Speech Digtial Divdie

Intro

- thank you for joining me today. It is an honor to present the first chapter of my thesis to such a distinguished audience. The title of this chapter is "Bibliometric Analysis of European Research on Digital Divide: An Exploration of the Corporate Landscape." In this presentation, we will delve into the current state of research on the digital divide within Europe and explore the research on the corporate digital divide. I hope that this analysis will provide valuable insights and spark stimulating discussions among all of us.

Table of content

- In today's presentation, we will navigate through digital divide research.
- We will follow the structure outlined in the Table of Contents. We will begin with an overview of the digital divide, then discuss my motivation for conducting this research.
- Next, we will explore the objectives and research questions, followed by the data collection and analysis methods.
- Finally, we will discuss the performance analysis and science mapping results, which will provide us with a comprehensive understanding of the European research landscape on the digital divide.

Story

- Picture a small European town where a local business struggles to stay afloat in the competitive global market. The owner knows that adopting digital technologies could help the company thrive, but limited access to infrastructure, lack of digital skills among employees, and financial constraints keep them from doing so. This scenario illustrates the digital divide at a micro level, a challenge faced not only by individuals and communities but also by businesses throughout Europe.

Digital divide overview

- Names or nicknames of the digital divide
- The digital divide is a complex and dynamic phenomenon
- The Digital divide interplays with other existing inequalities
- Affecting the different layers of society and economy

Waves of research: 1 wave

- There are three waves of research,
- It started at the end of the 1990s when computer technologies and the internet were diffusing.
- The focus of the research discussed in the scientific community was basically access to these technologies. This is also known as 1st level-DD
- In the early stage, researchers were conceptualizing; there was no theoretical framework, research was more descriptive and the disciplines that were investigating the issue.
- Communication science, sociology, psychology, economics, and educations science

Waves of research: 2 wave

- The first wave was a good starting point to start the debate
- The focus shifted from physical access to skills and usage of digital technologies
- In 2005 van Dijk formulate the resources and appropriation theory (existing inequalities bring about the unequal distribution of resources hence unequal access to technologies. Access will determine the appropriation of the technology)
- Limitations: data to quantify usage and skills
- Other theories were adapted… e.g., UTAUT, Inn diff T, among others

Waves of research: 3 wave

- Technologies continue to advance at a rapid pace
- The concept evolves as technology becomes more sophisticated
- The focus shifts to the gains obtained from internet usage –> the capacity to benefit from digital technologies in personal and professional life
- Despite independent access and sufficient skills, disparities can occur among individuals who have high and low returns from internet usage

Corporate Landscape

- The extensive use of DT has changed various aspects of life,
- The divide is NOT only for individuals but also for businesses.

- Highlight that the corporate digital divide remains undersexplored

- Without understanding and addressing the digital divide,
- the digital transformation of companies can indeed be difficult.
- A lack of awareness about the divide might result in ineffective policies and initiatives that fail to reach the most disadvantaged firms.
- By understanding the divide, policymakers, and businesses can better target their efforts to ensure that digital transformation is inclusive and benefits all companies, regardless of their size, sector, or location.

Motivations

My motivations for conducting this research are the following.

- It is important to investigate the transformative…
- There few bibliometric publications addressing the DD are in these fields
- The availability of comprehensive data from three leading platforms … has stimulated this research initiative

Objectives

- Intellectual structure - Framework of ideas, theories: framework of ideas, concepts, theories, and methodologies that shape and define the knowledge within that field
- Intellectual interaction -Knowledge exchange among researchers: exchange of ideas, knowledge, and perspectives among researchers, scholars, or thinkers within a particular field or across multiple disciplines.
- Structural connections -Relationships within knowledge structure: refer to the relationships and linkages between different publications, authors, or research topics within a specific research field or domain.
- Thematic relationships - Connections among research themes: refer to the connections and associations between different research topics, themes, or subdomains within a particular field or across multiple disciplines.

