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Mapping IoT-Based Sociocultural Research Trends Over the Last Six Years: Bibliometric Analysis

Abdul Hobir

Prodi Magister Manajemen Pendidikan Islam, Universitas Islam Madura,
Pamekasan, Indonesia
email: abdulhobir@uim.ac.id

Fredy Yunanto

Fakultas Keguruan dan Ilmu Pendidikan, Universitas Madura,
Pamekasan, Indonesia
email: fredy@unira.ac.id

Jumesam

Pendidikan Jasmani Kesehatan Rekreasi (PJKR), Universitas Hamzanwadi,
Lombok Timur, Indonesia
email: jumesam@hamzanwadi.ac.id

Sandy Vikki Ariyanto

Jurusan Teknik Informatika, Fakultas Teknik Universitas Madura,
Pamekasan, Indonesia
email: sandy@unira.ac.id

Raveenthiran Vivekanantharasa

Departemen Pendidikan Menengah dan Tersier, Fakultas Pendidikan,
Universitas Terbuka, Kolombo, Sri Lanka
email: rvive@ou.ac.lk

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Abstract

This research aims to examine scientific progress and provide a comprehensive literature review regarding IoT-based sociocultural from 2018 to 2023 using the Scopus database. Additionally, this research aims to identify new concepts and areas of limited knowledge that may require additional investigation. Software from the Scopus website was used for bibliometric analysis. Several citations are used to categorize research findings, which also contain information on author, country, document type, and year of publication. The researchers found eighteen papers by limiting their search to the last six years and using only English keywords. 2021 tops the list of years with the most publications, with five documents. Usually, this category of documents is encountered at international paper conferences. According to this analysis, the number of studies related to IoT-based sociocultural issues in the Scopus database is expected to increase and climax between 2018 and 2023. Various themes and keywords that can form the basis for further investigation have emerged with advances in IoT-based sociocultural research. Future academics will be able to analyze IoT-based sociocultural changes over the past decades with the help of this bibliographic analysis. To equip ourselves to face future questions, bibliometric analysis provides insights and data related to the progress of sociocultural research based on the Internet of Things.

[Penelitian ini bertujuan untuk membahas kemajuan ilmiah dan memberikan tinjauan pustaka yang komprehensif tentang kajian sosio-kultural berbasis IoT dari tahun 2018 hingga 2023 dengan menggunakan basis data Scopus. Selain itu, penelitian ini bertujuan untuk mengidentifikasi konsep-konsep baru dan area pengetahuan terbatas yang mungkin memerlukan penyelidikan tambahan. Perangkat lunak dari *website* Scopus digunakan untuk analisis yaitu bibliometrik. Beberapa kutipan digunakan untuk mengkategorikan temuan penelitian, yang juga berisi informasi tentang penulis, negara, jenis dokumen, dan tahun publikasi. Para peneliti menemukan delapan belas karya ilmiah dengan membatasi pencariannya dalam jangka waktu enam (6) tahun terakhir dan hanya menggunakan kata kunci dalam bahasa Inggris. Periode tahun 2021 menduduki puncak daftar tahun dengan publikasi terbanyak, dengan lima (5) dokumen. Kategori dokumen tersebut sering ditemui di artikel konferensi internasional. Berdasarkan hasil analisis, jumlah penelitian yang terkait dengan isu-isu sosio-kultural berbasis IoT dalam basis data Scopus tampak meningkat dan mencapai puncaknya antara tahun 2018 dan 2023. Berbagai tema dan kata kunci yang dapat menjadi dasar untuk penyelidikan lebih lanjut telah muncul dengan kemajuan dalam penelitian sosio-kultural berbasis IoT. Akademisi masa depan akan mampu menganalisis perubahan sosial budaya berbasis IoT selama beberapa dekade terakhir dengan bantuan analisis bibliografi. Analisis bibliometrik memberikan wawasan dan data terkait kemajuan

penelitian sosial budaya berbasis Internet of Things untuk mempersiapkan diri menghadapi banyak pertanyaan di masa depan,]

Keywords: socio-cultural; IoT; bibliometrics; Scopus data

Introduction

The relevance of the research is determined by the process of modernization of vocational and the transition to the standard of the third generation, which opens up new opportunities for students and teachers.^{1,2,3} The research results found that the socio-cultural-religious modernization process through Islamic Anthropology was carried out with teaching materials in Islamic.^{4,5} Practical significance Methodology and strategy of modernization in Russian and foreign sociocultural traditions.^{6,7} All policies around the world support the promotion of CT, and researchers from various disciplines have engaged in extensive debate regarding its definition; CT is seen from

¹ Marina Georgiyevna Sergeeva,, Natalya Viktorovna Ippolitova, Anna Viktorovna Solovyeva, Leila Amzarovna Petrova, Maria Lvovna Kunytsina, and Irina Stanislavovna Andryushchenko, "Verification of Management-Support of Professional and Educational Trajectory of Students in the Socio-Cultural Educational Environment of the University," *Espacios* 39, no.2 (2018): 5–14.

