Proceedings of

2020 International Conference on Information Management and Technology (ICIMTech)

13 - 14 August 2020

Indonesia

ICIMTech 2020

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Proceedings of
2020 International Conference on Information Management and Technology
(ICIMTech)

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Greetings!

Dear Esteemed Participants/Researchers/Delegates/Professors
Distinguish Guests
Ladies and Gentlemen

Welcome to 2020 International Conference on Information Management and Technology (ICIMTech 2020) held virtually in Indonesia. This is the 5th international conference that annually organized by School of Information Systems, Bina Nusantara University. Today ICT plays a very important role in the industry community to interact, exchange information, and to support business processes that they move to digital transformation. So, our theme of this conference is **Fostering Innovation in The ICT Ecosystem.**

First of all, I would like to extend my sincere appreciation to IEEE Indonesian Section for continuous support and to the honorable keynote speakers for sharing knowledge and research experiences. I thank you very much to committees and volunteers, especially from School of Information Systems. I proudly inform that ICIMTech 2020 received 392 papers and 178 high quality of papers were accepted and would be presented in this conference. They are from several countries overseas and Indonesia. More than that we have experts from academia and professionals will share their knowledge and research experiences related with our theme of conference. We believe you will enjoy and improve your knowledge and experiences as well.

This event is a great opportunity for social networking and there are discussions among us in current and latest Information Management and Technology. Hopefully, as researchers, academicians, professionals, and students from various research background will contribute on improvement of knowledge and experiences, especially in the area of Big Data and Data Mining, Business Intelligent, e-Business, Human-Computer Interaction, Information Engineering, Knowledge Management, Information System Audit, Management Information System and Strategic Information System. On behalf of the committee, let me extend a warm welcome to Indonesia, especially to all foreign participants. I hope that this event will be pleasant and memorable. Thank you and enjoy the conference!

Sincerely Yours,

Dr. Tanty Oktavia
Conference Chair ICIMTech 2020

WELCOMING REMARKS
General Chair
BINUS Joint International Conference (BJIC) 2020

The 5th International Conference on Information Management and Technology (ICIMTech)
Jakarta, 13 August 2020

H.E. Prof. Dr. Ir. Harjanto Prabowo, MM., Rector, BINUS University
Vice rectors, Directors, Deans, and Professors,

Distinguished guests, ladies, and gentlemen,

Let us praise to God the Almighty for His merciful and blessings as we gather here to attend The 5th International Conference on Information Management and Technology (ICIMTech) 2020 as part of BINUS Joint International Conference (BJIC) 2020.

This year BJIC consists of 5 international conferences covering many disciplines ranging from sustainability and development, information management, engineering, technology, computer science, business, international relations, social science, and humanities, namely:

1. International Conference on Biospheric Harmony (ICOBAR), chaired by Dr.Eng. Nico Surantha, S.T., M.T., was held virtually, 23 -24 June 2020
2. International Conference on Information Management and Technology (ICIMTech), chaired by Dr. Tanty Oktavia., S.Kom., MM., is held today, 13 – 14 August 2020.
3. International Conference on Business, International Relations and Diplomacy (ICOBIRD), chaired by Dr. Lili Yulyadi, B.IRK., B.HSc., M.HSc. will be held virtually, 24-25 September 2020
4. International Conference on Eco Engineering Development (ICEED), chaired by Religiana Hendarti, ST, MT, Ph.D, IAI, will be held virtually, 10 – 11 November 2020.
5. International Conference on Computer Science and Computational Intelligence (ICCSCI), chaired by Dr. Aditya Kurniawan, S.Kom., MMSI., will be held virtually, 19 – 20 November 2020

The 5th ICIMTech, specifically, aims to bring together researchers and experts in information systems to share their ideas, experiences, and insights. ICIMTech is organized by School of Information Systems, Bina Nusantara University and supported by IEEE Indonesia Section. ICIMTech 2020 would focus on the issues and challenges of Fostering Innovation in the ICT Ecosystems; delivered through the keynote speakers and distinguished lecturers.

Distinguished guests, ladies, and gentlemen,

This conference is also very special, because our keynote speakers are prominent scholars and professionals from New Zealand, Japan, and Indonesia who contribute to the discussion of new insights about information systems from their perspective as academician, professionals and expert from different fields. This conference shows the bold commitment of BINUS University as world class university that ranked 801-1000 in QS WUR 2020 to continuously produce, share knowledge, and foster and empower the society. Therefore, I do appreciate for their contribution to these conferences.

