Table 1 compares the document counts for up to 10 authors who have published scientific papers on cross-cultural communication and digitalisation. While Chang has the highest count of 13 publications, Oburu, Skinner, and Tapanya have 12 publications each. As Bacchini, Lansford, Pastorelli, and Sorbring have 11 publications on the keywords used, Al-Hassan and Deater-Deckard have 10 publications each.

Table 1. Authors' Scientific Publications on Cross-Cultural Communication & Digitalisation

Author	Number of Publications	Author	Number of Publications
Chang L	13	Lansford J.E.	11
Oburu P	12	Pastorelli C.	11
Skinner A.T.	12	Sorbring E.	11
Tapanya S.	12	Al-Hassan S.M.	10
Bacchini D.	11	Deater-Deckard K.	10

Source: Compiled by the Authors from the Scopus Database

In Figure 2, ten (10) affiliations of authors on cross-cultural communication (CCC) and digitalisation have been displayed. From Figure 2, the University College London has the highest number of authors who published scientific papers (about 80) on CCC and digitalisation in Scopus between 2014 and 2023. On the other hand, about 48 scientific papers on CCC and digitalisation emerged from Tilburg University.

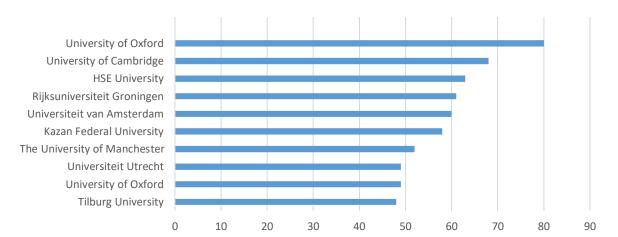


Figure 2. Affiliations of Authors of Scientific Publications on Cross-Cultural Communication and Digitalisation.

Source: Compiled by the authors based on the Scopus database.

Figure 3 shows the top ten countries with scientific publications on CCC and digitalisation from 2014 to May 2023. Figure 3 indicates that the United Kingdom has about 1,420 publications on CCC and digitalisation. This is followed by the United States of America (with

about 1410 publications), while Canada is the 10th country in the world with the highest number of publications on CCC and digitalisation (with about 300) from 2014 to 2023.

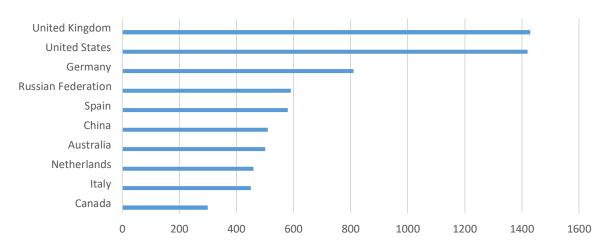


Figure 3. Top 10 Countries with the highest Scientific Publications on Cross-Cultural Communication and Digitalisation

Source: Compiled by the authors based on the Scopus database.

The data from Scopus (Figure 3) corroborates the bibliometric coupling analysis (Figure 4) generated from the VOSviewer software about how countries have collaborated with other countries in research on CCC and digitalisation.

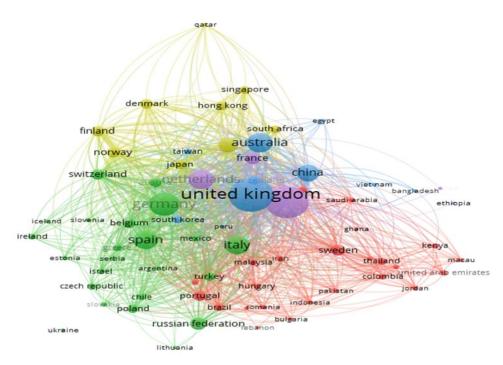


Figure 4. Countries with the Highest Collaborative Research (Bibliometric Coupling) on Cross-Cultural Communication and Digitalisation

Source: Generated by the authors from VOSviewer.

From Table 2, the United Kingdom (UK) has the highest number of collaborative research on CCC and digitalisation (674 documents). The UK has 24,573 citations and 216,327 total link strength. While the United States of America is 2nd on the Table with 610 documents, 21,572 citations, and 188,895 total link strength, France is 10th with 79 collaborative research on CCC and digitalisation, 4,164 citations, and 54,741 total link strength. Thus, the first three countries in the world with the most collaborative research on CCC and digitalisation are the United Kingdom, the United States, and Germany.

Table 2. Countries with the Highest Number of Bibliometric Coupling Data on CCC and Digitalisation from 2014 to 2023

Country	Documents	Citations	Total Link Strength
United Kingdom	674	24573	216327
United States	610	21572	188895
Germany	325	13213	114135
Italy	202	7375	89902
Netherlands	217	8311	87006
China	169	4739	80170
Australia	217	8602	79205
Canada	123	5177	70002
Spain	211	6348	67163
France	79	4164	54741
Finland	66	2996	45833
Switzerland	67	3190	45710
Sweden	78	3220	40987
Belgium	54	2082	40963
Norway	64	2709	39753
Japan	50	1360	37337
Turkey	38	1737	35188

Source: Generated by the authors from the VOSviewer software

Figure 5 shows that between 2014 and May 2023, Social Sciences have dominated (35.0%) with scientific publications on CCC and digitalisation. As Business and Management has 12.1%, Arts and Humanities has 10.3%.