² Ozlem Erden Basaran, "The Role of Temporary Education Centers on Syrian Refugee Students' Sociocultural Adaptation," *Adiyaman Üniversitesi Eğitim Bilimleri Dergisi* 13, no.1 (2023): 1–20, <https://doi.org/10.17984/adyuebd.1113518>.

³ Firman Mansir, "Islamic Education and Sociocultural Development in Educational Institutions," *IDEAS* 8, no. 3(2022): 729–36, <https://doi.org/10.32884/ideas.v8i3.901>.

⁴ Eka Firmansyah, Tobroni Tobroni, and Romelah, "Anthropology of Islamic Education as A Socio-Cultural-Religious Modernization Strategy in Alam Al-Kudus Islamic Boarding School," *Edukasi Islami: Jurnal Pendidikan Islam* 12, no. 3 (2023): 1977–90, <https://doi.org/10.30868/ei.v12i03.4346>.

⁵ Miguel Segundo-ortin, "Sociocultural Norms in Ecological Psychology: The Education of Intention," *Phenomenology and the Cognitive Sciences* 3, no.2 (2022): 1–19.

⁶ Trung Tâm, Nghiên CứUVà, Chuy Ê N Giao, Công Ngh, and ÂNBỤI Chu, "Methodology and Strategies For Modernization Of The Language Educational Policy In The Context of Sociocultural Traditions." *Revista inclusiones* 1, no.7 (2016): 1–23.

⁷ Svetlana E Kryuchkova and Ibrahim M Melikov, "Globalization of Higher Education: Sociocultural Aspect," *Logos et Praxis* 17, no.1 (2018): 40–48.

the viewpoints of philosophy, cognitive psychology, and al science.^{8,9,10} The results above suggest that modernization of sociocultural practices is very much needed; therefore, in-depth research specifically on sociocultural practices is needed.

Pedagogical sociocultural perspectives have essential implications in teaching and assessment practices.^{11,12} Teachers must have sociocultural competence to form students' historical views, a sense of tolerance for sociocultural differences, respect, and attention to historical heritage and cultural traditions.^{13,14,15} Sociocultural theory

⁸ Imperio, Alessandra, Judith Kleine Staarman, and Demis Basso, "Relevance of the Sociocultural Perspective in the Discussion about Critical Thinking," *Ricerche Di Pedagogia e Didattica* 15, no.1 (2020): 1–19, <https://doi.org/10.6092/issn.1970-2221/9882>.

⁹ Olga M. Khomushku, Maria S. Kukhta, and and Margarita Yu. Raitina, "Sociocultural Adaptation of Tuvan Students in Educational Environment of Tomsk," *Journal of Siberian Federal University: Humanities & Social Sciences* 13, no.7 (2020): 1137–43, <https://doi.org/10.17516/1997-1370-0631>.

¹⁰ Ankit Kumar, "Energy Research & Social Science Justice and Politics in Energy Access for Education, Livelihoods and Health : How Sociocultural Processes Mediate the Winners and Losers," *Energy Research & Social Science* 40 (November 2017): 3–13, <https://doi.org/10.1016/j.erss.2017.11.029>.

¹¹ Nataliia M Ridei, Nataliia M. Tytova, Oleg A. Diegtiar, Dmytro H. Pavlenko, and Oleksandr M. Slabetskyi, "Administrative Management of Improvement Processes of Sociocultural Forms Based on Principles of Sustainable Development of Education," *Journal of Higher Education Theory and Practice* 21, no.14 (2021): 102–11, <https://doi.org/10.33423/jhetp.v21i14.4814>.

¹² Gilberto Gerra, Elisa Benedetti, Giuliano Resce, Roberta Potente, Arianna Cutilli, and Sabrina Molinaro. 2020. "Socioeconomic Status, Parental Education, School Connectedness and Individual Sociocultural Resources in Vulnerability for Drug Use among Students," *Environmental Research and Public Health* 17, no. 1306 (2020): 1–17.

¹³ Gulnoza Gulomovna Rashidova, "Sociocultural Approach as a Modern Direction of Teacher Training," *International Journal of Multicultural and Multireligious Understanding* 8, no.8 (2021): 169, <https://doi.org/10.18415/ijmmu.v8i8.2968>.

¹⁴ Musarat Yasmin and Ayesha Sohail, "Sociocultural Barriers in Promoting Learner Autonomy in Pakistani Universities: English Teachers' Beliefs," *Cogent Education* 5, no.1 (2018): 1–12, <https://doi.org/10.1080/2331186X.2018.1501888>.

