

Disability inclusion in banking financial products and services: accessibility assessment, mechanism identification and institutional improvement based on Transnational cases

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Abstract: Disability inclusive bank financial products and services are not only the key dimension of Inclusive Finance, but also an important standard to evaluating whether the modern financial system achieves substantial equality. Although prior studies have discussed the Financial Exclusion, digital accessibility and service accessibility of disabled people respectively, the systematic evaluation of disability inclusion in bank financial products and services remains insufficient, particularly with respect to integrating digital channels, offline services, product disclosures, and financial autonomy within a unified analytical framework. Accordingly, this paper employs the method of exploratory multi case comparative study and structured accessibility assessment to analyze the cases of multinational banks around the four dimensions: digital accessibility, offline availability, comprehensibility of product information, autonomy and security. The study found that deficiencies in banks' disability inclusiveness are not an accidental problem at any single stage but rather constitute persistent barriers spanning the entire process of "contact-comprehension-transaction-continued use": at the digital channel level, accessibility features frequently remain at the level of formal provision and have yet to coalesce into a genuinely usable service chain; At the offline service level, a pronounced disjunction exists among facilities, procedures, and information disclosure, hindering the conversion of formal accessibility into practical usability; At the level of product description and trading mechanism, complex texts, monolithic communication channels and inflexible signing requirements further erode the informed consent ability and financial autonomy of disabled customers. This paper points out that disability inclusion should not be regarded as a peripheral add-on to banking services, but should be included in the core logic of product design, service process and organizational governance. Only when disabled customers can complete financial activities independently, knowingly and safely with the support of reasonable convenience can financial inclusion really have institutional significance. The theoretical contribution of this paper is shifting the analytical focus of financial inclusion from "formal access" to "relationship quality", and to provide a more systematic analysis framework and institutional improvement path for bank disability inclusive governance.

Key Word: Disability inclusion; Financial inclusion; Bank financial products; Accessibility; Digital accessibility; Financial autonomy

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I. Introduction

Disability inclusive bank financial products and services should not be understood as a discretionary goodwill arrangement of financial institutions, but as an inherent part of the legitimacy, sustainability and inclusiveness of the modern financial system. Article 9 of the United Nations Convention on the rights of persons with disabilities obliges States Parties to ensure that disabled persons enjoy equal access to information, communications, electronic services, and other facilities and services available to the public; Article 12 further clarifies that disabled persons have the right to equal control over their financial affairs and equal access to bank loans, mortgages and other forms of financial credit. This implies that disability inclusion is not merely about "whether assistance is provided", but about whether disabled people can have independent, equal and safe access to financial relations and continue to exercise financial autonomy in them. At the same time, the World Health Organization estimates that approximately 1.3 billion people, or about 16 percent of the population, live with significant disabilities, and that this figure continues to grow alongside population aging and the rising burden of non-communicable diseases. As a result, disability inclusion is no longer a marginal issue, but rather a decisive test of whether the financial system is genuinely inclusive.

Against this backdrop, the relationship between disabled people and the financial system has gradually shifted from the traditional "financial access problem" to the "quality problem of financial relations". Existing

research demonstrates that financial exclusion experienced by persons with disabilities extends beyond the absence of accounts or credit to encompass a series of barriers permeating the full spectrum of financial activities. Puli, Layton and Bell (2024) pointed out that financial exclusion among persons with disabilities exhibits a markedly multidimensional structure: the lack of assistive technology, the incompatibility of banking software and screen reading tools, the insufficient training of staff, the weak on-site communication mechanism and the digital divide collectively elevate the threshold for accessing financial services; More crucially, when disabled people have to rely on others to complete authentication, cash withdrawal or account operations, their personal information and financial security are further exposed to the risk of theft and fraud. Naeem, Ozuem and Ward (2022) research on mobile banking shows that digitalization does not automatically translate into inclusion; On the contrary, when application design fails to incorporate disability-related user experience, mobile banking may nominally expand access while substantively undermining users' capacity for independent use. Wann and Burke Smalley (2022) further proved that different categories of disability are associated with divergent outcomes in financial inclusion, which means that "financial inclusion of persons with disabilities" cannot be apprehended through a single uniform model, but must be examined at a more granular level of products and services. Jiya, Opoku and Nketsia (2021) also pointed out that even if the importance of financial inclusion is acknowledged at the policy level, the actual readiness, service allocation and availability of financial institutions may still be significantly inadequate.

