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Assistive Technology and Financial Inclusion for Persons with Disabilities: A Systematic Literature Review of Barriers, Enablers, AND Research Gaps

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Abstract

Financial inclusion can help persons with disabilities live more independently, manage their money, and attain equality in society. However, many banking and digital financial services are still difficult for them to use because of inaccessible interfaces, complicated procedures, high costs, and poor institutional support. This systematic literature review explores how assistive technology can improve financial inclusion for persons with disabilities. Relevant peer-reviewed studies were searched through Google Scholar and assessed using predefined selection criteria. The review focused on English-language studies published between 2015 and 2026 and included research on visual, hearing, and locomotor disabilities. After reviewing the titles, abstracts, and full texts, 20 studies were selected for thematic analysis. The findings show that inaccessible digital platforms, difficult authentication systems, affordability issues, and limited support are major barriers. At the same time, screen readers, voice-based tools, accessible designs, digital literacy programmes, and supportive policies can make financial services easier to use. The review also points to important gaps in existing research. It also provides recommendations after reviewing the literature.

Keywords: assistive technology, financial inclusion, persons with disabilities, digital financial services, systematic literature review (SLR)

1.INTRODUCTION

Rapid growth of digitization in the banking and financial sector makes life easier. At the same time, it creates a digital exclusion from financial inclusion among marginalized groups, especially among Persons with Disabilities (Mathew Martin, P. J., & Rabindranath M., 2017). This is where assistive technology becomes essential. The World Health Organization defines assistive technology as "an umbrella term covering assistive products, systems, and services that help maintain or improve a person's functioning in areas such as communication, hearing, mobility, vision, cognition, and self-care." Assistive technology helps people maintain or improve their abilities, live more independently, participate in society, and enhance their overall well-being (Jiban Karki et al., 2023). The World Bank's Global Findex defines "Financial inclusion refers to ensuring that individuals and businesses can access and effectively use suitable financial products and services such as payments, savings, credit, and insurance that are affordable, responsibly provided, and meet their needs." A person accessing financial services can enjoy dignity in their life. Assistive technology with better design enables them to overcome the barriers to an extent. A systematic literature review (SLR) is a structured research method that involves finding, selecting, and critically examining existing studies, such as journal articles, conference papers, books, and dissertations, using a clear and organized process (A. Carrera-Rivera et al., 2022). This study uses SLR to identify the barriers, enablers, and major gaps from 20 peer-reviewed papers. Different disability groups have different needs. Technology alone does not guarantee financial inclusion. There must be a universal design for better financial service access. This study focuses on three categories of disabilities, such as visual, hearing, and locomotor. This study also focuses on future directive measures for developing more accessible and user-centred financial services.

2.OBJECTIVES

- To examine how assistive technology improves access to financial services for persons with disabilities.
- To identify the main barriers and enablers affecting their financial inclusion.
- To find research gaps and suggest ways to develop more accessible and inclusive financial technologies.

3. MATERIAL AND METHODS

This Systematic Literature Review was conducted to identify how Assistive Technology enables the improvement of financial inclusion among Persons with Disabilities and what barriers they face while engaging with financial services. There are mainly three stages involved in the process of retrieval of eligible papers.

Research design

- **Identification**

The literature search was conducted through Google Scholar. Literature was identified on the basis of predefined keywords. The keywords were selected from WHO–UNICEF Global Report on Assistive Technology, the UN Convention on the Rights of Persons with Disabilities (CRPD) and the World Bank Global Findex Database 2021.

Predefined keywords

assistive technology, adaptive technology, financial inclusion, digital financial services, accessibility, persons with disabilities, visual impairment, hearing impairment, locomotor disability, digital banking, fintech, screen reader, voice assistance, universal design, inclusive development

- **Screening and Eligibility**

After identifying 154 papers from Google Scholar, the papers were screened manually using predefined eligibility criteria. Peer-reviewed journal articles published between 2016 and 2026 and available exclusively in English were selected. Only three categories of disability were considered: visual, hearing, and locomotor disabilities. Subsequently, 47 duplicates were removed, along with 21 non-peer-reviewed papers and 24 papers outside the specified timeframe. Finally, 20 literature sources directly connecting financial inclusion, assistive technology, digital financial services, and persons with disabilities (PwDs) were selected for the final study.

Table 1: Screening and Eligibility

Criteria	Eligibility
Initial records identified	154 papers were identified through Google Scholar.
Publication period	Studies published between 2016 and 2026 were included.
Publication type	Only peer-reviewed journal articles were included.
Language	Only studies published in English were considered.
Disability categories	Studies focusing on visual, hearing, or locomotor disabilities were included.
Duplicate records	47 duplicate records were removed.
Non-peer-reviewed papers	21 non-peer-reviewed papers were excluded.

