TECHNOLOGY IN SOCIAL WELFARE: ANALYSIS AND MAPPING OF SCIENTIFIC LITERATURE

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ABSTRACT

Technology plays an important role in service delivery and service management. Social welfare is one of the service sectors that highly rely on the advancement of technologies. The emergence of varied technologies in social welfare helps this sector to manage and monitor service delivery efficiently and effectively. This paper aims to explore the phenomenon of technology inclusion in social welfare through a systematic literature review in search of its advancement in the past two decades using thematic analysis following the PRISMA guidelines. Specifically, it focuses on the introduction of applications (apps), information communication technologies (ICT), blockchain technology, the emergence of virtual reality (VR), and the growing influence of artificial intelligence (AI). This paper delves into the motivations behind the adoption of these technologies, their applications, and the solutions achieved. The review concludes with the identification of research and practical opportunities to improve the inclusion of technologies in social welfare to make the sector successful and more beneficial.

Keywords: Social welfare, PRISMA, information communication technologies (ICT)

1. INTRODUCTION

Social welfare encompasses a range of policies, programs, and activities aimed at promoting the well-being and quality of life of individuals, families, and communities. It often includes assistance to those in need, such as the poor, the elderly, and individuals with disabilities (Irawan & Prihantika, 2017; Malhotra, 2023). It is a key player in promoting and advancing the United Nations Sustainable Development Goals (Malhotra, 2023). The scientific literature that discusses the research trends over the past two decades, evidenced that numerous technologies have significantly impacted social welfare service optimization. Notable examples of technology include mobile applications, communication technologies, virtual reality (VR), blockchain and artificial intelligence (AI) (de Andrade at al., 2022; Hsu et al., 2020; Lu, 2022; Oravec, 2019; Trahan et al., 2019). However, no scoping review was conducted on the technology development trends in the social welfare context. A more extensive mapping analysis of the scientific literature is essential to comprehensively assess the field's progress and guide future research efforts. Our paper discusses the existing gaps in the literature, particularly the need for a more comprehensive literature review mapping analysis to describe the evolution of research in the domain of social welfare.

Specifically, in our current study, we answer the following questions:
- Q1. What is the growth trajectory of publications in social welfare on topics related to technology?
- Q2. What are the most frequent author keywords in the retrieved articles related to technology in social welfare?
- Q3. What was the focus priority of the studies at different points of time?
- Q4. How have the trends evolved from consumers/clients' perspective?

2. METHODS

The current study aimed to analyze research publications on technologies in a social welfare context using a bibliometric methodology. This study was a cross-sectional study of all documents published in peer-reviewed journals from 2003 to 2023. The Scopus database was chosen because of its large number of indexed journals for the scientific discipline of business and management. We review the articles and identify quantifiable document characteristics that represent fundamental content elements. For extensive evaluation and interpretation of large datasets, we employed bibliometric analysis, shedding light on evolving subtleties and dynamic issues. As a start, the search strategy was developed after reading several review articles on technologies in social welfare. The combination keywords of [technology OR technologies] and ["social welfare" OR "social worker"] were used in the key search query from journals published in the discipline of 'business, management and accounting' and 'economics, econometrics and finance'. Only peer-reviewed journal articles are included. Figure 1 below illustrates the growth in the number of

publications in this area over the last 20 years. Since 2020 the research in this area has gained a radical growth in the number of publications.
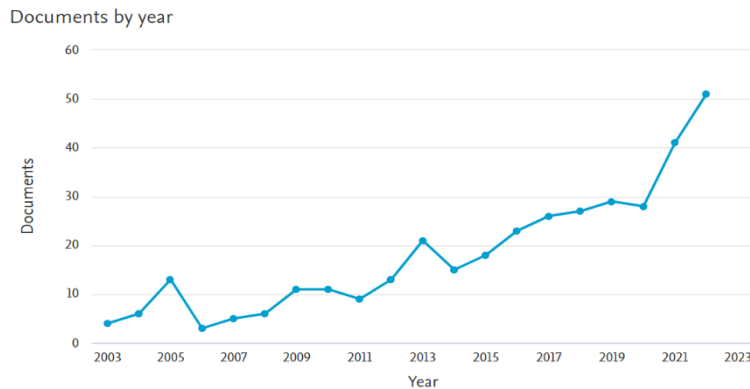

Figure 1. Number of publications from 2003-2023

In this study, we employ a systematic literature review to review, critique and synthesize the 'technology' literature in the social welfare context using the PRISMA framework (Panic, Leoncini, De Belvis, Ricciardi, & Boccia, 2013). Based on the PRISMA guidelines, the data search was refined using (i) literature identification; (ii) inclusion-exclusion criteria; and (iii) quality standard approach. Figure 2 shows the steps applied in the search strategy and the results produced in each step.

