

APPENDIX: DIGITAL CAPITAL BIBLIOMETRIC REVIEW

I begin with the most basic question on concept of digital capital by offering a systematic review of the digital capital concept that gives us an idea of the past 22 years of research on the topic. After a careful in-depth review of the popular and recent literature, I reconfigure the temporally scattered ideas of digital capital visible in the literature so far.

Fig. 7 shows the methodology process that can be understood in two major steps.

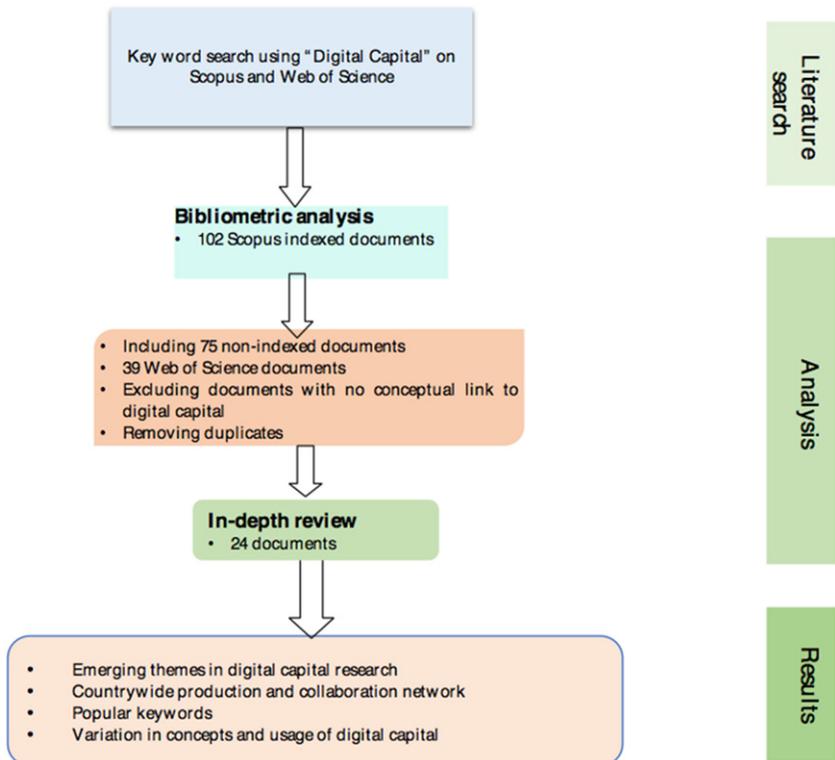


Fig. 7. Methodology Process.

I used Scopus database to search “Digital Capital” key word that yielded 102 indexed documents and 75 non-indexed documents, exporting the database in bibtex and csv format. Since the research is new and evolving, to make it more inclusive, I also included web of science database (39) that were incorporated for the in-depth review after removing the duplicate documents. I used the bibtex format to run bibliometric analysis using the “bibliometrix” package in Rstudio (Aria & Cuccurullo, 2017; Derviş, 2020). The package gives a comprehensive result on thematic trends, country production, collaboration, and keyword networks. Table 5 gives the summary of the documents used in the analysis.

Table 5. Summary of the Digital Capital Related Documents Used in Analysis.

<i>Main Information About Data</i>	
Timespan	1993:2022
Sources (Journals, Books, etc.)	91
Documents	102
Average years from publication	4.44
Average citations per documents	8.853
<i>Document Types</i>	
Article	77
Book	2
Book chapter	6
Conference paper	15
Review	2
<i>Document Contents</i>	
Keywords plus (ID)	359
Author’s keywords (DE)	390
<i>Authors</i>	
Authors	207
Author appearances	229
Authors of single-authored documents	30
Authors of multiauthored documents	177
<i>Authors Collaboration</i>	
Single-authored documents	33
Authors per document	2.03
Co-authors per documents	2.25
Collaboration index	2.57

The bibliometric analysis was further supplemented by in-depth review of the abstracts of the top cited literature. After including 75 non-indexed documents, I removed the repeated documents and the documents having no publication trace (no doi, title, and abstract). I selected only those papers for the in-depth review that have the word “digital capital” in their title or abstract. Finally, I retained the 24 publications that contributed to the conceptual understanding of digital capital.

Further the same was supplemented by using the keyword on Google scholar database to corroborate the findings with some top cited publications.

The upcoming result section discusses the two types of results coming out of the analysis in detail.

THEMATIC MAPPING AND EVOLUTION

Cobo et al. (2011) discuss identifying, analyzing, and visualizing method of thematic evolution in a research field and Courtial (1994) suggests a coward analysis of identifying the emerging terms in the research field. The bibliometric package operationalizes these ideas to reveal some informative features about the research (Fig. 8).

