



ECONOMIC GROWTH AND POVERTY ALLEVIATION: REINFORCING THE DIGITAL DIVIDE TOWARDS POVERTY REDUCTION-A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

With the rapid involvement of the digital divide to reduce poverty in Uganda, the social spheres have opted to get involved in the digital divide, however there is limited research on the biometric and analysis of the digital divide, this study set out to investigate the relationship between the digital divide and poverty, the objectives of this study were To examine the relationship between poverty and the digital divide from 2018 to 2022 to determine the level of poverty in Uganda, hence the study uses the literature review obtained from Scopus database published between 2018 to 2022 and a five step method including 1) defining keywords 2) initializing search outcomes 3)inclusion and exclusion of some elements of the initial result 4) compiling initial data context, the digital divide involvement towards poverty reduction has helped to physically display publication assessment over time and identify domains for current poverty measures and finally the research draws a road map for future investigations on poverty

Keywords: Digital Divide, Poverty, Biometric analysis. Network analysis

1. Introduction

The digital divide is a social and economic issue that has gained significant interest in recent years and Prior that ye & yang 2020). It refers to the disparity in access to and usage of information and communication technologies, there is no nation that is completely free from poverty. Poverty is a global phenomenon, which affects continents, nations and peoples differently (Vilakazi et al., 2020). It Impacts people in various depths and levels, at different Times and phases of existence. The main difference is the magnitude and prevalence of the digital divide in the malaise. Nations in sub-Saharan Africa, South Asia and Latin America are currently with the highest level of poverty and consequently with the lowest level of socio-economic Development They also have the highest level of social insecurity, Violence, unrest and generally low standard of living (Cheng, 2020).

It is the inability to attain a minimum level of standard of living, this definition considers income and expenditure per capital to be adequate yard stick for measuring welfare. The definition is used to determine who falls below or above the minimum standard of living (Njiru, 2018). Uganda is one of the well-endowed countries on African Continent having a rich nature resource base including high rainfall and fertile land in most parts of the country. Research carried in the 2018 Indicated that the country is among the fastest growing economies in the sub- Saharan region with a high rate of economic growth (Basin, 2008).

Uganda, remains one of the World's poorest country ranked 159th out of 175 poorest countries in the world as per the Human Development Index (1998),started Its independence

in 1962, Poverty Level of barely 69% of its population in 1998 less than US \$1 dollar a Day and is today struggling to bring it down. It is current teeming Population of about 33.1 million. Of the number of the poverty stricken People, the majority being — in the rural areas where illiteracy Prevalence is high, potable water and health facilities are rarely Available, road and electricity infrastructures are either unavailable or Ill-managed, divide and helps rural areas achieve social inclusion (Ye & Yang, 2020).

The World Bank and United Nations Development Program (UNDP)’s 2002 Human Development Index (HDI) of 0.449 aptly indicate the deplorable state of Uganda’s level of poverty and low Human development (Mcneill, 2016). This is in spite of the digital divide that the country is richly endowed with all kinds of nature resources. Unfortunately Uganda’s proportion of the poor has doubled over the last two Decades, amid increasing tax revenue. For instance in 2001/02 it collected over sh1266.lb.Uganda’s endowment is in opposite direction with her poverty level. Furthermore, according to World and UNDP2001 statistics, Uganda which impressively exports raw coffee And other food stuff Production respectively, its GNP per capital ofUS\$280 and is unenviable classified as the poorest nation in the World (Majerová, 2012).

Poverty is currently one of the most serious problems in the World. Recent estimates indicate that about 1.5 billion people live below the Poverty line of Less than one dollar per day in the whole world. Out of The 1.5 billion people, Africa contributes about 250 million, which is about 17% of the world’s total Poor population. According to the United Nations Reports (1999), Uganda’s Human Poverty Index (HPI) was only 41.3%, which places the country among the 25 poorest Nations in the world (Pogge, 2014). The HPI for some other African countries like Zimbabwe, Botswana, Kenya, Burkina Faso and Niger were 17%, 22.9%, 26.1%, 58.3% and 66.0% respectively. Additional data from The UHPI (2003) further indicate that life expectancy for Uganda was 45 years, literacy rate was 65% and 42.1% of the rural population do Not have access to potable water, healthcare facilities and electricity, these findings indicate that there is a “digital divide” and an “education threshold” in digital finance. Based on these results, this paper suggests measures for alleviating consumption inequality among(Wang et al., 2022).

