A Foundational Framework for Digitally Onboarding First-Time Users in Low-Banking Penetration Regions of Africa

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Abstract- ***This paper presents a foundational framework for digitally onboarding first-time users in low-banking penetration regions of Africa, where financial exclusion remains a persistent barrier to inclusive development. While mobile connectivity and fintech innovations have expanded the reach of financial services, the onboarding process continues to represent a critical point of failure, especially for users encountering digital platforms for the first time. Drawing on behavioral adoption theories and digital inclusion models, the paper underscores the importance of onboarding as a gateway to financial engagement, user trust, and long-term service retention. The framework is developed through a synthesis of human-centered design principles, simplicity, clarity, and inclusivity, as well as contextual insights into infrastructural, cultural, and regulatory conditions affecting onboarding. It is structured around five interdependent components: identity, access, interaction, support, and retention. These elements function as a flexible system to accommodate diverse user realities, from limited connectivity and low digital literacy to gendered access barriers and informal identification methods. Beyond design guidance, the paper explores the implications of the framework for financial service providers, policymakers, and development actors. It contributes to the academic discourse by positioning onboarding as foundational infrastructure within digital financial ecosystems. Ultimately, the paper advocates for onboarding as a transformative process essential to enabling digital citizenship and accelerating financial inclusion across Africa.***

Indexed Terms- ***Digital Onboarding, Financial Inclusion, User-Centered Design, Low-Banking Penetration, Digital Financial Services, Africa***

I. INTRODUCTION

1.1 Background and Problem Statement

Across Africa, millions remain outside the formal financial system despite increasing mobile connectivity and fintech innovations. According to the World Bank, a significant portion of adults in Sub-Saharan Africa, especially women and rural dwellers, lack access to basic banking services (Salampasis and Mention, 2018, Demirguc-Kunt et al., 2018). Although mobile money platforms have bridged some of the financial gaps, the initial digital onboarding process still serves as a significant barrier (Arner et al., 2018, Makina, 2019). Many first-time users encounter challenges related to document verification, language barriers, confusing interfaces, and mistrust of digital systems. These issues are further exacerbated by infrastructural constraints such as poor internet access and limited smartphone penetration (Evans, 2018, Chu, 2018, Yermack, 2018).

For these users, the concept of "digital onboarding" is not merely a procedural formality; it is the first point of contact with formal financial ecosystems. A poorly designed onboarding process can result in confusion, early abandonment, or complete disengagement from financial services. In contrast, a user-centric and adaptive onboarding strategy can facilitate trust, encourage repeat usage, and lay the groundwork for financial empowerment (Analytics, 2018). However, much of the existing onboarding infrastructure is designed for users in high-penetration or urban contexts, often overlooking the specific needs of underbanked populations in Africa (Corkin, 2019, Fiocco, 2019).

The lack of a dedicated foundational framework to guide onboarding practices in low-banking penetration regions contributes to fragmented solutions and inconsistent adoption outcomes. This gap points to the necessity for a coherent, inclusive, and scalable model that places the first-time user at its core. Without addressing this foundational barrier, broader financial inclusion efforts risk being ineffective or short-lived. The need for a structured approach that understands and integrates local realities has never been more urgent.

1.2 Significance of Digital Onboarding

Digital onboarding plays a pivotal role in driving financial inclusion because it represents the entryway through which individuals access digital financial services. Unlike traditional onboarding, which may rely on face-to-face interactions and paper-based forms, digital onboarding must address the needs of users who may have limited experience with digital interfaces (Haddad, 2017, Unit, 2018). It encompasses identity verification, account setup, and initial guidance, all of which influence a user's perception of reliability, accessibility, and usefulness. For underserved users, especially in rural or semi-urban African communities, a successful digital onboarding experience can mean the difference between lifelong engagement with financial tools and continued exclusion from economic participation (Davradakis and Santos, 2019, González Páramo, 2017).

As a systemic foundation, onboarding is closely tied to user engagement, retention, and satisfaction. The onboarding phase is when critical user behaviors are shaped, expectations are formed, and perceived value is assessed (Remolina, 2019, Arslanian and Fischer, 2019). A smooth and empowering onboarding process can instill confidence and familiarity, while a confusing or bureaucratic one can lead to drop-offs and negative word-of-mouth. In regions where financial service awareness is low, onboarding doubles as a space for education and sensitization, enabling users to understand products, make informed decisions, and explore more advanced services over time (Domingo and Enríquez, 2018, Ketterer, 2017, Komandla, 2018).