¹⁵ Hild Elisabeth Hoff, "Fostering the ' Intercultural Reader ' ? An Empirical Study of Sociocultural Approaches to EFL Literature Fostering the ' Intercultural Reader ' ? An Empirical Study of Sociocultural Approaches to EFL Literature," *Scandinavian Journal of Educational Research* 0, no. 0 (2017): 1–22, <https://doi.org/10.1080/00313831.2017.1402366>.

has had a significant influence on language learning and teaching.^{16,17,18} There is no significant difference in the sociocultural influence of parental background on girls in Ilorin City based on gender, religion, age, and al qualifications.¹⁹ By promoting contextually sensitive environmental citizenship through Socio-scientific Issues (SSI) in science, we can accelerate the transition to a sustainable future.^{20,21,22} Digital trends have a positive impact on the development of digital skills from an early age under the direction and control of all goals.²³ The results of previous research indicate the importance of IoT-based sociocultural. Therefore, research is needed regarding IoT-based

¹⁶ Habibullah Pathan, Rafique A. Memon, Shumaila Memon, Ali Raza Khoso, and Illahi Bux, “A Critical Review of Vygotsky’s Sociocultural Theory in Second Language Acquisition,” *International Journal of English Linguistics* 8, no.4 (2018): 232, <https://doi.org/10.5539/ijel.v8n4p232>.

¹⁷ Dónya S Madjidian, Fusta Azupogo, Saskia J.M. Osendarp, Hilde Bras, and Inge D. Brouwer, “Sociocultural and Economic Determinants and Consequences of Adolescent Undernutrition and Micronutrient Deficiencies in LLMICs: A Systematic Narrative Review.” *Annals of the New York Academy of Sciences* 1416, no.1 (2018): 117–39, <https://doi.org/10.1111/nyas.13670>.

¹⁸ Samson Maekele Tsegay, Mulugeta Zemuy Zegergish, and Muhammad Azeem Ashraf, “Sociocultural Adjustment Experiences of International Students in Chinese Higher Education Institutions,” *Millennial Asia* 9, no.2 (2018): 183–202, <https://doi.org/10.1177/0976399618786342>.

¹⁹ Ifeoma P. Okafor, “Influence of Sociocultural Background of Parents on Girl.” *And EDUCARE: International Journal for Educational Studies* 13, no.1 (2020): 49–60, www.journals.mindamas.com/index.php/educare.

²⁰ Simo Häyrynen, Tuula Keinonen, and Sirpa Kärkkäinen, “Promoting Environmental Citizenship Through Local Sociocultural Traditions in Science Education,” *Discourse and Communication for Sustainable Education* 12, no.2 (2021): 5–30, <https://doi.org/10.2478/dcse-2021-0013>.

²¹ Wang, Lijuan, and Elina Lehtomäki. 2022. “Bilingual Education and Beyond: How School Settings Shape the Chinese Yi Minority’s Sociocultural Attachments.” *International Journal of Bilingual Education and Bilingualism* 25 (6): 2256–68, <https://doi.org/10.1080/13670050.2021.1905602>.

²² Robby Zidny and Ingo Eilks, “Indigeous Knowledge as a Sociocultural Context of Science to Promote Transformative Education for Sustainable Development : Insights into a Case Study on The Baduy Community (Indonesia) 29,” in *Building Bridges across Disciplines* (2018): 249–55.

²³ Amat Suroso, Prasetyono Hendriarto, Galuh Nashrulloh Kartika MR, Petrus Jacob Pattiasina, and Aslan, “Challenges and Opportunities towards Islamic Cultured Generation: Sociocultural Analysis,” *Linguistics and Culture Review* 5, no.1 (2021): 180–94, <https://doi.org/10.21744/lingcure.v5n1.1203>.

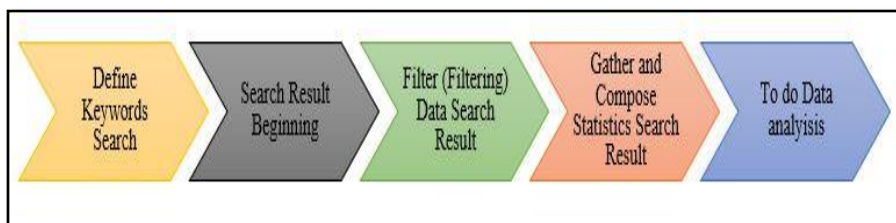
sociocultural. This initial research aims to find a research gap related to IoT-based sociocultural.

This research seeks to identify the most significant gaps and themes in the peer-reviewed literature on IoT-based sociocultural research. In addition to examining the challenges and opportunities associated with IoT-based sociocultural Research, it concentrates on the following five key areas: content recommendations, curriculum requirements, and curriculum or instructional delivery recommendations.

