Journal of Information Systems Engineering and Management
2023, 8(2)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Digital Humanities: A Scientometric Assessment of Global Publications during 2008–2022

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ARTICLE INFO

Received: 03 Apr 2023

Accepted: 28 Jun 2023

ABSTRACT

Digital Humanities (DH) is an emerging and interdisciplinary field that integrates technology with traditional humanities disciplines to study and analyses cultural artifacts, historical data, and human expression. This research paper aims to highlight the transformative impact of digital humanities on various academic and societal domains in terms of research publications. The paper explores the research papers published in the field of Digital Humanities (DH) during 2008-2022. The data were retrieved from the SCOPUS database. Different data manipulation and visualization tools were used to analyze the publications over the years, most productive country, authors, institutions, keywords, citations and sources of publications in investigating the trend and nature of research in the field of Digital Humanities.

Keywords: Digital Humanities, Digital Culture, Text Analysis, Digital Identity, Data Visualization.

Introduction

Digital Humanities (DH) is an interdisciplinary field that utilizes digital technologies to explore and understand human culture, history, language, and literature. Over the years, scholars have produced a vast array of research papers in this field, employing various methodologies and technologies to enrich traditional humanities research. It involves the application of computational methods, data analysis, and application ICT to study and understand various aspects of human culture, history, language, literature, and more. DH encompasses a wide range of research areas, including text mining, data visualization, digital archives, cultural heritage

preservation, and computational analysis of cultural artifacts. Scientometrics, on the other hand, is a field that focuses on the quantitative analysis of science and scholarly research. It involves studying scientific publications, citations, collaborations, and other bibliometric data to uncover patterns, trends, and relationships within scientific communities and disciplines. Scientometric methods and tools have been widely applied in evaluating research impact, identifying influential authors and institutions, tracking research trends, and mapping the intellectual structure of various fields.

The intersection of Digital Humanities and Scientometrics offers exciting opportunities for research and analysis. Scientometric techniques can be employed to investigate the growth and impact of digital humanities as a discipline, track the development of subfields within digital humanities, identify key contributors and collaborations, and assess the dissemination and influence of digital humanities research. By leveraging scientometric approaches, researchers can gain deeper insights into the intellectual structure, knowledge diffusion, and interdisciplinary collaborations within the vibrant and evolving field of Digital Humanities.

In recent years, there has been a growing interest in the use of scientometric methods in the field of Digital Humanities. This is due to the fact that scientometric techniques can provide valuable insights into the growth, development, and impact of digital humanities research. For example, scientometric analysis can be used to track the number of publications in digital humanities, identify the most influential authors and institutions, and map the intellectual structure of the field. This information can be used to inform strategic planning decisions, identify areas for future research, and assess the impact of digital humanities research on society. The use of scientometric methods in Digital Humanities is still in its early stages, but it has the potential to make a significant contribution to the field. By providing a quantitative lens for understanding digital humanities research, scientometric techniques can help to advance the field and make it more visible to the wider research community.

Literature Review

Bask and Roy (2022) conducted a bibliometric analysis of digital humanities research from 2006 to 2020. The authors found that the field has experienced significant growth in terms of publication output, authors per document, and collaborative index. They also found that the United States, the United Kingdom, and Germany are the major research contributors in the field. Su & Zhang (2022) a longitudinal bibliometric analysis of digital humanities research from 2005 to 2020. The authors found that the field has experienced significant growth in terms of publication output, intellectual structures, and contributors. They also found that the field is becoming increasingly interdisciplinary, with a growing number of researchers from outside the humanities. Chansanam et al. (2022) conducted a scientometric analysis of digital humanities research from 1999 to 2021. The authors found that the field has experienced significant growth in terms of publication output, citations, and international collaboration. They also found that the field is becoming increasingly interdisciplinary, with a growing number of researchers from outside the humanities.

Benito-Santos and Theron (2020) introduced a new dataset of citation metadata extracted from publications on visualization for the digital humanities. The dataset, called Pilaster, contains over 10,000 citations to over 3,000 publications. The authors argue that Pilaster can be used to study the trends and evolution of visualization research in the digital humanities. Wang (2018) conducted a bibliometric analysis of digital humanities research from 2000 to 2016. The author found that the field has experienced significant growth in terms of publication output, authors, and countries. The author also found that the field is becoming increasingly interdisciplinary, with a growing number of researchers from outside the humanities.

A study by Tang et al. (2017) was conducted as bibliometric analysis of the digital humanities field to examine the development and trends of intellectual cohesion. The authors found that the field has experienced significant growth in recent years, with a growing number of publications and authors. They also found that the field is becoming increasingly interconnected, with a more cohesive intellectual structure. Naukkarinen and Bragge (2016) explored the use of computational text-mining approaches to clarify the nature of aesthetics in the digital humanities. The authors argue that computational text-mining can be used to find sources, relations, and trends in a new way, but it also reveals that the databases that such tools use can be biased. Tammaro (2014) proposed an interdisciplinary approach to the evaluation of digital humanities projects. The author argued that traditional evaluation methods, such as peer review, are not always appropriate for digital humanities projects, which often involve new and emerging technologies. Tammaro proposed a new evaluation framework that takes into account the specific characteristics of digital humanities projects.