Research questions (read)

Data I

- With our research questions in mind, Now I will show you how I gathered the data to answer the outlined research questions.
- I conducted a specific search within TI and DE
- After applying the search criteria THEN
- I applied the following selection criteria on
  - Type of documents
  - European affiliations
  - Disciplines(business, management, economics, technology and computer science)

Data II

- After conducting an exhaustive data cleaning
  - Total docs 1609
  - With a timeframe of 2000 to 2022
- The distributions of documents by database we see that WoS has a larger portion of published documents, followed by Dimensions and scopus
- To track the shift and trends of European research over time, I split the data into three periods.
  - Equal time intervals: allows me to make a fair comparison between the different periods
  - Major global events happened in these periods
  - P1: internet adoption, van Dijk formulate his theory
  - P2: crisis 2008, smartphone release, growth of social media
  - P3: IoT goes on smartphones, data collection to feed AI

Methodology

- Bibliometric is a widely employed methodology by … for evaluating research output and assessing the impact of scholarly works.
- This methodology applies quantitative techniques to bibliographic data (the collection of information that describes and identifies a published work)
- Three types of analysis:
  - Performance analysis: descriptive interpretation of research constituents
  - Science mapping: is a set of techniques and tools used to visualize and analyze the structure, relationships, and patterns within a scientific field or discipline.
  - Network analysis: is a technique that uses statistics and graph theory to quantify the properties and map the relationships among elements within a network.

Distribution of Document Types Across Time Periods

- this barplot illustrates the growth and progress in research publications in the field of digital divide across the three periods
- There has been a notable increase in the number of documents published over the years.
- We also see that articles constitute the largest portion of the published works, followed by proceedings, conference papers, and book chapters.

Results and findings

- In the upcoming slides, I will present the key findings and results, starting with the performance analysis of research constituents
- Publications vs citations
- Authors
- Articles
- Journals
- Universities
- Countries

Publications vs citations
descriptive interpretation of research constituents

- we can see that the digital divide is a growing topic despite the fluctuations in citations, it remains an important area of study.
- highlights the expanding interest and research in the digital divide, reflecting its significance in addressing social, economic, and technological inequalities.
- Citations decline: Saturation, recency, fragmentation, emerging new research areas

Authors' publications patterns over time.

- Prolific authors: James, van Dijk J and van Deursen A
- The dot size represents the # of articles, and the color intensity represents citations per year
- Authors have different publications patterns in different timeframes, very few AU published int the first period
- however AU started to be more productive in the second and third periods this may reflect a change in focus of research.
- Even though James is the most productive AU with 25 publications other works such as van Deursen van Dijk and Hargittai are more influential and impactful.
- Emerging voices: Their growing presence in the literature could indicate the introduction of new perspectives, methodologies, or research questions.

Trends in authors' citations over time

- This plot here illustrates the trends in authors' citations across time periods.
- the authors in blue, yellow, and green are the top 10 most cited authors for each period. The dot size represents the times cited and the color intensity represents the times cited per year.
- We see that one author highlighted in blue is very influential across the three periods the others in blue were influential just in the first period, as their analysis was focused in how access to technologies affects different demographic groups.
- The first AU, colored in yellow, is very influential in the second and third periods. The others were influential just in the second period as research changed its focus to digital skills and internet usage however these AU were focusing on other emerging topics which established the linkage of government and the digital divide.
- The authors in green are influential in the third period during this period the focus of the research shifted from digital skills and internet usage to the returns or gains that individuals get from internet usage(third-level digital divide), however some authors have focused on different areas of the digital divide such the impact of covid, digital skills on different age groups, the role of education.

Articles

Journals

- New Media & Society H-i=124 Q1 subject area and category communication and political science
- Information Society H-i=78 Q1 subject area and category: cultural studies, information systems, political science.
- High impact with fewer publications: "Poetics" and "European Journal of Communication" demonstrate a high citation count despite having fewer published documents, suggesting that the articles published in these journals may have a significant impact on the field.

Universities

- Leading institutions: Univ Twente and London School of Economics and Political Science are the top-performing universities in digital divide research.
- High impact with fewer publications: Cardiff Univ and New Mexico State Univ demonstrate a high citation count despite
- High publication volume: Univ Oxford and Tilburg Univ have the highest number of published documents, indicating a strong focus on the digital divide.

Countries

- Dominant research hub: The United Kingdom is the leading country in digital divide research, with the highest number of citations and published documents, making it a central hub for this area of study.
- Strong European presence: Seven out of the top 10 countries are European (Netherlands, Spain, Germany, Italy, Switzerland, Norway, Finland, and Sweden), highlighting the strong research focus on the digital divide in Europe.
- High impact with fewer publications: Switzerland and Norway demonstrate high citation counts despite having a lower number of published documents, suggesting that their research in the digital divide field has a significant impact on the global research community.

Science mapping - Cited references

- Set of techniques and tools that allows researchers to analyze and visualize the structure, relationships, and patterns within a specific scientific domain.
- Citation analysis, co-citation analysis and biblio coupling.
- Citation analysis: These publications introduced groundbreaking concepts, theoretical frameworks and methodologies in the area of the digital divide.