Based on the publication records of the Scopus document database, the research presented in this paper uses bibliometric methods to describe the implementation patterns of sociocultural learning based on IoT technology from 2018 to 2023. This research aims to examine the impact of scientific articles published in the last six years on the progress of sociocultural learning. Additionally, this research aims to identify the most influential authors in the field. These publications receive the highest rankings, the most frequently used keywords, and potential avenues for future research.

Methods

Bibliometric mapping analysis was carried out for this research using the Scopus database. We performed a bibliometric mapping investigation according to the methodology described by Aria and Coccurullo²⁴This approach identified gaps in the literature, and a bibliometric analysis was conducted to gain a more comprehensive understanding of the evolution of philosophy within the academic community. Although bibliometric analysis has become the subject of research in various fields, it has yet to be applied to the discipline of IoT-based sociocultural.



²⁴ Law, Indonesian, Culture Regulation, and Culture Regulation, “Key Elements of Disaster Mitigation Education in Inclusive School Setting in the Indonesian Context,” *Journal of Disaster Risk Studies* 6, no.3 (2021): 1–8.

Fig 1. Five steps of IoT-based bibliometric analysis techniques for Sociocultural

Numerous studies show that bibliometric analysis illuminates research developments and trends.^{25,26,27,28,29,30,31} The name of the database that contains article documents is Scopus. This decision is based on Scopus' reputation as a global publication platform serving researchers. (a) In the period 2018 to 2023, titles, abstracts, and keywords were collected using the “Sociocultural” and “IoT” filters. (b) Improved Elsevier Scopus; (c) Retrieval of CSV and RIS files; (e) analyze CSV data with Microsoft Excel; and (f) interpret (g). Get profiles and information about IoT-Based Sociocultural research trends. This research methodology is divided into five parts, as stated in the reference,³² which was subsequently implemented (Fig 1).

²⁵ Massimo Aria and Corrado Cuccurullo. 2017. “Bibliometrix: An R-Tool for Comprehensive Science Mapping Analysis,” *Journal of Informetrics* 11, no.4 (2017): 959–75, <https://doi.org/10.1016/j.joi.2017.08.007>.

²⁶ Idris Goksu, “Telematics and Informatics Bibliometric Mapping of Mobile Learning,” *Telematics and Informatics*, no. (December 2019): 101491, <https://doi.org/10.1016/j.tele.2020.101491>.

²⁷ Monther M Elaish, “A Bibliometric Analysis of M-Learning from Topic Inception to 2015 Liyana Shuib and Norjihhan Abdul Ghani Ghulam Mujtaba Nader Ale Ebrahim,” *Mobile Learning and Organisation* 13, no.1 (2019): 91–112.

²⁸ Huong Le, Thi Thu, Trung Tran, Thao Trinh, Thi Phuong, Trinh Le, Thi Tuyet, and Hoang Le Huy, “Two Decades of STEM Education Research in Middle School: A Bibliometrics Analysis in Scopus Database (2000–2020),” *Education Sciences* 11, no. 353 (2021): 1–15.

²⁹ Vivek Kumar, Singh Prashasti, Singh Mousumi, and Karmakar Jacqueline, “The Journal Coverage of Web of Science, Scopus and Dimensions: A Comparative Analysis,” *Scientometrics*, no. 0123456789 (2021), <https://doi.org/10.1007/s11192-021-03948-5>.

³⁰ José A Moral-muñoz, Enrique Herrera-viedma, Antonio Santisteban-espejo, Manuel J Cobo, Enrique Herrera-viedma, Antonio Santisteban-espejo, and Manuel J Cobo. 2020. “Software Tools for Conducting Bibliometric Analysis in Science: An up-to-date Review,” *El Profesional de LA Información* 29, no.1 (2020): 1–20.

³¹ Madziatul Churiyah, Sholikhhan Sholikhhan, Filianti, “Mobile Learning Uses in Vocational High School: A Bibliometric Analysis,” *World Journal on Educational Technology: Current Issues* 14, no.2 (2022): 484–97.

³² Lie Yang, Zhulei Chen, and Ting Liu, “Global Trends of Solid Waste Research from 1997 to 2011 by Using Bibliometric Analysis,” *Scientometrics* 96, no.1 (2013): 133–46, <https://doi.org/10.1007/s11192-012-0911-6>.

Results

The following findings are the product of bibliometric analysis carried out on Scopus data. With this bibliometric analysis, the development of IoT-based sociocultural research is tried to be explained. Additionally, this research identifies country-based authors and organizations that are actively involved in publishing research related to IoT-based sociocultural research.

1. Sociocultural Development Research Findings

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TITLE-ABS-KEY ("Sociocultural" AND "Internet of Things") AND (LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2022) OR LIMIT-TO (PUBYEAR, 2023)) AND (LIMIT-TO (LANGUAGE, "English"))
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Fig 2. Keywords were used on the Scopus website to map IoT-based sociocultural.