Objectives of the Study

The objectives of the study are:

1. To find out the research publications over the fifteen years in the field of Digital Humanities.
2. To know the types of documents in research publications of Digital Humanities.
3. To explore the authorship pattern.
4. To know the highly cited author and publications.
5. To reveal the most productive country, institutions, author and sources of publications.
6. To see the literary pattern through the keywords.
7. To explore the research trends in the field of Digital Humanities.

Methodology

The current study has been performed by retrieving data over a period of 10 years (2014-2023) including with 1,450 documents. The comprehensive data has been retrieved by using keyword "*Digital humanities*" from Scopus database. Further the data has been funneled using advanced search strings such as *(title ("digital*

Research Article

humanit") and pubyear > 2013 and pubyear < 2024)*. The content published on digital humanities has been extracted.

The search strategy resulted in the identification of 1,450 documents for further analysis. Collaboration patterns were analysed at two distinct levels: authorship and international collaboration. Authorship collaboration focused on the number of authors per document. International collaboration was assessed by identifying the institutional affiliation countries of each author in a document. A full counting method was utilised, attributing equal authorship credit to all co-authors and considering each author's affiliated country as a collaborating entity. Documents were then categorised based on the collaborating countries. It is crucial to acknowledge that the sum of percentages for these groupings may exceed 100% due to the possibility of documents having authors from multiple countries. To visualize and explore the identified collaborative networks, VOSviewer, Biblioshny of R software and CiteSpace were employed for network analysis and representation.

Data Analysis, Results and Interpretation

From the Table 1, it can be observed that the number of digital humanities publications has been steadily increasing over the years, with a significant surge in recent years. The total publications (TP) show an upward trend, reaching a peak of 153 in 2020. This indicates a growing interest and engagement in the field of digital humanities. The total citations (TC) also show a positive trend, reflecting the increasing impact and visibility of digital humanities research. The number of citations steadily rises, reaching a total of 5,772 citations across the entire dataset. This suggests that digital humanities research is attracting attention and recognition within the scholarly community. The funded papers (FP) column provides insights into the funding landscape of digital humanities research. While the number of funded papers fluctuates from year to year, it is notable that a considerable portion of the research is supported by funding, indicating the recognition of the field's importance and potential impact. The citation per paper (CPP) reveals the average number of citations received per publication. The data shows variations across the years, with higher CPP values in some years, indicating the presence of highly influential papers that attract a significant number of citations.

Table 1: Year-wise distribution of digital humanities research

Year	TP	%TP	TC	%TC	FP	CPP	TA
2014	65	4.48	588	9.13	6	9.05	143
2015	88	6.07	1316	20.43	12	14.95	174
2016	114	7.86	649	10.08	11	5.69	210
2017	115	7.93	942	14.63	15	8.19	247
2018	127	8.76	624	9.69	24	4.91	265
2019	166	11.45	749	11.63	49	4.51	364

2020	205	14.14	700	10.87	51	3.41	459
2021	166	11.45	377	5.85	39	2.27	359
2022	214	14.76	385	5.98	48	1.80	419
2023	190	13.10	111	1.72	56	0.58	430
Total	**1450**	**100**	**6441**	**100.00**	**311.00**	**5.54**	**3070**

TP=Total Publications; TC=Total Citations; FP=Funded Papers; CPP=Citations per Paper; TA=Total Authors

Table 2 presents an analysis of the document types of digital humanities literature published between 2008 and 2022. The table includes metrics such as total publications (TP), total citations (TC), citation per paper (CPP), high cited papers (HCP), and total authors (TA) for each document type. The data reveals that articles constitute the majority of digital humanities literature, accounting for 43.17% of the total publications. Articles also receive the highest number of citations (3,139), resulting in a relatively high citation per paper (6.45). This indicates that articles are influential and widely cited within the field. Conference papers are the second most common document type, representing 22.07% of the total publications. While they have a lower citation count (839) compared to articles, their citation per paper (3.37) is still substantial, suggesting that conference papers also contribute significantly to the digital humanities literature. Book chapters and reviews make up a significant portion of the publications, with 18.17% and 7.71%, respectively. Both document types have moderate citation counts, indicating their relevance and impact within the field. Books, editorials, and notes have lower publication numbers, but they exhibit higher citation per paper values, suggesting that these document types have a greater likelihood of being cited and recognized.

Table 2: Document types of digital humanities literature

Document Type	TP	TC	CPP	FP	TA
Article	691	3794	5.49	186	1499
Conference Paper	288	868	3.01	92	847
Book Chapter	238	510	2.14	5	381
Review	109	448	4.11	10	161
Book	51	703	13.78	0	92
Editorial	40	75	1.88	8	83
Note	29	43	1.48	0	50
Erratum	4	0	0.00	0	11

TP=Total Publications; TC=Total Citations; CPP=Citation Per Paper; FP=Funded Papers; TA=Total Authors

Table 3 reveals that the majority of digital humanities publications are authored by a single author, accounting for 47.34% of the total publications. These single-authored works also receive a significant number of citations (2,964), resulting in a relatively high citation per paper (5.55). This suggests that individual authors play a crucial role in contributing to and influencing digital humanities literature. Two-author collaborations are the second most common authorship pattern, representing 22.78% of the total publications. Although these publications receive a slightly lower number of citations (1,058) compared to single-authored works, they still exhibit a good number of citations per paper (4.12). This highlights the significance of collaborative efforts in digital humanities research. Three and four-author collaborations also make substantial contributions to the field, representing 13.74% and 7.45% of the total publications, respectively. These multi-authored works demonstrate a higher citation per paper (5.37 and 5.20, respectively), indicating the impact of collaborative research. As the number of authors increases beyond four, the frequency of publications decreases. However, the citation per paper remains relatively consistent, suggesting that larger authorship groups can still produce influential research.