What follows is the story of the development of the HDI, Beginning with the early intellectual history of welfare economics and Following this field through three successive revolutions in thought Culminating in the theory of human development this history is traced from the divided origins of economic “utility” theory to Sen’s human Capabilities approach. Since HDI’s first introduction in 1990, many Scholars have offered critiques of its underlying digital divide and its method of calculation. In many cases, the UNDP has responded by improving HDI As a measure of Economic development based on these critiques.

So many people in Uganda are facing a problem of lack of technological advancement which has led to un employment, and poverty hence leading to high crime rates in Uganda , however with the digital divide advancement in all remote areas of Uganda it can enable people In rural areas to access internet and work online to earn a living . As it has been known in Uganda that every government embarks on one form of poverty reduction strategy or the other. However, what has remained unanswered is the extent to which these programs have impacted on the poor: the target population. Recent studies in 2020 done In Uganda on poverty and digital divide programs Indicated that considerable gap exists between the target objectives:-alleviating or eradicating poverty and achievement. It seems that the Efforts of various governments are ineffective and therefore not much has been done to actualize the benefits. For poverty reduction Agencies, their results do not seem to justify the huge financial Allocations to them. Poor people’s perceptions of formal poverty Reduction institutions are largely that of ineffectiveness and irrelevance in their lives as government poverty reduction activities contribute little in their struggles to survive and rarely help them to escape poverty

2. Literature Review

2.1. Digital Divide

The digital divide remains a significant concern for both developed and developing countries, impacting various aspects of society. In the context of poverty reduction in Uganda, understanding the dynamics of this divide is crucial. recent research by Liu , (2021) in china ,as published in sustainability , has shed light on the impact of digital finance on consumption inequality among farmers. The study’s findings reveal that digital finance plays a critical role in shaping consumption patterns, potentially reducing inequalities among farmers. This insight is particularly relevant to Uganda, where digital finance can be harnessed to empower marginalized communities and bridge the economic gap.

Another relevant study, conducted by Ye & Yang, (2020) and also published in sustainability , highlights the transition from the digital divide to social inclusion, focusing on mobile platform empowerment in rural areas . This research underscores the transformative power of mobile platforms in connecting individuals in remote and underserved regions, facilitating access to information, resources, and opportunities. Understanding the strategies and outcomes presented in outcomes presented in this study can be valuable for designing interventions in Uganda that harness mobile technology to empower disadvantaged populations, ultimately contributing to poverty reduction.

The insights from these studies by Ye and Yang, (2020) emphasize the potential of digital technologies to mitigate the digital divide and enhance social inclusion , particularly in rural areas . By adapting these lessons to the Ugandan context, policy makers and practitioners can develop targeted interventions that leverage digital tools and platforms to reinforce the structural art of addressing the digital divide ultimately working toward poverty reduction in the country.

2.2. Taxonomy for digital divide

Table 1. Taxonomy for digital dived

AUTHOR/YEAR	TITLE	VARIABLE	INDEPENDENY
Q.MA, A CHAN/2020	Bridging the digital divide for older adults via observations training effects of the model	Age Gender Race Ethnicity location	Education level Income Employment status House hold size
Diana V and Christian C Weller/ 2022	Economic inequality , the digital divide and remote learning during covid 19	Access to devices Internet connectivity Digital skills Frequency of the internet use	Internet infrastructure Availability of devices Technology adoption Technological literacy
R Reynolds MC Gowan et al/ 2022	Digital divide , critical and crisis informatics perspective on k-12 emergency remote teaching during the pandemic	Income Employment status Education level Household income	Education level House hold income Occupation Social economic status
Fei /2022	Covid 19 challenges and the digital divide	Rural / urban divide	Regional infrastructure