Excluding publications from 2018 to 2022 reduces the number of retrieved papers from 21 to 18. The documents remain 18 Scopus publications if only English is selected. We analyzed the bibliometric information of 18 publications containing keywords from the Scopus web (Fig 2).

The annual production of IoT-Based Sociocultural articles is projected to increase from 2018 to 2022, and publications that experience the most significant increase will be published in 2021 (Fig 3). The document years are as follows: 2018 (N = 2), 2019 (N = 4), 2020 (N = 1), 2021 (N = 5), 2022 (N = 4) and 2023 (2). A significant increase of more than two documents per year can be seen in this figure when compared to previous years. As a result, there is an influx of scholars interested in IoT-based sociocultural studies every year.

Communications in Computer and Information Science consists of 2 documents (in light blue), where the ACM International Conference Proceedings Series 1 document (in purple); ACME consists of 1 document (in green); Bild Law Journal consists of 1 document (in

red); Conference On Human Factors In Computing Systems Proceedings consists of 1 document (in orange) (Fig 4).

The author's document shows that most authors focus on IoT-based sociocultural. The ten authors who have produced the most publications related to flood mitigation are as follows: Abdurashidovna, M.F. (N = 1). Addala, K.N. (N = 1). Aitmuratov, D.B. (N = 1). Akaka, M.A. (N = 1). Alfonso, M.R. (N = 1). Ali Berroudja, N. (N = 1). Allali, M.A. (N = 1). Alvarado-Uribe, J. (N = 1). Amankwaa, G. (N = 1). Aristova, U.V. (N = 1) (Fig 5). The leading authors are Abdurashidovna and Mukhitdinova Firyuza. Affiliates This author is from Tashkent State University of Law, Tashkent, Uzbekistan, with one publication (Scopus ID 57932527900).

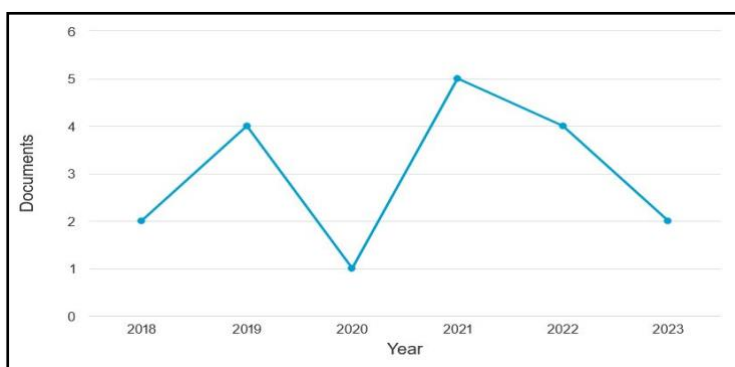


Fig 3. IoT-Based Sociocultural Scopus web source, based on documents per year Publication of IoT-Based Sociocultural documents per year based on sources.

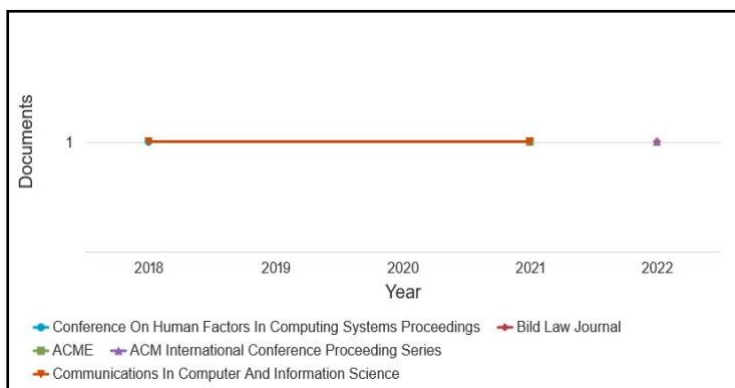


Fig 4. Displays a graphical representation of the ten primary sources of IoT-based sociocultural material published in the last six years.

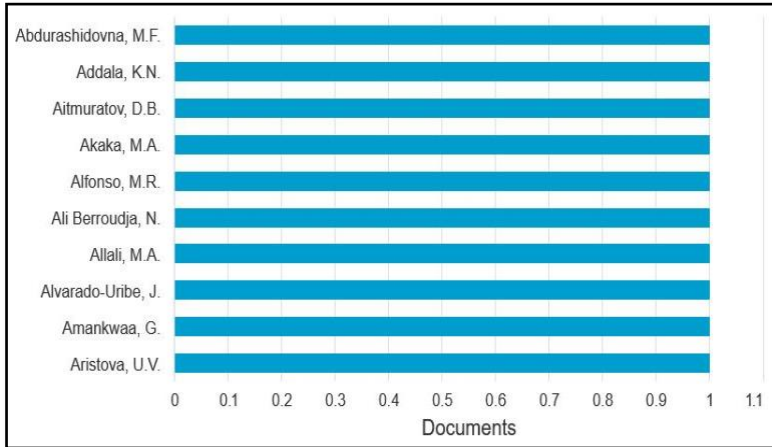


Fig 5. The number of works by authors who diligently write about IoT-based sociocultural was published in the previous six years.