Table 3: Authorship pattern in digital humanities

Year	Without Authors	Single	Two	Three	Four	Five	Six to Fifteen	Total
2014	0	33	15	9	4	1	3	65
2015	0	47	14	16	7	2	2	88
2016	1	68	25	9	4	3	4	114
2017	0	52	33	14	5	3	8	115
2018	2	64	28	9	12	7	5	127
2019	3	67	46	25	16	3	6	166
2020	5	81	56	25	17	13	8	205
2021	2	75	36	32	8	6	7	166
2022	10	80	54	30	19	9	12	214
2023	2	73	54	32	18	5	6	190
Total	**25**	**640**	**361**	**201**	**110**	**52**	**61**	**1450**

Table 4 (A) shows that Europe leads digital humanities research with 773 publications and 3,634 citations (CPP=4.7), followed by North America with 468 publications and a higher CPP (6.02). Asia produced 232 publications (CPP=3.47), while Oceania achieved the highest CPP (7.07) from 43 publications. South America (50 publications, CPP=1.5) and Africa (12 publications, CPP=3.5) contributed modestly. Overall, 73 countries generated 1,578 publications and 7,679 citations, with an average CPP of 4.87. Table 4 (B) presents the twenty most productive countries in terms of publishing articles in the field of digital humanities. The United States emerges as the leading contributor, with 378 publications, accounting for 30.05% of the total. Although no high

cited papers are recorded from the United States, the publications receive a respectable citation per paper (5.98) and exhibit collaboration with 27 different countries. The United Kingdom follows closely with 122 publications (9.70%), and it records the highest number of high cited papers (2). This indicates a significant impact and recognition of the digital humanities research originating from the United Kingdom. Germany ranks third with 94 publications (7.47%) and demonstrates a commendable citation per paper (6.13). Additionally, Germany has collaborated with 20 different countries, indicating international collaboration in digital humanities research. Other notable contributors include Canada, China, Italy, France, Spain, Netherlands, Australia, Sweden, and Finland, among others. These countries exhibit varying levels of publication output, citation counts, and collaboration patterns as shown in Figure 1.

Table 4 (A): Continent-wise articles in digital humanities

Continent	Country	TP	TC	CPP
Europe	32	773	3634	4.70
North America	5	468	2818	6.02
Asia	22	232	806	3.47
South America	6	50	75	1.50
Oceania	3	43	304	7.07
Africa	5	12	42	3.50
Total	**73**	**1578**	**7679**	**4.87**

TP=Total Publications; TC=Total Citations; CPP=Citations per Paper

Table 4 (B): The twenty most productive countries publishing articles in digital humanities

S No	Country	TP	TC	CPP	RCI	ICP	%ICP
1	United States	390	2271	5.82	1.20	36	9.23
2	Germany	122	785	6.43	1.32	19	15.57
3	United Kingdom	121	788	6.51	1.34	26	21.49
4	China	99	251	2.54	0.52	12	12.12
5	Italy	85	259	3.05	0.63	20	23.53
6	Spain	68	205	3.01	0.62	12	17.65
7	Canada	63	490	7.78	1.60	11	17.46
8	France	51	126	2.47	0.51	8	15.69
9	Netherlands	43	197	4.58	0.94	24	55.81
10	Australia	37	252	6.81	1.40	10	27.03
11	Brazil	36	51	1.42	0.29	10	27.78
12	India	35	39	1.11	0.23	6	17.14
13	Finland	31	217	7.00	1.44	11	35.48
14	Austria	29	86	2.97	0.61	9	31.03

Journal of Information Systems Engineering and Management
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e-ISSN: 2468-4376
https://www.jisem-journal.com/

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15	Taiwan	28	113	4.04	0.83	1	3.57
16	Sweden	27	155	5.74	1.18	14	51.85
17	Russian Federation	26	62	2.38	0.49	4	15.38
18	Ireland	24	174	7.25	1.49	9	37.50
19	Switzerland	20	209	10.45	2.15	8	40.00
20	Portugal	20	36	1.80	0.37	8	40.00
21	Others (53 Countries)	223	913	4.09	0.84		
Total		**1578**	**7679**	**4.87**	**1.00**		

TP=Total Publications; TC=Total Citations; CPP=Citations per Paper; RCI=Relative Citation Index; ICP=International Collaborative Papers