Last but not least, I would like to appreciate all chairpersons of the 5 conferences and committee members who have been working very hard to make this conference possible. I would also like to thank presenters, participants, our reviewers, and publishers of the paper presented in the conferences as well as sponsor of this event. I hope you enjoy the conference!

Thank you abundantly.

Jakarta, 13 August 2020

Prof. Dr. Tirta N. Mursitama, PhD
General Chair BJIC 2020

Welcome Message

Welcome to the 5th International Conference on Information Management and Technology (ICIMTech 2020) held from 13-14 August virtually. This is the fifth conference hosted by School of Information Systems, BINUS University (Bina Nusantara University). And for this year more than 200 delegates worldwide participate in the conference as participants and presenters. We are very excited to have all of you to join in this great event.

Since five years ago through this conference, we believe many young researchers have been helped to develop their research work and skills through constructive interaction with experienced academics. We find this encouraging and we will continue to develop initiatives that provide information, communication and technology of young researchers with opportunities to develop their research potential and ideas.

Learning from mature research and stimulating discussion with academics, practitioners, and more experienced researchers in the conference has turned ICIMTech to be a melting pot of multi-generation researchers. This is important for developing countries and many high-quality papers related to this issues will be presented in the conference. In addition to paper presentation, we also invite experts from academia to share their knowledge and research experience in keynote speeches session. We believe you will find the conference very fruitful in enhancing your knowledge.

We congratulate the authors of papers that made it into the proceedings and to IEEE Xplore, for the job well done. We wish to express strong appreciation to our most important sponsors: BINUS University and IEEE Indonesia Section. We are also blessed to have three distinguished Guest Speakers: Professor Michael D. Myers, Professor Seiichi Kawata, and Professor Dr. Wisnu Jatmiko. As always, many thanks are due to all members of ICIMTech committee for their dedication for making this conference a success. Above all, thank you to all of you for participating to this conference. Our conference next year ICIMTech 2021 in Indonesia and we look forward to seeing all of you again and hope you enjoy the virtual conference this year.

Sincerely Yours,

Yohannes Kurniawan
Dean of School of Information Systems
Bina Nusantara University

WELCOMING REMARKS
Rector BINUS University

Distinguished keynote speakers,
Fellow professors and presenters,
Ladies and gentlemen,

It is a great honor for me to welcome you to the 5th International Conference on Information Management and Technology (ICIMTech) virtually hosted by BINUS University. This year marks the success of BINUS university achieving vision of 2020 as World Class University. We have been ranked 801 – 1000 in QS World University Ranking 2021 and ranked 7th among public and private universities in Indonesia.

We realized that contribution of research and publication is indispensable in achieving this prestigious status. This conference is also part of continuing efforts in producing, deliberating, and disseminating knowledge as well as creating research partnerships between faculty members and distinguished scholars from many universities in the world.

This year is a historical moment for BINUS University as we have launched our new vision 2035 that underlined the clear message of fostering and empowering the society in building and serving the nation. In the area of research, we would produce high impact research for society. Therefore, an international conference that focuses on creating the future by improvement and advancement of information systems and aims to encourage fostering innovation in ICT ecosystem is essential to make university stay relevant to the needs of the modern societies.

Ladies and gentlemen,

I would like to express my highest appreciation to all invited keynote speakers and invited plenary session speakers and all presenters and participants who will make this conference meaningful. I strongly advice to make use of this conference wisely, not limited to discussing about research but also actively trying to build connections for a new joint research, publication, faculty exchanges and so on.

Finally, I also thank all the chairmen and committee members of the conference. I wish all of you great conference and make new acquaintances during the conferences virtually.

Thank you very much.
Jakarta, 13 August 2020

Prof. Dr. Ir. Harjanto Prabowo, MM
Rector, BINUS University

WELCOMING REMARKS
IEEE INDONESIA SECTION

Prof. Dr.Eng Wisnu Jatmiko, SMIEEE
Chair, IEEE Indonesia Section

Dr. Kurnianingsih, SMIEEE
Vice-Chair, IEEE Indonesia Section

Dear Distinguished Guests, Colleagues, researchers, professionals, ladies, and gentlemen.
Good morning, a prosperous, warm, and spirited greeting.