Criteria	Eligibility
Papers outside the period	24 papers published outside the 2016–2026 period were excluded.
Topic relevance	42 papers that did not directly address financial inclusion, assistive technology, digital financial services, and persons with disabilities were excluded.
Final studies selected	20 studies met all eligibility requirements and were included in the final review.

Source: Author's contribution based on screening and eligibility

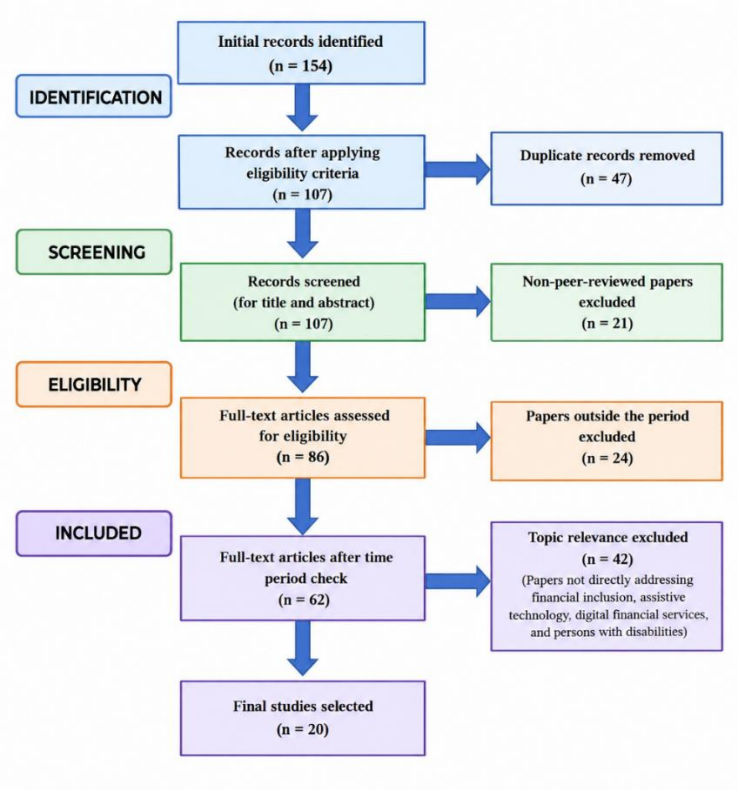


Figure 1: PRISMA flowchart *Source: Singh, K., & Awasthi, V. (2025)*

3. RESULT AND DISCUSSION

3.1. Role of Assistive Technologies in Improving Access to Financial Services among Persons with Disabilities (PwDs)

The reviewed literature highlights the key role of assistive technologies in improving financial service accessibility for PwDs. Senjam et al. (Assistive technology usage, unmet needs and barriers to access: a sub-population-based study in India) found that assistive technologies significantly improve access to banking and digital payment services. But at the same time, many of them face financial exclusion and low affordability. Subekti et al. (Technology of Auto Teller Machine Interface: Accessibility for Bank Customer with Visual Impairments) found that ATM interfaces with assistive technology enable visually impaired users to independently access banking services and promote financial inclusion.

Travkina et al. (Development of Innovative Banking Products and Technologies for People with Disabilities) Customized banking products that use assistive technologies help persons with disabilities access and use digital financial services more easily. Similarly, Nwachukwu et al. (Artificial Intelligence Adoption and Equitable Financial Inclusion for Persons Living with Disabilities in Nigeria) showed that AI-powered assistive tools enhance accessibility and usability in banking ecosystems for PwDs.

Rahmadani (Inclusive Digital Financial Services for Persons with Disabilities) reported that digital financial services combined with assistive technology aid PwDs to improve financial inclusion and economic empowerment. Reserve Bank of India Circular on banking facilities for visually challenged persons further promotes assistive technology adoption (Reserve Bank of India Circular). Zou (Making Stock Market Charts Accessible through Provision of Textual Information) and Cioca (Assistive Technology in Stock Market Decision Making) said that assistive technologies enable PwDs to participate actively in investment platforms by providing better interface and decision-making support.

Martin and Rabindranath (Digital Inclusion for Access to Information) found that digital banking platforms incorporating assistive technologies improve information access and transactional capabilities for PwDs. EY India / CII (Financial inclusion through technology and literacy in India) reported that the use of assistive technology enhances sustainable financial development

3.2. Barriers and Enablers Affecting Financial Inclusion of PwDs

The literature identifies barriers and enablers influencing financial inclusion for PwDs. Puli et al. (Financial inclusion for people with disability: a scoping review) reported barriers such as low digital literacy, high costs of assistive devices, lack of institutional support, and policy gaps. Enablers include policy initiatives, inclusive banking practices, and affordable technological solutions.