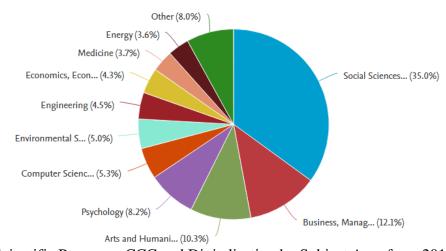


Figure 5. Scientific Papers on CCC and Digitalisation by Subject Area from 2014 to 2023 *Source:* Generated from Scopus by the authors.

The disciplines with the lowest scientific publications on CCC and digitalisation are Energy (3.6%), Medicine (3.7%), and Economics (4.3%). These data suggest that more scientific research on CCC and digitalisation are needed in Energy, Medicine, Economics, Engineering, Environmental Science, and other related fields [58–67]. Figure 6 portrays the data of authors who have collaborated with other authors in scientific research on CCC and digitalisation from 2014 to May 2023.

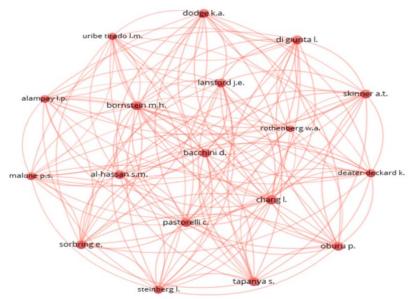


Figure 6. Co-authorship Collaborations *Source:* Generated from VOSviewer by the authors.

Table 3, which supports Figure 6 shows that Hofstede is the author number one, who has collaborated the most with other authors in publishing scientific papers on CCC and digitalisation from 2014 to 2023.

Table 3. Co-Authorship Collaborations with Citations

Author	Citation	Total Link Strength
Hofstede G.	546	22475
Kitayama S.	215	12711
Schwartz S. H.	273	11369
Triandis H. C.	208	10812
Parida V.	138	10752
Markus H. R.	165	10111
Diener E.	158	8738
Henrich J.	179	7646
Gelfand M. J.	118	7485
Hair J. F.	141	7292
Kohtamaki M.	79	7195
Ringle C. M.	115	7134
Sedikides C.	78	6959
Kraus S.	122	6923
Norenzayan A.	152	6852

Source: Generated from VOSviewer by the authors.

Table 3 shows that he has 546 citations and 22,475 total link strength. This confirms that Hofstede is an authority in this area who has collaborated with several authors on scholarly works on CCC. For example, Hofstede et al. [12] propose a thoughtful investigation of viewpoints of cultures of other countries which epitomize autonomous policy for a country over another country, and this facilitates distinguishing one country from another.

Figure 7 reveals the co-occurrence of related keywords on CCC and digitalisation. Thus, this visualisation map shows a cross-tabulation relationship among the keywords in the topic of our paper used between 2014 and May 2023.

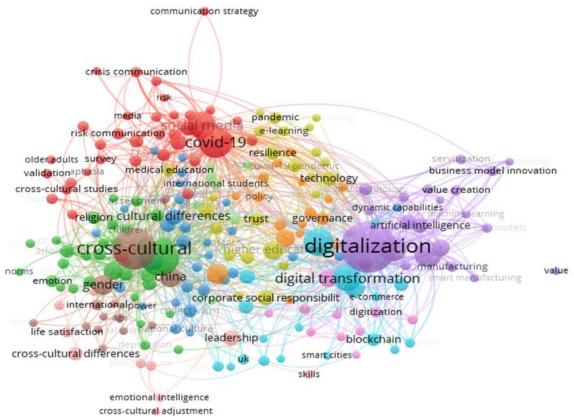


Figure 7. A Visualisation Map of the Relationship among the Key Concepts – Cross-Cultural, Communication, and Digitalisation.

Source: Generated from VOSviewer by the authors.

From Figure 7, it is obvious that keywords such as digitalization, Covid-19, cross-cultural, culture, cultural differences, gender, and China are the major concepts used within the period. Other minor concepts used are communication strategy, cross-cultural studies, international students, communication strategy, e-learning, cross-cultural adjustment, and emotional intelligence among others [68–73]. What this means is that CCC and digitalisation have a symbiotic relationship with these key concepts. Figure 7 is augmented by Table 4, which showcases the occurrence and total link strength of the keywords on CCC and digitalisation from 2014 to May 2023.

Table 4. Keywords about CCC and digitalisation, and their occurrence in Scopus from 2014 to May 2023.

Keyword	Occurrences	Total Link Strength
Digitalization	195	322
Covid-19	72	125
Cross-cultural	121	107
Culture	90	104
Industry 4.0	48	102
Sustainability	50	95
Digital Transformation	51	90
Digitalisation	59	77
Social media	52	76
Circular economy	21	54
China	31	47
Gender	29	42
Digital technologies	23	41
Twitter	17	41
Innovation	23	38

Source: Generated from VOSviewer by the authors.