Themes in the upper right quadrant are both well-developed and important for the structuring of a research field. They are known as the motor themes of the specialty, given that they present strong centrality and high density. The placement of themes in this quadrant implies that they are related externally to

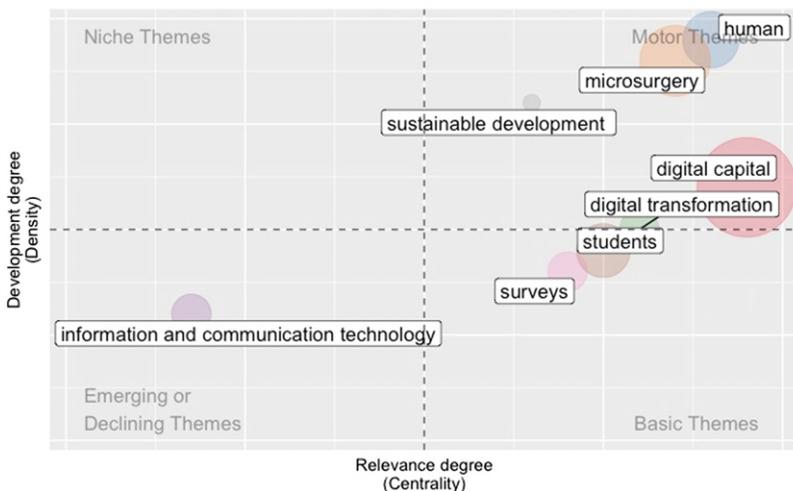


Fig. 8. Thematic Mapping of Digital Capital Research.

concepts applicable to other themes that are conceptually closely related. Themes in the upper left quadrant have well-developed internal ties but unimportant external ties and so are of only marginal importance for the field. These themes are very specialized and peripheral in character. Themes in the lower left quadrant are both weakly developed and marginal. The themes of this quadrant have low density and low centrality, mainly representing either emerging or disappearing themes. Themes in the lower right quadrant are important for a research field but are not developed. So, this quadrant groups transversal and general, basic themes.

Digital capital and digital transformation are dominant themes followed by sustainable development and human-oriented research in the motor theme quadrant. Appearance of “microsurgery” term indicates relevance of the digital capital research for health sector. Education is another important sector that often links with information and communication technology (ICT) in the form of digital learning, e-learning as “students” word come up as one of the basic themes.

The theme ICT is an age-old term and its rate of growth in the academia is probably declining or constant that’s why it is placed in the third quadrant of declining theme. It is still important and integral part of digital activities and research.

The Sankey diagram of thematic evolution (Fig. 9) suggests digital capital emerged along with internet in the past decade and gained popularity in the recent past five years or so.

The keyword network (Fig. 10) also proves that content analysis followed by analytic hierarchy process, and website was popular in the early stages of knowledge building. For keyword networks, I used Louvain criteria to cluster the networks of the most frequently used words appearing together in the

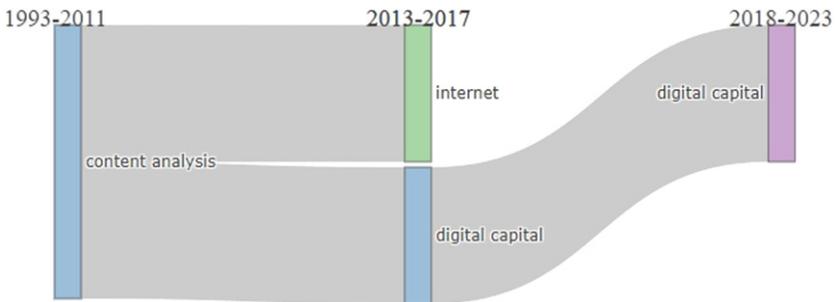


Fig. 9. Thematic Evolution in Digital Capital Research.

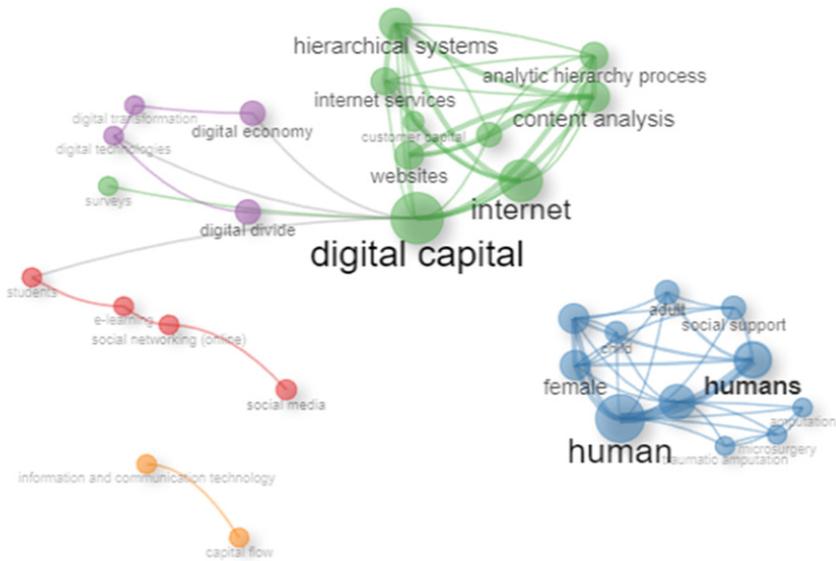


Fig. 10. Co-Occurrence of Keywords in Digital Capital Research.

research. The emerging human(s) term indicates human-centric application of digital capital research. There are a few niche areas e.g., students and e-learning, and digital economy that indicates its importance in the education and business world.