On behalf of IEEE Indonesia Section, we would like to extend our warmest welcome to all keynote speakers, presenters, and participants to the 5th International Conference on Information Management and Technology (ICIMTech 2020). The conference theme is "**Fostering Innovation in The ICT Ecosystem**". Due to this year's pandemic situation, ICIMTech 2020 was held as a completely virtual conference. I also want to thank all of you who have joined this conference.

ICIMTech is an annual international conference organized by the School of Information Systems, Bina Nusantara University and technically co-sponsored by IEEE Indonesia Section. The conference aims to bring together researchers and experts in information systems to share their ideas, experiences, and insights.

IEEE Indonesia Section has conducted many activities over 32 years in Indonesia. In terms of collaboration, IEEE Indonesia section has a good and mutual relationship with ICT organizations, Industries, Government, Universities as well as the Community in Indonesia. IEEE Indonesia Section has contributed to about 50 different International conferences annually, and this conference is one of the conferences that were initiated by IEEE Indonesia Section. As the fifth year of ICIMTech, this conference shows it's sustainability due to the hard work of the conference organizers, well-organized conference and high-quality papers. We do hope in the near future some high-quality conferences will be continued and strengthened, so the result will give more benefit and positive impact on the human being, especially to Indonesian people.

Finally, we do hope all of you will have an enjoyable and valuable experience during this event. You may share your best knowledge in your area of research and professional activities.
 Thank you.

Jakarta, 13 August 2020

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Digital Business: A Scientific Publication Positioning using Scientometric Analysis

5 authors, including:

Agung Purnomo
Binus University

95 PUBLICATIONS   **235** CITATIONS

SEE PROFILE

Eva Mufidah
Universitas Merdeka Pasuruan

20 PUBLICATIONS   **10** CITATIONS

SEE PROFILE

Nur Asitah
Universitas Nahdlatul Ulama Sidoarjo

15 PUBLICATIONS   **21** CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:

Bibliometric View project

Education View project

Digital Business: A Scientific Publication Positioning using Scientometric Analysis

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Abstract—The digital economy creates a digital business based on technopreneurship for the needs of digital citizens. It has been research yet the notion about digital business review which showed the big picture using data from all countries. This study aims to map the position of international business digital scientific publications indexed by Scopus using scientometric analysis. The study has carried out scientometric methods and analyzed research data using the analysis search results service from Scopus and the VOSviewer application. The research data of 933 scientific documents published from 1978 to 2019 were obtained from the Scopus database. The results showed an increasing trend in the number of digital business publications at the international level each year. Most countries, affiliation, author, subject areas, and type documents in digital business publications were Germany, Curtin University, Chang, E., computer science; and conference paper. There was one pattern of collaborative researchers in digital business publications. This research proposes a convergence axis classification consisting of digital business publication to characterize the body of knowledge generated from four decades of publication: Information technology, Management, Business ecosystem, Industry, Benchmarking, E-commerce, Digitalization, Strategy, abbreviated as IMBIBEDS themes.

Keywords—business, digital business, digital economy, scientometric, technopreneurship

I. INTRODUCTION

The digital economy in the digital age creates digital business for the needs of digital citizens. The digital age creates new opportunities and provides the ability to effectively utilize information and communication technology essential for the survival and prosperity of a company [1]. Digital technology has provided ways to deal with uncertainty in the processes and outcomes in business and entrepreneurship [2]. The progress of digitalization and development of information and communication technologies has created many new business opportunities for entrepreneurial activities in developing countries [3], [4], as well as improving business models in information systems management [5]. Digital business is a business creation by utilizing the acceleration of information and communication technology [7]–[10]. The transition of traditional business towards digital business has broadly begun to affect various industries, especially in the automotive, banking, health, telecommunications, and manufacturing sectors for digital citizens [6].