Nevertheless, two notable limitations persist in the existing study. First, prior studies tend to address digital accessibility, legal protection, poverty and financial exclusion, and mobile banking adoption as discrete topics, rarely undertaking an integrative analysis that conceptualizes digital channels, offline channels, product disclosures, and autonomous security as an interconnected system. Second, many studies remain confined to the description of barriers and fail to provide a sufficiently coherent analytical framework or practical pathway through which financial institutions can embed disability inclusion within product design, service processes, and organizational governance. Accordingly, the question that genuinely warrants investigation is no longer whether banks provide a range of facilities, but whether they have established institutionalized designs sufficient to support the independent, sustainable, and secure use of financial services by persons with disabilities.

On this basis, this paper clearly defines the research object as the disability inclusiveness of bank financial products and services, and focuses on three issues: first, what identifiable design characteristics do bank financial products and services show in terms of disability inclusiveness; Second, what structural barriers do these designs entail at the levels of digital channels, offline services, and product information; Third, how should financial institutions advance the institutionalization of disability inclusion across the three dimensions of products, services, and governance. The objective of this paper is not to enumerate disparate issues anew, but to construct an analytical framework that integrates empirical findings, theoretical interpretation, and reform proposals through cross-national case comparison, thereby transforming disability inclusion from a set of 'ancillary arrangements' into a core evaluative dimension in the design of banking products and services.

II. Material And Methods

This paper adopts the research design of exploratory multi case comparative study and structured accessibility assessment. This methodological approach is appropriate because disability inclusion in banking does not arise within a single setting; rather, it is distributed across digital interfaces, physical branches, product descriptions, identity verification procedures, risk disclosure, and ongoing service provision. For problems of this kind, a single statistical indicator is insufficient to reveal the underlying mechanisms. By contrast, multiple-case comparison is better suited to identifying where barriers arise, comparing how different institutions respond to them, and refining transitional institutional models.

Cases were selected by purposeful sampling. Three inclusion criteria were applied: first, the case had to directly involve the accessibility of banking products or services for persons with disabilities; second, the relevant information had to be subject to basic verification through public webpages, product descriptions, service descriptions, or publicly available dispute-related materials; third, the cases had to be sufficiently heterogeneous to cover different service stages, including digital channels, offline services, and financial product disclosures. Based on this logic, this paper does not pursue exhaustive coverage, but emphasizes representativeness, comparability and problem identifiability. The source materials primarily include banks' official websites and related public webpages, descriptions of offline facilities and service arrangements, financial product documentation, and publicly reported dispute cases that may reveal systemic deficiencies.

To avoid the dislocation between different evaluation criteria, this paper further divides "disability inclusion" into four analysis dimensions. First, digital accessibility, referring to whether bank official websites, online banking or mobile banking pages can be effectively used by disabled users at the visual, semantic, interactive and Compatibility levels. Second, physical and service accessibility, referring to whether physical

branches, ATMs, self-service equipment, and on-site service processes can in practice be accessed and used by customers with disabilities. Third, the comprehensibility of product information, referring to whether financial product descriptions, risk disclosures, application requirements, and after-sales guidance can be understood in ways appropriate to different functional capacities. Fourthly, autonomy and security, referring to whether banks provide institutional and design arrangements sufficient to reduce dependence on third parties and to protect the financial autonomy and personal information security of customers with disabilities.

In the evaluation of digital channels, this paper employs a combination of automatic detection and manual review. Automated detection is used to identify programmable problems such as insufficient color contrast, missing alternative text, absent language attributes, inconsistent labels and names; Manual review is used to identify obstacles that are difficult to fully capture by automatic tools, such as page rearrangement failure after enlargement, screen reading logic not synchronized with page Jump, key entrances not easy to locate, and process interruption difficult to recover. This paper takes WCAG 2.1 AA as the main evaluation benchmark at the digital interface level. In 2018, the W3C officially released WCAG 2.1, which made it clear that it expanded the accessibility requirements in mobile terminals, low vision and cognitive and learning related situations, so it is more suitable as an evaluation standard for contemporary digital banking services. In contrast, offline facilities, on-site services and product descriptions are not the direct applicable objects of WCAG, so this paper does not mechanically extrapolate web page norms, but investigates their realization in physical space, service process, information disclosure and independent security in accordance with the principles of accessibility and equal control of financial affairs in the Convention on the rights of persons with disabilities.