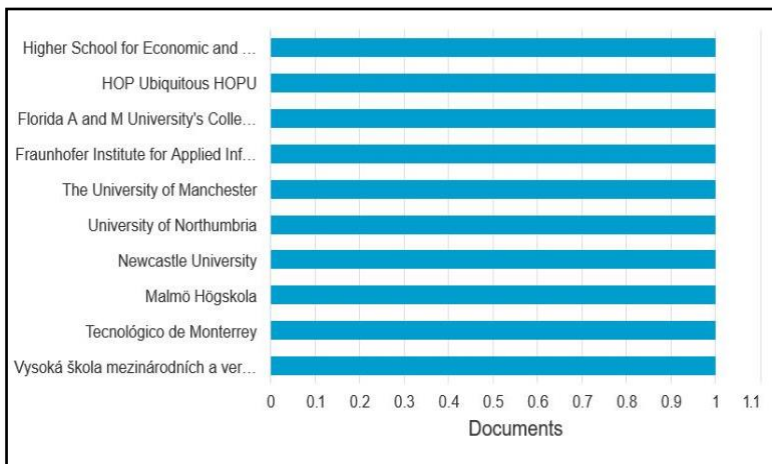


Fig 6. Top ten affiliates publishing IoT Based Sociocultural.

Publications regarding IoT-Based Sociocultural have the most institutional affiliations (Fig 6). The ten affiliates that publish the most articles related to IoT-Based Socioculture are as follows: Higher School for Economic and Social Development ESDES (N = 1). (N = 1) HOP Ubiquitous HOPU. Florida A and M University's College of (N = 1). Fraunhofer Institute for Applied Information Technology FIT (N = 1). The University of Manchester (N = 1). University of Northumbria (N = 1). Newcastle University (N = 1). (N= 1) Malmö Högskola. Tecnológico de Monterrey (N = 1). Vysoká škola mezinárodních a veřejných vztahu Prague (N = 1).

Productive Country IoT-Based Sociocultural Publication (Fig 7). The ten countries that published the most articles related to flood disaster mitigation are as follows: United States (N = 3), Russian Federation (N = 2), Algeria (N = 1), Brazil (N = 1), Canada (N = 1), Czech Republic (N = 1), France (N = 1), Germany (N = 1), Luxembourg (N = 1) and Mexico (N = 1) are in the ranking of importance.

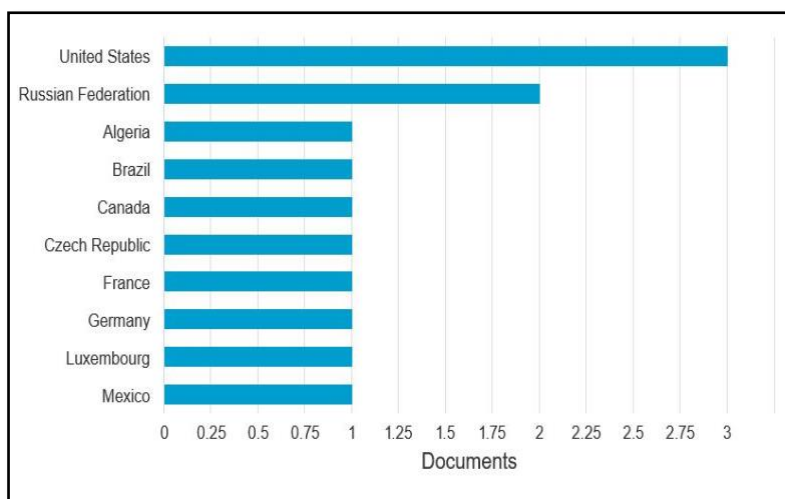


Fig 7. Ten countries that publish the most IoT-based socio-cultural articles.

IoT-based categorization of Sociocultural documents (Fig 8). The six flood disaster mitigation documents are categorized as follows: A total of 7 documents are conference papers, a total of 5 documents are articles, a total of 3 documents are book chapters, a total of 2 documents are reviewed, and a total of 1 document is a note. Based on type, the most exemplary IoT-based Sociocultural publications are Conference Papers and Articles ranked after.