Traditional approaches to onboarding, such as in-person registration or literacy-dependent processes, often fall short in these contexts. They are not only expensive and time-consuming but also often fail to accommodate the diversity of user needs. For example, requiring government-issued identity documents excludes populations with informal or undocumented status (Sobel, 2002). Similarly, digital forms that are not localized linguistically or culturally can alienate large user segments (Marcus and Gould, 2012). In contrast, thoughtfully designed digital onboarding systems, adapted to mobile platforms, available offline, and incorporating user support, offer scalable and cost-effective solutions for achieving inclusive financial systems across the continent (Robertson, 2014, Latonero et al., 2019).

1.3 Research Objectives and Questions

This paper aims to build a foundational framework for digitally onboarding first-time users in low-banking penetration regions of Africa. The central objective is to design a conceptual model that reflects the social, economic, and technological realities of these users. Rather than proposing a one-size-fits-all solution, the framework seeks to establish flexible principles that can be localized and adapted to specific contexts. It focuses on first-time users as a critical user group whose onboarding experience determines long-term participation in the digital financial space. By centering this population, the framework aspires to improve adoption rates, increase financial confidence, and reduce dropout due to early negative experiences.

To guide this aim, several research questions emerge: What are the core barriers to digital onboarding for first-time users in low-banking regions? Which design principles and components should a foundational onboarding framework include to enhance usability, trust, and access? How can onboarding be optimized to reflect the infrastructural and cultural diversity of African countries? These questions guide the inquiry into how onboarding mechanisms can become more inclusive, sustainable, and efficient. They also help identify gaps in current practices and point toward actionable design innovations.

The paper adopts a forward-looking stance, treating digital onboarding not merely as a technical process

but as a social and behavioral gateway to digital inclusion. It considers user psychology, infrastructural limitations, and institutional roles in the onboarding journey. In doing so, it contributes both to academic discourse on digital inclusion and to practical strategies that can be implemented by financial service providers, governments, and development organizations. The ultimate goal is to shift onboarding from a logistical hurdle to a foundational enabler of economic inclusion, resilience, and growth in underbanked African regions.

II. CONCEPTUAL UNDERPINNINGS

2.1 Theoretical Foundations of Onboarding

Several behavioral and user-adoption theories are instrumental in understanding digital onboarding. One of the most widely applied models is the Technology Acceptance Model (TAM), which posits that perceived ease of use and perceived usefulness are the primary drivers of technology adoption (Hill, 2017, Leak, 2017). For first-time users in underbanked settings, these perceptions are significantly influenced by past interactions with digital platforms, levels of digital literacy, and cultural orientation toward financial services (Loewen, 2017, Hinton, 2018). Digital Inclusion Theory further complements this understanding by highlighting access, skills, and meaningful use as interdependent conditions for digital empowerment (Nemer, 2015, Mariën and A. Prodnik, 2014). Together, these theories emphasize that onboarding must be both functionally simple and psychologically reassuring to facilitate adoption (O'Leary, 2016, Auburn, 2015).

Central to onboarding design is the intersection of trust, usability, and perceived value. Trust plays a particularly critical role in low-banking regions, where users may be wary of institutions due to past experiences of financial instability or fraud (Mills, 2015). A user is unlikely to proceed with onboarding if they do not trust the platform, understand its purpose, or see tangible benefits (Wernerson and Söderblom Carlsson, 2019). Usability, in this context, extends beyond interface design; it encompasses language clarity, navigation flow, and the ability to complete tasks with minimal support (Ross, 2000, Kalumeze, 2015). Perceived value, meanwhile, determines whether the user believes the onboarding process is worth the effort, particularly when time, data costs, or effort are involved (Meyer, 2016, Staunton, 2017).

Additionally, onboarding is intrinsically linked to cognitive load and digital literacy barriers. High cognitive load, caused by dense forms, unfamiliar terminologies, or multi-step authentication, can quickly discourage first-time users (Goodwin, 2011). Many individuals in rural or semi-literate communities struggle to complete onboarding if instructions are complex or inconsistent. Digital literacy levels vary widely and cannot be assumed. This necessitates a design that minimizes mental effort, anticipates user confusion, and supports learning-by-doing (Willis, 2004, Grudin, 1991). Onboarding frameworks must, therefore, be rooted in models that account for psychological readiness, habitual behaviors, and contextual access limitations if they are to be effective (Abayomi et al., Adekunle et al., Ajuwon et al.).