In the part of offline service and product description, this paper adopts the combination of document analysis and comparative coding. All observations were included in the unified coding framework and classified according to "obstacle type impact object action link possible consequences improvement direction" to ensure comparability between different cases. A total of 14 banks were selected as analysis cases, including 4 domestic banks (industrial and Commercial Bank of China, China Merchants Bank, China Construction Bank, Weizhong bank) and 9 foreign banks (Bank of America, Mitsubishi UFJ Bank, HSBC, Toronto Dominion Bank, HDFC Bank of India, Lloyds Bank, Wells Fargo Bank NatWest Group, First Bank). Case screening follows three criteria: first, the bank makes it clear in its public information that there are service arrangements or public disputes related to disability inclusion to ensure that the problems are identifiable; Secondly, the scale of bank assets or market influence is in the forefront of the world to ensure the analytical value of cases; Third, it covers different types (large state-owned banks, joint-stock banks, digital banks, international universal banks, large North American banks, European and British banks, large Japanese banks and major emerging market banks) and different regions (covering four continents and seven countries in Asia, North America, Europe and Africa) to enhance the breadth of comparison. The above banks are institutions that disabled groups may frequently contact in daily financial activities, so they are better representative. It should be noted that this study does not pursue the exhaustion of the number of cases, but focuses on revealing the structural types and mechanism of obstacles through heterogeneous cases. Finally, the result part is carried out according to three modules: digital channel, offline service, product description and trading mechanism, so as to form a complete analysis chain from "contact understanding handling continuous use". In order to avoid treating disabled customers as homogeneous groups, this study first classifies different types of disability according to functional barriers and financial service needs, as shown in Table 1.

Table 1

Type of disability	Core barriers in banking and financial services	Key support needs	Inclusive design focus
Visual disability	Difficulty reading product descriptions, contract text and screen information; It is difficult to complete visual authentication independently	Large print version, Braille version, voice assistance, screen reading compatibility, voiceprint recognition, special explanation	Text alternative format, screen reading compatibility, non visual authentication mechanism
Hearing and speech disabilities	It is difficult to hear the teller's explanation clearly; Unable to complete consultation and confirmation through telephone customer service	Sign language service, text customer service, visual prompt, written communication	Multi channel communication, written confirmation, sign language support
Physical disability	It is difficult to reach offline outlets; Limited access to self-service devices	Barrier free access, wheelchair position, on-site service, online handling, voice operation	Physical accessibility, remote handling, self-service equipment adaptation
Intellectual and mental disabilities	Difficult to understand complex financial information; Misleading; Decisions may need to be aided	Minimalist version description, anti misleading prompt, guardian assistance, account co management mechanism	Information simplification, risk highlighting and auxiliary decision-making arrangements
Multiple disabilities	At the same time, it faces multiple obstacles, and a single auxiliary measure is usually insufficient	Comprehensive barrier free service, one-on-one personalized support	Multi channel collaborative and individualized service scheme

III. Result

Disability inclusion defects run through the whole process of financial services

Cross case comparison shows that the main problem of bank disability inclusiveness is not the occasional mistakes of individual pages, individual equipment or individual staff members, but a continuous obstacle throughout the whole process of financial services. Disabled customers may first be blocked by hidden entrances, insufficient information disclosure or opaque facility distribution before entering the bank's official website, mobile bank or network; After entering the service scenario, it will encounter new thresholds in page recognition, text understanding, authentication, communication and interaction and risk judgment; Even if the initial contact is completed, the follow-up continuous use may still be further marginalized due to service reservations, lack of facility maintenance information, insufficient alternative communication mechanism or lack of independent guarantee for account operation. In other words, the exclusion created by the current banking system is not only "inaccessible", but also "can be formally included, but can not be substantially accommodated".