In the first phase, 2942 documents relevant to the keywords were discovered. After the filtering, all unsuitable and duplicate articles were eliminated. In the final step, 239 articles were identified for the literature review. Then, using the VOSviewer, bibliometric analysis of the chosen articles was carried out to identify networks and co-occurrences via keywords, research themes and research collaborations. Further, 62 articles were recognized for the qualitative synthesis of consumption behavior.
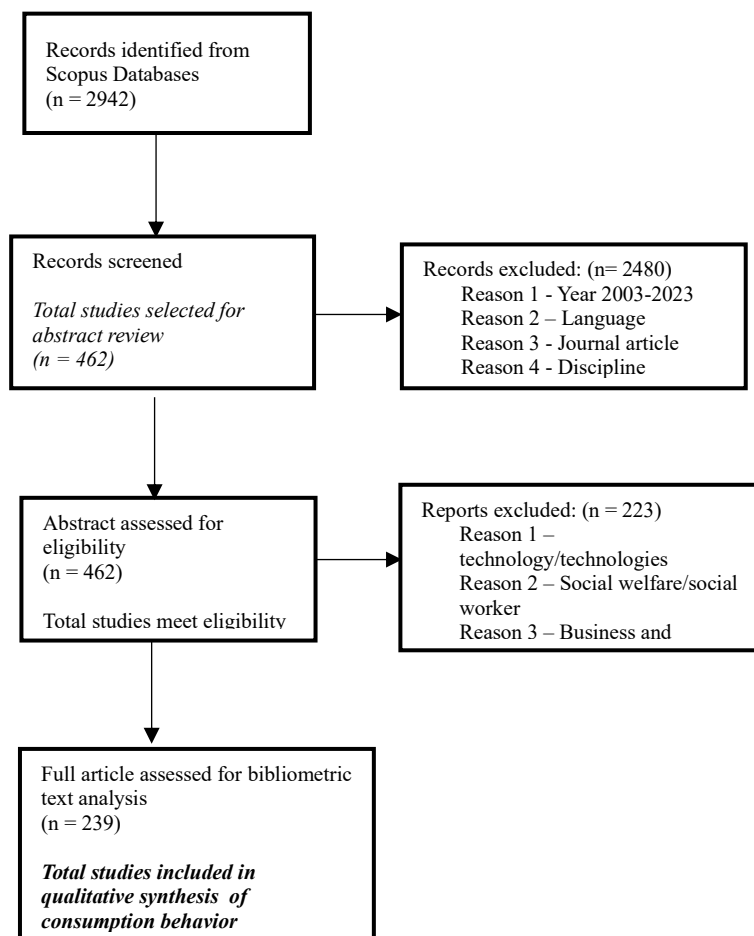
Figure 2 PRISMA -Flow chart of study selection process