Digital business models play a role in integrating environmental benefits and safety. Digital business in new ways is considered capable of having a significant impact throughout the world in the last few decades [11]. Business in digital form is often considered to play a role as an environmental savior. Because digital business can reduce the use of paper to send bills, pay bills, and orders [12]. The business has been considered as one of the causes of environmental damage [13]. Thus, digital business has a beneficial role for both parties, both for business owners and the environment. Digitalization in business and management is often considered an integral concept of modern management and is the center of attention and a top priority topic for information technology-management and business process management [15]–[17]. Previous publications such as Remane, Hanelt, Nickerson, and Kolbe provide training instructions for systematically analyzing and finding digital business models for companies and business people. Understanding of business actors to find new business model combinations important to their enterprises and the demands of the current digital era [14]. Digital business needs to be developed with the spirit and principles of technology-based entrepreneurship or technopreneurship.
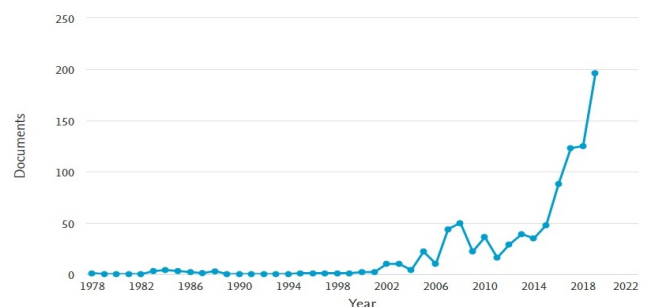
Fig. 1. Number of Documents Per Year from Digital Business Publications

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The implications of business strategies in the form of using computing technology to social impacts have not yet been fully explained in terms of shared uses and creations [8]. The problem is that there has not been any research map on global business digital publications from year to year. Also, there is no scientific publication that specifically addresses the relationship between authors, affiliations, and the impact of digital business publications. This study aims to map the position of international business digital scientific publications indexed by Scopus using scientometric analysis. Researchers have observed a growing number of scientific publications related to digital business topics that have been published internationally and indexed by Scopus from 1978 to 2019 shown in Figure 1.

II. RESEARCH METHODS

This research has mapped the position of digital business scientific publications globally and has been indexed by Scopus. Research data was obtained from the Scopus database using document search services in March 2020. [18]. This study has carried out scientometric methods and analyzed research data using the analyze search results service from Scopus and the VOSviewer application [19], [20]. VOSViewer tools were used to build and visualize scientometric networks, namely the number of studies, researchers, academic affiliations, countries, fields, keywords, and author collaboration [21]. This survey has been carried out by identifying keywords related to digital business to find and identify related articles from publications with the Scopus database for 933 academic documents published from 1978 to 2019 at the global level. The study limited data collection to 2019 without looking at 2020 (exclude 2020) so that the annual data obtained illustrates the condition of the study in one whole year from January to December. The query command that is applied when mining data on Scopus was TITLE-ABS-KEY ("digital business") AND PUBYEAR <2020.

The study analyzed co-authorship with units of analysis of authors and full counting methods using VOSViewer to get the author's collaboration network. The study carried out an analysis of co-occurrence with analysis of keywords and a full calculation method using VOSViewer to obtain a network of keywords.

III. RESULT AND DISCUSSION

Digital business publications tend to increase every year. The highest publication peak in 2019, 214 documents. Digital business publications at the international level have been started since 1978.

A. Most Frequent Country Affiliation of Digital Business Publications

The top research country in digital business publications was Germany with 138 documents. Then followed by the United States with 109 documents, the United Kingdom with 92 documents, Australia with 51 documents, Italy with

50 documents, Spain with 40 documents, France with 35 documents, Switzerland with 31 documents, China with 30 documents, Finland with 30 documents, Russian Federation with 29 documents, India with 27 documents, and Portugal with 27 documents as shown in Fig 2. Country Number of Digital Business in Year.
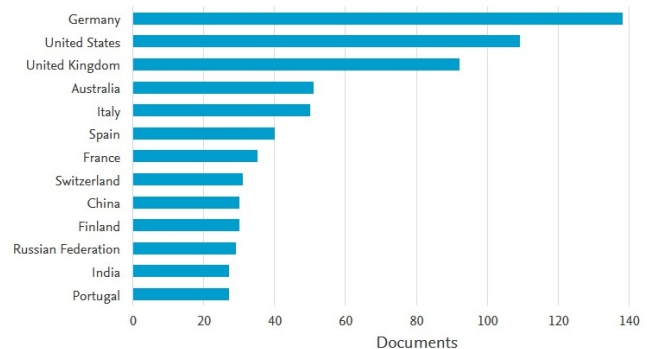
Fig. 2. Country Number of Digital Business in Year