This finding means that disability inclusion can not be understood as a supplement to the marginality of existing service systems, but must be understood as a basic principle across bank product design, service processes and organizational governance. As long as obstacles reappear at any critical link, the convenience measures of the previous link will quickly fail, and ultimately push disabled customers back into dependence, waiting and uncertainty.

Digital channels cannot ensure that features are "really available"

A significant phenomenon in digital channels is that many banks have begun to set up "care version", "barrier free mode" or special barrier free description pages, but these settings often stay at the surface function, and have not yet formed a stable, understandable and sustainable digital service structure. On the surface, there are already font adjustments, color changes, screen reading modes or auxiliary entrances in the page, which seems to indicate that the bank has moved towards inclusive design; However, closer examination reveals that problems remain widespread, including layout reflow failures after page magnification, missing alternative text for key images, unclear link semantics, absent page language attributes, failures in screen-reader recognition of input-field status, lack of page landmarks, and inconsistencies between page transitions and screen-reader logic. As shown in Figure 1, the caring version of ICBC's official website has obvious text blocking and module overlap after the page is enlarged, indicating that the setting of barrier free function does not fully resolve the readability and operability problems of low vision users in actual browsing.

Figure 1



The main accessibility defects and analysis dimensions of representative banks in digital channels are summarized in Table 2.

Table 2

Bank	Accessibility arrangements	Major digital inclusion flaws	The main types of problems involved
Industrial and Commercial Bank of China	The official website has a "care version", which provides functions such as font size adjustment, screen reading and page color adjustment	The official website has a "care version", which provides functions such as font size adjustment, screen reading and page color adjustment	Insufficient perceptibility; Insufficient screen reading compatibility; Insufficient interaction continuity
China Merchants Bank	The official website has a "barrier free" mode, providing page adjustment, screen reading, color adjustment and other functions	Some links lack clear semantic descriptions; Insufficient color contrast by default; The page is missing language attributes	Insufficient link understandability; Poor visual contrast; Insufficient semantic labeling

Bank of America	The official website provides more detailed accessibility instructions	Screen readers have trouble correctly recognizing the status of the input box; The page lacks landmark structure	Insufficient form identifiability; Insufficient page navigation structure
The Bank of Tokyo-Mitsubishi UFJ	There is no clear explanation of accessibility mode	Insufficient color contrast by default; The picture replaces the text and repeats the visible text; The ownership of link structures such as "back to the top" is not clear	Insufficient visual identifiability; Alternative text redundancy; The page structure is unclear

Digital Banking thus exposes a core contradiction: accessibility can be demonstrated, but not necessarily used effectively. For disabled customers, what really matters is not whether there is a "barrier free" button on the page, but whether the whole process from entering the home page to completing transfer, account opening, consultation, financial management review or risk confirmation can be completed continuously without relying on a third person. Once there is a semantic fracture, lack of feedback or interactive mismatch in a certain link, the "convenience" of digital channels will immediately be transformed into a new dependency.

The deeper problem is that the technical shortcomings of Digital interfaces tend to be transmitted to the level of financial autonomy. Unclear page semantics and difficult information positioning seem to be just a user experience problem, but in fact they will directly affect whether risk disclosure can be found, whether the terms can be understood, whether the operational consequences can be confirmed, and whether customers can make judgments on an informed basis. Accordingly, insufficient accessibility in digital channels is not a technical defect; rather, it is a precondition for whether financial relations can be conducted on the basis of equality.

There is a fracture between accessibility and availability of offline services

Compared with digital channels, the main problem of offline services is not only the lack of physical facilities, but also the lack of effective connection between facilities, services and information. Although some banks provide accessible entrances, wheelchair seating, voice-enabled ATMs, assistive devices, or reservation services, the key issue for customers with disabilities is not simply whether such arrangements exist somewhere, but whether they can be identified at a reasonable cost and actually obtained when needed. When banks can not clearly disclose which outlets are equipped with what accessibility facilities, whether equipment is available, whether services need to be booked, and when specific support is provided, formal accessibility can not be transformed into practical availability.

The representative obstacles in offline services are not limited to the facilities themselves, but concentrated on the disconnect between facilities, processes and information disclosure, as shown in Table 3.

