



Economics

UDC 336.71:004.77

DOI <https://doi.org/10.5281/zenodo.18798532>

**Expanding banks' customer base through the adaptation of digital interfaces
for low-mobility population groups**

Krystyna Sylyvonchyk,

FollowUpDigital LLC, 2389 Main St., STE 100, Glastonbury, CT 06033, USA,

<https://orcid.org/0009-0006-3199-8880>

Accepted: 11.09.2025 | Published: 30.09.2025

Abstract. The relevance of this study is determined by the deepening digitalization of the banking sector alongside the persistent structural digital divide between formal access to financial services and their actual use. Despite the high level of development of payment infrastructure and the growing number of remote banking users, a significant proportion of clients, particularly low-mobility and socially vulnerable groups, remain insufficiently integrated into modern financial processes. The purpose of this article is to substantiate the adoption of digital banking interfaces as an instrument for expanding banks' customer base by overcoming visual, cognitive, and behavioral barriers to digital engagement among low-mobility population groups. The methodological framework of the study is based on scientific generalization, structural and comparative analysis, and the examination of official statistical and analytical materials. The empirical basis of the research is formed using data from the FDIC National Survey of Unbanked and Underbanked Households and the Federal Reserve's «Report on the Economic Well-Being of U.S. Households in 2024», which made it possible to analyze financial inclusion, the use of alternative financial services, and behavioral patterns of users



in the digital environment. The study systematizes the structural components of the digital divide in the banking sector. It demonstrates that the primary loss zone emerges at the stage of transition from formal access and basic digital skills to sustainable digital engagement. It is proven that insufficient interface adaptation intensifies the risks of financial exclusion and contributes to the formation of a segment of passive users. Based on the research findings, an original mechanism for expanding banks' customer base is proposed, which provides for inclusive adaptation of digital interfaces aligned with the principles of universal design, personalized interaction, and the development of supportive services within digital channels. The practical significance of the obtained results lies in their applicability for banking institutions in improving the efficiency of digital service channels, stimulating the use of financial services by low-mobility population groups, and ensuring sustainable growth of the customer base under conditions of digital transformation.

Keywords: digital inclusion, digital divide, banking sector, banks' customer base, digital interfaces, financial inclusion.

Розширення клієнтської бази банків через адаптацію цифрових інтерфейсів для маломобільних груп населення

Силивончик Кристина,

FollowUpDigital LLC, 2389 Main St., STE 100, м. Гластонбері, Коннектикут
06033, США, <https://orcid.org/0009-0006-3199-8880>

Анотація. Актуальність дослідження зумовлена поглибленням цифровізації банківського сектора та одночасним збереженням структурного цифрового розриву між формальним охопленням населення фінансовими послугами й реальним використанням цифрових банківських сервісів. Попри високий рівень розвитку платіжної інфраструктури та зростання кількості



користувачів дистанційного обслуговування, значна частина клієнтів, зокрема маломобільні й соціально вразливі групи населення, залишається обмежено залученою до сучасних фінансових процесів. Метою статті є обґрунтування адаптації цифрових банківських інтерфейсів як інструменту розширення клієнтської бази банків шляхом подолання візуальних, когнітивних і поведінкових перешкод цифрової залученості маломобільних груп населення. Методологічну основу дослідження становлять методи наукового узагальнення, структурного та порівняльного аналізу, а також аналіз офіційних статистичних і аналітичних матеріалів. Емпіричну базу дослідження сформовано на основі даних FDIC National Survey of Unbanked and Underbanked Households та звіту Federal Reserve «Report on the Economic Well-Being of U.S. Households in 2024», що дало змогу проаналізувати рівень фінансової інклюзії, використання альтернативних сервісів і поведінкову активність користувачів у цифровому середовищі. У статті систематизовано структурні компоненти цифрового розриву в банківському секторі та встановлено, що основна зона втрат формується на етапі переходу від формального доступу до цифрових сервісів і базових навичок до стійкої цифрової залученості клієнтів. Доведено, що недостатня адаптація інтерфейсів посилює ризики фінансової ексклюзії та формування сегмента пасивних користувачів. На основі результатів дослідження запропоновано авторський механізм розширення клієнтської бази банків, який передбачає інклюзивну адаптацію цифрових інтерфейсів з орієнтацією на принципи універсального дизайну, персоналізацію взаємодії та розвиток підтримувальних сервісів у цифрових каналах. Практичне значення одержаних результатів полягає в можливості їх використання банківськими установами для підвищення ефективності цифрових каналів обслуговування, активізації використання фінансових сервісів маломобільними групами населення та забезпечення сталого зростання клієнтської бази в умовах цифрової трансформації.

Ключові слова: цифрова інклюзія, цифровий розрив, банківський



сектор, клієнтська база банків, цифрові інтерфейси, фінансова інклюзія.