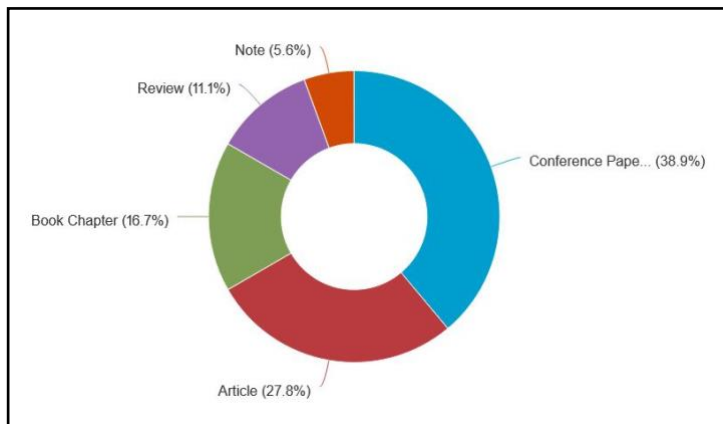


Fig 8. Documents regarding IoT-based socio-cultural issues are arranged based on publication type.

IoT-Based Sociocultural Publication with the Highest Subject Priority (Fig 9). IoT-Based Sociocultural Literature is mainly concerned with the following subjects: The following disciplines are represented: Computer Science (N = 8), Engineering (N = 8), Social Sciences (N = 7), Mathematics (N = 3); Business, Management and Accounting (N = 2), Decision Sciences (N = 2), Energy (N = 2), Environmental Science (N = 2), Medicine (N = 2), Agricultural and Biological Sciences (N = 1), Chemical Engineering (N = 1), Earth and Planetary Sciences (N = 1), Economics, Econometrics and Finance (N = 1).

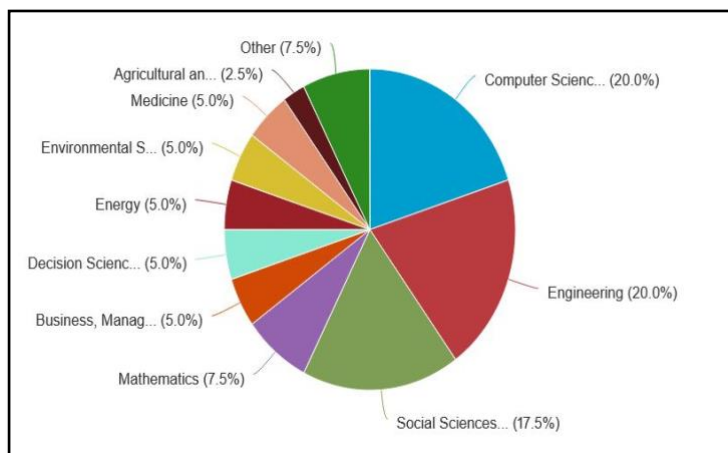


Fig 9. IoT-Based Sociocultural Documents are organized by Subject

Sponsors who allocate funds for publications related to IoT-based socio-cultural constitute the majority (Fig 10). The organizations that contributed the most significant funds for flood disaster mitigation publications were as follows: National Science Foundation (N = 2), Consejo Nacional de Ciencia y Tecnología (N = 1), Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (N = 1), European Commission (N = 1), Hasler Stiftung (N = 1), Health and Safety Executive (N = 1), Horizon 2020 Framework Program (N = 1), Instituto Tecnológico y de Estudios Superiores de Monterrey (N = 1), Korea Advanced Institute of Science and Technology (N = 1), Ministry of Higher and Scientific Research (N = 1).

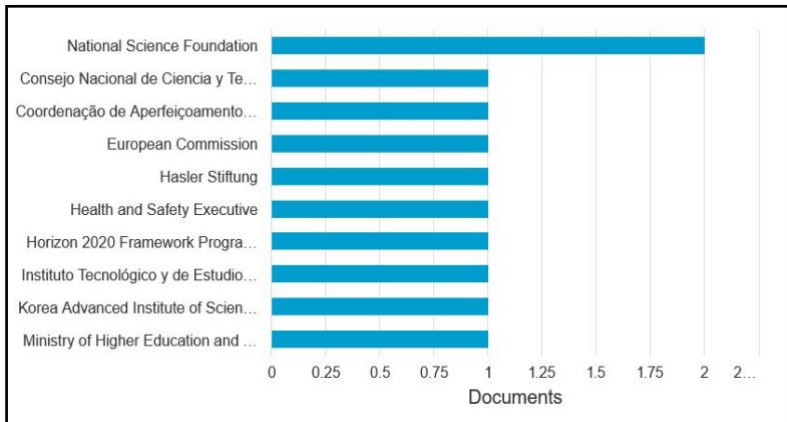


Fig 10. Sponsored IoT-Based Sociocultural publications for the last six years.