Table 3

Bank	Main offline inclusion gap	Specific performance	Possible consequences
Bank of America	Substandard physical facilities; Inadequate equipment maintenance; Lack of reasonable convenience	Inadequate standards for accessible parking and wheelchair access; The faulty equipment was not repaired in time; There are cases of employment discrimination without reasonable convenience	Reduce the accessibility of physical outlets; Increase the risk of service failure; Undermining institutional credibility
Toronto-Dominion Bank	Outlets closed; Service response apathy; Disability discrimination	Close the original familiar outlets; The staff did not effectively respond to the communication needs of disabled customers; Denial of basic amenities	Increase travel and switching costs; Weakening the service stability and trust of disabled customers
HDFC Bank Limited	Accessibility is unclear; Low transparency; Training may be inadequate	Only some outlets have accessibility facilities, but lack a public list; It is difficult for customers to predict the available services; Staff training unknown	Formal services exist, and real services are difficult to obtain
The Hongkong and Shanghai Banking Corporation Limited	Reservations required; Facilities vary from old to new; Insufficient timeliness	Some disability services need to be booked two weeks in advance; The facilities of different outlets are obviously different; Services like face-to-face sign language translation are limited	Inadequate instant service capabilities; Disabled customers have difficulty obtaining services on an equal footing with ordinary customers
Lloyds Bank	Outlets closed; Inadequate service quality; Opaque ancillary information	Familiar with network closure; Wheelchair users wait too long; Specific customers suffer economic losses due to insufficient tips; Voice ATM information opaque	Rising service costs; Increased risk of financial losses; Weakening willingness to continue using

This disconnect particularly affects disabled people who rely on physical channels. For physically disabled people, network closure, opaque facilities and route switching mean higher travel costs and greater risk of service failure; For people with hearing and speech disabilities, face-to-face service itself is difficult to establish if there is no written communication, sign language support or visual cues on the spot; For customers with

cognitive impairment, multiple disabilities or the need to assist in decision-making, reservations, complex processes and inadequate staff training can make offline services that should remedy digital exclusion evolve again into new thresholds.

Therefore, the core problem of offline services should not be simplified as "insufficient accessibility", but should be understood as the failure of banks to integrate physical space, service processes and information disclosure into an availability system for disabled customers. As long as this system does not exist, even if banks invest in individual facilities, it is difficult to really improve the service experience and use results of disabled customers.

There are inclusiveness problems in the description and trading mechanism of financial products

If digital and offline channels are mainly manifested as "barriers to entry", then the problems in the description and trading mechanism of financial products touch more directly on the substance of financial relationships. Existing cases show that some banks still default that customers have complete visual reading ability, telephone communication ability, text understanding ability and on-site signature ability in financial management instructions, recruitment documents, consultation mechanism, signing requirements and identity confirmation process. This default setting has led to several typical problems: insufficient explanation of complex financial terminology; the provision of telephone consultation without simultaneous provision of text or sign language alternative channels, the requirement for the borrower's signature without specifying what alternative mechanisms can be used by visually impaired customers, the lack of clarity on special account structures or ancillary service capabilities, and the use of highly abstract, information intensive and difficult to locate expressions in risk disclosure.

Compared with digital interfaces and offline facilities, the inclusive gap in financial product description and trading mechanism has a more direct impact on informed consent and financial autonomy, mainly as shown in Table 4.

Table 4

Bank	Type of product or mechanism	Major inclusion gaps	Institutional issues involved
China Construction Bank Corporation	Description and identification of credit and financial products	Credit processing requires the borrower to sign in person, which is difficult for visually impaired customers to complete; Financial instructions only provide telephone hotlines, and it is difficult for deaf/speech impaired customers to consult; Explain that the text terminology is complex and lacks noun interpretation; Risk information depends on customer active discovery	Inadequate alternative signing mechanisms; Single communication channel; Insufficient comprehensibility of information; Risk disclosure is not reachable
Wells Fargo	Description of funds and financial products	There are misleading statements in the product description; Financial terminology is complex and lacks explanations for people with cognitive impairment	The expression of information can be misleading; Insufficient cognitive friendliness
The Hongkong and Shanghai Banking Corporation Limited	Recruitment instructions and consignment service arrangements	It is not clear whether it supports the special account structure; List a large number of consignment institutions, but do not specify which institutions can provide ancillary services	Insufficient disclosure of service capability information; The availability of ancillary services is unclear