Problem statement. The digital transformation of the banking sector has reoriented customer interactions from physical branches to remote service channels. Mobile banking and electronic payment systems are the basis of financial interaction and a factor in scaling the banking business; however, the growth of technological capabilities is not always accompanied by the corresponding digital involvement of customers [1]. The relevance of the study is justified by the contradiction between the formal coverage of the population with banking services and the actual use of these services. Despite the development of payment infrastructure, some customers remain only partially integrated into the digital financial environment, especially among low-mobility population groups [2]. Currently, the digital divide is primarily associated with user experience features. The complexity of interfaces and multi-stage transaction procedures forms hidden barriers that hinder the regular use of digital services and affect the intensity of customers' financial behavior [3, p. 427]. Under such conditions, the adaptation of digital banking interfaces is a key tool for overcoming the digital divide and expanding banks' client base, and it requires a scientific understanding of its impact on financial inclusion and the economic efficiency of banking services.

Analysis of recent research and publications. Current research shows that the digitalization of financial services does not automatically increase financial inclusion, as the main limitations relate to user experience, accessibility, and behavioral factors. A significant body of studies focuses on analyzing the accessibility of digital banking and fintech services for vulnerable and low-mobility population groups. In particular, the authors R. Nour [4], O. Alhadreti [5], M. Musiał and J. Rachuba [6] find that a significant part of banking websites and online financial platforms do not meet modern requirements for inclusiveness, while the quality of the digital environment has no direct connection with the financial efficiency, scale of activity or level of profitability of banks. This indicates the



systemic nature of interface barriers and the autonomy of decisions regarding the availability of digital services compared to traditional financial indicators. The problems of using digital banking services by the elderly and other vulnerable groups are considered in detail by scientists N. Msweli & T. Mawela [7], S. Touchaei & N. Hashim [8], M. Naeem et al. [9]. It is shown that the low level of use of mobile and online banking is due to a combination of cognitive, trust, informational, linguistic and visual barriers. In this context, convenience, simplicity, personalization and social influence are considered as crucial prerequisites for the potential expansion of digital inclusion. A separate area of research is devoted to the institutional and behavioral aspects of financial inclusion of people with disabilities. In particular, researchers S. Muuo et al. [10] demonstrate that institutional imperfections in banks constrain users' readiness to use digital financial services, the lack of inclusive policies, and insufficient product adaptation, leaving a significant segment of clients outside full financial participation. In line with the outlined problem, scientists D. Ha et al. [1] and J. Dai et al. [11] consider fundamental generalizations of the role of fintech in ensuring banking inclusion. It is emphasized that the development of digital financial technologies should be considered not only from the standpoint of innovation but also from the perspectives of accessibility, social context, and design focused on user diversity. In addition, the lack of empirical studies directly linking interface solutions to customers' the real financial behavior is noted. At the same time, scientists R. Apau et al. [12] expand behavioral models of the adoption of digital financial services, showing the decisive role of trust, security, and demographic characteristics in the formation of intentions and the actual use of mobile banking. This strengthens the argument for personalized, adaptive digital interfaces as tools for reducing behavioral barriers.

Researchers I. Bakalo [13], O. Hetmanenko [14], N. Kantsedal et al. [15] analyze macroeconomic and crisis contexts and emphasize the growing role of digital and remote financial channels in ensuring continuity of access to financial services in conditions of military and geopolitical crises, which indirectly actualizes



the problem of digital inclusion as a factor of stability of banking systems. In particular, O. Akanfe et al. [16, p. 2] substantiate the feasibility of developing an inclusive financial privacy index (INF-PIE) as a tool for assessing the level of user protection in the digital financial environment and its impact on the population's digital involvement. The study by V. Ganchev [17] emphasizes personalization, aesthetics, and emotional perception as sources of economic effect, loyalty, and the duration of interaction with services, which has direct conceptual significance for the design of inclusive digital banking interfaces. Within the framework of the analysis of user experience in digital banking, S. de O. Santos et al. [18, p. 2] demonstrate that the low usability of mobile banking application interfaces significantly reduces older people's involvement in financial services. The authors establish that complex navigation, overloaded screens, and insufficient adaptation of visual elements form persistent barriers to use, even among users with basic digital skills. Generalized scientific research shows that digital inclusion and interface accessibility are determining factors for the effective functioning of digital banking services.

Highlighting previously unresolved parts of the general problem. Despite significant scientific research on digital inclusion, the accessibility of financial services, and the behavioral aspects of using digital banking, a number of issues remain insufficiently studied. In particular, the scientific literature is dominated by a fragmentary approach to the analysis of individual problems of digital interaction, while the mechanisms for transforming formal access to banking products into real customer behavioral involvement are not fully disclosed. In addition, the number of studies that consider the adaptation of digital interfaces not only as a tool for social inclusion but also as a factor in economic growth and the qualitative expansion of banks' client base remains limited. The issue of systemic integration of the principles of accessibility, simplicity and adaptability into digital banking interfaces, taking into account their impact on the regularity of use of financial products and the intensity of client activity, remains insufficiently researched. In view of this, the



proposed study aims to develop a comprehensive approach to analyzing digital inclusion in the banking sector, with an emphasis on the role of user experience and interface solutions in overcoming hidden digital exclusion. The practical value of the work lies in the possibility of using the results obtained by banking institutions to improve digital service channels, increase the efficiency of customer interaction, and attract previously passive segments of the client base.

