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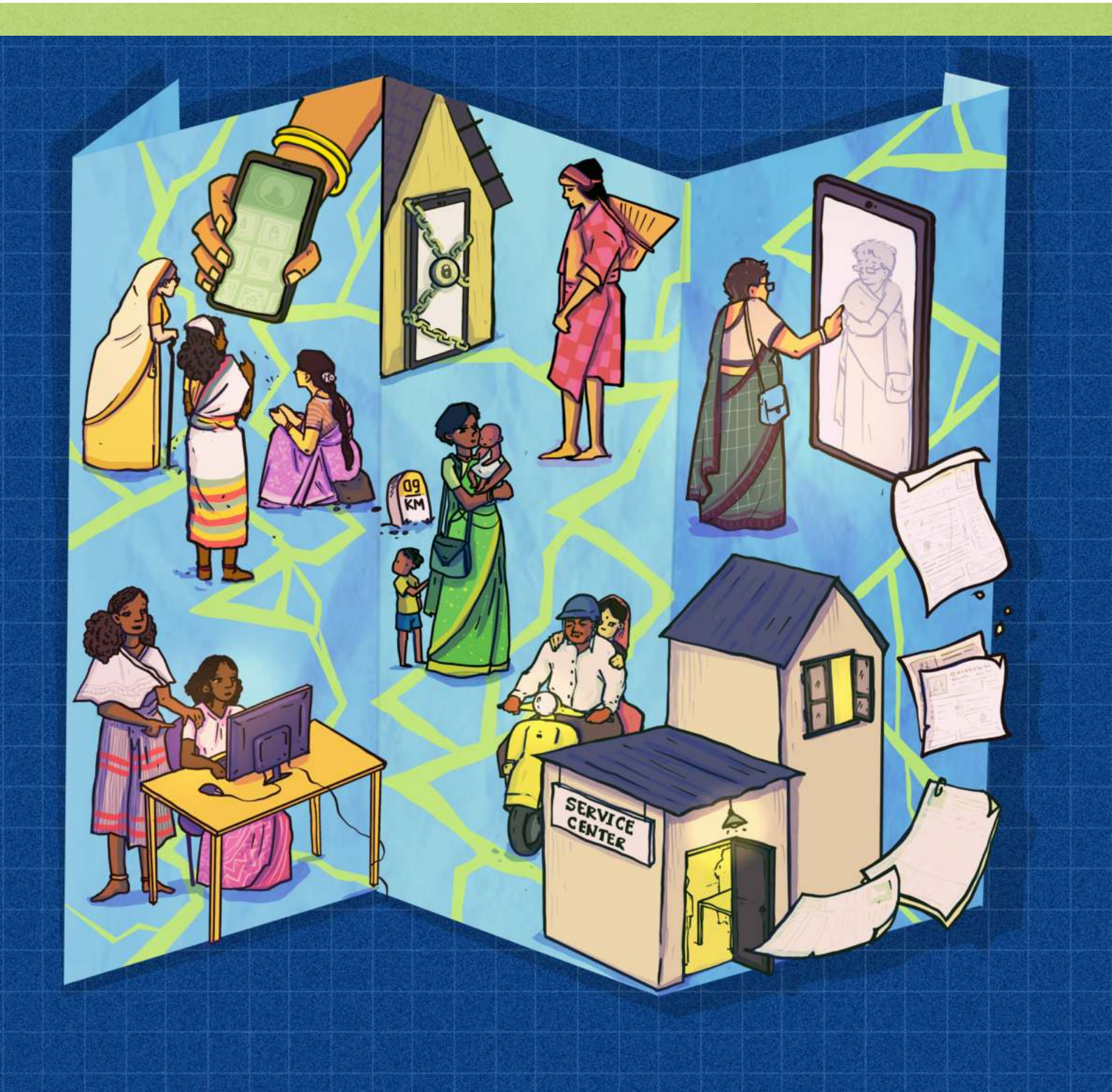
Building gender inclusive digital identity systems

Learnings from a multi-country study



This study has been produced by the **Aapti Institute**, and commissioned by the **Modular Open Source Identity Platform (MOSIP)** who have also provided tremendous input and feedback during this study.

Aapti is a public research institute that works on the intersection of technology and society. It examines ways in which people interact and negotiate with technology both offline and online.

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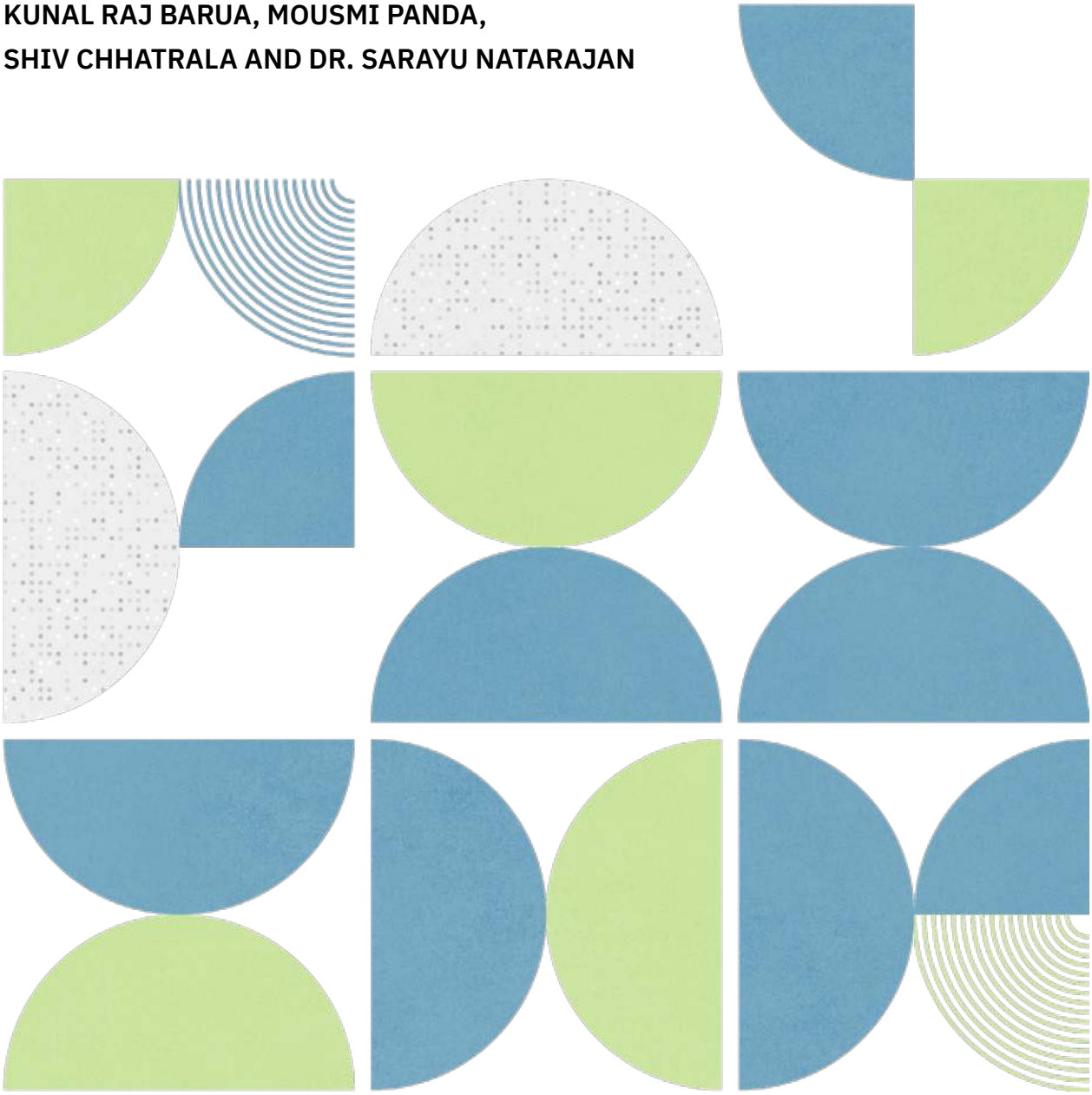