B. Most Common Institutional Affiliations of Digital Business Publications

The top research institutions in digital business publications were the Curtin University with 13 documents, Universität St. Gallen with 12 documents, Fujitsu Ltd. with 10 documents, Universität Göttingen with 10 documents, London School of Economics and Political Science with 9 documents, the University of the Aegean with 9 documents, University Politehnica of Bucharest with 8 documents, and Aalto University with 8 documents as shown in Fig 3. Affiliation Number of Digital Business in Year.
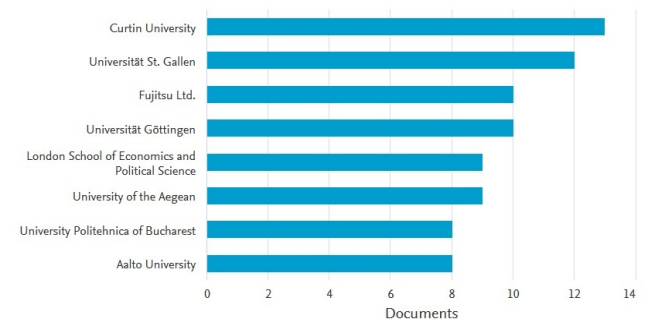
Fig. 3. Affiliation Number of Digital Business in Year

C. Most Individual Authors in Digital Business Publications

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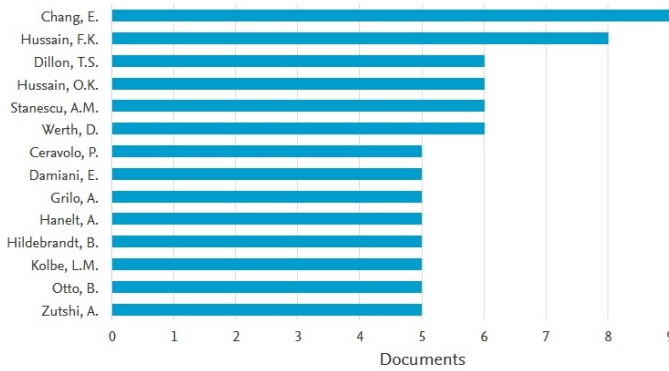
Fig. 4. Most Individual Authors of Digital Business Publications

The author with the most publications in the digital business was Chang, E. with 9 documents. Followed by Hussain, F.K. with 8 documents, Dillon, T.S. with 6 documents, Hussain, O.K. with 6 documents, Stanescu, A.M. with 6 documents, Werth, D. with 6 documents, Ceravolo, P. with 5 documents, Damiani, E. with 5 documents, Grilo, A. with 5 documents, and Hanelt, A. with 5 documents.

D. Most Frequency of Digital Business Publications by Subject Area

The most subject area in digital business publications was Computer Science with 560 documents (30.9%). Followed by Business, Management, and Accounting, with 339 documents (18.7%), Engineering with 266 documents (14.7%), Decision Sciences with 161 documents (8.9%), Mathematics with 146 documents (8.0%), Social Sciences with 110 documents (6.1%), Economics, Econometrics and Finance with 102 documents (5,6%), Environmental Science with 25 documents (1.4%), Materials Science with 22 documents (1.2%), and Chemical Engineering with 17 documents (0.9%).
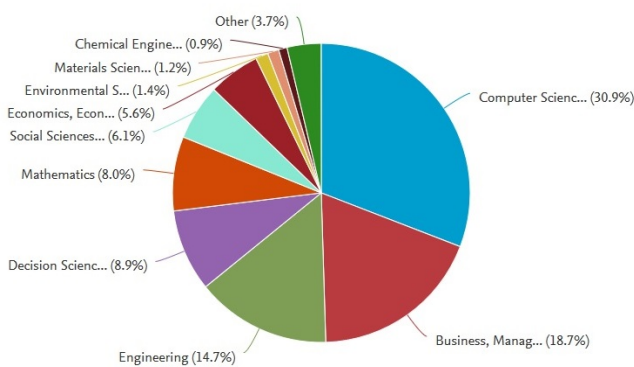
Fig. 5. Most Frequency of Digital Business Publications by Subject Area

E. Most Frequent Type Document of Digital Business Publication

The most frequent type document in digital business publication was Conference Paper (47.9%) with 447 documents, then Article (32.4%) with 302 documents, Book Chapter (6.4%) with 60 documents Conference Review