Formulation of the article objectives. The purpose of the study is to substantiate the adoption of digital banking interfaces as a tool for expanding banks' client bases by overcoming the structural digital divide and increasing the level of digital inclusion among low-mobility and socially vulnerable groups of the population.

Presentation of the main material of the study. In modern conditions of digital transformation of the economy, access to financial services is increasingly provided through digital technologies. Banking operations, which are previously carried out mainly in physical branches, are actively transferred to remote channels – mobile applications, web platforms and electronic payment services. Such a reorientation changes the logic of interaction between banks and clients and, at the same time, actualizes the problem of the digital divide, which is not only a technological but also a complex socio-economic phenomenon [2]. In the banking sector, the digital divide arises from the interaction among infrastructural, educational, and behavioral factors. In most economically developed countries, physical access to digital devices and the Internet is gradually losing its decisive role due to the high prevalence of mobile technologies [10]. Instead, the obstacles related to users' ability to interact with digital interfaces effectively, understand the logic of financial services, and build trust in them become crucial. This creates a contradiction specific to the banking sector between the formal coverage of the population with accounts and the actual use of digital tools. Even with technical access, the complexity of interfaces, multi-stage confirmation procedures, increased cognitive load, and insufficient adaptation of services to the needs of different user



groups hinder the transition from episodic to regular use of financial services.

Such restrictions are most noticeable for low-mobility population groups, for whom the digital channel is often the main, or even the only, way to interact with banking institutions. As a result, the digital divide in the banking sector becomes multidimensional and directly affects the level of financial inclusion and the potential for expanding the client base.

Visualization of the structural components of the digital divide (fig. 1) provides a basis for analyzing population groups for whom the gap between formal access to banking services and their actual use is most pronounced. In this context, it is advisable to pay special attention to low-mobility population groups, which constitute a specific, yet numerous, segment of bank clients.

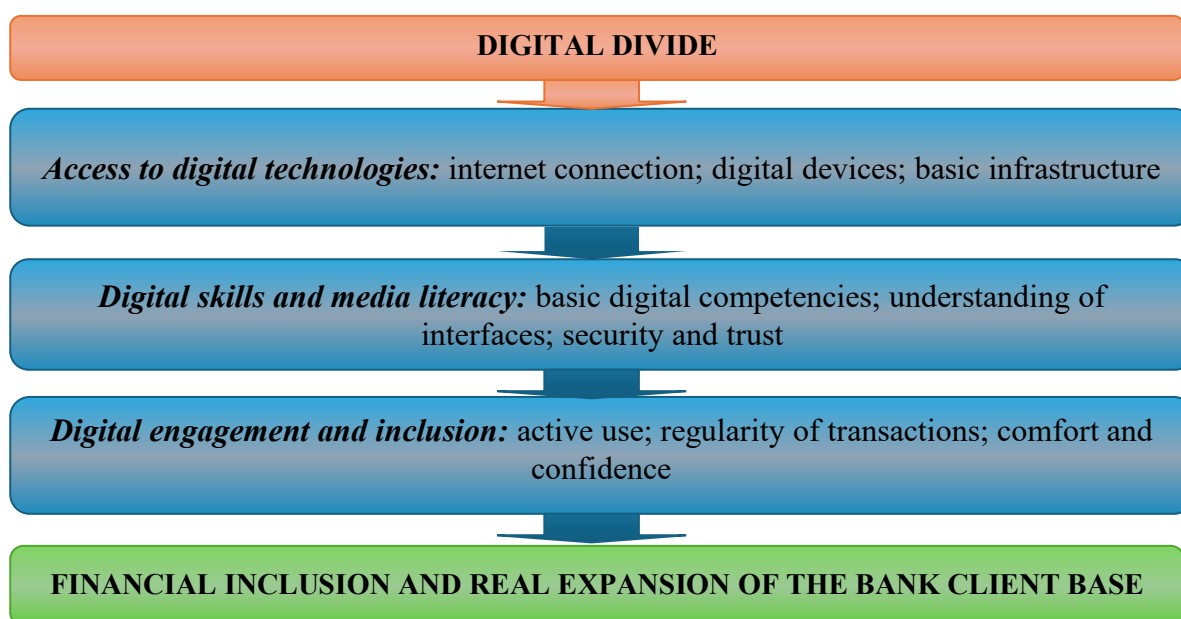


Fig. 1. Structural components of the digital divide in the context of financial inclusion