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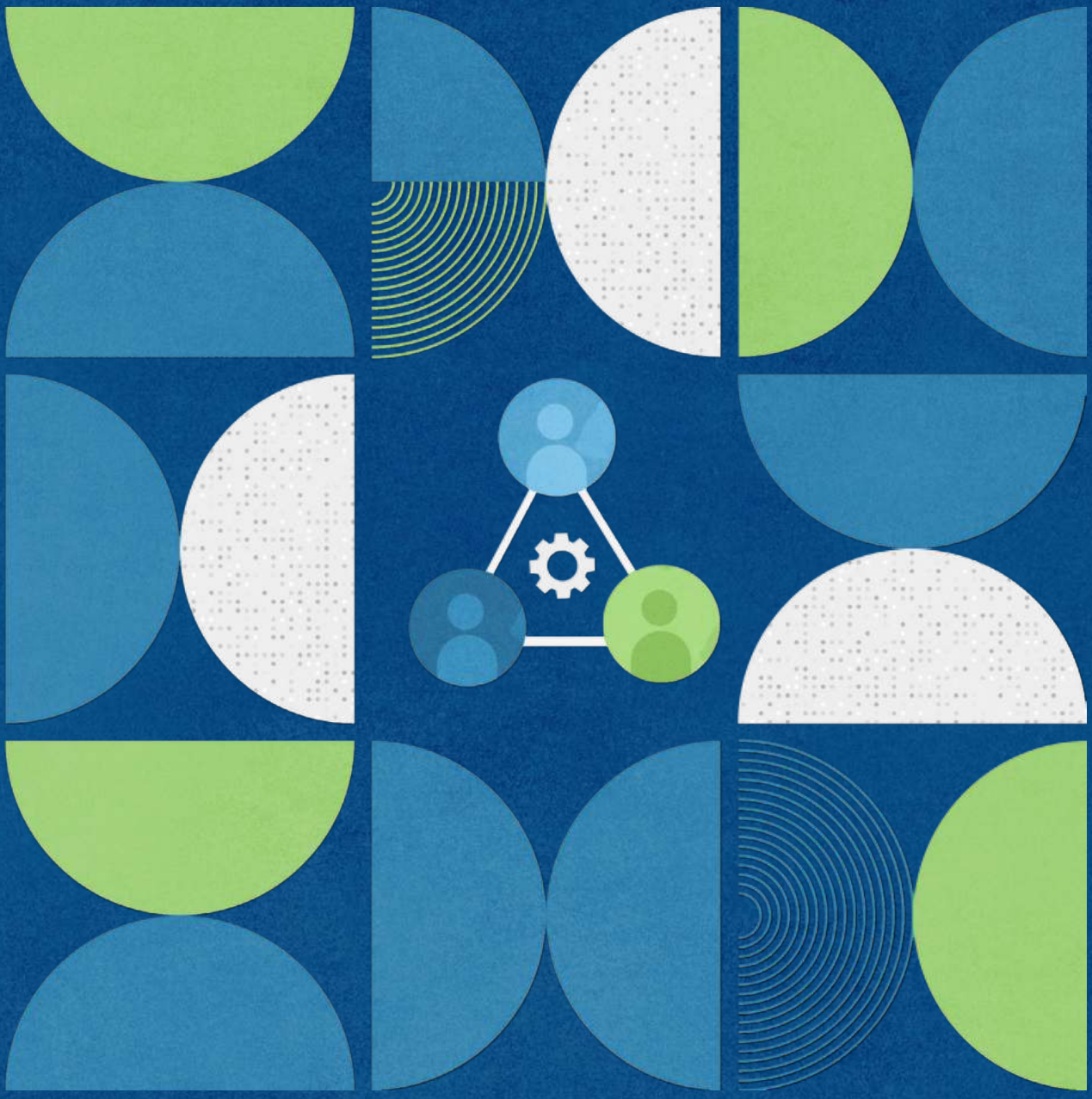

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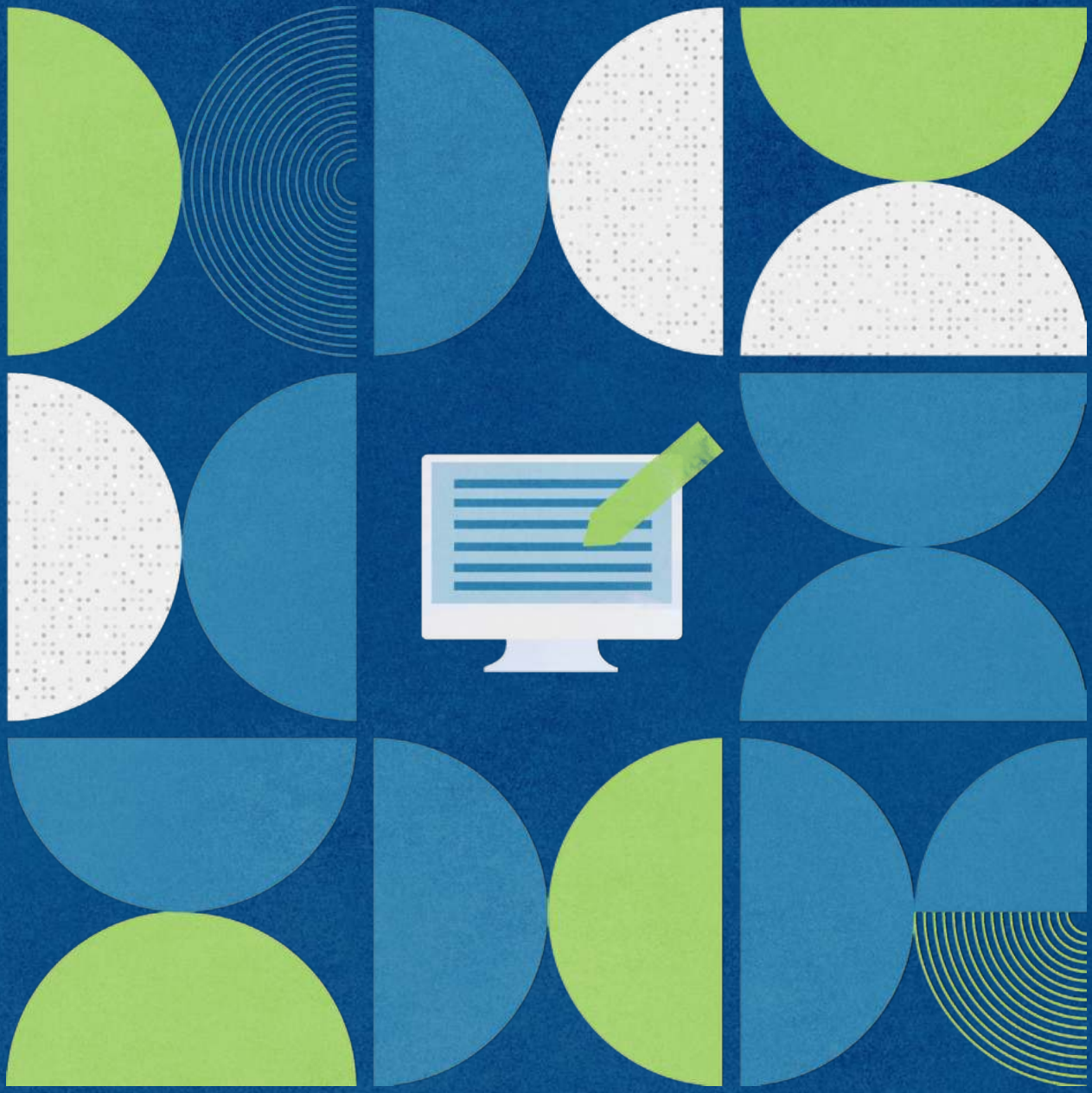
Executive Summary



Executive Summary

Context

As the world journeys into a new era of digitisation, digitised services and the digital public infrastructure (DPI) approach – digital IDs appear to be a cornerstone for how society interacts with its physical surroundings. To deepen this understanding, collating evidence around the interaction of specific population groups has become critical, especially for those who may have been historically marginalised. To understand its nuances, a research team from Aapti Institute undertook a deep exploration to identify how women in developing countries interact with their physical and digital surroundings, the modalities through which these interactions occur, and the experiences of these interactions. These perspectives have been collected to provide developers and deployers with potential pathways to strengthen gender inclusive design of digital ID systems.

Details around the study

The findings from the study have been articulated in various formats, the culmination of which have been consolidated in this report. The report starts by identifying the impact of digitised systems on women who continue to face challenges when interacting with such systems and builds the case to incorporate and embed gender inclusive practices within design processes. Drawing inferences from the non-technological interactions, this study focuses on observations made to understand women's awareness, access, and usage. The findings and recommendations inform how systems can be inclusively designed, and proffer recommendations at the design level of digital IDs and the infrastructure that surrounds them. Literature and observations from multiple countries, especially Ethiopia, the Philippines, and India were consolidated to improve the strength of the findings.

Critical assets to the study

To start, the report unpacks the complexity of identity and leverages this understanding to strengthen its observations and recommendations. While the scope of digital IDs, and the developers and deployers of such systems, might be limited, this report includes elements to improve the ecosystem's understanding around gender inclusion and gender inclusive practices. These elements include:

- The various types of stakeholders involved in digital ID and their roles (Asset 1);
- The notions of social, self-expressive, and legal identity (Chapter 3);
- The understanding of identity types, such as foundational or functional, or digital IDs and identity (Chapter 3);
- Deep dives that understand perspectives from various countries that develop and deploy digital ID systems (Asset 5)

Anchor points for the study

To arrive at key takeaways and inform system developers, the study focused itself on digital ID systems, primarily on women's interactions with its infrastructure, community, system, and interface. To understand how women interact with such systems, explorations were conducted at the deployment stage - once a digital ID system had been rolled out or was in the process of roll-out. By anchoring itself here, the study conceptualised an awareness, access, and usage (A2U) user journey, that identified specific sites of interaction and allowed for more pointed interventions to be framed. The study also leans on more user centric approaches such as gender intentional design, differentiating between adoption and inclusion, and developing an evolving understanding of such systems and how they can be built inclusively from their initiation.