(6.1%) with 57 documents, Book (2.7%) with 25 documents, Review (2.1%) with 20 documents, Editorial (1.1%) with 10 documents, Note (0.6%) with 6 documents, Short Survey (0.4%) with 4 documents, and Erratum (0.1%) with 1 documents.
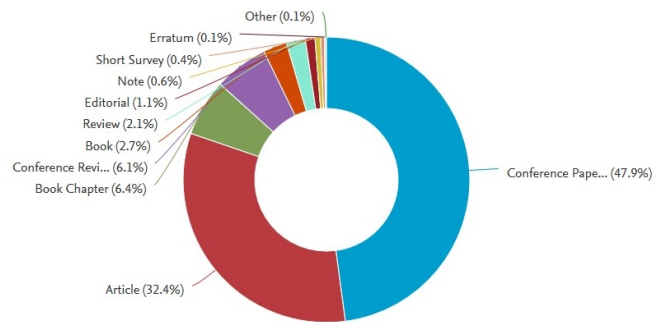
Fig. 6. Most Frequent Type Document of Digital Business Publication

F. Documents by Funding Sponsor of Digital Bussiness Publications

Fig. 7 shows the top sponsoring Funding agencies that were most helpful in publishing digital business are the European Commission with 13 documents, the National Natural Science Foundation of China with 6 documents, the Academy of Finland with 3 documents, Bundesministerium fÃ¼r Bildung und Forschung with 3 documents, Universitas Indonesia with 3 documents, and Vedeckâ Grantová AgentÃºra MÅ VVaÅ SR a SAV with 3 documents.
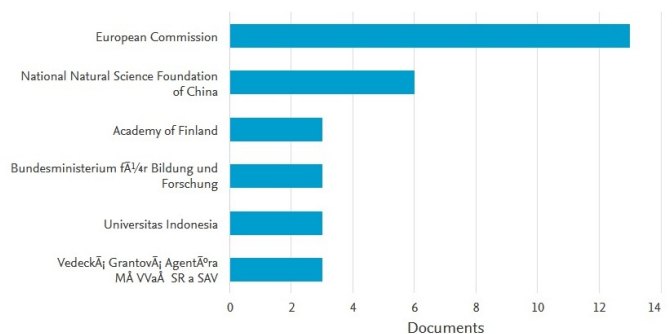
Fig. 7. Most Frequency of Digital Business Publications by Funding Sponsor

G. Year Documents Based on Sources of Digital Business Publications

The number of documents each year based on sources in international publications in the Digital Business is Lecture Notes In Computer Science Including Subseries Lecture Notes In Artificial Intelligence And Lecture Notes In Bioinformatics with 54 documents. Followed by the Lecture Notes In Business Information Processing with 27 documents, IFIP Advances In Information And Communication Technology with 14 documents, and Communications In Computer And Information Science 13 documents.

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Fig. 8. Number of Documents Each Year Based on Sources of Digital Business Publications

H. Map of Publication Theme

Construction on the digital business keyword network for the publication theme map was built with the VOSViewer application. The criterion for a minimum number of documents related to keywords is seven repetitions. So, from 4,481 keywords, 161 keywords met the thresholds.

Fig. 9. shows that there were eight groups of publication themes based on research keywords related to digital business publication, abbreviated as IMBIBEDS themes.

1. Information technology cluster (light blue). This cluster dominated by the keywords information technology, websites, social media, social network, and computational methods. Most of these keywords relate to information technology themes.
2. Management cluster (red). In this cluster, we can find management themes. This cluster was related by keywords management, information services, knowledge management, enterprise resource management, and problem solving.
3. Business ecosystems cluster (green). This cluster dominated by the keywords business ecosystems,

Fig. 9. Map of Publication Theme

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digital business ecosystems, digital ecosystem, and ecosystem. Most of these keywords relate to digital business ecosystems themes.

4. Industry cluster (purple). In this cluster, we can find industry themes. This cluster was related to the keywords industry, finances, and surveys.
5. Benchmarking cluster (brown). In this cluster, we can find benchmark themes. This cluster was related by the keywords benchmarking
6. E-commerce cluster (yellow). This cluster dominated by the keywords e-commerce, electronic commerce, internet, marketing, and consumer behavior. Most of these keywords relate to e-commerce themes.