Source: author's development

The groups with limited mobility include, first of all, older people, for whom the digitalization of financial services is often accompanied by a decrease in confidence in their own digital skills, increased caution and fear of mistakes when making financial transactions. Even with a smartphone and a bank account, the



complexity of interfaces, multi-step confirmation procedures and non-intuitive visual solutions inhibits the active use of digital channels [3]. Another critical category is people with disabilities, for whom the barriers to access to digital banking services are physical and informational in nature. The lack of adaptation of interfaces to assistive technologies, in particular screen readers, voice control or alternative methods of data entry, leads to a situation in which technically accessible services remain virtually inaccessible [19]. In addition, people with limited mobility include people with temporary functional limitations due to health or life circumstances. Despite the temporary nature of such restrictions, even after their removal, the complexity and inconvenience of digital interfaces can lead to a refusal to use remote channels. A common feature of such groups is the presence of cognitive and visual issues that cannot be reduced to a lack of access to technology. Overloaded interfaces, small fonts, unintuitive navigation and complex authentication procedures form a hidden mechanism of digital and financial exclusion [20, p. 376]. As a result, low-mobility population groups find themselves in a zone of increased risk of limited use of banking services, with social and economic consequences for the banking sector.

This necessitates a transition from a conceptual analysis of the digital divide to its empirical verification using actual data on the functioning of the banking system. The experience of the United States as one of the most digitized and technologically advanced financial markets is illustrative here, characterized by high accessibility of banking services and, at the same time, persistent socio-behavioral barriers to their use [19]. Analysis of the socio-demographic features of financial inclusion in the US population allows identifying groups of clients for whom the complexity of digital interfaces and insufficient service adaptation create additional obstacles to using banking products, thereby directly affecting the possibility of expanding the client base (table 1).



Table 1

Financial inclusion and behavioral barriers indicators for low-mobility and vulnerable populations in the United States, 2024

Indicators	Share of unbanked, %	Share of overdraft fees, %	Share of unbanked money transfer users, %	Have a credit card, %	Have an outstanding balance, % of card owners	Have a balance, % of all adults
Family income						
Less than \$25,000	22	16	23	46	55	25
\$25,000–\$49,999	8	19	21	74	59	43
\$50,000–\$99,999	2	13	11	89	50	44
\$100,000 USA and more	1	6	5	97	38	36
Age						
18–29 years	13	16	17	63	44	28
30–44 years	8	14	15	79	52	41
45–59 years	5	13	12	86	54	46
60+ years	2	6	9	92	37	34
Disability status						
Disabled	12	16	20	67	56	38
Non-disabled	5	10	11	84	44	37
Total	6	11	13	81	46	37

Source: constructed from [21; 22]

The above indicators indicate a persistent differentiation in the level of financial inclusion by the population's socio-demographic characteristics, particularly disability status, age, and income level. The highest indicators of non-bank status, the use of alternative payment services, and the payment of financial fees are characteristic of low-income individuals, young people, and persons with disabilities, indicating the presence of structural and technological problems in access to formal financial services for low-mobility and socially vulnerable groups. At the same time, the spread of credit cards among middle- and high-income groups is accompanied by a significant share of individuals with outstanding obligations, indicating the persistence of financial vulnerability even under conditions of formal integration. The obtained results confirm the unevenness of financial inclusion and



the increased susceptibility of low-mobility groups to the risks of financial marginalization in the conditions of digitalization of financial services. These trends necessitate an analysis of the dynamics of financial inclusion and the use of alternative financial services in the long term, which allows assessing the sustainability of the identified disparities and the effectiveness of institutional mechanisms for overcoming them. In view of this, it is appropriate to consider the dynamic indicators of financial inclusion in the United States for 2015–2024 (table 2).

Table 2

Dynamics of financial inclusion and use of alternative services in the United States, 2015–2024

Year	Share of unbanked individuals, %	Users of unbanked services, %	Have a bank account, %
2015	8	n/d	92
2016	7	n/d	93
2017	5	n/d	95
2018	6	n/d	94
2019	6	15	94
2020	5	12	95
2021	6	12	94
2022	6	12	94
2023	6	12	94
2024	6	11	94

Note: n/d – no data

Source: constructed according to [21; 22]

Data from table 2 indicate a consistently high level of formal financial inclusion in the United States during 2015–2024, reflected in the preservation of the share of bank account holders above 92%. At the same time, the stabilization of the share of unbanked individuals at around 6% reflects the presence of population groups for whom formal access to banking services remains limited due to social, physical, and digital barriers, particularly among low-mobility and socially vulnerable groups. Despite almost complete banking coverage, a significant part of the population continues to use alternative financial services, indicating insufficient adaptation of digital platforms to the needs of people with limited mobility, low



digital literacy, and limited access to technology. The covid-19 pandemic has strengthened the role of remote channels while exacerbating accessibility problems for vulnerable groups. In general, the identified dynamics indicate the formation of an «inclusion plateau» effect, in which further expansion of financial inclusion is impossible without targeted adaptation of digital services to the needs of the low-mobility population. In view of this, further analysis of users' behavioral and credit characteristics (table 3) allows us to assess the actual effectiveness of digital channels across different social groups.