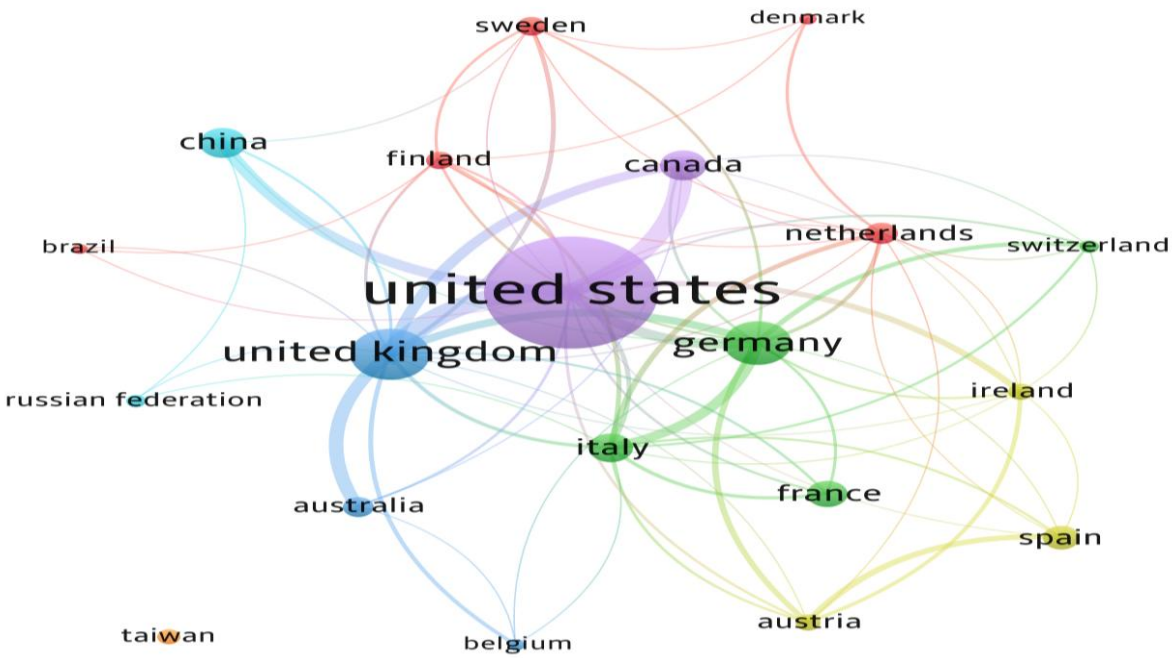

Figure 1: Twenty most productive countries

The keywords table 5 and figure 2 provides insights into the clustering of terms related to **digital humanities**. Of the 1450 papers, a total of 3854 keywords were identified. Out of these, 3012 keywords (78.15%) appeared only once, 434 keywords (11.26%) appeared twice, and 154 keywords (3.99%) appeared three times. Additionally, 254 keywords (6.59%) appeared more than three times, highlighting the primary research areas in **digital humanities**. The most frequently used keywords are listed to emphasize their significant contributions to **digital humanities**. A total of 50 key terms, appearing between 5 and 646 times, were found in the 1450 papers. This network comprised 397 links and 1293 total link strengths, divided into 8 clusters.

Cluster 1 (Red): Data Management and Preservation centers around "metadata (32, 78)" and includes terms like "digital devices (14, 41), "digital curation (8, 19), and "archives (12, 22), indicating a strong focus on organizing and preserving digital information.

Cluster 2 (Green): Computational Linguistics focuses on "natural language processing systems" (30, 94), "text mining" (23, 54), "computational linguistics (13, 34), and "data mining (20, 56), indicating a strong interest in text analysis and linguistic data processing.

Cluster 3 (Blue): Digital Libraries and Cultural Heritage is characterized by "digital libraries (50, 139), "cultural heritages" (26, 76), and "libraries (22, 59), highlighting the role of libraries in preserving cultural heritage in the digital age.

Cluster 4 (Yellow): Computational Humanities and Visualization is led by "humanities computing (43, 111), "visualization (41, 115), and "data visualization (29, 83), emphasizing computational methods and visual representation in the humanities. This cluster highlights the intersection of technology and the arts.

Cluster 5 (Purple): Core Digital Humanities is dominated by "digital humanities (646, 659)" itself, encompassing various subfields like "digital cultural heritages (5, 14)" and "digital preservation (5, 11), demonstrating the broad and integrative nature of the discipline.

Cluster 6 (Aqua): Emerging Technologies includes "big data (21, 36), "virtual reality (10, 22), and "ecosystems (17, 47), pointing to the exploration of new technologies and their applications in digital humanities.

Cluster 7 (Orange): Digital Education and Social Media features "e-learning (28, 63), "social media (9, 11), and "social network (5, 8), indicating the growing relevance of digital education technologies and the social dimensions of digital humanities.

Cluster 8 (Brown): Theoretical Foundations and Advanced Technologies includes "ontology (25, 60), "semantic web (20, 43), "information systems (14, 49), and "artificial intelligence (17, 38), focusing on the conceptual and technological underpinnings of digital humanities.