2.2 Sociotechnical Context of Low-Banking Regions

Infrastructural, economic, and cultural conditions significantly shape the feasibility and design of digital onboarding in Africa's low-banking penetration regions (Museba, 2019). Many communities experience limited access to reliable internet, electricity, or mobile devices, particularly smartphones (Museba, 2019). Connectivity costs are high relative to income, and mobile data is often rationed or used selectively. Economic instability and low household incomes further complicate matters, as financial services may be perceived as non-essential or risky. These infrastructural and economic constraints form the backdrop against which onboarding must function, thus requiring lean, offline-capable, and resource-conscious designs (Persson and Torbiörnsson, 2013).

Telecommunications infrastructure, however, offers a pathway for innovative solutions. The widespread use of mobile money and SIM-based services has created an informal ecosystem of financial access that does not rely on traditional banking institutions (Krolikowski, 2013, Muchinguri, 2016). In several countries, telecom operators have become key players in the

digital financial ecosystem, offering e-wallets, microloans, and payment solutions (Onsongo and Schot, 2017, Kaul et al., 2008). These platforms provide important precedents and channels for onboarding new users, but often suffer from fragmented regulatory environments and inconsistent user experiences. Informal financial systems, such as community savings groups and rotating credit associations, also continue to thrive and may serve as cultural anchors for introducing digital onboarding in ways that resonate with existing trust networks (Madureira, 2017, Kendall et al., 2011).

Social and gender-based inequalities further compound the digital divide. Women, especially in rural areas, are less likely to own mobile devices or have the autonomy to use financial tools (Bala and Singhal, 2018, Novo-Corti et al., 2014). Cultural norms may limit their exposure to or decision-making over digital technologies. Similarly, elderly populations, those with disabilities, and people with low literacy face additional access and engagement barriers (Treuthart, 2019, Potnis, 2016). Language diversity, fear of fraud, and social stigma around financial technology are critical non-technical factors that must be integrated into onboarding design. The sociotechnical context, therefore, calls for an inclusive, equity-aware framework that recognizes diversity not as a challenge to be minimized but as a reality to be accommodated (Akomolafe et al., Akomolafe et al.).

2.3 Review of Existing Digital Onboarding Frameworks

Existing digital onboarding frameworks, commonly developed in fintech, digital banking, or e-government sectors, offer valuable insights but often fall short when applied to underbanked African contexts. Many are optimized for environments where users are already digitally literate, possess formal identification, and have reliable internet access. These frameworks typically assume high compliance with Know Your Customer (KYC) regulations, seamless digital documentation, and continuous connectivity. While appropriate for urban or high-penetration regions, such models lack the adaptability to function in informal economies or low-literacy environments where digital financial inclusion is most urgently needed.

In addition, current onboarding solutions tend to focus narrowly on process efficiency and fraud prevention, with less emphasis on user experience and socio-cultural integration. Automated systems, biometric verification, and digital ID integrations are prioritized, yet these features often exclude users without valid documents or access to enrollment centers (Perlman, 2018). Furthermore, the design logic behind many existing frameworks is influenced by institutional imperatives, such as regulatory compliance or cost reduction, rather than user-centered imperatives like comprehension, agency, and trust. This misalignment between system logic and user realities can lead to exclusionary outcomes (Arbesú-Cardona, 2018, Bradley, 2018).

The lack of alignment highlights the need for a tailored foundational framework that bridges user behavior, infrastructure constraints, and policy realities. A suitable model must be grounded in contextual realities, inclusive by design, and flexible enough to integrate with both formal and informal systems (Constantinides and Barrett, 2015, Heaton and Parlikad, 2019). It should prioritize incremental onboarding, multi-language support, offline functionality, and community validation mechanisms (Berkeley et al., 2010). Rather than reinventing the wheel, this foundational framework aims to reimagine onboarding from the perspective of the first-time user in low-banking regions, ensuring that the entry point into digital finance is not only accessible but also meaningful and empowering (Akpe et al., Akpe et al., Ayumu and Ohakawa).