Table 3

Dynamics of behavioral and credit activity of the US population, 2015–2024

Year	Have a credit card, %	Have an outstanding balance, %	Applied for credit, %	Deny credit, %	Deny (Black), %	Deny (White), %
2015	77	57	39	33	53	26
2016	79	54	40	31	56	24
2017	83	54	39	32	53	24
2018	81	53	35	31	55	24
2019	83	52	41	31	57	24
2020	83	49	37	31	51	24
2021	84	48	38	28	46	22
2022	82	48	35	30	48	24
2023	82	47	36	32	48	27
2024	81	46	34	33	51	26

Source: constructed according to [21; 22]

The data in Table 3 indicate a consistently high prevalence of credit cards while maintaining a significant debt burden. Despite a gradual reduction in the share of users with outstanding balances, almost half of users still depend on credit resources, which limits their financial sustainability. At the same time, the share of loan applicants is gradually decreasing, while the refusal rate remains consistently high, indicating limited inclusiveness in the credit market. Racial and social disparities in access to financing remain remarkably persistent, even amid the digitalization of financial services. For low-mobility and socially vulnerable groups, the combination of complex digital procedures, opaque assessment algorithms, and



insufficient user support significantly reduces the possibilities of full participation in the financial system. Overall, the results confirm that the formal spread of digital financial instruments is not accompanied by a proportional increase in the quality of financial inclusion, forming the so-called «inclusive paradox» of digital services, the structural manifestations of which are summarized in table 4.

Table 4

Structural manifestations of the inclusive paradox of digital financial services in the United States

Paradox dimension	Key characteristics	Implications for the customer base	The role of digital interfaces
Formal access	High level of ownership of accounts and payment cards (over 80%)	Expansion of the nominal customer base without increasing activity	Mass connection without adaptation to different groups
Real use	A significant share of passive and unstable users	Low frequency of transactions, limited cross-selling	Complex usage scenarios, overloaded navigation
Social disparities	Increased risks of exclusion among young people, low-income people, people with disabilities and ethnic minorities	Formation of a segment of «lost» customers	Insufficient personalization and inclusive design
Behavioral barriers	Distrust, fear of mistakes, cognitive overload, and avoiding complex products	Avoidance of digital channels or episodic use	Lack of intuitive prompts and support
Economic effect	Limited use of the potential of digital channels	Increasing cost of customer acquisition, decreasing profitability	Insufficient optimization of the user experience

Source: author's summary

The systematization of the manifestations of the inclusive paradox indicates its multidimensional and persistent nature, driven by a combination of socio-economic, behavioral, and design factors. Under such conditions, the growth of formal access to digital financial services does not automatically translate into an increase in real user involvement, which limits the potential to expand banks' client base.

A graphical interpretation of the relationship between the development of



payment infrastructure, the features of digital interfaces, and the level of client behavioral activity is shown in fig. 2.