Key findings

By leveraging the A2U framework, this study created detailed research tools (Annexure 3) to understand the depth and breadth

of women's interactions with digital IDs. These tools were used in the countries where primary research was conducted and during conversations with ecosystem experts. Explorations revealed that frictions often exist at three stages:

- ***Awareness*** | Women's understanding of digital ID systems and their operations while taking into consideration on-ground realities: Interactions revealed that there is an information barrier that impacts women's willingness and ability to interact with such systems. While this could continue across the journey, missing or outdated information, an absence of effective information channels, and missing supporting or enabling processes or entities often inhibited women from interacting with digital IDs. This study was conducted in developing countries with varied societal and cultural norms, dynamics with community and family members were also explored – revealing that the awareness and support provided by community members significantly impacted women's interaction. Finally, women's agency and decision making, or the lack thereof, can significantly impact women's enrolment, or awareness of digital IDs.
- ***Access*** | Women's ability, resource availability, and willingness to interact with the process, infrastructure, and people of systems to enrol, use, and update their digital IDs: Interactions revealed that women face often logistical constraints, such as travelling to centers, missing, outdated, or inhospitable centers in convenient locations, and improperly designed hardware or software. Under resource constraints, interactions revealed that women often lack personal devices to access portals and have missing last mile intermediaries to facilitate access. Under normative constraints, interactions revealed that systems and infrastructure were designed keeping androcentric dynamics in mind – where information around credentials, access management and limitation, and missing isolated information channels significantly impacted women's ability to access digital IDs.
- ***Usage*** | The presence of enablers and women's ability to use their digital IDs to access services or prove their identity: Personal device ownership or access to digital centers was a primary challenge identified when women interact with digital IDs or the digital ecosystem created to improve service access.

Reasons for this ranged from missing infrastructure to high costs of digital device ownership. The absence of grievance redressal channels or hotlines further contributes to women's disengagement with digitised systems. In the absence of supportive and protective policies, such channels are often the only point of information. User facing portals or platforms was another challenge for women, due to lower literacy rates or non-inclusive design solutions. Such decisions often occur due to gender-blind design notions or the lack of representation in meaningful positions of such systems. This lack of representation was also observed across various levels, including operators of registration and service centers. While women's usage of digital IDs is often impacted by such factors, the presence of on-ground realities such as the role of community, are often significant and can greatly impact how women interact with digitised systems.

While identifying the areas where such challenges occur, the study also highlighted several enablers such as intermediary support, operator support, gender-specific centre design, and the presence of community champions, to name a few. Chapter 5 of this report dives into the nuances of both the barriers and enablers present during a woman's digital ID journey.

Pathways to address challenges

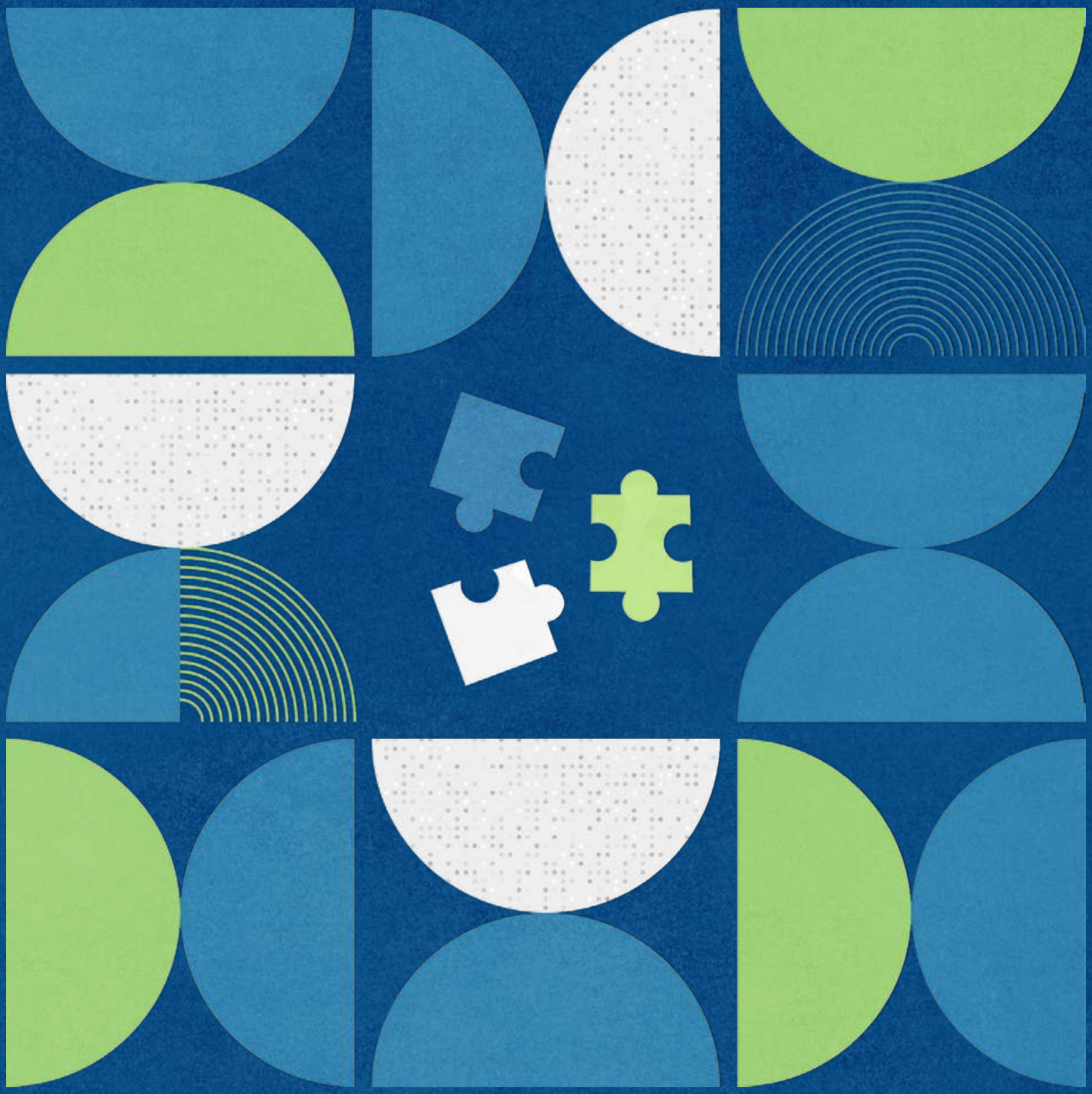
Pathways to address such challenges were presented in two distinct formats. (i) A repository of global practices that either partially or wholly address identified challenges (link for inclusion tool). (ii) A set of recommendations for system developers and deployers (Chapter 6).

The recommendations proffered within this report range from focussing and articulating the scope of digital IDs, prioritising user first or gender-intentional design and protection measures, strengthening feedback and information channels, building alternative pathways for access, recognition and empowerment of intermediaries, and repurposing existing infrastructure and social channels and dynamics. To address some of the challenges, developers and deployers are also recommended to inform and strengthen policy and digital ecosystem reform and to plan

resources for gender-intentional and inclusive measures from the design stage.

While digital ID systems continue to be deployed globally, this study takes a comprehensive view of the status of such systems. The inclusion tool and design considerations provided will be continuously evolved – to further reduce newer challenges or to include more marginalised population groups. A 'community of practice' (COP) was created to inform such system developers and deployers about how to strengthen their approaches and measures. This COP is complemented by a repository that houses relevant material and insights from convenings to help drive inclusive change over the long term.

Navigating this report



Navigating this report

This report has been structured as follows:

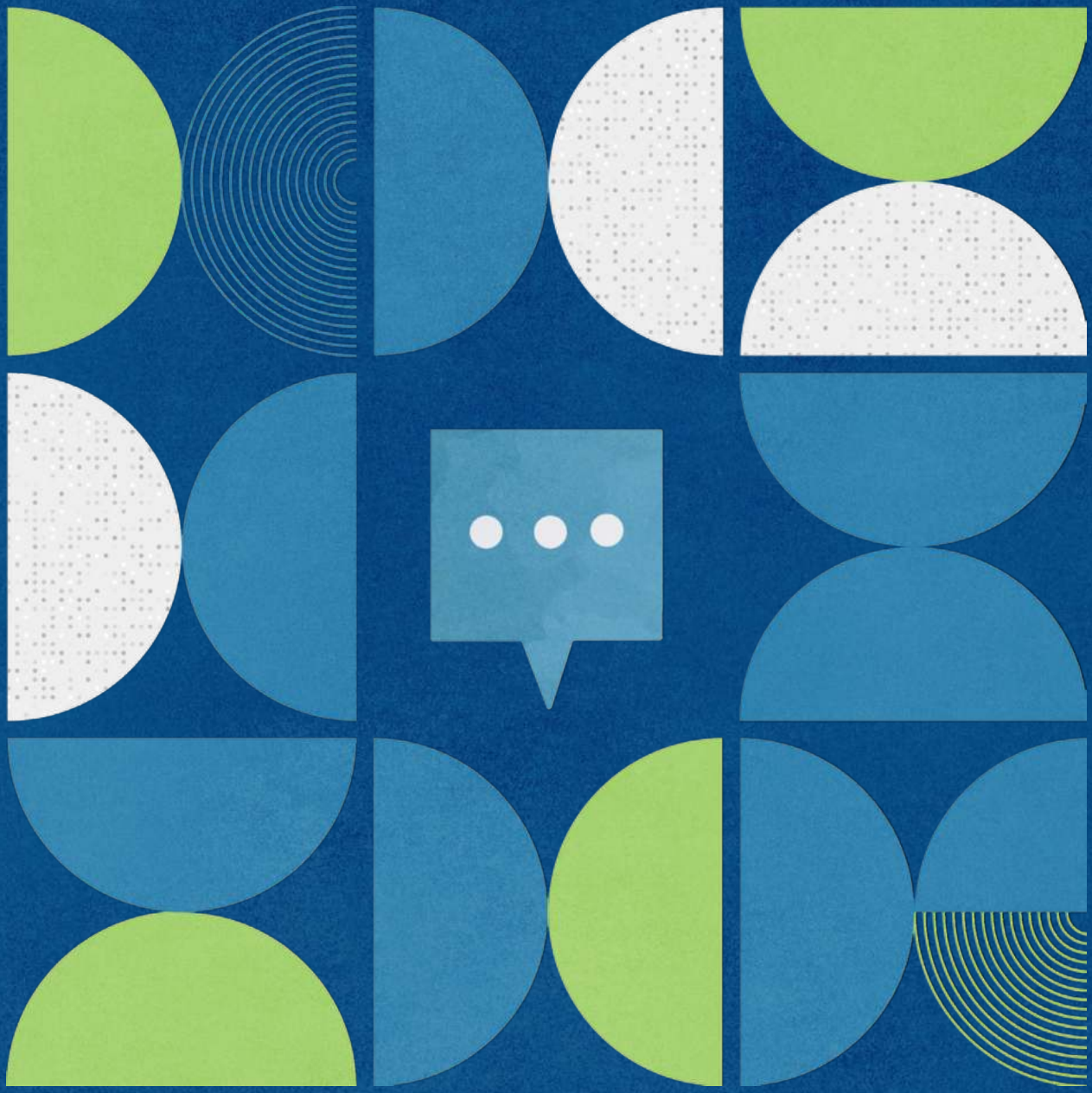
- **Part 1 | Introduction:** This section details the context, frames the problem statement used by the study, and explains the rationale and need for this study. It also introduces key nuances of digital systems that help the study to build its understanding of this ecosystem and describes the anchor points used to ground the study.
- **Part 2 | Ecosystem Deep Dive:** This section consolidates concepts around identity, identification, and identity documents that ultimately help frame the various recommendations of this study. This section also contains considerations for ecosystem actors to embed into system design when building complex systems.
- **Part 3 | Learnings:** This section details the Awareness, Access, and Usage framework developed by this study. This framework is then leveraged to identify the challenges faced by women during their ID interactions, and some enablers put in place by ecosystem actors. This section details the recommendations for ID developers and deployers to strengthen gender inclusivity within their systems.
- **Part 4 | Key elements and building blocks:** This section contains five building blocks (labelled as Assets) that emerged during the study. These assets vary in nature and fulfil different purposes.
    - **Asset 1 | Stakeholder types:** A classification of the types of stakeholders that were identified during this study.
    - **Asset 2 | Pathways for other ecosystem actors:** This study recommends a holistic and collaborative approach to strengthen gender inclusion in digital ID systems. To this end, this asset contains suggested pathways for other ecosystem actors, like intermediaries and users, to participate and inform digital ID developers and deployers.

- **Asset 3 | Primer for the Gender Inclusion Tool:** Presents the context, rationale, and value of the Gender Inclusion Tool created as part of this study. The Gender Inclusion tool can be found on 'The Inclusion Hub' website (QR code can be found in Asset 4), which is also a repository for ecosystem research in similar spaces. It is built for ID developers and deployers as a self-assessment questionnaire, to identify areas of potential exclusion, understand their implications, and find global practices to address systemic challenges.
- **Asset 4 | The Community of Practice (CoP):** To gain meaningful insights from typically underrepresented voices, this team initiated a CoP to convene community-based entities, non-governmental organisations, and other researchers. This forum allowed stakeholders to bring forth learnings, insights, and perspectives that can inform and strengthen digital ID systems. This asset details the context, implementation, and road ahead for this CoP. For more information on this initiative, readers may view this page on 'The Inclusion Hub' website.
- **Asset 5 | Country observations:** This study conducted primary research in Ethiopia, Philippines, and India to understand the perspectives of women users (registrants) when interacting with their digital ID systems. This asset details the context (landscape), observed practices mapped to the Awareness, Access and Usage (A2U) framework, and other similar nuances that were leveraged to conduct the analysis and frame recommendations for this study.

- **Part 5 | Methodology:** This section details the methodology used by this study to arrive at its findings. This section also notes the limitations of the study and suggests further areas of exploration for other researchers and ecosystem actors.

PART 1

Introduction



PART 1

Introduction

A foundational layer for citizens and state alike, digital IDs have seen significant global adoption. While digital IDs and digital critical infrastructure possess both extensive scope and a growing user base, the potential of digital IDs should not overshadow the potential impact that it can have on people. Thus, a critical examination of its development and deployment is crucial. This section elucidates the need for such a study and tries to capture the ever-evolving elements within the ecosystem of digital IDs. It argues the case for incorporating gender-inclusive design and thinking when building such systems. It finally sheds light on the rationale used by the study to arrive at its findings.

CHAPTER 1 | Unpacking the study

The chapter provides context to this study and sheds light on the domain of digital IDs and the evolution of digitised service provision. This introductory chapter considers the potential of digitally transformative systems whilst exploring the myriad implications of poorly designed systems.

Context of the study

Emerging digital pathways present opportunities to address exclusions and societal harms, driving towards more equitable ecosystems. In addition to building population-scale technology, governments, developers, and other stakeholders are working collaboratively to address existing challenges faced by society in a holistic manner. To truly leverage the potential of transformative systems, digital systems should serve as an enabling mechanism—to address gender exclusion and systemic disenfranchisement, and become a tool for empowerment.

Leading up to 2020, the adoption of digital and transformative technologies was seen to be rising. However, the onset of the COVID-19 pandemic accelerated the adoption and development of these digital systems.[1] This same study estimated that adoption of these systems may have been expedited by nearly 10 years in developed Asian countries due to the increased reliance on digital communication channels and offerings.

This shift strengthened the case for an increase in the development of digitised public systems, and warranted improvement in the access mechanisms of these systems. With such unprecedented growth and potential, responsible governance of these systems should not be overlooked.

Unpacking digitised service provision

Digital systems have immense potential. However, various challenges emerge when interacting with complex digital systems. The creation of a digitised ecosystem to access public or private services has a disproportionate impact on women users. While digital systems display system-sided harms, the following factors that play a role in digital adoption should also be considered when building such systems.

- Low levels of digital literacy and inability to strengthen digital skills[2]
- Affordability around devices, data, and network[3]
- Lack of relevant documentation and pre-existing identities[4]
- Presence of gendered social norms[5]

Research revealed notable gaps, not just limiting universal acceptance and adoption, but also giving rise to negative perceptions. Countries with comparable levels of digital ID adoption reported a certain level of enablement but remained uncertain about its potential.[6] This led to an increase in adoption time, siloed or ineffective usage of such systems, and a de-prioritisation of governance principles.

[1] LaBerge, L., O'Toole, C., Schneider, J., & Smaje, K. (2020, October 5). *How COVID-19 has pushed companies over the technology tipping point—and transformed business forever.* McKinsey & Company.
[2] Mandry, A. (2023, July 14). *The Digital world: What about girls?* Www.unicef.org; UNICEF East Asia and Pacific.
[3] Klingen, N., Hammond, A., & Srinivasan, S. (2021, December 1). *Putting women and girls at the center of digital development.* World Bank Blogs; World Bank Group.
[4] Ibid.
[5] Highet, C., Salman, A., & Singh, N. (2020, December 15). *The Digital gender divide won't close by itself – Here's why.* Www.cgap.org; CGAP.
[6] McKinsey. (2019, April 17). *Digital ID: A key to inclusive growth | McKinsey.* McKinsey & Company. Retrieved April 30, 2024.

Global movements around Digital Public Infrastructure (DPI)

Digital Public Infrastructures (DPI),[7] to serve citizens, and create connections between citizens and the state, is seeing widespread adoption. Examples of such infrastructure typically include ID systems,[8] payment structures,[9] or data exchange systems.[10] Several countries have deployed DPI and similar digitised ecosystems.