III. FRAMEWORK DEVELOPMENT

3.1 Design Principles for First-Time User Onboarding

Human-centered design principles are essential to creating onboarding systems that resonate with first-time users. At the core of this approach are simplicity, clarity, and inclusivity. Simplicity ensures that users can complete onboarding tasks without prior experience or advanced digital skills. Clear language, visual cues, and logical step sequences reduce the risk of confusion and abandonment. Inclusivity demands that platforms accommodate a wide range of users, regardless of literacy, gender, age, or disability status.

This may include voice prompts, adaptive fonts, and customizable content based on user needs or location (KONING and MURTHY, 2017, Lam, 2016).

A critical element of on boarding is identity verification, especially in contexts where formal identification may be lacking or mistrusted. Alternatives such as community-endorsed verification, telecom data, or biometric recognition can provide inclusive pathways (Murthy et al., 2019). Trust-building is also vital. First-time users must feel safe providing personal data and using digital platforms. This trust is cultivated through transparency, visible support mechanisms (e.g., help lines), and endorsements from community figures or institutions. Interfaces must also be intuitive, designed to reduce the number of steps, anticipate errors, and offer recovery options without starting over (Chianumba et al., Gbabo et al.).

Language localization and offline capabilities significantly enhance onboarding for low-literacy and low-connectivity settings. Users are more likely to engage when content is presented in their local language or dialect, using familiar cultural references. Voice-based navigation, pictograms, and simplified user flows help bridge the digital literacy gap (Wellemeyer and Williams, 2019, Chiappetta, 2019). Given that many users access services intermittently or via basic phones, onboarding systems should function in offline or USSD-compatible modes. Allowing users to complete processes incrementally over multiple sessions, without losing progress, further enhances accessibility. These principles ensure the onboarding experience is not just available but truly usable and meaningful (Wernerson and Söderblom Carlsson, 2019).

3.2 Key Components of the Foundational Framework

The foundational framework proposed in this paper consists of five interrelated components: identity, access, interaction, support, and retention. Each component addresses a critical aspect of the user journey and collectively forms a holistic onboarding experience. Identity encompasses mechanisms for user recognition and verification. Access involves the means by which users connect to onboarding platforms, whether via smartphone, feature phone, or agent-assisted channels. Interaction focuses on the actual engagement with the onboarding system, its design, functionality, and responsiveness. Support refers to embedded assistance options that guide users through the process. Finally, retention involves follow-up mechanisms that reinforce user confidence and promote continued usage.

These components are not sequential but dynamic and overlapping. For instance, access influences interaction; users on basic phones may require entirely different flows than those on smartphones. Similarly, support mechanisms may be activated throughout the identity, interaction, or retention stages. For example, if a user fails identity verification, support tools such as guided tutorials or agent intervention must be readily available. This modular design allows the framework to be implemented in varied service environments, scaling up or down depending on local infrastructure, regulatory demands, and organizational capacity.

Each component is justified by its contribution to enabling adoption and long-term engagement. Without effective identity verification, users cannot access regulated financial services. Without intuitive interaction, users may abandon onboarding midway. Support mechanisms ensure users are not left stranded, while retention systems, such as welcome messages, usage tips, or follow-up surveys, strengthen trust and foster deeper engagement. By structuring onboarding into these interconnected components, the framework offers a replicable yet customizable model that places first-time users at its center and aligns technical functionality with human needs (Gbabo et al., Idemudia et al., Komi et al.).

3.3 Implementation Considerations and Integration Pathways

Implementing this foundational framework requires a flexible approach that accommodates existing digital financial platforms. Most service providers already have partial onboarding flows; the framework can be overlaid as a guiding structure to identify weaknesses or gaps (Weill and Woerner, 2018, Fasnacht, 2018). For instance, platforms with rigid KYC processes may incorporate flexible identity components, while services relying heavily on smartphones can develop

parallel USSD onboarding for underserved users. Integration does not necessitate costly infrastructure overhauls; instead, incremental improvements, informed by the framework, can transform onboarding into a more inclusive process (Ojika et al., Oladuji et al.).

Pathways to integration include partnerships with telecom providers, agent networks, and community-based organizations. Telecom operators, with their extensive databases and infrastructure, can facilitate identity checks and channel user communication through SMS or USSD. Agent networks, already trusted within communities, can be trained to assist with onboarding, offer translations, and verify identities informally where needed (Blakstad and Allen, 2018). Community-based organizations, including savings groups and cooperatives, can serve as conduits for sensitization and trust-building. These actors help ensure the onboarding process is embedded within users' social ecosystems rather than existing as an external or unfamiliar structure (Micheaux and Bosio, 2019, Mucz and Gareau-Brennan, 2019).