Unlike the technical problems at the web level, the defects at this level directly affect the authenticity and effectiveness of informed consent, risk identification and meaning expression. For visually impaired customers, the problem is not only "invisible", but also "whether they can independently confirm that what they read is the final text"; For customers with hearing and speech disabilities, the problem is not only whether they can contact customer service, but also whether they can complete consultation and confirmation in an equal way; For customers with intellectual, mental or cognitive disabilities, the question further translates into "can you understand risks, identify misinformation and make effective decisions without relying too much on others".

Therefore, the intolerance of financial product description is no longer a subsidiary issue in the sense of service experience, but the core issue of financial consumer protection in the context of disability. If banks cannot ensure that disabled customers have access to risk information, understand the consequences of contracts and complete identification in a manner appropriate to their ability structure, it is difficult to see their financial transactions as truly based on equality.

A few institutionalized practices suggest that systemic improvements are possible

Although most cases reveal obvious shortcomings, some practices also show that systematic improvement is not impossible. Some banks have begun to incorporate disability inclusion into high-level

governance and business strategies, and promote disability inclusion from single point repair to system governance through board level supervision, clear barrier free design principles, employee training, user feedback mechanism and the linkage between digital and offline services. Other banks have made more targeted attempts in Braille and large print transaction documents, bank cards with tactile identification, voice prompt ATM, sign language video customer service, alternative identification technology, rapid manual assistance and so on.

Although most cases have exposed obvious defects, a few banks have shown a more systematic improvement path, and their main practices and enlightenment are shown in Table 5.

Table 5

Bank	Representative approach	Institutional characteristics	Referential significance
NatWest Group	Integrating disability inclusion into business strategies and board concerns; Promoting digital accessibility; Establish the principle of clear product information; Mass employee training; Collect user input through an inclusive design team	Form a closed-loop from the governance layer, product layer and service layer	It shows that disability inclusion should enter high-level governance rather than stay at the front desk customer service level
First Bank	Provide Braille, audio, large print and digital format files; Upgrade high-contrast and voice prompt ATM; Introducing tactile signage and Braille bank cards; Strengthen digital authentication security	Take into account physical facilities, product media and digital security	Indicate that inclusiveness should cover trading media, equipment, certification and information formats
China Construction Bank Corporation	Mobile banking supports screen reading; Some areas have established the whole process services of visual impairment, hearing impairment and limb impairment; Equipped with parking spaces, wheelchair access, low level intelligent equipment and various auxiliary supplies	Online and offline linkage services	It shows that inclusive construction should not only bet on a single channel, but also build a multi scenario coordination mechanism
WeBank Co., Ltd	Add sign language video customer service; Upgrade live light authentication; Launch "air counter" quick connection manual service	Combination of technological innovation and auxiliary communication	It shows that digital banking can reconstruct the authentication and help seeking process through technology to reduce third-party dependence

The importance of these practices is not that they have completely solved the problem, but that they reveal a governance logic different from passive response and piecemeal remedy: only when disability inclusion enters the strategic, product, technical and service levels at the same time can it get rid of the fragmented path of "where complaints are made," and turn to forward-looking institution building. In other words, the level of disability inclusion is not determined by whether a technology is advanced, but by whether banks have established a closed-loop governance structure from problem identification, user participation, product design, personnel training to continuous maintenance.

IV. Discussion

The most important finding of this paper is not that there are several "accessibility deficiencies" in banking services, but how these deficiencies systematically weaken the financial autonomy of persons with disabilities. Previous studies have shown that the financial exclusion of persons with disabilities arises not only from limited access to accounts, but also from the persistent absence of assistive technologies, digital incompatibility, communication barriers, and inadequate service training in the use of banking, credit, insurance, and financial advisory services. Under such circumstances, persons with disabilities are often exposed to theft and fraud because they must rely on family members, friends, or support workers to complete verification procedures and transactions that should otherwise be performed independently (Puli et al., 2024). This case study further shows that this dependence is not the result of the natural lack of ability of disabled people, but is institutionally created under the combined action of products, processes and environment.