3. RESULTS AND DISCUSSION

Author keywords with a minimum occurrence of five times were mapped (Figure 3). The map included 44 terms. The size of the node is proportional to the frequency of the keyword in the retrieved documents. The "social welfare" keyword was the dominant term, followed by other terms namely technology adoption, innovation, investments, profitability, commerce, economic and social effects, sustainable development, emission control, and supply chain.
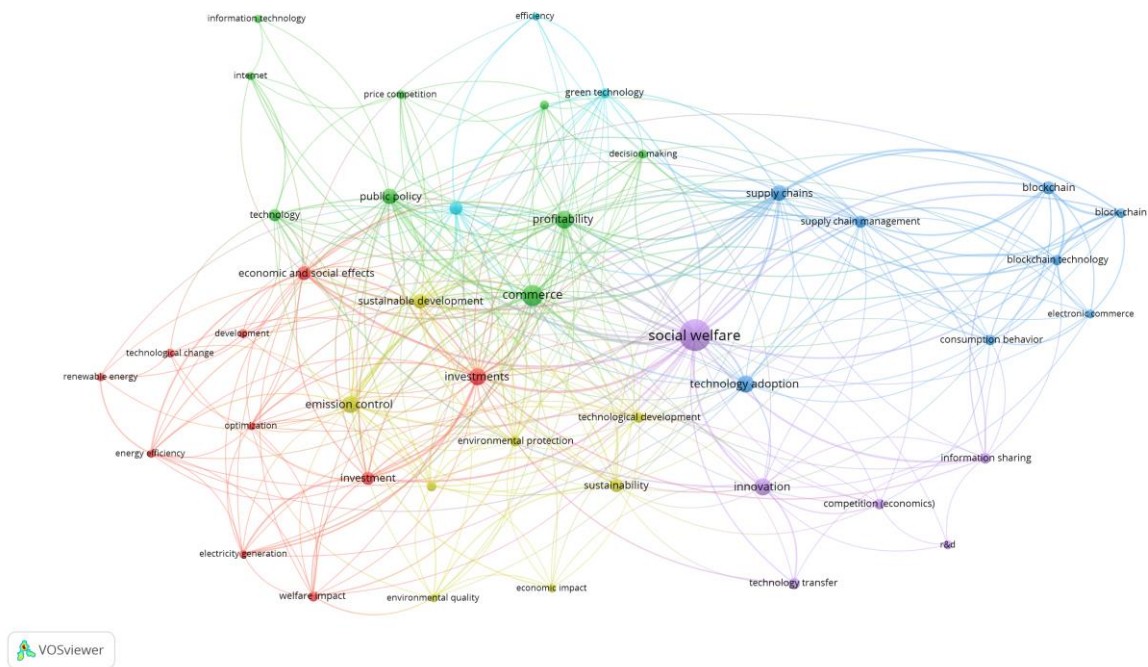

Figure 3 – Theme analysis of the literature
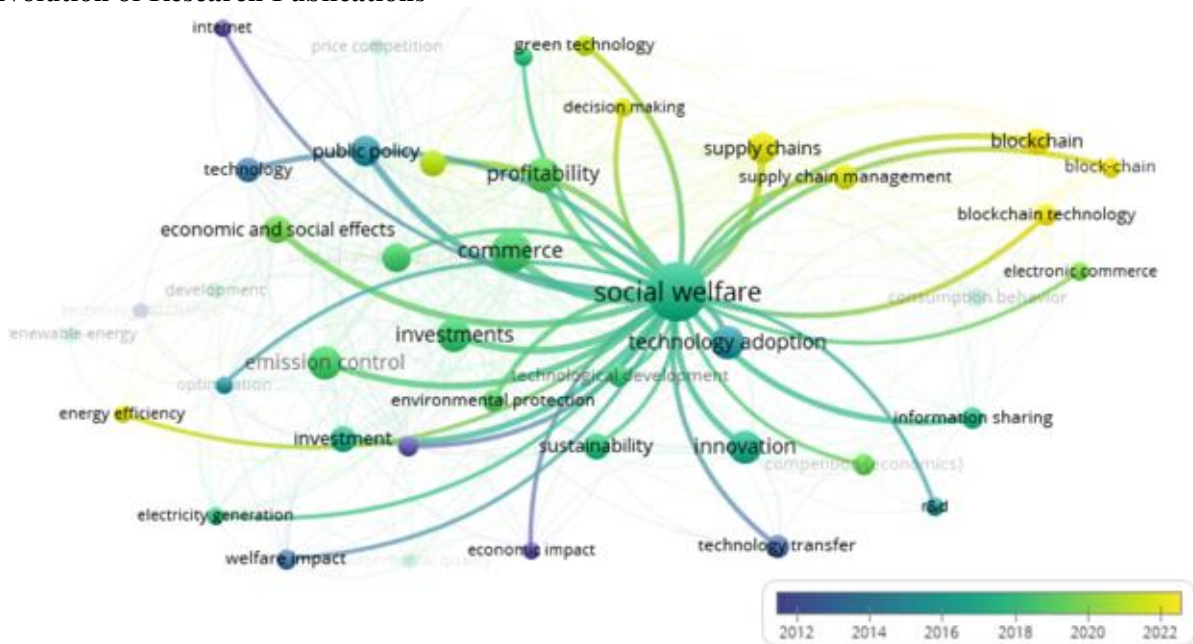
Evolution of Research Publications

Figure 4 – Evolution of Research Publications

Analyzing the evaluation of studies over the last two decades, it was found that the evolution of the studies of technology focused on social welfare in the early years focused on *securing impacts*. Later in 2014-2020 more studies were established on *creating impacts* such as for sustainability, commerce, investments, and innovation. Studies in the last five years have focused more on *innovating impacts* via technologies such as environmental technologies, supply chain technology and blockchain technology. Figure 4 illustrates the evolution using color variation.