DPIs typically facilitate access to essential services. While technology innovation for such infrastructure has been the priority for various countries, incorporation of governance principles and innovative solutions to strengthen governance mechanisms have only recently become a priority.[11] Aapti's research indicates significant gaps in the incorporation of governance principles in DPIs. It also identifies the crucial need for global standards in building more resilient digital economies.[12] In addition to Aapti's own governance framework, various attempts by key ecosystem actors signify the need to build inclusive systems. For example:

- The UNDP DPI Safeguards Initiative posits that development of DPIs should ensure inclusion of all people.[13]
- Centre for Digital Public Infrastructure proposes 'diverse, inclusive innovation' as one of its five key principles.[14]

The research concluded that the creation and operationalisation of system-specific governance principles around inclusion is critical.

Unpacking the context of digital ID

Service provision based on digitisation of identity has seen increasing adoption globally and has the potential to overcome existing biases and divisions.[15] Digital IDs have been theoretically identified as means to improve efficiency of service provision for citizens and state actors.[16] They allow universal access, strengthen interoperability with existing systems, improve citizen participation, and often help reduce invisible costs emerging from such service provision.[17] As a result, countries are expediting their digitisation journeys to help alleviate people economically and socio-politically.[18] Driven by 16.9[19] and 5.B[20] of the Sustainable Development Goals (SDGs), member states are also working

[7] Long, C. (2021, October 26). *Digital public infrastructure, platforms and public finance.* ODI. Retrieved April 30, 2024.
[8] World Bank. (2019, August 14). *Inclusive and trusted digital ID can unlock opportunities for the world's most vulnerable.* World Bank. Retrieved April 30, 2024.
[9] World Bank. (n.d.). *UPI: Unified Payments Interface—Instant mobile payments.* NPCI. Retrieved April 30, 2024.
[10] (2019, August 14). *Inclusive and trusted digital ID can unlock opportunities for the world's most vulnerable.* World Bank. Retrieved April 30, 2024.
[11] Chakravorti, B. (2023, May 22). *The case for investing in digital public infrastructure.* Business and Society; Harvard Business Review.
[12] Airan, A., Hodigere, S., Sridharan, S., & Natarajan, S. (2024, June 15). *The governance of digital public infrastructure.* In *Aapti Institute.* Aapti Institute.
[13] Office of the United Nations Secretary-General's Envoy on Technology (OSET), UNDP. (2024, April). *Leveraging DPI for safe and inclusive societies: Interim report April 2024.*
[14] Centre for Digital Public Infrastructure. (2024, June 18). *Is my system a DPI?* Cdpi.dev.
[15] White, O., Madgavkar, A., Manyika, J., Mahajan, D., Bughin, J., McCarthy, M., & Sperling, O. (2019, April 17). *Digital ID: A key to inclusive growth.* McKinsey.
[16] Ibid.
[17] Parekh, N. (2020, October 6). *Digital IDs: The good, the bad, and the unknown.* The Abdul Latif Jameel Poverty Action Lab (J-PAL).
[18] Singh, K. (2023, August 16). *Digital IDs are an effective tool against poverty: A global solution is making them available to millions.* Bill & Melinda Gates Foundation.
[19] United Nations. (2023b). *Peace, justice and strong institutions.* United Nations Sustainable Development.
[20] United Nations. (2023). *Gender equality and women's empowerment.* United Nations Sustainable Development Goals; United Nations.

towards including and digitally empowering women; providing underserved population groups with legal identities. Ecosystem efforts also indicate that countries are prioritising effective citizen engagement through creation of digital infrastructure, robust policies, and active communication channels.[21]

Development and deployment of digital IDs are critical components of the larger DPI movement.[22] Effective implementation of digital ID systems have seen some benefits for countries with more mature systems.[23] In some cases, digital ID systems have made access to welfare, healthcare, financial services, and societal schemes easier—reducing costs and efforts for citizens, operators, and the state alike.[24]

With accelerated technology deployment, digital ID systems are envisioned as the building blocks of digitally-powered economies.[25] However, improperly deployed digital systems could result in new forms of exclusion, amplification of existing societal constraints, or unforeseeable impact. While the benefits of such systems might be more visible,[26] the potential harms, risks, and concerns should also be identified and addressed to build more resilient systems.[27] Limitations and their redressal to address real world implications should be key considerations that drive such development. They must be shared with other stakeholders to foster collective growth for digital ID developers globally.

Need for this study

Discourse around digital IDs materialises from various sources. Some of the key points emerging from this discourse state that the adoption of digital IDs typically causes an erosion of privacy, the misuse and under-protection of personal data, and the exclusion of specific population groups. Various studies highlight the disproportionate impact on women, hindering their ability to avail opportunities or basic services, or participate within communities and countries.[28] Historically, women and other underserved groups have been excluded from various realms of society.[29] Omission of such perspectives and experiences could lead to further marginalisation or exclusion. Over time, such marginalisation could impact various developmental goals—economic and social in nature.

[21] Tives Leão, H. A. & Canedo, E. D. (2018). Best practices and methodologies to promote the digitization of public services citizen-driven: A systematic literature review. *Information, 9*(8), 197.

[22] Bandura, R., McLean, M., & Girgvliani, S. (2024, March 12). *Advancing digital transformation and digital public infrastructure: The role of the private sector.* CSIS. Retrieved April 16, 2024.

[23] McKinsey. (2019, April 17). *Digital ID: A key to inclusive growth.* McKinsey. Retrieved April 30, 2024.

[24] McKinsey. (2020, August 31). *How governments can deliver on the promise of digital ID.* McKinsey. Retrieved April 26, 2024.

[25] Centre for Digital Public Infrastructure. (2024, June 5). *How to convert an existing ID to a Digital ID.* Centre for Digital Public Infrastructure.

[26] Muralidharan, K., Niehaus, P., & Sukhtankar, S. (2020, February 16). Evaluating the Aadhaar-PDS link. *Hindustan Times.* Retrieved April 29, 2024.

[27] Immigrant Defense Project. (n.d.). *Understanding the risks of digital IDs: Community FAQs.* Immigrant Defense Project. Retrieved April 29, 2024.

[28] McKinsey. (2019, April 17). *Digital ID: A key to inclusive growth.* McKinsey. Retrieved April 30, 2024.

[29] OECD. (2018). *Bridging the digital gender divide, 2018.* OECD.

This study makes a case around building inclusive systems that uphold the principles of inclusive and equitable governance. This includes visibilising often under-represented perspectives of a section of users of these systems.

In some cases, digital systems display signs of exclusionary practices, violation of human and data rights, exacerbation of societal norms, and leading to further widening of the digital divide resulting from income inequalities.[30] Given this scenario, it would be remiss to build such systems without meaningful protections, guardrails, and safeguards for its users.

Globally, digital ID systems help build interoperable digital ecosystems and have the potential to unlock economic opportunities for all.[31] While the success of such systems are often displayed through gains in efficiency, and improvements in access and adoption metrics, instances and possibilities of exclusion must be studied to evaluate and strengthen existing systems.

The evolution of this study

To unpack the ever-evolving ecosystem, the team focussed its efforts on understanding the context of digital ID systems, motivations behind deployment of such systems, intended and unintended implications of digital ID deployment, and potential ways in which key stakeholders may intentionally strengthen gender inclusivity.

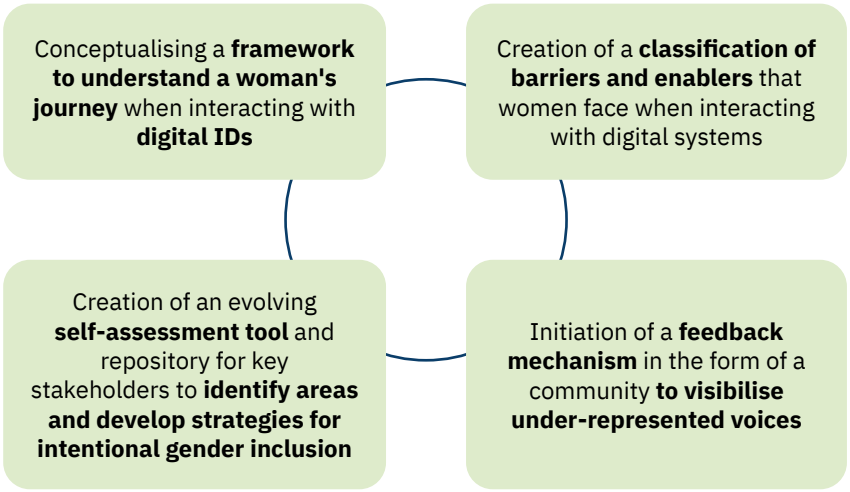


Figure 1. The intended flow and insight generation mechanism for this study

[30] Mukherjee, E., Mazar, O., Aggarawal, R. & Kumar, R. (2016). *Exclusion from digital infrastructure and access.* Digital Empowerment Foundation. Retrieved April 30, 2024.

[31] McKinsey. (2019, April 17). *Digital ID: A key to inclusive growth.* McKinsey. Retrieved April 30, 2024.