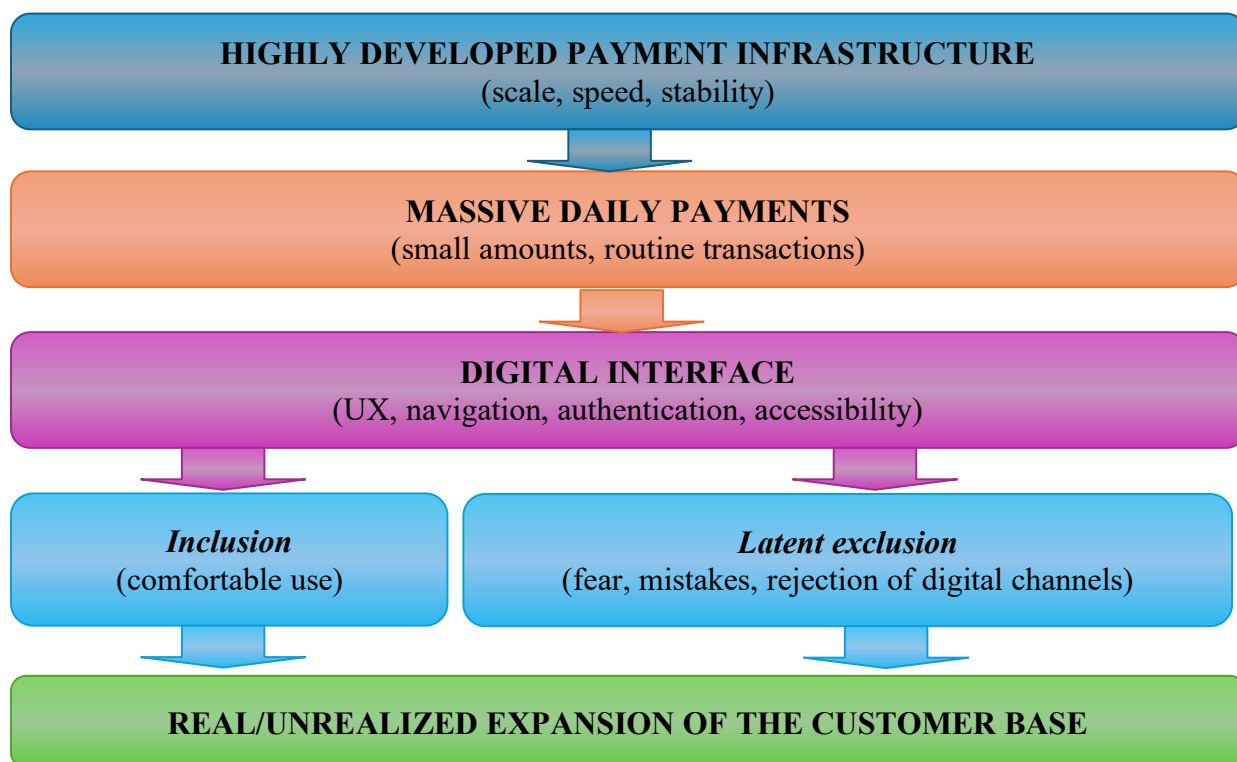


Fig. 2. Inclusive paradox of digital payment infrastructure

Source: author's own development

The inclusive paradox necessitates a transition from identifying structural disparities to developing practically oriented mechanisms to overcome them. In this context, the adaptation of digital interfaces is critical as a tool for reducing cognitive and behavioral barriers to the use of financial services. The proposed mechanism for expanding the client base of banks through the adaptation of digital interfaces is summarized in fig. 3.

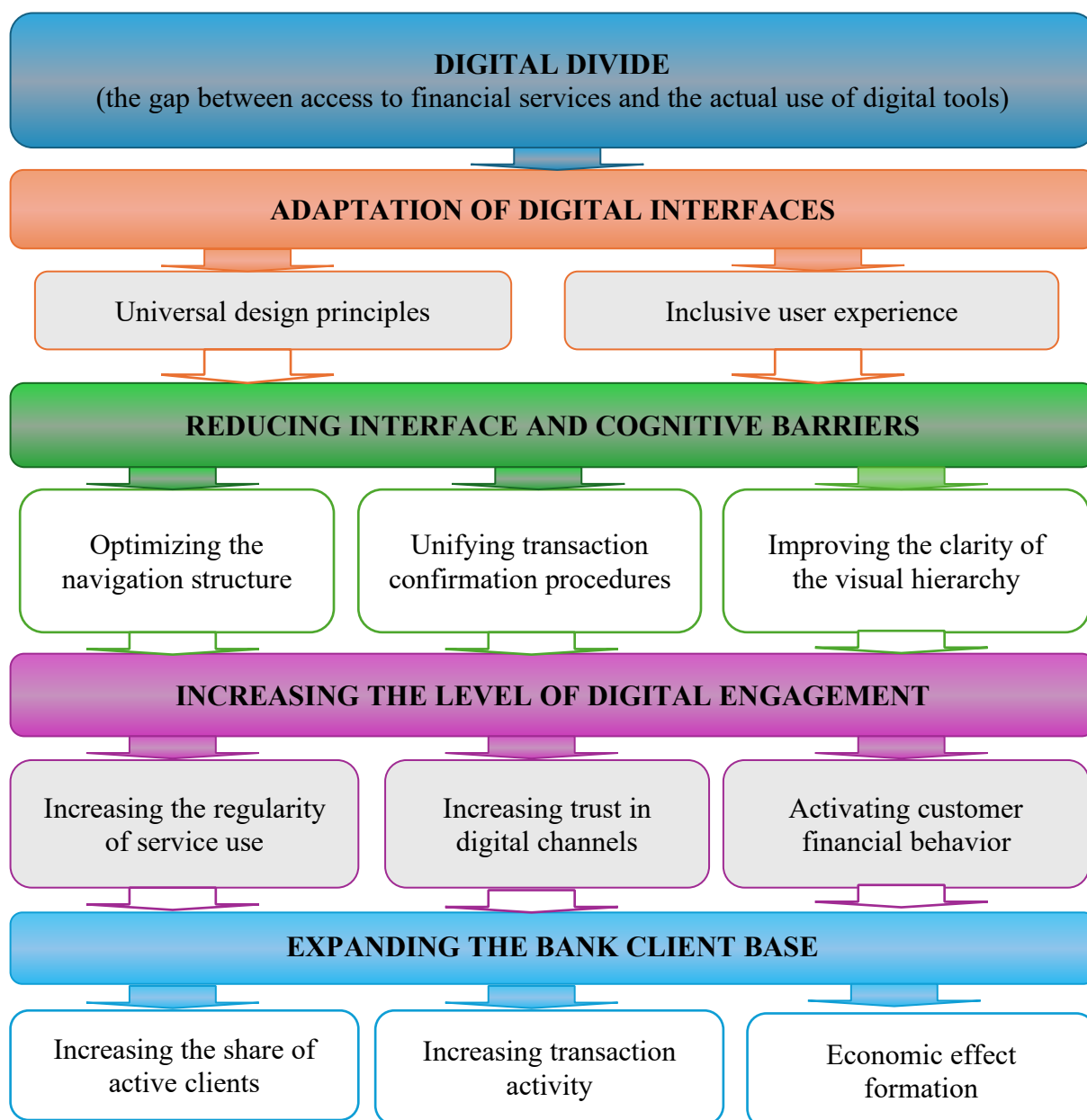


Fig. 3. Mechanism for expanding the bank client base through the adaptation of digital interfaces