3. Methodology

The qualitative analysis method is one of the research methods used in this study to, it involves analyzing qualitative data, extracting valuable insights from textual data obtained from Scopus and discourse within the identified literature, it aims to uncover nuanced insights into structural aspects of the digital divide and how they contribute to poverty reduction initiatives in Uganda. This chapter presents the methods and procedures that will be in the study in the following order, data source, data collection techniques, data analysis techniques, research type and results, the qualitative research methodology for this study involves an in depth analysis of the digital divide’s impact on poverty reduction in Uganda. to achieve this we adopt a multi-faceted approach, hence conducting a comprehensive literature review to gain a deep understanding of existing theories, concepts and findings related to the digital divide and poverty reduction Wang, Chen, and Ding (2022). The data for this study was sourced from reputable scholarly databases, specifically Scopus. Scopus provides access to vast collection of academic journals, and articles offering a comprehensive foundation for exploring the research landscape.

The data collection for this study was conducted using secondary data analysis, in this case the data was extracted from scholarly articles available on Scopus, the articles selected for analysis were focused on digital divide, poverty reduction, and related themes in the context.

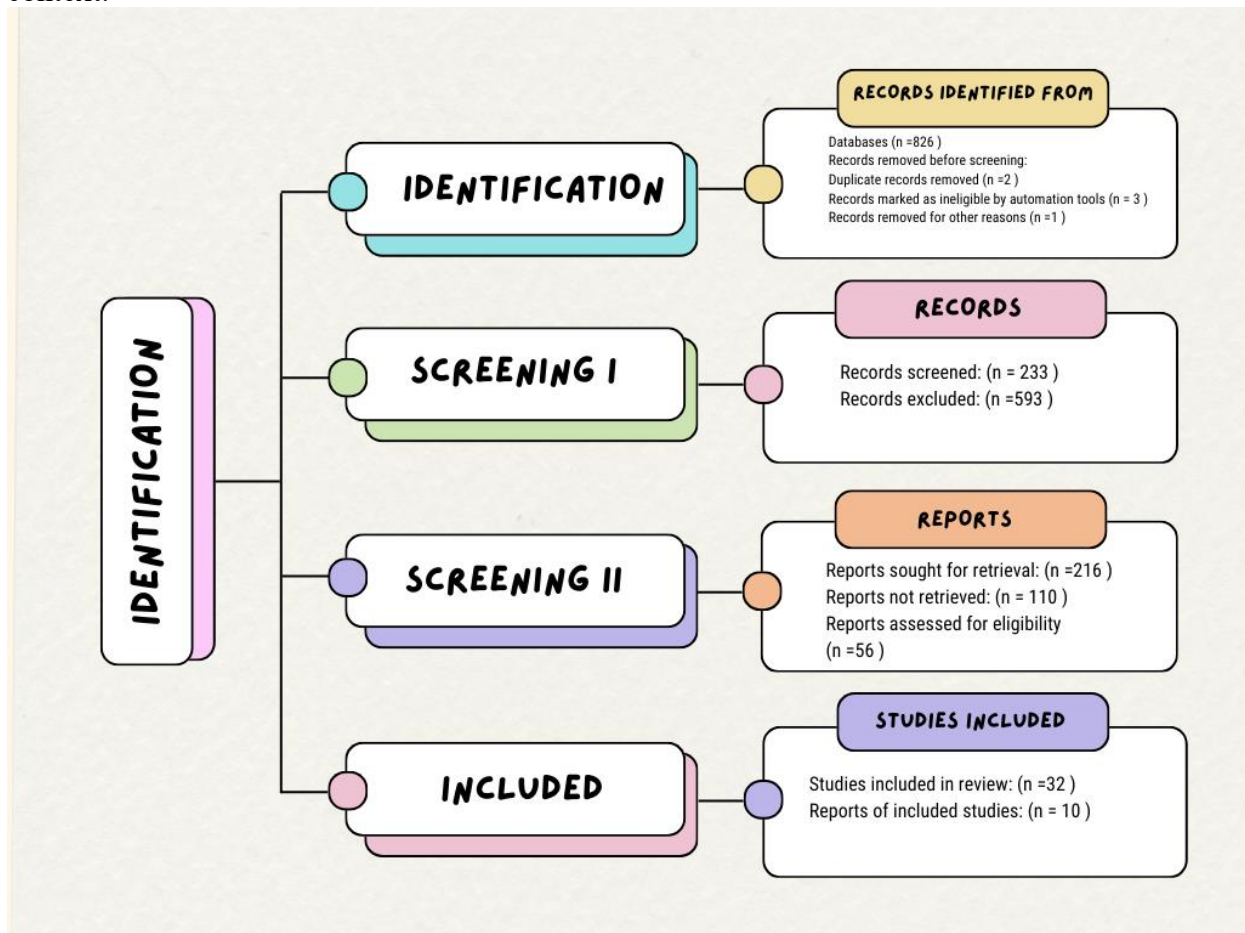


Figure 3. Data Collection Technique

The analysis of the data involved a systematic review and synthesis of the information gathered from the selected articles. The research employed content analysis to identify key themes, patterns, and insights related to the structural aspects of the digital divide and its implications for poverty reduction in Uganda.

4. Result

4.1. Publication by Year

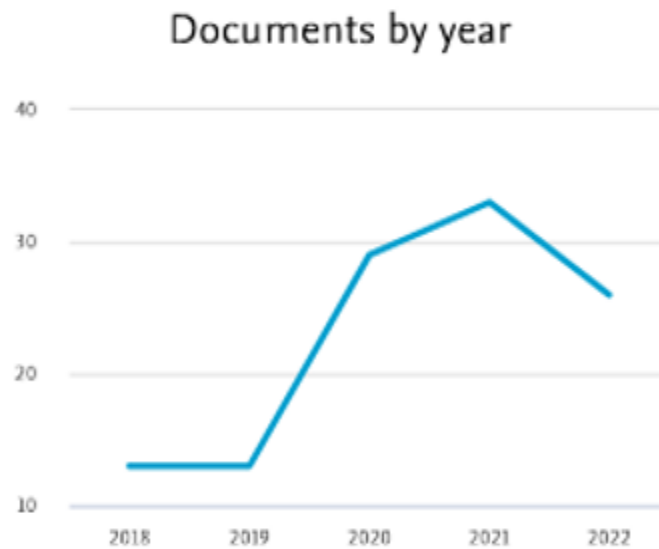


Figure 4. *Publication by year*

From the portrait of the development of this study, it was found that several years responded to the study about digital divide in Uganda., starting from 2018 to 2022, in 2018 there was a total number of 10 documents published related to digital divide inclusion, in addition the overall trend increased in 2019 to 17 documents related to bridging digital divide amidst educational change by Lui,j , impact of digital finance by Ding, S and by 2020 the the publication rate between the three years had increased to 30% ,therefore we can conclude that between 2021 and 2022 there was a decline of over 15 documents related to digital divide in Uganda