Table 5: Most used 50 keywords on the literature related to digital humanities

Keyword	Occ.	Links	TLS	Cluster	Keyword	Occ.	Links	TLS	Cluster
metadata	32	29	78	1 (Red)	humanities computing	43	29	111	4 (Yellow)
digital devices	14	17	41		visualization	41	24	115	
archives	12	12	22		data visualization	29	22	83	

Research Article

digital curation	8	10	19		arts computing	13	19	43	
scholarly communication	7	7	13		computational methods	7	13	19	
digital collections	6	8	15		visual analytics	6	12	26	
digital cultural heritages	5	9	14		digital humanities	646	49	659	5 (Purple)
digital preservation	5	7	11		semantics	32	24	84	
data curation	5	6	12		digital technologies	16	15	38	
natural language processing systems	30	28	94	2 (Green)	computational linguistics	13	15	34	
text mining	23	22	54		corpus linguistics	7	5	9	
data mining	20	24	56		corpus	6	3	7	
ecosystems	17	23	47		big data	21	13	36	6 (Aqua)
natural language processing	12	23	50		virtual reality	10	12	22	
information retrieval	9	13	24		social media	9	6	11	
sentiment analysis	6	10	16		bibliometrics	7	7	14	
deep learning	5	9	16		social network	5	5	8	
topic modeling	5	8	13		e-learning	28	21	63	7 (Orange)
digital libraries	50	37	139	3 (Blue)	information management	12	14	29	
cultural heritages	26	27	76		open science	8	6	13	
libraries	22	20	59		computation theory	5	12	17	
information systems	14	23	49		ontology	25	20	60	8 (Brown)
crowdsourcing	14	10	23		semantic web	20	16	43	
information visualization	10	12	28		artificial intelligence	17	19	38	
academic libraries	7	6	12		knowledge management	8	13	23	

Occ.=Occurrence; TSL=Total Link Strengths

Journal of Information Systems Engineering and Management
2023, 8(2)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

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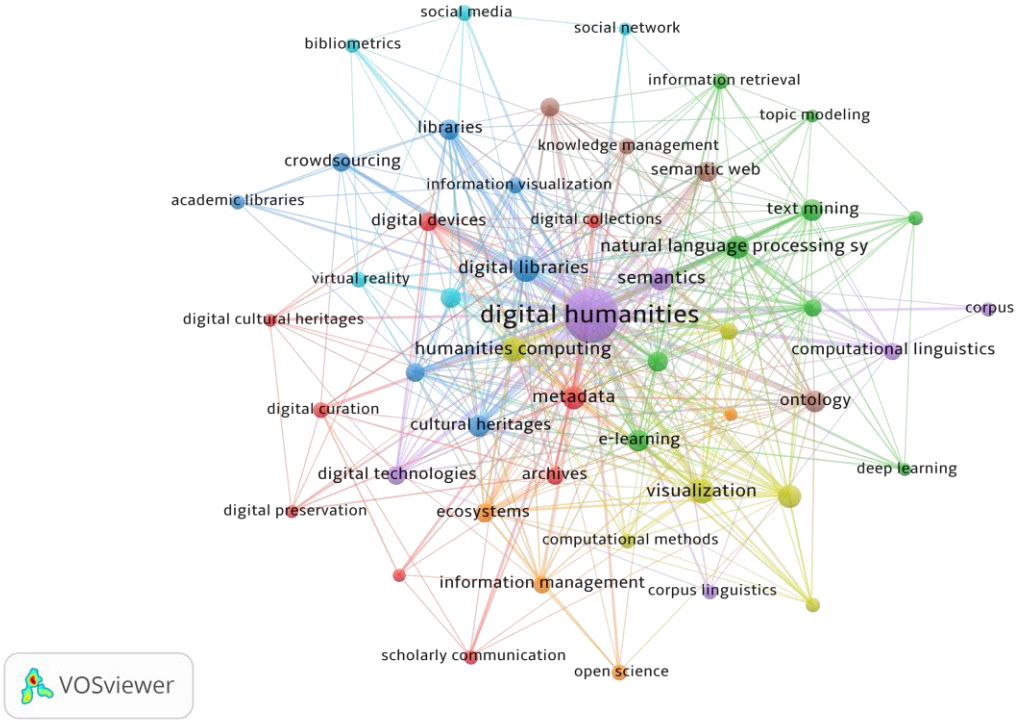

Figure 2: Most used 50 keywords

Table 6 presents the twenty most productive authors in the field of digital humanities between 2008 and 2022. From the table 6 several notable authors emerge from the analysis. Eero Hyvönen from Aalto University, Finland leads the list with 13 publications and 91 citations. Melissa Terras from University College London has 10 publications and a remarkable 202 citations, including a high cited paper. The affiliation with University College London is also shared by other productive authors such as Julianne Nyhan and Willard McCarty. Collaborative efforts are evident, as seen in the multiple authored publications and corresponding authors. Authors like Adam H. Poole from Drexel University and Stephen Mahony from University College London have a substantial number of publications and citations. The table also show cases authors from various countries, emphasizing the international nature of digital humanities research. These authors contribute to the scholarly discourse with a range of publications and citations, shaping the intellectual landscape of the field.