- The study conceptualised an **Awareness, Access, and Usage (A2U henceforth) framework** to unpack the envisioned digital ID journey for women based on findings from its multi-country exploration.
- It created a comprehensive guide to articulate the various barriers and enablers and highlight the nuances of women's interactions with digital ID systems.
- The team initiated a 'Community of Practice' (CoP) initiative that convenes key community-based entities and researchers to bring in context-specific nuances and serve as a reflexive feedback mechanism.
- Finally, this study created a self-assessment tool and repository for digital ID developers and deployers with relevant information around the need for gender inclusivity in digital IDs.

These efforts hope to consolidate evidence and perspectives to frame the strategic interventions required to strengthen gender-inclusive design in systems.

CHAPTER 2 | Rationalising the anchor points for the study

This chapter introduces and details the anchor points used to frame this study. By unpacking these anchor points, the study can focus its analysis and allow more nuance in the recommendations. implications of poorly designed systems.

Introducing the anchor points for this study

The following anchor points are used to frame this study:

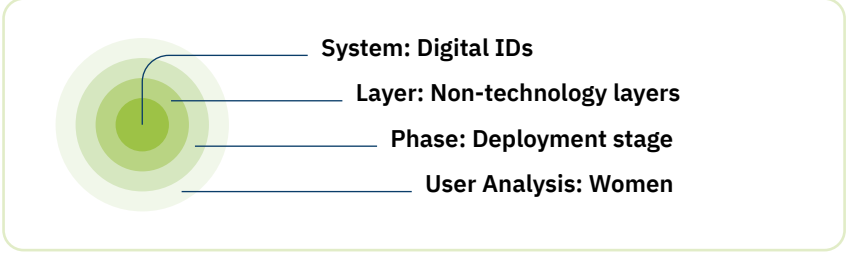


Figure 2. Anchor points for this study

- This study analyses **Digital ID systems** that are typically deployed at the population scale.
- Digital ID systems are made up of technological layers and non-technological layers that determine how humans interact with such systems. This study **focuses on the non-technological layers of digital ID systems** and uses these learnings to provide recommendations that hope to influence thinking and design of digital ID systems.
- The study emphasises the need for gender-inclusive thinking and design when developing and deploying digital ID systems. The focus here is on the **deployment phase.**
- The study focuses on **women's interactions with digital ID systems** and **infrastructure** as the primary stakeholder.

2.1 The tech and non-tech layers

Given the widespread adoption of digital IDs,[32] and the significant impact such critical and paradigm-shifting systems can have on people's lives, careful consideration is required on both technological and non-technological layers.[33]

This categorisation was inspired by Omidyar Network India's work on 'Open Digital Ecosystems',[34] where non-tech layers consist of a digital system's governance and community. This study further encompasses other elements of the system, such as existing infrastructure and interaction modalities. For this, the study gathered evidence on the 'non-technology' layers of digital ID systems via interactions with users, operators, and deployers.

This work also builds on Aapti's previous work on 'Last Mile Access', where analysis indicated that state-mediated services and governance can be bolstered through offline intermediaries.[35] Building on this work, the study focuses on the components of inclusivity and access to digital services for users.

Figure 3. Unpacking both layers of critical digital systems

[32] Thales Group. (n.d.). *Top 5 digital ID trends shaping 2023 (and benefits).* Thales. Retrieved April 26, 2024.

[33] Chakraborty, S., Bijapurkar, A., Garg, A., & Bansal, S. (2021, November 10). *Building India's digital highways: The potential of open digital ecosystems (odes).* BCG Global

[34] Omidyar Network India. (2022). *Open Digital Ecosystems (ODEs): Investment Strategy.* Omidyar Network India.

[35] Sharma, L., Natarajan, S., & Udhayakumar, K. (2021). *Last mile access to urban governance.* Aapti Institute.

2.2 The deployment of digital IDs

Figure 4. The life cycle of a digital system

The life cycle of digital systems can be broken down into ideation, development, deployment, and sustainability. Aapti's previous research highlighted that efforts are primarily focused on ideation, development, and deployment of such critical digital infrastructure. However, this study aims to draw attention of relevant actors to effective deployment, and in some cases, to the sustainability of these systems. To this end, countries should intentionally prioritise the inclusivity of its citizens, especially those that have been marginalised historically. This study focuses on the deployment stage of digital identities, collecting and consolidating user-based experiences and perspectives.

2.3 Adopting a gender first approach

Gender inclusion requires a structural shift, beginning with the thinking, approach, and design embedded within these systems. While the narrative[36] to include women and improve their participation is gaining momentum globally,[37] efforts remain siloed and fragmented. Ecosystem research provides examples that shed light on key issues[38] but are often difficult to discover and implement holistically.

When accessing and using digital ID systems, women continue to face several barriers due to their strained relationship with digital technologies.[39] On the ground, women face challenges in accessing infrastructure, asserting their ownership of resources, and decision making,[40] to name a few. These challenges are often amplified due to the socio-normative landscape. This often results in limited participation of women within their communities, inability to access and exclusion from public services, and significant economic and non-economic costs when interacting with digital systems.

[36] Women's World Banking. (2023, July). *Making digital public infrastructure work for women.* Women's World Banking. Retrieved April 16, 2024.

[37] Women in Identity. (2020, March 9). *Why women in identity.* Women In Identity. Retrieved April 16, 2024.

[38] Bailur, S., Schoemaker, E. & Caribou Digital. (2022, January). *The human impact of identity exclusion: ID and access to financial services.* Women in Identity, Silkstart. Retrieved April 16, 2024.

[39] Tyers-Chowdhury, A., & Binder. G. (2022, October 6). *What we know about the gender digital divide for girls: A literature review.* UNICEF.

[40] Learnings from Aapti primary research, 2023

Poorly translated implementation strategies often create invisible costs, reduce transparency around processes, potentially erode privacy, and further the digital divide.[41] Additional challenges emerge when hardware, like biometric devices, and software, like registration portals, don't function as intended - these challenges have been documented in Chapter 5 of this report. Such impediments can create significant time and resource burdens on women users by adding additional or repetitive steps for registration.

Information asymmetry and the lack of alternate mechanisms create further hindrances that disincentivise women from accessing such systems over time. Accompanied by a lack of community understanding often results in limited information dissemination. Thus, even with developers prioritising inclusion of women, lack of data protection and safeguards inherently reduce trust in systems.[42]

In cases where piecemeal strategies are put in place to address gender inclusion, newer challenges emerge when service provision is digitised. In some cases, these may amplify existing challenges. While policies address concerns around citizenship and human rights, the presence of regulatory frameworks often do not consider the interests of women users specifically.

In the current global environment, gender-inclusive thinking and design is vital to empowering both citizens and the state. A gender inclusive approach allows countries to gain tremendous opportunities and the ability to strengthen economies.[43] The advantages of gender-inclusive design and deployment are limitless. They enable stronger workforce participation of women, more efficient value chains, diversification of workspaces, reduced education costs, improved access to public knowledge, holistic growth and development, and modernisation of traditional societal structures.

Thus, this study aims to understand 'Human-Technology Interaction' (HTI), specifically between women and digital ID systems. The goal of this study is to ensure that gender-inclusive thinking and design of critical digital infrastructure leads to holistic growth at the community and country level.