4.2. Publication by Country

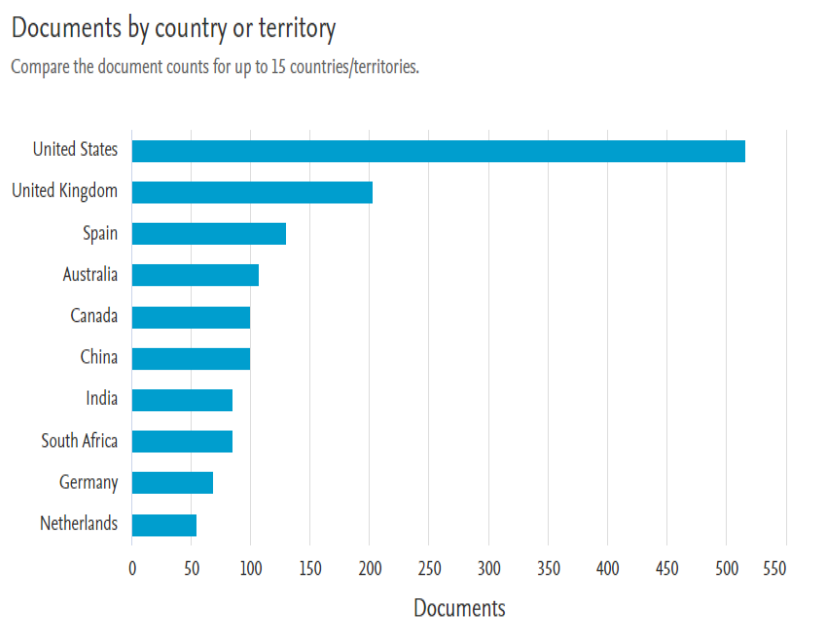


Figure 5. *Publication by Country*

From the fig 3, it can be analyzed that the United states is studying the digital divide in Uganda generally terms related to digital divide through articles like challenges of digital divide inclusion by Ye Wang, making it the largest with 530 publications on digital divide, followed by united kingdom accounting for 200 documents on digital divide and it emerges the second in the digital divide publication in Uganda , hence Spain also studies the digital divide in Uganda in 130 documents ,.Australia in 110 documents , Canada and China 100 documents, however the publication graph decreased with the publication as for India and south Africa show a common interests in the number digital divide publication up to 75 documents, and it continued lowering up to 55 documents by Germany and Netherlands with the lowest publication of 50 documents.

4.3. *Publication by author*

TABLE 2. The top 10 publications by authors from Scopus on digital divide starting from Robinson, L with the highest number of 4 publications on digital divide in Scopus between 2018-2022, and the fluaction went on decreasing from 4 to 3 documents published by glank G and Ragnedda M and continued reducing to 2 documents published by 7 authors such as Akcaogluim .m, Bernstein.m, Curtis .R, Downey.J, Kale, Laura and leguine .A in Scopus between 2018-2022.

Documents by author

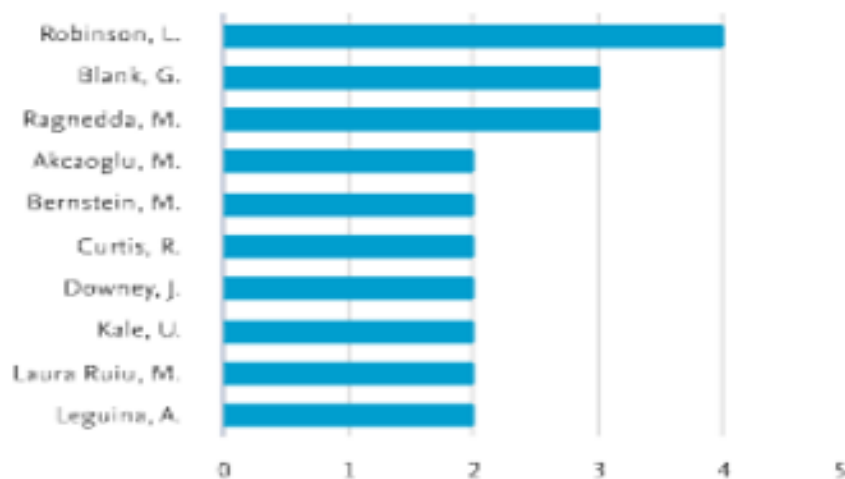


Figure 6. Publication by Author

This a narrative summary highlighting major clusters, including citing articles and cited references, the importance of summarized in terms of citation based on metrics such as citation bursts, network based metrics such as degree centrality and betweenness centrality.

Table 2. Narrative Summary of Major Clusters

ClusterID	Size	Silhouette	Label (LSI)	Label (LLR)	Label (MI)	Average Year
0	44	1	the sociodemographic digital divide in mobile health app use among clients at outpatient departments in inner mongolia, china: cross-sectional survey study	inner mongolia china (4.27, 0.05)	inner mongolia china (0.17)	2019
1	31	1	from digital divide to social inclusion: a tale of mobile platform empowerment in rural areas	mobile platform empowerment (4.67, 0.05)	mobile platform empowerment (0.14)	2016
2	28	1	examining the impact of digital finance on farmer consumption inequality in china	digital finance (5.86, 0.05)	digital finance (0.09)	2019
3	25	1	is there a digital divide between urban students and migrant students in china?	urban student (5.86, 0.05)	urban student (0.09)	2018
4	23	1	bridging digital divide amidst educational change for socially inclusive learning during the	bridging digital divide amidst (5.18, 0.05)	bridging digital divide amidst (0.11)	2020