User journey mapping is central to successful implementation. This involves visualizing each step a user takes, from first encounter with the service, through registration, to initial use, and identifying potential friction points (Endmann and Keßner, 2016, Samson et al., 2017). Each stage should have corresponding support touchpoints, such as real-time SMS prompts, chatbot guidance, or human agents for troubleshooting (Buttle and Maklan, 2019, Singh et al., 2019, Janarthanam, 2017). Feedback loops should be embedded into the onboarding system, allowing providers to learn from drop-off patterns or user difficulties. With these pathways and design elements in place, the framework becomes a practical and scalable tool for transforming first-time onboarding into a gateway for sustained financial inclusion (Kufile et al., Nwangele et al., Ogunnowo).

IV. CRITICAL IMPLICATIONS

4.1 Implications for Digital Financial Services Design

This framework offers digital financial service providers, both startups and established institutions, a structured way to evaluate and improve their onboarding systems. By centering user needs such as clarity, accessibility, and trust, it promotes a shift from compliance-focused design to inclusion-driven design (Sjöberg and Winbäck, 2017, Asher, 2017). Providers can adopt the framework to identify gaps in their current systems, particularly where onboarding abandonment or low activation rates are prevalent. It encourages iterative design thinking, user feedback loops, and inclusive interface development tailored to low-literacy, multi-lingual populations (Eriksson, 2018, Wernerson and Söderblom Carlsson, 2019).

Feature development is directly influenced by the onboarding process, as early user experiences shape perceptions of value and usability. If onboarding is cumbersome, users are less likely to explore or return to the platform. By integrating onboarding data with backend systems, providers can personalize services, flag users needing additional support, and streamline follow-up engagements. Moreover, onboarding metrics, such as completion rates or error frequencies, can inform product refinement and customer segmentation strategies. As a result, onboarding becomes a strategic tool rather than a technical hurdle.

Startups benefit from this framework by embedding inclusivity and modularity from the outset, thereby enhancing user growth and retention. Established institutions can retrofit the framework into legacy systems to modernize their onboarding flows without replacing core infrastructure. In both cases, the framework promotes scalable design and long-term user engagement. It also helps organizations align with global financial inclusion goals and ESG (Environmental, Social, Governance) benchmarks, reinforcing their social impact narratives while improving business sustainability (Oluoha et al., Oluoha et al.).

4.2 Implications for Policymakers and Development Actors

The framework provides a roadmap for governments, regulatory bodies, NGOs, and development banks to promote effective onboarding as part of broader digital inclusion strategies. Policymakers can support the adoption of the framework by promoting digital identity alternatives, subsidizing mobile access for

underserved groups, and enforcing inclusive technology standards. By aligning national digital finance agendas with onboarding reforms, regulators can help bridge the last-mile inclusion gap and improve public trust in formal financial systems.

Policy incentives, such as onboarding innovation grants, tax relief for inclusive platforms, or rural deployment subsidies, can catalyze private-sector adoption of user-centered onboarding. Public-private partnerships offer additional value, enabling governments and fintech providers to share data, infrastructure, and expertise. NGOs and community-based organizations can act as intermediaries, offering training, outreach, and feedback to ensure that onboarding designs reflect real user experiences. Development banks can fund research, pilot projects, and cross-border knowledge exchange to support onboarding innovation in fragile or underserved markets.

Importantly, the framework supports a regulatory approach that balances security and access. Rather than enforcing rigid KYC protocols that exclude undocumented users, regulators can approve tiered onboarding models that accommodate informal verification methods while safeguarding against fraud. This layered approach preserves the integrity of the financial system while expanding access to vulnerable populations. The framework, therefore, enables a regulatory shift toward proportionality, where compliance is matched with context (Omoegun et al., Onifade et al.).

4.3 Contribution to Financial Inclusion Discourse

This framework contributes meaningfully to academic and practical debates in the field of financial inclusion. It reframes digital onboarding from a narrow technical task into a foundational infrastructure for user engagement, empowerment, and trust-building. Existing literature on digital inclusion often focuses on access or literacy as standalone issues; this framework integrates them as interdependent components of the user onboarding journey. In doing so, it broadens the conceptual lens through which financial inclusion is analyzed and advanced.