From Table 4, it is obvious that digitalization and digitalisation are the same concepts that belong to the American and British English codes. Therefore, if we should merge their total occurrences and total link strength, we will have 254 occurrences and 399 total link strengths. This situation shows how vital digitalisation is in this 21 century. With a total occurrence of 121 and 107 total link strength, cross-cultural was also visible in most of the publications we exhumed from Scopus between 2014 and May 2023.

5. Conclusions

This bibliometric analysis paper sought to assess cross-cultural communication (CCC) strategies and digitalisation over the last decade (from 2014 to May 2023). Thus, cross-cultural, communication, and digitalisation were the main keywords used in Scopus in searching for scientific publications over the past decade. The paper brought out some revelations, which have been grouped under the specific objectives of the paper:

- 1. Concerning affiliation(s) of authors with the highest number of publications on cross-cultural communication and digitalisation, the study revealed that between 2014 and May 2023, Chang L. had the highest number of scientific publications (13 papers). While Oburu P., Skinner A.T., and Tapanya S. had 12 publications each, Bacchini D., Lansford J. E., Pastorelli C., and Sorbring E. had 11 publications on the keywords used, and Al-Hassan S.M., and Deater-Deckard K. had 10 publications each.
- 2. When it comes to countries with the highest number of scientific publications on cross-cultural communication and digitalisation for the past decade (2014–2023), the study revealed that the United Kingdom has over 1,400 publications, while the United States has about 1400 publications. As Germany has about 850 publications, Russia has almost 600

publications. However, no country in Sub-Sahara Africa ranked among the first 10 countries with the highest number of publications on CCC and digitalisation. This does not suggest that papers on CCC and digitalisation have not been done on the continent. The analysis was only based on the first 10 countries.

- 3. In terms of the countries with the highest collaborative research (bibliometric coupling) on cross-cultural communication and digitalisation between 2014 and May 2023, the study showed that the United Kingdom has a total of 674 documents with 24573 citations, followed by the United States with 610 documents and 21572 citations, and Germany with 325 documents and 13213 citations. This data suggest that the United Kingdom and the United States have done more collaborative research on CCC and digitalisation than any other countries in the world.
- 4. About authors whose Scopus-indexed papers on cross-cultural communication have been cited the most in the past decade (2014 and May 2023), the findings revealed that as of May 2023, Hofstede had 546 citations, Kitayama had 215, Schwartz had 273, Triandis had 298, and Parida had 138. Table 3 has a complete list of authors and their citations and total link strength.
- 5. Concerning the disciplines (subject areas) with the highest and lowest scientific papers on cross-cultural communication and digitalisation between 2014 and May 2023, the paper revealed that publications in the Social Sciences lead with about 35.0% of the entire publication within the period. Also, Business and Management has 12.1%, Arts and Humanities has 10.3%. On the other hand, the disciplines with the lowest scientific publications on CCC and digitalisation are Energy (3.6%), Medicine (3.7%), Economics (4.3%).

In conclusion, it is imperative to indicate that more collaborative research should be done among authors from Social Sciences, Arts and Humanities, Business and Management on one hand; and authors from Medicine, Economics, Energy, Geography, etc. Again, local and international institutional collaborative research could enhance authors' citations and visibility.

However, there are limitations to this study. The database selection was limited to only Scopus-indexed journals. Probably, if papers were sampled from other recognised academic research databases, the results would have been different. For example, there may be equally good scientific papers on CCC and digitalisation published in journals indexed by ERIC, EBSCO, Web of Science, DOAJ, PubMed, ScienceDirect, and JSTOR. Another limitation of the study is the selection of only open-access scientific publications. This filtering method selected in Scopus may have excluded some exciting scientific papers on CCC and digitalisation published in closed-access journals. What this means is that these findings should not be perceived as absolute in assessing scientific publications on CCC and digitalisation. Also, the filtering process deployed in Scopus selected only scientific papers on CCC and digitalisation published in the English language. Maybe, if there was an option in Scopus for translating non-English language papers, our scope would have been expanded to capture other papers published in other languages. This would have changed the results of the

study. Future research could explore papers from other recognized academic research databases. The only challenge here is that the VOSviewer software uses only scientific papers from Scopus. Future research studies could also focus on CCC and other disciplines or areas such as entrepreneurship, sustainable development, and national development.

Author Contributions:

conceptualization, E.O., J.L.A., and K.A.; methodology, E.O., J.L.A., and K.A.; software, S.A., T.P., and O.L.; validation, S.A., T.P., and O.L.; formal analysis, E.O., J.L.A., and K.A.; investigation, E.O., J.L.A., and K.A.; writing-original draft preparation, E.O., J.L.A., and K.A.; writing-review and editing, E.O., J.L.A., and K.A.; visualization, E.O., J.L.A., and K.A.; supervision, E.O., J.L.A., and K.A. All authors have read and agreed to the published version of the manuscript.

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