Therefore, the real standard of disability inclusion in banks should not stop at whether to provide help, but should rise to whether to enable disabled customers to maintain independent decision-making, informed information and safe operation with the support of reasonable convenience. Any service arrangement that makes disabled customers overly dependent on third parties to read, interpret, sign, certify or operate means that financial autonomy is structurally weakened. It is in this sense that disability inclusion is not only a technical issue, but also a matter of rights, consumer protection and institutional legitimacy.

Digitalization does not automatically lead to inclusion

Digital Banking is often seen as an important tool to improve inclusiveness and reduce service costs, but this paper, together with existing research, shows that digitalization can be transformed into inclusive resources only when disability experience is incorporated into the system architecture at the design stage; Otherwise, it could also become a new mechanism of exclusion. Naeem et al. (2022) have shown that some disabled users are

not unwilling to use, but because mobile banking applications do not really absorb the experience of disabled experts and disabled users in the development stage, they can not be used independently in reality. This means that digitalization will not naturally eliminate traditional financial exclusion, but may reproduce inequality in new interface logic, authentication mechanisms and operational norms.

Further, digitalization creates an "illusion of inclusion.". Banks can demonstrate inclusiveness by setting up "care pages," screen reading buttons or accessibility icons, but as long as these functions do not run through the business process, they are symbolic visibility, not substantive availability. For academic analysis, it is at this point that disability inclusion research must distinguish between "accessibility" and "functional availability". If we ignore this difference, the research will mistake the statement of system for the realization of system.

From "unified customer model" to "differentiated inclusive design"

Wann and Burke Smalley (2022) found that different types of disability perform differently in financial inclusion, which means that disability is not an internal homogeneous variable, but will have a differentiated impact on account holding, formal banking service access and continuous use. This case also shows that the barriers to financial services for visual disabilities, hearing and speech disabilities, physical disabilities, intellectual and mental disabilities, and multiple disabilities are clearly different. Therefore, bank products and services can no longer be designed based on abstract "average customers", but must recognize the high diversity of user capability structure itself.

At present, the central problem in most banks is that they still adopt a singular customer model as the default: the assumed customer can read dense text, answer phone calls, sign documents on site, understand complex financial terminology, recognize prompts in digital interfaces, and return to physical branches whenever necessary. Disabled clients are considered exceptions to this model only if they deviate from it. This design logic is inherently exclusionary. Real disability inclusiveness should not be to add patches after exceptions occur, but to recognize the existence of differentiated capability structure at the design starting point, and to establish multi-channel, replaceable and switchable service paths accordingly.

Institutionalizing organizational governance is a core measure to improve inclusiveness

Studies have pointed out that an important reason for financial institutions to ignore disabled customers for a long time is that they do not really regard disabled people as a customer group with sufficient market value, so they lack the incentive to continue to invest in accessibility mechanisms and employee training (Puli et al., 2024). The few more mature practices in this paper are instructive not because they have reached a perfect state, but because they reflect a more stable institutional logic: disability inclusion must enter the bank's high-level governance, product development process, technology iteration mechanism, personnel training system and user feedback structure, not only by the front desk customer service.

This means that if financial institutions are to truly enhance disability inclusion in the future, they need to complete at least three institutional changes. First, we need to form a cross departmental responsibility structure so that technology, products, compliance, customer service and offline operations share inclusive responsibilities. Second, disabled users need to be included in the design process to transform them from passive recipients of help to participants in system construction through testing, CO creation and feedback mechanisms. Third, inclusive performance needs to be transformed into evaluable and accountable organizational indicators so that it no longer stays at the narrative level of social responsibility. Only when inclusiveness shifts from "brand image" to "governance obligations" can banks establish stable rather than temporary improvement mechanisms.

Moving from "access quantity" to "relationship quality" is necessary

Research on financial inclusion has long relied on indicators such as account ownership rates, ATM coverage, and access to digital payments to measure the degree of inclusion; however, these indicators reflect the appearance of access more than the quality of actual use. The central question advanced in this article is that what matters for persons with disabilities is not merely whether they formally possess an account, download an application, or access a website, but whether they can carry out their financial activities continuously, knowingly, and safely without being compelled to rely excessively on others. In other words, the core of financial inclusion should not stay in "inclusion", but should turn to "whether financial relations can be maintained equally".