Source: author's own development

The visualization demonstrates that a high level of development of payment infrastructure and the accessibility of remote services does not guarantee real financial involvement of users if their physical, sensory, cognitive, and social limitations, as well as the specifics of perception, navigation, and interaction with digital platforms, are not taken into account.

For low-mobility customers, the key problems remain the complexity of



interfaces, small font, overloaded menus, multi-step authentication, limited availability of support services, and insufficient digital literacy. Combined with uncertainty about the security of operations, this leads to increased cognitive load and distrust of remote service channels. The digital divide in the banking sector regarding low-mobility groups is multi-level. It manifests itself at all stages of the customer journey - from initial registration to the use of more complex financial products. Its key manifestation is the discrepancy between the formal availability of digital services and their actual use due to the lack of interface adaptation to users' specific needs. The result is the formation of a segment of customers with limited digital activity who formally belong to the bank's client base but use only basic operations or refuse remote services after a negative interaction. For people with limited mobility, this situation is often persistent and increases financial isolation. The economic consequences of insufficient digital involvement are manifested in a decrease in transaction intensity, underutilization of digital channels' potential, and limited opportunities to develop long-term customer relationships. In the context of scaling the banking business, this leads to losses of potential income and a strengthening of the passive user segment.

A key condition for overcoming the digital divide for low-mobility groups is transforming basic digital skills into sustainable financial participation through inclusive interface design. Accessibility, simplified navigation, transparency of procedures, adaptive settings, and alternative interaction formats build trust in digital services and readiness for their regular use.

Thus, expanding banks' client base requires a shift from quantitative expansion of digital products to systematic improvement of the user experience for low-mobility clients. The proposed mechanism is based on a combination of the principles of accessibility, simplicity, and service personalization, which allows reducing cognitive load, increasing the predictability of interaction scenarios, and ensuring a comfortable use of financial instruments. The introduction of inclusively oriented interfaces, personalized communication channels and alternative formats of



user support transforms the adaptation of digital platforms from an auxiliary technical tool into a strategic factor for expanding the client base and increasing the social responsibility of the banking business.

Conclusions. The study showed that the expansion of banks' client base in the context of digital transformation depends primarily on the actual use of digital services, rather than solely on the scale of their technological implementation. Formal growth in the number of users does not guarantee increased digital engagement, due to interface and cognitive barriers, especially for low-mobility and socially vulnerable groups in the population. It has been established that digital inclusion has a significant economic dimension, as insufficient service adaptation limits the effectiveness of digital channels and inhibits the development of customer relationships. Overcoming these limitations requires banks to reorient their interfaces toward usability, taking into account customers' physical, age, and cognitive characteristics.

Prospects for further research include assessing the impact of the accessibility and convenience of digital platforms on users' behavioral activity and the competitiveness of banking institutions.

References

1. Ha D., Le P., Nguyen D. K. Financial inclusion and fintech: a state-of-the-art systematic literature review. *Financial Innovation*. 2025. Vol. 11. Art. 69. DOI: <https://doi.org/10.1186/s40854-024-00741-0>.
2. Carè R., Boitan I. A., Stoian A. M., Fatima R. Exploring the landscape of financial inclusion through the lens of financial technologies: a review. *Finance Research Letters*. 2025. Vol. 72. Art. 106500. DOI: <https://doi.org/10.1016/j.frl.2024.106500>.
3. Adelaja A. O., Umeorah S. C., Abikoye B. E., Neziyanya M. C. Advancing financial inclusion through fintech: Solutions for unbanked and underbanked populations. *World Journal of Advanced Research and Reviews*. 2024. Vol. 23, № 1.



P. 427–438. DOI: <https://doi.org/10.30574/wjarr.2024.23.2.2379>.

4. Nour R. An assessment of accessibility and usability of Saudi online FinTech services for people with disabilities. *Computational and Mathematical Methods in Medicine*. 2022. Art. 8610844. DOI: <https://doi.org/10.1155/2022/8610844>.

5. Alhadreti O. Investigating the accessibility of banking websites in Saudi Arabia. *Universal Access in the Information Society*. 2024. Vol. 23, № 4. P. 1795–1810. DOI: <https://doi.org/10.1007/s10209-023-01008-8>.

6. Musiał M., Rachuba J. Accessibility of banking websites in Central and Eastern European countries in relation to cost management. *Central European Management Journal*. 2025. DOI: <https://doi.org/10.1108/CEMJ-10-2024-0289>.