Compared to traditional infrastructure models, such as mobile network expansion or digital ID systems, this framework addresses inclusion from the user's point of entry, emphasizing design simplicity, cultural relevance, and sustained usability. It parallels foundational efforts in other sectors (e.g., e-health, e-education) that advocate for human-centered systems in low-resource settings. However, its unique value lies in blending behavioral theory, system architecture, and sociotechnical realities into a cohesive, actionable model tailored for digital finance (Onifade et al., Onifade et al.).

By promoting a grounded, flexible approach to onboarding, the framework lays a foundation for sustainable digital ecosystems where users are not only counted but meaningfully engaged. It encourages researchers and practitioners to recognize onboarding as a cornerstone of participation in the digital economy. As such, it shifts the narrative from mere access to agency, where inclusion is not just a metric, but a lived experience.

CONCLUSION

The urgency of establishing a robust digital onboarding framework lies in its direct impact on financial inclusion outcomes. For millions across Africa, the onboarding experience marks the first, and often decisive, interaction with the formal financial system. A poorly designed process can entrench exclusion, while a user-centered one can serve as a catalyst for trust, empowerment, and sustained engagement. This paper underscores the onboarding moment as not just a procedural step but a foundational enabler of digital inclusion.

Key design principles identified include simplicity, clarity, and inclusivity, each essential for reducing cognitive barriers and enhancing user confidence. The framework itself comprises five interrelated components: identity, access, interaction, support, and retention. Together, these elements create a dynamic system that reflects the real needs and constraints of first-time users. Unlike static or top-down solutions, this model allows for modular adaptation and iterative refinement, accommodating diverse service environments and user profiles. Importantly, the framework aligns with the sociotechnical realities of

low-banking regions, limited infrastructure, low literacy, cultural diversity, and regulatory complexity. By integrating user behavior theories and practical design insights, the paper advances a grounded and actionable vision for onboarding. In doing so, it bridges the gap between strategic ambition and local feasibility, enabling onboarding processes that are as inclusive as they are impactful.

This framework introduces a novel integration of behavioral theory, user-centered design, and infrastructure-aware systems thinking within the field of digital financial services. It recognizes that digital onboarding is neither purely technical nor solely behavioral, but a hybrid process where cognition, culture, interface, and environment intersect. The originality of this contribution lies in treating onboarding not as a fragmented task but as a foundational infrastructure requiring intentional design across multiple dimensions.

From a theoretical perspective, the paper advances the financial inclusion discourse by deepening the understanding of onboarding as a mediating layer between access and adoption. It draws on established theories, such as the Technology Acceptance Model and Digital Inclusion Theory, but situates them within under-explored contexts where structural and cultural constraints prevail. In doing so, it enriches academic debates on technology uptake in low-resource environments and offers a replicable conceptual base for future research.

Practically, the framework offers immediate applicability for service providers, regulators, and development organizations. It encourages foundational thinking, where onboarding is not treated as an afterthought but as a design priority. This reorientation supports more effective service rollout, greater user trust, and improved adoption metrics. Ultimately, by making onboarding a focal point, stakeholders can accelerate the transition from digital availability to digital agency in African financial ecosystems.

The successful implementation and evolution of this framework will depend on cross-sector collaboration. Financial institutions alone cannot address all the social, infrastructural, and regulatory barriers facing first-time users. Governments, NGOs, telecom providers, fintech startups, and local communities must work together to co-create onboarding solutions that are locally grounded and institutionally supported. Such collaboration ensures that onboarding systems are not only technically sound but also contextually relevant and culturally accepted. Knowledge-sharing among African countries offers significant potential for scaling best practices and adapting innovations. While local nuances vary, many challenges, such as document scarcity, low digital literacy, and network limitations, are common across regions. Cross-border learning platforms, policy exchanges, and regional design hubs can accelerate the diffusion of effective onboarding frameworks. By pooling insights and resources, stakeholders can build interoperable systems and reduce redundancy in problem-solving.

Ultimately, onboarding must be reimagined as a transformative process, not merely one of data collection or compliance, but one that ushers users into full digital citizenship. It is a process of social inclusion, economic participation, and empowerment. When done well, onboarding is not just the start of a user journey; it is the foundation of a more inclusive digital future. This paper calls for intentional, inclusive, and collaborative action to realize that vision.

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