Table 6: Twenty most productive authors in digital humanities

Authors	Affiliation	FA	CA	TP	TC	CPP	HCP	h-Index
Hyvönen, E.	Aalto University, Espoo,	4	4	13	91	7.00	0	4

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	Finland							
Terras, M.	University College London, London, United Kingdom	5	5	10	202	20.20	1	6
Nyhan, J.	University College London, London, United Kingdom	4	3	10	148	14.80	1	4
McCarty, W.	King's College, London, United Kingdom	6	6	7	62	8.86	0	4
Rantala, H.	Aalto University, Espoo, Finland	4	4	7	28	4.00	0	2
Golub, K.	Linnaeus University, Sweden	4	4	7	12	1.71	0	2
Wandl-Vogt, E.	Austrian Academy of Sciences (ÖAW), Austria	0	0	7	10	1.43	0	1
Poole, A.H.	Drexel University, Philadelphia, United States	5	5	6	103	17.17	0	5

Gonzalez-Perez, C.	Instituto de Ciencias del Patrimonio, Santiago, Spain	1	1	6	29	4.83	0	4
Mahony, S.	University College London, London, United Kingdom	1	2	6	27	4.50	0	3
Reiter, N.	University of Cologne, Germany	1	0	6	18	3.00	0	3
Therón, R.	University of Salamanca, Salamanca, Spain	5	0	6	18	3.00	0	2
Chen, C.M.	National Chengchi University, Taipei, Taiwan	3	4	6	16	2.67	0	2
Sula, C.A.	Pratt Institute, New York, United States	3	3	5	99	19.80	0	3
Ciula, A.	King's College, London, United Kingdom	4	2	5	63	12.60	0	3
Warwick, C.	University of Durham,	4	2	5	50	10.00	0	4

	United Kingdom							
Risam, R.	Salem State University, Salem, United States	5	1	5	19	3.80	0	3
Whitson, R.	Washington State University, United States	5	5	5	19	3.80	0	2
Gius, E.	Technical University of Darmstadt, Germany	3	0	5	18	3.60	0	3
Willand, M.	Technical University of Darmstadt, Germany	1	0	5	18	3.60	0	3

First Author; CA=Corresponding Author; TP=Total Publications; TC=Total Citations; CPP=Citation Per Paper; HCP=High Cited Papers;

The table 7 includes the affiliations of these institutions along with the total publications (TP), total citations (TC), and citation per paper (CPP). King's College London and University College London, both from the United Kingdom, emerge as the top two institutions in terms of productivity. King's College London leads with 29 publications and 198 citations, while University College London follows closely with 20 publications and 275 citations. These institutions demonstrate a strong presence in digital humanities research, as reflected by their

significant publication output and citation impact. Other notable institutions include Helsingin Yliopisto and Aalto University from Finland, University of Illinois Urbana-Champaign from the United States, and Universiteit Utrecht from the Netherlands. These institutions contribute substantially to the digital humanities literature with notable publication numbers and citation counts. Institutions like Universität Leipzig in Germany, University of Maryland in the United States, and University of Salamanca in Spain exhibit a high citation per paper, indicating the impact and visibility of their research output. The data also showcases the international nature of digital humanities research, with institutions from various countries making significant contributions. This underscores the global collaboration and knowledge sharing in the field.

Table 7: Twenty most productive institutions in digital humanities between 2008 and 2022

Sl. No.	Affiliation	TP	TC	CPP
1	King's College London, United Kingdom	29	198	6.83
2	University College London, United Kingdom	20	275	13.75
3	Helsingin Yliopisto, Finland	19	98	5.16
4	Aalto University, Finland	15	95	6.33
5	University of Illinois Urbana-Champaign, United States	14	71	5.07
6	Universiteit Utrech, Netherlands	13	55	4.23
7	Universität Leipzig, Germany	12	233	19.42
8	Austrian Academy of Sciences (ÖAW), Austria	11	17	1.55
9	University of Maryland, United States	11	154	14.00
10	University of Salamanca, Spain	11	38	3.45
11	Consiglio Nazionale delle Ricerche, Italy	10	12	1.20
12	National Chengchi University, Taiwan	10	34	3.40
13	University of Victoria, Canada	9	148	16.44
14	Trinity College Dublin, Ireland	9	47	5.22
15	University of Stuttgart, Germany	9	12	1.33
16	George Mason University, United States	9	44	4.89
17	Indiana University Bloomington, United States	9	23	2.56
18	University of Cologne, Germany	9	72	8.00
19	Alma Mater Studiorum Università di Bologna, Italy	9	20	2.22
20	University of California, United States	9	184	20.44
TP=Total Publications; TC=Total Citations; CPP=Citation Per Paper				

Table 8 presents the most productive 20 sources in the field of digital humanities and several sources stand out as prominent contributors to the digital humanities literature. CEUR Workshop Proceedings, with a focus on conference papers, leads the list with 54 publications and 72 citations. Digital Humanities Quarterly, an article-based source, follows closely with 51 publications and 75 citations. Digital Scholarship in the Humanities, ACM International Conference Proceeding Series, and Lecture Notes in Computer Science are also notable sources that have contributed significantly to the field. These sources publish conference papers and have garnered substantial citations, demonstrating their impact on the digital humanities research community. Furthermore, book chapters such as those found in Defining Digital Humanities: A Reader and A New Companion to Digital Humanities have made substantial contributions, with high citation per paper values (8.05 and 13.38,

respectively). These sources serve as valuable references and provide comprehensive insights into the field. Notably, Journal of Documentation, Literary and Linguistic Computing, and International Journal of Humanities and Arts Computing are respected scholarly journals that have published notable articles in the digital humanities domain. These sources have received significant citations and demonstrate a high citation per paper, indicating their influence and impact.