7. Msweli N. T., Mawela T. Financial Inclusion of the Elderly: Exploring the Role of Mobile Banking Adoption. *Acta Informatica Pragensia*. 2021. Vol. 10, № 1. P. 1–21. DOI: <https://doi.org/10.18267/j.aip.143>.

8. Touchaei S. A., Hashim N. H. The antecedents of mobile banking adoption among senior citizens in Malaysia. *International Journal of Human–Computer Interaction*. 2024. Vol. 40, № 9. P. 2380–2397. DOI: <https://doi.org/10.1080/10447318.2022.2161236>.

9. Naeem M., Ozuem W., Ward P. Understanding the accessibility of retail mobile banking during the COVID-19 pandemic. *International Journal of Retail & Distribution Management*. 2022. Vol. 50, № 7. P. 860–879. DOI: <https://doi.org/10.1108/IJRDM-02-2021-0064>.

10. Financial inclusion for persons with disabilities: Experiences of providers and users of financial products and services in Kenya / Muuo S. W. et al. *PLOS ONE*. 2025. Vol. 20, № 4. Art. e0321493. DOI: <https://doi.org/10.1371/journal.pone.0321493>.

11. Dai J., Gorman B. M., Tigwell G. W., Lyhme H. M., Barros Pena B., Moffatt K., Latulipe C. accessFinTech: designing accessible financial technology. *Proceedings of the 26th International ACM SIGACCESS Conference on Computers*



and Accessibility (ASSETS '24). New York: ACM, 2024. 5 p. DOI: <https://doi.org/10.1145/3663548.3688551>.

12. Apau R., Titis E., Lallie H. S. Towards a better understanding of mobile banking app adoption and use: integrating security, risk, and trust into UTAUT2. *Computers*. 2025. Vol. 14, № 4. Art. 144. DOI: <https://doi.org/10.3390/computers14040144>.

13. Бакало І. Стрес-тестування банківської системи України: інструменти, сценарії та результати в умовах війни. *Наукові записки Національного університету «Острозька академія». Серія: Економіка*. 2025. № 37 (65). С. 37–42. DOI: [https://doi.org/10.25264/2311-5149-2025-37\(65\)-37-42](https://doi.org/10.25264/2311-5149-2025-37(65)-37-42).

14. Гетманенко О. О. Економіка війни: вплив сучасних військових конфліктів на глобальну економічну стабільність. *Актуальні проблеми економіки*. 2025. № 4 (286). С. 90–101. DOI: <https://doi.org/10.32752/1993-6788-2025-1-286-90-101>.

15. Kantsedal N., Chernenko K., Dugar T., Leha O., Yaloveha L., Priydak T. Impacto de la invasión rusa a Ucrania en las finanzas mundiales. *Cuestiones Políticas*. 2023. Vol. 41, № 78. P. 662–677. DOI: <https://doi.org/10.46398/cuestpol.4178.45>.

16. Akanfe O., Valecha R., Rao H. R. Design of an Inclusive Financial Privacy Index (INF-PIE): a financial privacy and digital financial inclusion perspective. *ACM Transactions on Management Information Systems*. 2021. Vol. 12, № 1. Art. 7. DOI: <https://doi.org/10.1145/3403949>.

17. Ganchev V. Automotive business marketing with the use of artificial intelligence technologies for service personalization. *Актуальні питання економічних наук*. 2025. № 15. DOI: <https://doi.org/10.5281/zenodo.17060084>.

18. Santos S. De O., Rodrigues A. B. A. M., Ribeiro Í. M. da S. Usability Evaluation of mobile banking applications in the context of the elderly in a city of Ceará. *XXII Brazilian Symposium on Human Factors in Computing Systems: proc.*



2024. Art. 66. P. 1–11. DOI: <https://doi.org/10.1145/3638067.3638087>.

19. Ledden N. A Picture of banking access and financial inclusion in the U.S. December 11, 2024. URL: <https://www.stlouisfed.org/open-vault/2024/dec/picture-banking-access-financial-inclusion-us> (дата звернення: 17.07.2025).

20. Ashenafi B. B., Dong Y. Financial inclusion, fintech, and income inequality in Africa. *FinTech*. 2022. Vol. 1, № 4. P. 376–387. DOI: <https://doi.org/10.3390/fintech1040028>.

21. FDIC national survey of unbanked and underbanked households: executive summary. *Federal Deposit Insurance Corporation*. 2023. URL: <https://www.fdic.gov/household-survey/2023-fdic-national-survey-unbanked-and-underbanked-households-executive-summary> (access date: 17.07.2025).

22. Report on the Economic Well-Being of U.S. Households in 2024 – may 2025. *Board of Governors of the Federal Reserve System*. URL: <https://www.federalreserve.gov/publications/2025-economic-well-being-of-us-households-in-2024-banking-and-credit.htm> (access date: 17.07.2025).