The topmost cited digital business publications were shown in Table 1. The most cited international publications in the "MIS Quarterly: Management Information Systems" was Bharadwaj, A., El Sawy, O.A., Pavlou, P.A., Venkatraman, N. in 2013 entitled "Digital Business Strategy: Toward A Next Generation of Insights" cited 632 documents.

J. Authorship Network
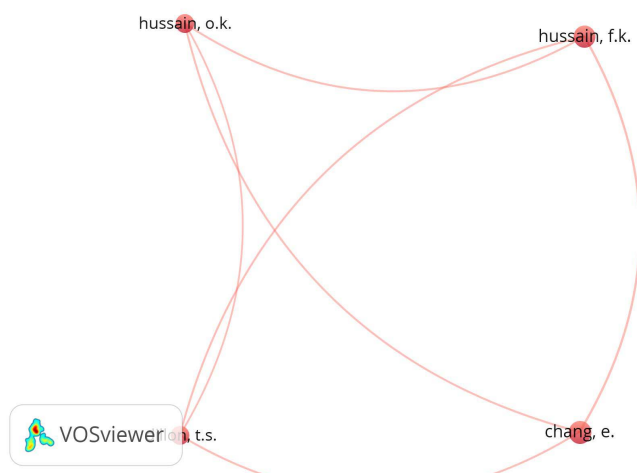
Fig. 10. Authorship Network

The criteria for the minimum number of documents per author were five documents. Thus, from 1,983 authors, 15 authors were found who met the thresholds. There was one group collaboration network between researchers in the digital business publications as seen in Fig. 10. The red cluster which contains Hussain, F.K., Dillon, T.S., Hussain, O.K., and Chang, E. They both from the Curtin University of Technology, Perth, Australia.

IV. Conclusion

The results of this study indicate that there were maps and visual trends in increasing the number of publications on digital business studies at the international level. The country that has the largest contribution in making publications in digital business studies was Germany with 138 documents. The most productive research institution in

7. Digitalization cluster (blue). In this cluster, we can find digitalization themes. This cluster was related by the keywords digitalization, digital business transforming, digital transformations, digital innovation, business strategy, and digital business.
8. Strategy cluster (orange). This cluster dominated by the keywords digital business strategy, digital strategy, strategic planning, it strategy, and competitiveness. Most of these keywords relate to strategy themes.

I. Document Cited of Digital Business Publications

the publication of the digital business studies was Curtin University with 13 documents. The individual author with the most publications in the digital business study was Chang, E. with 9 documents. The most widely studied areas published in the digital business studies were Computer Science with 560 documents (30.9%). The most document types published are Conference Paper with 447 documents (47.9%). Most documents per year by the source in international publications in the digital business studies were the "Lecture Notes In Computer Science Including Subseries Lecture Notes In Artificial Intelligence And Lecture Notes In Bioinformatics" with 54 documents. The most sponsoring institution that helped in the study of the publication of digital business is the European Commission with 13 documents. The highest publication of international academic documents in digital business studies was in 2019 with 214 documents. Most publications with the most citations were the works of Bharadwaj, A et al in 2013 entitled "Digital Business Strategy: Toward A Next Generation of Insights" with 632 citations. There were one collaboration group on research related to the digital business publication.

In terms of contributing implications to knowledge, this research proposes a convergence axis classification consisting of digital business publication to characterize the body of knowledge generated from four decades of publication: Information technology, Management, Business ecosystem, Industry, Benchmarking, E-commerce, Digitalization, Strategy, abbreviated as IMBIBEDS themes. As implications for practical, identifying key themes in the digital business sector leads to understanding the development of studies to understand common topics and contexts, as well as the research gaps. With all of this, new studies can be led to address a lack of study and advance knowledge in the areas. The themes most researched also demonstrate the digital business contribution to business and digital economy.

Future research is to analyze contributions and explain the impact of digital business publication based on a combination of data obtained from Scopus dan Web of Science.

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REFERENCES

[1] W. Li, K. Liu, M. Belitski, A. Ghobadian, and N. O'Regan, "E-Leadership Through Strategic Alignment: An Empirical Study of Small and Medium sized Enterprises in The Digital Age," *J. Inf. Technol.*, vol. 31, pp. 185–206, 2016.