Table 8: The most productive twenty sources in digital humanities literature during 2008-2022

Sl. No.	Document Type	Source Title	TP	TC	CPP	TA
1	Conf. paper	CEUR Workshop Proceedings	54	72	1.33	183
2	Article	Digital Humanities Quarterly	51	75	1.47	125
3	Article	Digital Scholarship in the Humanities	34	199	5.85	79
4	Conf. paper	ACM International Conference Proceeding Series	31	66	2.13	78
5	Conf. paper	Lecture Notes in Computer Science	30	83	2.77	107
6	Book chapter	Defining Digital Humanities: A Reader	22	177	8.05	24
7	Article	College and Undergraduate Libraries	21	142	6.76	38
8	Book chapter	A New Companion to Digital Humanities	16	214	13.38	21
9	Article	Journal of Documentation	13	196	15.08	25
10	Article	Literary and Linguistic Computing	13	250	19.23	22
11	Article	Journal of Cultural Analytics	11	19	1.73	29
12	Conf. paper	Proceedings of the ACM/IEEE Joint Conference on Digital Libraries	11	24	2.18	40
13	Book	Routledge	11	9	0.82	15

	chapter	International Handbook of Research Methods in Digital Humanities				
14	Article	International Journal of Humanities and Arts Computing	10	43	4.30	22
15	Article	American Quarterly	9	51	5.67	13
16	Book chapter	Digital Humanities, Libraries, and Partnerships: A Critical Examination of Labor, Networks, and Community	9	19	2.11	25
17	Article	Journal of the Association for Information Science and Technology	9	80	8.89	31
18	Review	CEA Critic	8	32	4.00	9
19	Conf. paper	Communications in Computer and Information Science	8	10	1.25	22
20	Article	Digital Studies/ Le Champ Numerique	8	27	3.38	17

TP=Total Publications; TC=Total Citations; CPP=Citation Per Paper; TA=Total Authors

The highly cited papers shown at Table 9 have made significant contributions to the field and have garnered substantial citations. The most highly cited paper, "Understanding Digital Humanities" edited by D. M. Berry, published in 2012, has received 189 citations. It provides a comprehensive overview of the digital humanities, offering insights into its theoretical foundations and practical applications. Another influential work is "Defining Digital Humanities: A Reader" by M. M. Terras, J. Nyhan, and E. Vanhoutte, which has received 111 citations. This book serves as a valuable resource for understanding the key concepts and debates in the field.

Several papers focus on specific aspects of digital humanities research. For example, "A Social Network Analysis of Twitter: Mapping the Digital Humanities Community" by M. Grandjean explores the digital humanities community's structure and interactions. The paper "On Close and Distant Reading in Digital Humanities: A Survey and Future Challenges" by S. Jänicke et al. investigates the practices and challenges of close and distant reading in digital humanities. Other highly cited papers delve into topics such as the role of libraries in digital humanities, the meaning and implications of digital humanities, visual text analysis, crowdsourcing, and the relationship between digital humanities and cultural studies. These papers contribute to the theoretical and practical foundations of the field, addressing critical issues and shaping future research directions.

Table 9: Top twenty highly cited papers digital humanities literature between 2008 and 2022

Sl. No.	Highly Cited Papers - Digital Humanities.	Cited by
1	Berry, D. M. (Ed.). (2012a). Understanding Digital Humanities. Palgrave Macmillan UK. DOI: 10.1057/9780230371934	189
2	Jänicke, S., et al,. (2015). On Close and Distant Reading in Digital Humanities: A Survey and Future Challenges. Eurographics Conference on Visualization (EuroVis) - STARs, 21 pages. DOI: 10.2312/eurovisstar.20151113	111
3	Terras, M. M., Nyhan, J., & Vanhoutte, E. (2016). Defining digital humanities: A reader. Routledge, Taylor	111
4	Grandjean, M. (2016). A social network analysis of Twitter: Mapping the digital humanities community. Cogent Arts & Humanities, 3(1), 1171458. DOI: 10.1080/23311983.2016.1171458	99
5	Posner, M. (2013). No Half Measures: Overcoming Common Challenges to Doing Digital Humanities in the Library. Journal of Library Administration, 53(1), 43–52. https://doi.org/10.1080/01930826.2013.756694	87
6	Liu, A. (2013). The Meaning of the Digital Humanities. PMLA/Publications of the Modern Language Association of America, 128(2), 409–423. DOI: 10.1632/pmla.2013.128.2.409	84
7	Sula, C. A. (2013). Digital Humanities and Libraries: A Conceptual Model. Journal of Library Administration, 53(1), 10–26. DOI: 10.1080/01930826.2013.756680	77
8	Jänicke, et al,. (2017). Visual Text Analysis in Digital Humanities. Computer Graphics Forum, 36(6), 226–250. DOI: 10.1111/cgf.12873	75
9	Schreibman, S., Siemens, R., & Unsworth, J. (Eds.). (2015). A New Companion to Digital Humanities (1st ed.). Wiley. DOI: 10.1002/9781118680605	72
10	Berry, D. M. (Ed.). (2012b). Introduction: Understanding the digital humanities. Palgrave Macmillan UK. DOI: /10.1057/9780230371934	71
11	Vandegrift, M., & Varner, S. (2013). 11. Evolving in Common: Creating Mutually Supportive Relationships Between Libraries and the Digital Humanities. Journal of Library Administration, 53(1), 67–78. DOI: 10.1080/01930826.2013.756699	65
12	Tara McPherson. (2008). 12. Introduction: Media Studies and the Digital Humanities. Cinema Journal, 48(2), 119–123. DOI: 10.1353/cj.0.0077	54
13	Burman, J. T., Green, C. D., & Shanker, S. (2015). On the Meanings of Self-Regulation: Digital Humanities in Service of Conceptual Clarity. Child Development, 86(5), 1507–1521. DOI: 10.1111/cdev.12395	51
14	Dalbello, M. (2011). A genealogy of digital humanities. Journal of Documentation, 67(3), 480–506. DOI: 10.1108/00220411111124550	49
15	Liu, A. (2012). The state of the digital humanities: A report and a critique. Arts and Humanities in Higher Education, 11(1–2), 8–41. DOI: 10.1177/1474022211427364	48