A VISUALISATION OF THE NETWORK ANALYSIS ON DIGITAL DIVIDE KEYWORDS

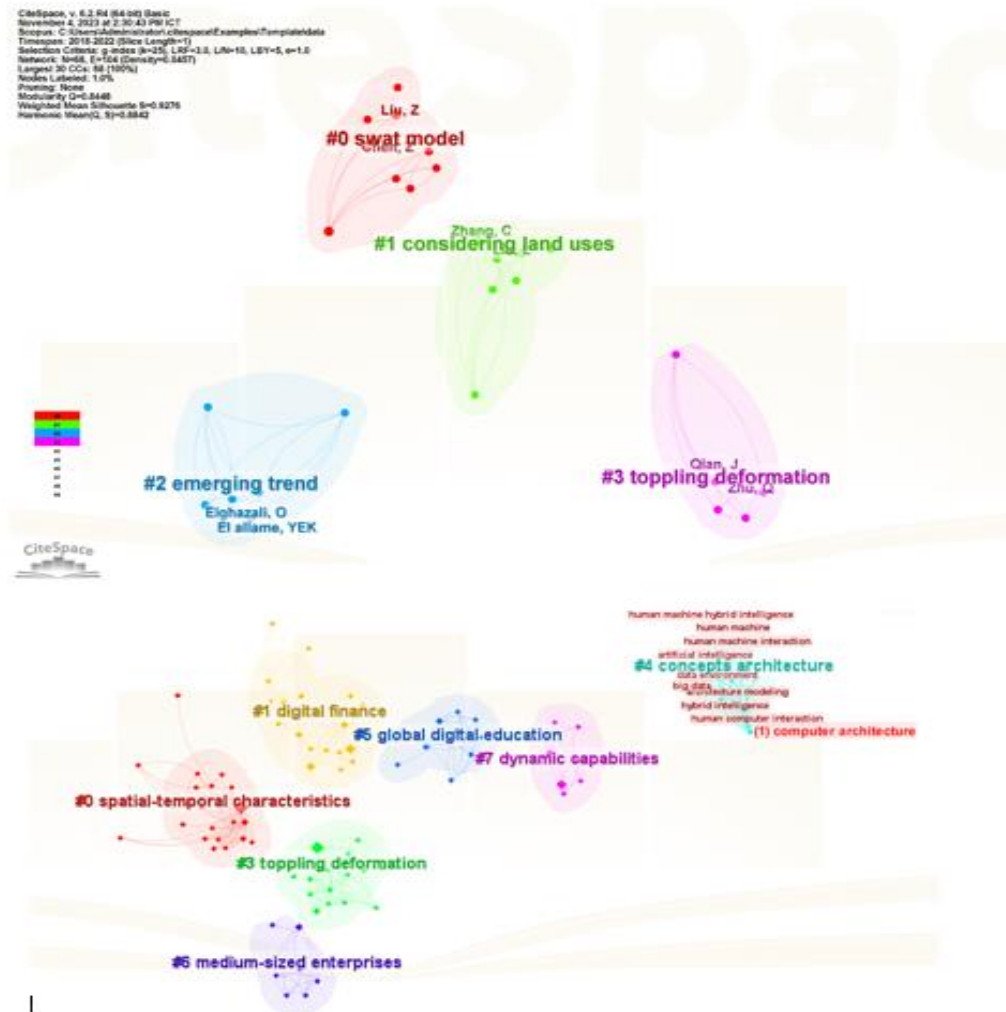


Figure 7. A visualisation of the network analysis on digital divide keywords

In the context of cluster 1 Digital finance has the potential to bridge gaps by providing access to financial services for underserved populations. Mobile banking, digital payment systems, and online lending platforms can reach remote or unbanked areas where traditional banking infrastructure is lacking. Digital finance can reduce transaction costs, making financial services more affordable for low-income individuals. This affordability can attract more people into the formal financial system.

In the context of cluster 2, emerging trends in technology such as the internet of things, artificial intelligence and big data are often concentrated in urban areas. The emergence of smart cities and the clustering of technological advancements within urban spaces, known as the city space cluster, is intimately connected to digital divide. This phenomenon refers to the unequal access to and use of technology between different groups of people, typically based on factors like income, education, geographical location and infrastructure availability.