[2] S. Nambisan, "Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship," in *Entrepreneurship Theory And Practice*, 2016, pp. 1–27.

[3] M. Z. Ngoasong, "Digital Entrepreneurship in Emerging Economies: The Role of ICTs and Local Context," in *42nd AIB-UKI Conference*, 2015, pp. 1–28.

[4] A. Bharadwaj, O. A. El Sawy, P. A. Pavlou, and N. Venkatraman, "Digital Business Strategy: Toward A Next Generation of Insights," *Manag. Inf. Syst. Q.*, vol. 37, no. 2, pp. 471–482, 2013.

[5] M. M. Al-Debei and D. Avison, "Developing A Unified Framework of The Business Model Concept," *Eur. J. Inf. Syst.*, vol. 9, pp. 359–376, 2010.

[6] A. Nadeem, B. Abedin, N. Cerpa, and E. Chew, "Editorial: Digital Transformation & Digital Business Strategy in Electronic Commerce - The Role of Organizational Capabilities," *J. Theor. Appl. Electron. Commer. Res.*, vol. 13, no. 2, pp. 1–8, 2018.

[7] E. Davidson and E. Vaast, "Digital Entrepreneurship and Its Sociomaterial Enactment," in *2010 43rd Hawaii International Conference on System Sciences*, 2010, pp. 1–10.

[8] G. Oestreicher-Singer and L. Zalmanson, "Content or Community? A Digital Business Strategy for Content Providers in the Social Age," *MIS Q.*, vol. 37, no. 2, pp. 591–616, 2013.

[9] T. O'Reilly, "What Is Web 2.0: Design Patterns and Business Models for the Next Generation of Software," *Commun. & Strateg.*, no. 65, pp. 17–37, 2007.

[10] A. Onetti, A. Zucchella, M. V Jones, and P. P. McDougall-Covin, "Internationalization, Innovation and Entrepreneurship: Business Models for New Technology-Based Firms," *J. Manag. {\&} Gov.*, vol. 14, no. 3, pp. 1–32, 2012.

[11] S. Kraus, C. Palmer, N. Kailer, F. L. Kallinger, and J. Spitzer, "Digital Entrepreneurship: A Research Agenda on New Business Models for The Twenty-First Century," *Int. J. Entrep. Behav. & Res.*, 2018.

[12] C. T. Sheung, "E-Business: The New Strategies and e-Business Ethics, that Leads Organizations to Success," *Glob. J. Manag. Bus. Res. A Adm. Manag.*, vol. 14, no. 8, pp. 1–6, 2014.

[13] S. Watts and J. Noh, "Going Green with Management-Management Technology Comparison within Green Companies: China, USA, and Korea," *Int. J. e-Education, e-Business, e-Management e-Learning*, vol. 4, no. 3, pp. 160–165, 2014.

[14] G. Remane, A. Hanelt, R. C. Nickerson, and L. M. Kolbe, "Discovering Digital Business Models In Traditional Industries," *J. Bus. Strategy*, vol. 38, no. 2, pp. 41–51, 2017.

[15] J. Manyika and A. McAfee, "Why Every Leader Should Care About Digitization and Disruptive Innovation," *McKinsey Global Institute*. 2014.

[16] Gartner, "Gartner's 2014 Hype Cycle for Emerging Technologies Maps the Journey to Digital Business," *gartner.com*. 2014.

[17] H. Andersson and P. Tuddenham, "Reinventing IT to Support Digitization," *McKinsey Digital*. 2014.

[18] A. Purnomo and N. Asitah, "Dataset of Digital Business from 1978 to 2019," *Mendeley Data*, 2020. [Online]. Available: https://data.mendeley.com/datasets/r844v3dzt3/1.

[19] N. J. van Eck and L. Waltman, "Software survey: VOSviewer, a computer program for bibliometric mapping," *Scientometrics*, vol. 84, no. 2, pp. 523–538, 2010.

[20] I. Setyawati, A. Purnomo, D. E. Irawan, M. Tamyiz, and D. U. Sutiksno, "A Visual Trend of Literature on Ecopreneurship Research Overviewed within The Last Two Decades," *J. Entrep. Educ.*, vol. 21, no. 4, pp. 1–7, 2018.

[21] B. Ranjbar-Sahraei and R. R. Negenborn, *Research Positioning & Trend Identification*. Walanda: TU Delft, 2017

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