[41] Learnings from Aapti primary research, 2023

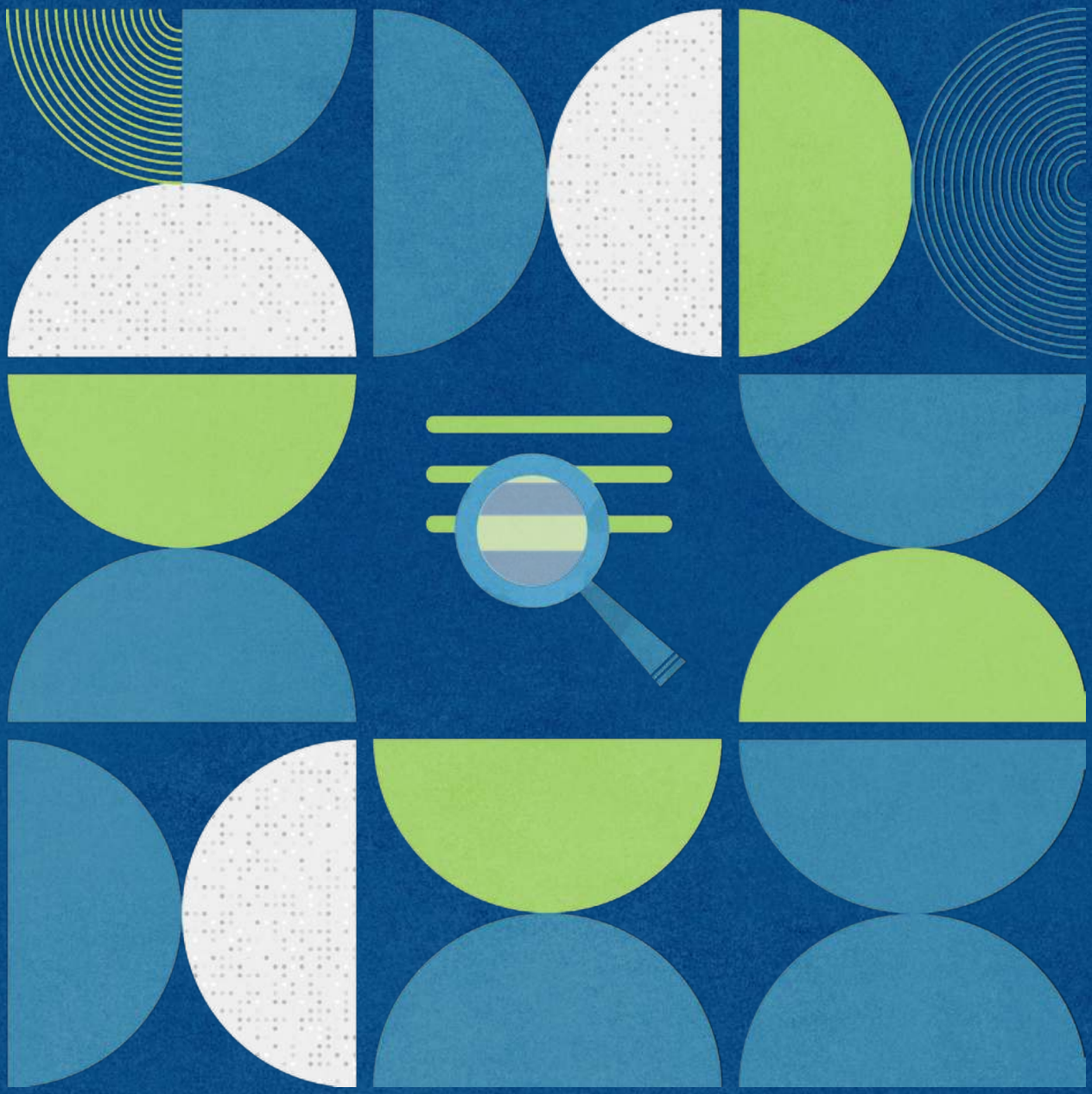
[42] Identification for Development, ID4D. (2019). *ID Enrollment Strategies: Practical Lessons from Around the Globe.* World Bank Document. Retrieved April 30, 2024.

[43] Squicciarini, M. (2018). Bridging the digital gender divide: Include, upskill, innovate - Key findings. OECD. Retrieved April 16, 2024.

Figure 5. Observations from the field visits

PART 2

Deep dive into the identity ecosystem



PART 2

Deep dive into the identity ecosystem

This section aims to understand the various elements of identity and identity systems. It brings together various ways of thinking that not only inform this study, but also allow for a more comprehensive understanding. This section builds an understanding of the complexities within identity systems, explores motivations on how to build systems for users, and sheds light on crucial approaches that inform this study's analysis.

CHAPTER 3 | Unpacking the key elements of identity

To unpack this ecosystem, the chapter delves into the various ways identity can be understood. It consolidates information that allows for a more meaningful analysis of the concept of identity, the various ways in which identity manifests, and attempts to unify the vocabulary for better ecosystem understanding.

3.1 Identity

Identity encompasses the self-expression of individuals and members of social groups, perception by external actors, categorisation into demographic and population groups, and a combination of various societal norms and legal perceptions.[44] At its core, identity is dynamic in nature and may evolve over time through interactions with others and evolution of one's own identity.

[44] Facing History & Ourselves. (2021, July 14). *What Is identity? Exploring the concept of identity.* Facing History. Retrieved April 17, 2024.

The concepts of identity, detailed below, have been analysed to find a balance between the various ways in which people interact with their communities and countries. This analysis has been layered into delineating the various challenges that women face when interacting with digital ID systems, and the recommendations provided for stakeholders developing and managing such systems. This study acknowledges that digital IDs are primarily viewed as legal identities that allow access to services.

The dimensions of identity

The concept of identity is broad, and its understanding for the purpose of this study is critical. Even though the word is used ordinarily in our daily lives, it becomes essential to understand more comprehensively the varied meanings and dimensions of identity.[45]

Cultural paradigms help us understand how an identity forms and the various ways this concept manifests itself. Identity involves connecting with one's own culture and reflecting on how to live in a specific socio-cultural setting.[46] Identity has many dimensions—class, status, job, style, or symbolic meaning. This study analyses this concept using a few different lenses.

To understand its nuances, the team explored the ways in which identity can be articulated, centering its focus on social identity, self-expression, and legal identity. While the following paragraph dives into unpacking these identity types, the research indicated that the relationship for women specifically was based on the socio-normative context, the willingness and ability to express identity, and the presence of barriers and enablers in place. For example, a woman's ability to obtain legal identity, could be impacted by the relevance of the system, the inclusive measures in place, and the presence of enabling policies. The study used ethnographic observations to understand the experiences of women in relation to these concepts and have been articulated in Chapter 5 of this report.

Social identity

Social identity refers to an individual's awareness of their membership in various social groups and the emotional and value-

[45] Vignoles, V.L., Schwartz, S.J., Luyckx, K. (2011). Introduction: Toward an integrative view of identity. In S. Schwartz, K.Luyckx & V. Vignoles (Eds.) *Handbook of identity theory and research.* Springer, New York, NY.

[46] Golubović, Z. (2009). Philosophical principles as a foundation of the concept of globalisation. *Synthesis Philosophica,* 47(1), 19–33.

based significance associated with that group affiliation.[47] It encompasses the part of an individual's self-concept that is shaped by group memberships.[48] People use social identities as labels to categorise themselves and others based on specific characteristics, such as ethnicity, race, religion, gender, sexual orientation, nationality, relationship status, profession, and socio-economic status.[49] Social identity in the era of online communities and social media has taken on a new dimension and the digital realm provides an opportunity to express, and therefore explore different social identities.

Self-expression or individual identity

Even while being members of social groups, individuals retain agency over defining themselves; a concept known as *individual or personal identity.* Within the broader concept of identity, *personal identity*[50] refers to the unique ways individuals define themselves. It is a distinct and personal expression of who someone is.[51]

A person's identity of self is just as important as their social identity.[52] Historically, the concept of identity and representation has been debated through interpretations of various sociological ideologies. In his research, Rustin lays out the importance of being able to define both one's social and individual identity.[53] On a separate note, the concept of self-identity can often feel externally controlled in this technology-fuelled era.[54]

The study leverages the ongoing debate to make recommendations, bearing in mind the complexity of individual and collective identity.

Legal identity

Personal identity encompasses all the elements that individuals believe, contribute to making them who they are, reflecting their agency in defining themselves within and between social groups. When an individual is being recognised by the law or government, it forms their *legal identity.*[55] "Legal" adds a specific and official aspect to the idea of identity—being recognised by the government and other communities formally.

[47] Ellemers, N. (n.d.). *Social identity theory: Definition, history, examples, & facts.* Britannica. Retrieved April 30, 2024.
[48] Vinney, C., & Hopper, E. (2019, July 21). *Social identity theory: Definition, examples, impact.* ThoughtCo. Retrieved April 30, 2024.
[49] Center for Creative Leadership. (2024, July 7). *Understand social identity to lead in a changing world.* Center for Creative Leadership.
[50] Facing History & Ourselves. (2021, July 14). *What Is Identity? | Exploring the Concept of Identity.* Facing History. Retrieved April 17, 2024.
[51] Calisaan, B. (2023, December 1). *Personal identity: Definition, aspects, & perspectives.* UpJourney. Retrieved April 17, 2024.
[52] codetoday. (2023, October 23). *Self-expression & digital expression: What is it and why is it important?* Codetoday.
[53] Rustin, M. (2023). Identity or identification? Why the difference between these concepts matters. *The Psychoanalytic Quarterly,* 92(3), 435–461.
[54] Liouane, K. (2023, December 20). *The Illusion of self in the digital age: Unraveling our multiple identities.* Medium.
[55] United Nations. (n.d.). *Home—UN legal identity agenda.* UN Statistics Division. Retrieved April 17, 2024.

Legal identity of people is recognised through birth certificates, civil registry, person IDs, and other official records. However, identity is much more than having an official ID card or document. It provides a convergence between personal identity and how the state recognises an individual, unlocking a plethora of rights and opportunities for an individual.[56] Therefore, the legal identity of an individual, established through various functional and foundational documents, should not negate their social and personal identity. Instead, it should support and facilitate these identities by considering the exclusions caused by policy blindness towards certain identities.

The existing international legal instrument does not have a concrete definition of legal identity and uses an operational definition. The United Nations legal identity group defines it as the basic characteristics of an individual's identity—e.g., name, sex, place and date of birth conferred through registration and the issuance of a certificate by an authorised civil registration authority following the occurrence of birth. It states that in the absence of birth registration, legal identity may be conferred by a legally recognised identification authority. This system should be linked to the civil registration system to ensure a holistic approach to legal identity from birth to death. It also adds that a legal identity is retired by the issuance of a death certificate by the civil registration authority upon registration of death.[57]

3.2 Identification

Identification is the process of establishing, determining, or recognising a person's identity.[58] The process of "identification" involves an interaction between a subject (individual) and an evaluator, with the evaluator verifying the subject's claimed identity. Traditional identity documents, such as passports and driver's licences, have historically existed in physical form, enabling physical verification. An identification system fundamentally exists to manage identity information for the public and provide credentials that serve as proof of identity for various essential services and transactions. In essence, identification is the representation of an individual within an administrative system, establishing a link between the person and their recognised identity in the context of a particular institution or framework.