In the context of cluster 3 Just as toppling deformation results in a change in the orientation of rocks, the digital divide causes a shift in opportunities. Disparities in access to technology create an imbalance where certain groups or communities have greater access to opportunities presented by digital advancements, while others are left behind. Imbalance in Advancement: The digital divide can create an imbalance in technological advancement. Communities or regions lacking access to technology or proper infrastructure face a 'tilt' in their ability to progress economically, socially, or educationally compared to areas with better access.

Global digital education intersects with the digital divide by highlighting disparities in access to quality educational resources and technology. While digital education has the potential to bridge gaps by offering learning opportunities beyond physical boundaries, unequal access to technology and reliable internet widens the divide. In areas with limited connectivity or resources, students may lack access to online courses, educational tools, or even basic digital literacy, perpetuating disparities in educational outcomes and exacerbating the digital divide.

Dynamic capabilities, in the context of the digital divide, refer to a company's ability to adapt, innovate, and leverage digital technologies effectively. Disparities in resources, skills, and infrastructure create varying levels of dynamic capabilities among businesses. Companies in areas with robust technological infrastructure and skilled workforces can adapt faster to digital transformations, gaining a competitive edge. Conversely, enterprises in underserved regions might struggle due to limited access to technology, hindering their ability to develop and utilize digital capabilities, widening the gap between digitally adept and less advanced firms.

Medium-sized enterprises' (SMEs) relationship with the digital divide often reflects resource discrepancies. SMEs in well-connected areas or those with financial resources can better afford and adopt digital technologies to enhance their operations, market reach, and efficiency. However, SMEs in less developed regions or with limited financial means face challenges in embracing digital tools, leading to reduced competitiveness and restricted growth opportunities, thereby contributing to the digital divide between digitally enabled and disadvantaged businesses.

Conceptual architecture, when applied to the digital divide, refers to the structural design or framework of solutions aimed at reducing disparities in technological access and capabilities. It involves creating strategies, policies, and frameworks that address various aspects of the divide, such as infrastructure, education, affordability, and digital literacy. Conceptual architecture acts as a blueprint for initiatives, guiding the development and implementation of comprehensive solutions to bridge the gap and ensure more equitable access to technology and its benefits across diverse populations and regions.

Top 20 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2018 - 2022
punjab [pakistan]	2018	0.58	2018	2018	
sargodha	2018	0.58	2018	2018	
commodity	2018	0.58	2018	2018	
market system	2018	0.58	2018	2018	
ict use	2018	0.58	2018	2018	
value chain	2018	0.58	2018	2018	
digital mapping	2019	0.8	2019	2020	
ict development index	2019	0.6	2019	2019	
environmental issue	2019	0.6	2019	2019	
multivariate analysis	2019	0.6	2019	2019	
spatial analysis	2019	0.6	2019	2019	
impact factor	2019	0.6	2019	2019	
spatiotemporal analysis	2019	0.6	2019	2019	
spatial correlations	2019	0.6	2019	2019	
spatial temporal characteristics	2019	0.6	2019	2019	
correlation	2019	0.6	2019	2019	
urbanization	2019	0.6	2019	2019	
index method	2019	0.6	2019	2019	
numerical model	2020	0.99	2020	2020	
covid 19 pandemic	2021	0.97	2021	2022	

Figure 8. Top 20 Keywords with the Strongest Citation Bursts

The above table is reflects Key words collected from digital divide articles from Scopus database such as ict use, ict development and digital mapping as well as analysing the years they were published data collected with the strongest citations starting from 2018 to 2020 which shows the strength of the citations from high levels of citation to the lower levels however key words also reveal that the strong citations were made in 2019.

5. Conclusion

According to Poverty alleviation is a key policy debate in recent development Literature. Many researchers the digital divide have argued that the fight against poverty is a necessary condition for division of resources and growth power. The Elaboration of policies for poverty alleviation requires a thorough Knowledge of the poverty phenomenon as well as an understanding of the efficiency of Implemented hence reinforcing the structural art of digital inclusivity highlighted as a pivotal strategy for fostering socio economic growth and diminishing the barriers that perpetuate poverty. By acknowledging the multifaceted nature of the digital divide and its impact on marginalized communities , interventions on the structural

art of digital inclusivity as a pivot strategy for fostering socio economic growth and diminishing the barriers that perpetuate poverty

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