Similarity measures

- Are techniques that allow me to quantify the similarity, the connections, and the relationships among academic entities.
- We are going to start with the co-citation analysis. This analysis allows me to identify the **knowledge base,** which is a cluster of academic publications in a field that are considered fundamental in the development and understanding of the field. We can visualize the **knowledge base** with a co-citations network. How it works is that publication c cites publications a and b, so I can say that these two publications a **co-cited**, representing the knowledge base which is the fundamental works that contain theoretical frameworks, methodologies, and concepts that shape the research field. With this co-citation network, we can also visualize connections between subfields and emerging interdisciplinary areas in the field.
- Another type of similarity measure is the bibliographic coupling that allows us to identify the research front, which is a cluster of academic publications that refers to an emerging active area and they are similar because they have similar unsolve research problems. We can visualize the research front with a bibliographic coupling network. How it works is that

Co-citation 2000-2007

- Now we are looking at the first co-citation network for the first period from 2000 to 2007. This network is composed of four clusters, and each cluster connects authors' publications that share common themes and research areas.
- Looking closer at each cluster, we can identify the big vertices and smaller vertices. The big vertices represent the dominant authors. They are dominant because they have the highest degree of centrality. Which means they have a significant amount of connections within the cluster and across clusters. Dominant authors are highly influential; they play a significant role in the cluster and the whole network because they shape the discourse, the methodologies, and the theoretical frameworks of the digital divide.
- Peripheral authors are the smaller vertices and they usually gravitate around the dominant authors. They do not have much influence because they have fewer connections, however, These authors often contribute to the research domain by expanding on, refining, or applying the ideas and concepts established by the dominant authors. They may also provide alternative perspectives or extend the discussion into related areas.

Co-citation 2000-2007

- Recap -> topics: digital divide and inequality, second-level digital divide and online skills, social inclusion and the impact of technology on society, and network society and social consequences of internet use.
- Cluster 1, 2 and 3 share commong themes this imply a higher degree of citations of each other works in the clsuter
- Cluster 4 is more diverse

Co-citation 2008-2015

- Cluster in red focus on digital divide's impact on civic engagement, information poverty, and access to the internet but shows an increase in the number of authors working on this topic.
- Cluster in Blue: is more focused on the digital skills and internet usage, alogn with other topics such disparities in digital skills among different demographic groups. Also it related to the digital divide and the shortcommings in the research and the theoretical framework of van Dijk
- Cluster in green focused on giving empirical evidence on cross-country and regional disparities on internet access giving a more diverse explanation of the digital divide
- Comparing the two networks we can indicate that the understanding of the digital divide has expanded and diversified over time

Co-citation 2016-2022

- The research landscape is more diverse in terms of authors and topics compared to the previous networks, indicating a more mature and multifaceted understanding of the digital divide.
- Now we have more evidence that van Dijk, van Deursen and Hargittai are prominent and influential author in this field

Bibliographic coupling 2000-2007

- Cluster in red: is more related to the methodological challenges of the DD, and the role of ICT in various areas, such as education and the disparities among urban and rural areas.
- Cluster in blue: relates to the socio-economic implications of the DD, focusing on disparities of internet access among different age groups.
- Cluster in green: is more related to how new technologies are shaping the interactions between gov and individual

Bibliographic coupling 2008-2015

- Cluster in red: Hanafizadeh is a dominant publication he made a lit review addressing the gaps in the literature at a micro-level most of the research is done at a macro level, that is why there is a strong connection with vicente Billon (digital divide at a macro and a micro level)
- The cluster in blue: there is not an evident dominant publication which means the cluster addresses a diverse view o the digital divide such as the role of social media in social inclusion and the implications of culture in the dd
- The cluster in green: as we see that there are different publication by van deursen this cluster mainly focus on inequalities on digital skills and internet usage. It also examines the relationship of gital skills and political participation.
- socioeconomic and regional impacts (Cluster 1), social and cultural aspects (Cluster 2), and the evolution and emerging inequalities in digital skills, usage, and access (Cluster 3).

Bibliographic coupling 2016-2022

- Cluster in red: This cluster primarily focuses on the impact of social differences, age, and generational aspects on digital inequality as well as the implications of new technologies such as AI on the divide and the introduction of the digital capital concept.
- Cluser in blue: this cluster focus on the determinants of digital skills, and internet usage, and studies of the divide a country and regional level.
- Cluster in green: this cluster is focusing on differenc research areas such as the effect of technologies on social class mobility, the evolution of digital inequalities in the information society