16	Terras, M. (2015). Crowdsourcing in the Digital Humanities. In S. Schreibman, R. Siemens, & J. Unsworth (Eds.), A New Companion to Digital Humanities (pp. 420–438). John Wiley & Sons, Ltd. DOI: 10.1002/9781118680605.ch29	45
17	Siemens, L. (2009). 'It's a team if you use "reply all" ': An exploration of research teams in digital humanities environments. Literary and Linguistic Computing, 24(2), 225–233. DOI: 10.1093/llc/fqp009	45
18	Zhang, Y., Liu, S., & Mathews, E. (2015). Convergence of digital humanities and digital libraries. Library Management, 36(4/5), 362–377. DOI: 10.1108/LM-09-2014-0116	44
19	Zepetnek, S. T. D., & Vasvári, L. O. (2014). The contextual study of literature and culture, globalization, and digital humanities. In S. T. D. Zepetnek & T. Mukherjee (Eds.), Companion to Comparative Literature, World Literatures, and Comparative Cultural Studies (1st ed., pp. 3–35). Foundation Books. DOI: 10.1017/UPO9789382993803.002	44
20	Maiwald, F., et al,. (2017). Photogrammetric analysis of historical image repositories for virtual reconstruction in the field of digital humanities. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-2/W3, 447–452. DOI: 10.5194/isprs-archives-XLII-2-W3-447-2017	43

Discussion and Conclusion

Overall, Table 1 highlights the growth and impact of digital humanities research, with increasing publication output, citations, and funding. These trends indicate the expanding interest and recognition of digital humanities as a valuable field of study within the broader academic landscape. The table 2 highlights the diverse range of document types in digital humanities literature. It underscores the prominence of articles and conference papers as primary channels for disseminating research findings, while also acknowledging the contributions of book chapters, reviews, books, editorials, and notes. The analysis provides insights into the document types that shape the intellectual landscape of digital humanities and their corresponding citation patterns. Overall, the table 3 emphasizes the importance of both individual authors and collaborative efforts in digital humanities research. It highlights the prevalence of single-authored works while acknowledging the significant contributions made by multi-authored publications. The analysis underscores the diverse authorship patterns in digital humanities and their corresponding citation patterns, providing valuable insights into the scholarly landscape of the field. Keywords table showcases the diverse range of topics and research areas encompassed by digital humanities, highlighting the interdisciplinary nature of the field and its reliance on digital technologies and computational methods for innovative research and knowledge creation. Country-wise table showcases the global distribution and productivity of countries in the field of digital humanities. It highlights the dominance of countries such as the United States and the United Kingdom in terms of publication output and impact. The presence of international collaboration signifies the global nature of digital humanities research and its interdisciplinary nature. This data aids in understanding the geographical distribution and scholarly collaboration patterns within the digital humanities community. From the table 6, it demonstrates the productivity and impact of prominent authors in digital humanities. Their contributions span various institutions and countries, underscoring the collaborative and interdisciplinary nature of the field. The data highlights influential authors who have made substantial contributions to the advancement of digital humanities scholarship. From the table 7 highlights the

productivity and impact of institutions in the field of digital humanities. These institutions serve as important hubs for research, fostering scholarly contributions and advancing the field's knowledge base. From table 8 showcases the diversity of sources in digital humanities literature and their respective contributions. These sources play a crucial role in disseminating research findings, facilitating scholarly discourse, and shaping the knowledge base of the field. Researchers and practitioners in digital humanities often refer to these sources for valuable insights and advancements in the discipline. The table 9 expresses the most productive papers in terms of high citation counts; these papers indicate their significance and influence within the digital humanities scholarly community. Researchers frequently refer to these papers to inform their work, build upon existing knowledge, and explore new avenues of inquiry.

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