Al-Sinnawi (Challenges of achieving financial inclusion for individuals with visual impairments) reported that inaccessibility of digital platforms, inadequate assistive technology integration, and limited financial literacy were major barriers. User-friendly design, literacy programs, and regulatory frameworks were identified as enablers.

Cote (Social protection and access to assistive technology in low- and middle-income countries) identified affordability, limited supply chains, and inadequate policy enforcement as barriers, while social protection schemes, subsidies, and public-private partnerships were identified as enablers. Karki et al. (Access to assistive technology for persons with disabilities: a critical review) reported that inconsistent policies, lack of awareness, and infrastructural gaps were the major barriers they face. At the same time, awareness served as an enabler.

Kovalenko et al. (Obstacles to Digital Bank Service Expansion) identified technological barriers, inadequate institutional support, and cost constraints. Innovation incentives, regulatory support, and capacity building were identified as enablers.

Gupta and Sharma (Financial literacy among PwDs: Challenges, Opportunities and Empowerment) found low financial literacy and lack of systematic educational resources as barriers. Buettgen et al. (Disability Inclusion in the Green Economy) noted systemic exclusion and lack of assistive tech adaptation in green finance platforms. They recommend a policy framework for enhancing inclusive finance.

3.3. Research Gaps and Future Directions

Several research gaps emerge from the reviewed studies. Singh and Awasthi (Financial Inclusion and the Empowerment of Persons with Disabilities in the Context of SDGs) reported that, limited evidence on the long-term effects of assistive technologies and inadequate data focusing on different disability types. Future studies should use empirical methods to measure technology outcomes and examine how disability relates to factors such as gender, age, income, and location.

Nwachukwu et al. (Artificial Intelligence Adoption and Equitable Financial Inclusion) noted that user experience for different disabilities gets limited attention. It recommended developing adaptive AI systems that suit users' specific needs.

Subekti et al. (Technology of Auto Teller Machine Interface) emphasized the need for broader user experience testing across multiple disability groups and inclusive design frameworks.

Karki et al. (Access to assistive technology for persons with disabilities: a critical review) highlighted gaps in policy implementation and monitoring. Rahmadani (Inclusive Digital Financial Services for Persons with Disabilities) found that few

researchers have assessed how digital financial services affect economic empowerment. It recommended mixed-methods research combining quantitative data with users' experiences.

EY India / CII (Financial inclusion through technology and literacy in India) identified an underexplored link between financial literacy, technology adoption and user empowerment. Travkina et al. (Development of Innovative Banking Products and Technologies) reported that many financial products do not meet the different needs of persons with disabilities. Therefore, PwDs should be involved in designing these products.

Martin and Rabindranath (Digital Inclusion for Access to Information) found that there is not enough information about long-term use and the problems users face. More studies should examine how persons with disabilities use these services over time.

5. RECOMMENDATIONS

- **Design accessible financial services:** Banks and fintech companies should make apps, websites, ATMs, and payment systems easy to use for persons with disabilities.
- **Include PwDs in product design:** Persons with disabilities should be involved in testing and designing financial products.
- **Provide training and support:** Financial institutions should offer digital and financial literacy training and staff awareness for PwDs.
- **Strengthen policies and standards:** Governments and regulators should set clear accessibility rules and regularly monitor whether banks and fintech services follow them.
- **Support long-term research:** More studies are needed to understand whether assistive technologies improve financial independence.

6. LIMITATIONS

This study is theoretical in nature. It does not include surveys, interviews, or real-life experience of persons with disabilities. The review included only English peer-reviewed articles published between 2015 and 2026 that were available through Google Scholar. It focused on visual, hearing, and locomotor disabilities. Therefore, the findings may not fully reflect the experiences of people with other disabilities.

7.CONCLUSION

This systematic literature review shows that assistive technology can play an important role in improving financial inclusion for persons with disabilities. Accessible banking applications, screen readers, voice-based services, and inclusive digital design can help users to improve their financial independence. However, PwDs still face barriers including inaccessible platforms, complicated verification processes, high costs, limited digital literacy, and insufficient support from financial institutions. The findings also show that the design of financial products and services still needs to be updated in accordance with the usability of PwDs. Banks, technology providers, and policymakers should therefore work together and involve PwDs in the design and testing of financial services. Since this study is based only on existing literature, future research should include surveys, interviews, and long-term studies to understand the real experiences and changing needs of PwDs.

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