This shift makes disability inclusion not just a marginal sub issue in inclusive financial research, but a highly sensitive indicator of whether the financial system is truly equal. It also reconnects accessibility design, consumer protection and disability rights: inadequate disability inclusion means not only a poor service experience, but also the failure to achieve substantive equality in financial relationships.

V. Limitations

Several limitations of this study should be acknowledged. First of all, this paper adopts exploratory multiple-case comparative approach rather than large sample statistical analysis, its strength therefore lies in identifying types of barriers, underlying mechanisms, and institutional logics rather than in providing widely generalizable proportional estimates. As a result, this paper is more suitable for identifying the structure of the problem and proposing an analytical framework than to definitively measuring the level of disability inclusion in banks globally.

Secondly, the materials used in this paper are drawn primarily from public webpages, product descriptions, service descriptions and public dispute cases. These sources are well suited to identifying the institutional arrangements and design deficiencies publicly presented by banks; however, they provide only limited insight into banks' internal processes, the actual implementation of employee training, and the lived experiences of customers with disabilities. Future research incorporating participatory testing with users with disabilities, in-depth interviews, and task-oriented experiments would be better positioned to assess the gap between public commitments and actual accessibility.

Thirdly, although this paper acknowledges internal differences across disability types, the availability of case materials did not permit a more detailed comparative analysis of specific categories of disability. Visual, hearing and cognitive impairments are not the same as, or even superimposed on, multiple disabilities in a financial context. If follow-up studies establish a more differentiated analytical framework for specific groups, they will be better able to identify which design elements have the most decisive impact on particular populations.

Finally, although some positive practices discussed in this paper are instructive, their long-term effect, replicability and cost benefit relationship have not been fully verified. Therefore, the discussion of reform pathways in this paper should be understood as a normative inference based on case comparison and institutional logic rather than as causal identification in the strict sense. In the future, if cross time point tracking, quasi experimental design or organizational governance data can be combined, research will be more likely to show which inclusive measures can steadily improve the financial autonomy and safety of disabled customers.

VI. Conclusion

Focusing on the disability inclusiveness of banking products and services, this paper develops an analytical framework centered on digital accessibility, offline availability, the comprehensibility of product information, autonomy, and security, and derives three main conclusions from cross-border case comparisons.

First, the main problem of disability inclusion in banks at present is not the lack of a single technology or a single facility, but the obstacles running through the whole process of contact, understanding, handling and sustainable use, which constitute a continuous structural exclusion. Digital interfaces, physical branches, and product descriptions have not yet formed a coherent support chain for customers with disabilities; consequently, such customers are often only formally included rather than substantively accommodated.

Second, the real measure of disability inclusion should not be whether banks have installed a number of facilities, but whether disabled customers can carry out financial activities independently, knowingly and safely with the support of reasonable facilities. Any design that makes disabled clients overly dependent on third parties to read, interpret, sign, authenticate or operate weakens their financial autonomy and increases the risk of information exposure and fraud.

Third, systemic improvement is possible, but only if banks upgrade disability inclusion from marginal customer service arrangements to the core issue of organizational governance. Disability inclusion can move from piecemeal good will to a stable system only when high-level supervision, product design, technology development, employee training, user participation and continuous maintenance are integrated into a unified framework.

Therefore, the disability inclusiveness of bank financial products and services should not be regarded as an additional layer of social responsibility outside the financial system, but as an internal standard to test whether the financial system is truly inclusive, legitimate and modern. Only when disabled customers can enter, understand, use and control financial relations on an equal footing with others can financial inclusion become an institutional reality rather than a policy slogan.

AI Disclosure Statement

Grammarly was used in this manuscript for grammatical correction, spelling checking, sentence polishing and academic language optimization.

This AI tool only assisted in linguistic refinement, and did not participate in topic selection, framework design, data analysis, argumentation or conclusion formulation .

All academic viewpoints, logical analysis and core content are independently completed by the author. All AI-modified texts have been fully reviewed and revised manually. The author takes full responsibility for the originality and academic integrity of the entire paper.

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