Discussion

The current transition to a new technological order is based on new technological changes in politics, economics, culture, society, and law. The creation and use of modern digital technologies and other 'breakthroughs' have led to a significant societal transformation known as the 'digital age.' This transformation process shapes social, economic, political, and legal realities. As a result, many technological opportunities in IT technology and the Internet of Things have emerged, promoting a new technological environment.³³ So, in our opinion, the technology of the 'digital economy,' that is, new social and public relations in the digital space, is built by a combination of applied digital technologies.

In addition, digitalization significantly impacts social processes, changing the social paradigm of people's lives and providing never-before-seen opportunities to acquire new knowledge, broaden horizons, master new professions, and develop as professionals. Digitalization, new social lifts, broader horizons of geographical opportunities, more convenient cities, efficient public institutions, and affordable civil

³³ K. Elizaveta, M. Firyuza Abdurashidovna, and D.B. Aitmuratov, "Civil Law Ways to Protect Digital Rights and Digital Jurisprudence," *BiLD Law Journal* 7, no.1 (2019): 119–122.

servants improve the quality of life of the people. Since its remarkable emergence, the internet has touched almost every aspect of our daily lives, including politics, economics, socio-cultural, and more. In recent years, the internet has become a significant source of information. The process of societal transformation known as the 'digital age' has been triggered by the development and adoption of contemporary digital technologies and various other 'breakthroughs.' This transformation process has resulted in new social, economic, political, and legal realities, especially sociocultural.

Companies that use narrative networks have a vast world of brands. Successful brands realize how they have a solid connection to culture. Each brand's narrative world correlates with other stories, ideologies, or conversations about technology used in the marketplace, media, or everyday life. One example of social culture using IoT is that while content creation and delivery through social media is an important strategy to support brands, they do not answer how this content is composed.³⁴ We believe that special attention is paid to two elements of the brand's narrative strategy. The first is the creation of narratives based on key metanarratives and their relationship to existing sociocultural narratives. The second is delivering the narrative through multiple platforms or the brand's transmedia strategy.

It is evident that this drastic transformation results in changes in the form, content, and format of cultural objects. Considering two significant trends in the cultural field, namely the fusion of art with science and the high demand for audience participation in art projects, we emphasize the role of technology in media development and focus on the potential of the Internet of Things.³⁵ We believe the radical transformation in the cultural industry has impacted how modern cultural products are conceived and shaped. As a result, today's traditional and innovative methods are naturally combined. With the development of information and communication technology, the

³⁴ G. Bonnin and M.R. Alfonso, "The narrative strategies of B2B technology brands. *Journal of Business and Industrial Marketing*," 34(7) (2019): 1448–1458, <https://doi.org/10.1108/JBIM-03-2019-0112>.

³⁵ U.V. Aristova, A.Y. Rolich, A.D. Staruseva-Persheeva, and A.O. Zaitseva, "The use of Internet of Things technologies within the frames of the cultural industry: Opportunities, restrictions, prospects," *Communications in Computer and Information Science* 859 (2018): 146–161, https://doi.org/10.1007/978-3-030-02846-6_12

conventional methods of making cultural products must be changed to consider the different communication spaces in the cultural industry.

The space of sociocultural practice should become more interactive and personalized as instruments for enhancing participation, and immersion should be more accessible and technologically advanced. The diversity of technological solutions enhances the competitiveness of modern cultural objects in the cultural industry market. Entertainment and psychological aspects of cultural objects are gaining importance regardless of their form. Therefore, we can say that there are significant changes in communication in cultural facilities, which require interdisciplinary integration and analysis. Issues that need to be addressed urgently on an interdisciplinary basis particularly sociocultural with IoT, to frame the future of the research field as follows:

- Numerical evaluation of emerging Internet of Things projects in the cultural industry
- Development of categories of cultural projects that can be implemented through Internet of Things (IoT) technology and monitoring of IoT technology
- Improve scientific and professional communication by adjusting terminology and lexical correspondence.
- Analyze the social and psychological impact of the project and consider feedback.
- Create and implement joint research in digital humanities and innovative interdisciplinary projects based on research data.
- Conduct a thorough study of how new technologies fit into the cultural industry

Conclusion

This research article reveals trends and patterns in the increasing number of articles indexed by Scopus related to "IoT-Based Sociocultural" on a global scale. The United States produces the most research on IoT-based sociocultural, with three publications. The number of documents issued in the Russian Federation is 2, while in Algeria, it is 1. The potential for developing IoT-based sociocultural in the future includes IoT-based, socio-cultural-based, cultural-based, religious, and IoT-based sociocultural.

The IoT-Based Sociocultural convergence axes are classified in this research based on the knowledge contribution provided by the

companies involved. IoT-Based Sociocultural Research may need to be postponed for several years before uncovering the underlying problems. By investigating or examining additional subjects, one can comprehensively understand the subject. By utilizing Scopus, Web of Science, and additional indexes, research on the contribution and impact of IoT-Based Sociocultural.

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