Figure 5 – Evolution of Research Publications in Consumer Consumption Perspectives

Discussion of Trends Evolution in Consumer Consumption Perspectives

The present study analyzed the evolution of technology focused research on the social welfare context, particularly in individual clients (see Table 5). The findings are discussed below:

- Advancement of Technology Used in Consumer Consumption Context

At different points of time, different technologies that were advancing at that period were introduced to improve the services of social welfare. In the consumer market, initially, the technology adoption process has been innovated for welfare service improvement with mobile applications. Apps have been employed to streamline access to social welfare services and resources, making it easier for both beneficiaries and service providers to connect (Maghsoudi et al., 2023; Moncatar et al., 2021). These apps have evolved to serve various purposes, such as social service delivery, resource allocation, and community engagement (Maghsoudi et al., 2023; Moncatar et al., 2021). The significance of the apps is mainly connected to the efforts of the sector in improving service accessibility and efficiency (Cuesta et al., 2020; Xiao et al., 2023). Next, we evidence the advancement of Information and Communication Technology (ICT) that was utilized through the Internet growth era. The broader adoption of ICT has resulted in improved data management, communication, and service coordination within social welfare agencies (Moncatar et al., 2021). This has enhanced the overall efficiency of service delivery which leads to initiatives of securing and creating impacts.

In recent years we can see VR technology is becoming increasingly prevalent in social welfare due to its immersive and interactive nature (Trahan et al., 2019). Advantages of VR in this context include the use for therapeutic purposes, such as helping individuals cope with trauma or providing immersive training for social workers (Dąbrowská et al., 2023; Kwan et al., 2023). VR is also known for creating empathy and awareness (Trahan et al., 2019. VR can foster empathy by immersing individuals in the experiences of others, thus promoting understanding and compassion. Additionally, in recent years AI has become a prominent player in social welfare, offering various advantages, such as predictive Analytics where AI is used to predict and prevent issues like child abuse, domestic violence, and homelessness (Oravec et al., 2019). Moreover, AI-driven chatbots act as virtual assistants in answering questions and providing support to beneficiaries (Vassilakopoulou et al., 2023). These interactive technologies facilitate the innovative impacts initiatives.

- Motivation Behind Technology Adoption:

Technology has been embraced in social welfare to address challenges like accessibility, resource allocation, and communication. The main motivations behind adopting technology include:

a) *Accessibility*: technology has enabled remote access to social services, ensuring that beneficiaries can access support from anywhere (Cuesta et al., 2020);

b) *Efficiency*: technology automates many administrative tasks, reducing overhead costs and allowing resources to be redirected toward direct service provision (Ranerup et al., 2022);

c) *Data management*: improved data systems and analytics help agencies make data-driven decisions and deliver more targeted services (Hooper & Holtbrügge, 2020). This progress can be evidenced as initiatives of creating impacts for the growth of the sector towards sustainability, profitability, managing competition and technology development.

- Applications of Technology:

Technology applications in social welfare have achieved several solutions, including:

a) *Streamlined service delivery*: apps and online platforms simplify and facilitate the efficient provision of services to those in need (Chen et al., 2022);

b) *Resource allocation*: technology aids in optimizing resource distribution and ensures that resources are allocated to where they are needed most to benefits vulnerable (Xiao et al., 2023);

c) *Enhanced communication*: technology has improved communication between social welfare agencies, beneficiaries, and communities, leading to more effective support (Cuesta et al., 2019; Lu, 2022).

Recommendations For Future Study

A comprehensive literature review reveals the state of knowledge in social welfare and its intersection with technology varied at different points in time for the purpose of securing, creating and innovating impacts. However, despite the significant technological advancements in social welfare, there are notable gaps in the existing literature for studies on consumer consumption perspective related to the themes discussed in this paper. Gaps in existing literature include:

a. Limited studies on the long-term impacts of interactive technology (VR and AI) on social welfare recipients. There is a need for more comprehensive empirical studies to gather and test new knowledge in the context of the impact of technology.

b. Lack of research on the ethical implications of AI in decision-making within social welfare systems.

c. Insufficient analysis of the effectiveness and limitations of VR-based therapy in social work.

4. CONCLUSION

In conclusion, technology has transformed social welfare over the past two decades, making services more accessible and efficient. The emergence of VR and AI has further expanded the horizons of social welfare in offering innovative solutions for individual consumers. Further research is needed to explore the implications and effectiveness of these interactive technological advancements in social welfare, addressing existing gaps in the literature.

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