[56] Ibid
[57] United Nations. (n.d.). *United Nations country team operational guidelines.* UN Statistics Division. Retrieved April 17, 2024. link
[58] Atick, J. J. (2014, October 22). *Digital identity: Essential guide.* ID4Africa. Retrieved April 17, 2024. link

Having efficient identification infrastructure is necessary to ensure a smooth verification and authentication process and scalability for a larger population.

The rise of technological infrastructure has led to global acceptance of digital verification. Yet, challenges emerge when individuals register and authenticate on digital platforms, introducing complexities in the identification process. In some cases, the authority responsible (for example, the operator) for registration or authentication has a pre-existing relationship with the user. This results in a deviation from the standardised process and could lead to the rise of unpredictable dynamics.[59]

Digital IDs act as a tool for the digital identification process, as a representation of legal identity in non-physical form, unlike the traditional paper-based IDs. In the digital identification process, people start interacting with digital systems by stating certain details about themselves to prove their legal identity. In the context of a digital ID system, individuals first claim certain 'Attributes' (such as their name, sex, date of birth etc) and having them recorded; then presenting requisite documents or testaments to validate their 'Identity Claim'. Finally, issuance of certain credentials (such as PINs, ID Cards etc.) or attributes are accorded the status of ID credentials which can be digitally used to control or assert the established digital ID.[60] These digital credentials act like a secure key to access or prove one's established digital identity.

3.3 Identity document

An ID, a tangible artefact, is a document that makes identification possible. It is the manifestation of credentials and consolidation of an individual's identity, typically in physical form and is often used interchangeably with identification.

However, more than a billion people worldwide have no way to prove their identity, often reducing people's access to essential services. One in two women[61] from low-income countries do not have an ID which limits their access to critical services and participation in political and economic life. With digitisation, various functions such as service identification, application to these services, verification, and authentication of beneficiaries

[59] Learnings from Aapti primary research in rural areas, 2023.
[60] Saxena, P., Sinha, A., & Sheshadri, A. (2019, September 13). *Digital identities: Design and uses.* digitalid.design. Retrieved April 17, 2024.
[61] Economic Times. (2022, September 4). A foundational ID system to give identity to millions across the globe. *The Economic Times.* Retrieved April 29, 2024.

happens digitally. Digital ID is used to prove who the person is and to ensure that an individual can verify their identity to transact with the public and private sectors.

With this paradigm shift, identity documents are often complemented or replaced by digital ID, a tangible electronic artefact, made up of all the identifiable[62] factors of one's digital identity that proves identity and makes identification possible.

Identity types

Digitised IDs can be categorised into two types based on purpose: functional and foundational.

[62] Proof. (n.d.). *Everything businesses need to know about digital identity (digital ID).* Proof. Retrieved April 29, 2024.
[63] Identification for Development, World Bank. (n.d.). *Types of ID systems: Identification for Development.* ID4D, World Bank. Retrieved June 30, 2024.
[64] Ibid
[65] Ibid
[66] Ibid

ELEMENTS	FOUNDATIONAL IDs	FUNCTIONAL IDs
Definition	Foundational IDs are designed to manage identity information for the general population and authenticate service provision.[63]	Functional IDs are designed to manage identification, authentication, and authorization for a particular service or transaction.[64]
Description	Provide legal recognition to an individual's existence from the moment of birth. This may include issuance of birth certificates and later other forms of identification like national IDs.	Recognise the need for a systematic means of categorising individuals, and create specific identification for administrative, economic, and security purposes, such as voting, tax administration, social programmes and transfers, financial services, and more.
Examples	Civil registration, universal resident or national ID systems, and population registers.[65]	Voter IDs, health and insurance records, tax ID numbers, ration cards, driver's licence etc.[66]
Limitations	• Inability to access specific services • Can make individual's identity static	• Designed to fulfil only sector-specific requirements • Need for multiple IDs • Potential for ambiguity on usage • Singular use case

Table 1. Exploring the foundational and functional ID types

3.4 Digital identity

A digital identity covers narrow attributes of an individual's identity and is mainly related to legal identity. Although at different stages of development, approximately 161 countries have adopted digital ID, ranging from early-phase implementations to more advanced systems.[67] As part of the effort to bridge the identity gap and fulfil SDG 16.9, a universal digital ID is being advocated as a technological solution to improve the lives of people globally. Its primary focus is on impoverished and marginalised populations in developing and less-developed countries to reduce the identity gap.[68]

Research indicates that digital IDs have become omnipresent in the contemporary landscape.[69] It is crucial to prove an individual's identity for social, political, and economic inclusion. With technological advancements, there is an opportunity for governments to leapfrog from traditional paper-based systems that have a higher probability of errors and risk of permanent damage to a more inclusive method of proving identities.[70]

Digital IDs represent an electronic credential employed to substantiate an individual's identity claim in the digital context. It manifests as a numerical code, a digitised version of a physical ID document, or a compilation of attributes serving as valid evidence for the assertion.[71] The crucial aspect of a digital ID is its ability to present an assertion, and provide a means to verify its authenticity. The reliability of a digital ID hinges on its verification process, determining the range of applications it can be used for.

Conclusion

As digital IDs gain widespread adoption worldwide, there is a growing need for a deeper exploration of the concepts around it.[72] This chapter explores the distinction between ***identity systems*** and ***digitised identity*** in detail.

It is critical to discern the differences between these concepts, especially in cases where digital identity is distinct from digitised ID. The latter refers to the transformation of a physical identification artefact from a paper-based format to a digital one,

[67] Cenderello, A., & Bertrand, A. (2022, October 4). *Closing the digital divide in developing countries*, EY

[68] Identification for Development, World Bank. (n.d.). *Good ID supports multiple development goals: Identification for development.* ID4D, World Bank. Retrieved June 30, 2024.

[69] See Footnote 65

[70] UN Development Programme. (2019, July). *Why the world needs "good" digital ID.* Medium.

[71] Sadiku, M. N. O., Shadare, A. e., & Musa, S. M. (2016). Digital identity. *IJISET - International Journal of Innovative Science, Engineering & Technology*, 3.

[72] Caribou Digital. (n.d.). *The difference between digital identity, identification.* SVP. Retrieved April 17, 2024.

and is termed as digitised ID. In contrast, digital identity creates a digital record of various identity credentials. This chapter is the base for subsequent analysis and layers in within several recommendations.

CHAPTER 4 | Contextualising the recommendations

This chapter discusses the various nuances that developers and deployers of digital ID systems should consider when building, managing, and sustaining their systems. It differentiates between adoption and inclusion and urges developers and deployers to leverage user-first design approaches when managing these systems.

4.1 Differentiating between adoption and inclusion

As stated, the adoption of digital ID has seen significant growth in various parts of the world, but challenges related to including various marginalised groups persist.[73] **The research indicated that the adoption of digital IDs does not necessarily lead to inclusion.** This literature review helped differentiate between notions of adoption and inclusion in ID systems. Adoption in the context of digital ID could refer to the implementation of, or enrolment in digital ID systems; identification and identity-related technologies, policies, or practices for establishing and verifying an individual's identity and providing services. Inclusion in digital ID means ensuring that identification systems do not lead to discrimination or exclusion, and provide meaningful access to services.

However, there are persisting risks with the advent of digital ID technology. For instance, the collection of sensitive information poses risks and harms to marginalised population groups. Additionally, when access to a good or service is conditional upon possession of a form of ID, it makes the system exclusionary and eventually affects the user's access to welfare services. Finally, building inclusive digital ID systems should not just focus on registration processes, but continue to build on its inclusive

[73] World Bank Group. (n.d.). *Creating a good ID system presents risks and challenges, but there are common success factors.* Identification for Development. ID4D. Retrieved April 17, 2024.

principles throughout its life cycle. For example, registrations might accept various identity documents, but changing or updating details requires specific credentials that may not be equally available to all population groups.

4.2 Enabling gender-inclusive ecosystems: Beyond digital IDs

Even with the adoption of digital ID, challenges for women users persist as they continue to have notional ownership over these IDs and need support for various purposes.[74] "Gender inclusion is a concept that transcends mere equality. It's the notion that all services, opportunities, and establishments are open to all people and that male and female stereotypes do not define societal roles and expectations."[75]

Field visits revealed that women relied on their family members, often children and male members, for ID-related decisions, such as using the ID for availing services.[76] Barriers to ownership of ID have also been underlined in research by Caribou Digital, highlighting how ID has worked for women in Sri Lanka.[77]

The same research highlighted that having ID does not guarantee formal financial inclusion of women as they may choose to rely on informal methods and avoid mobile money services for practical and cultural reasons. Similar observations were also reported from research conducted in Bangladesh, where women spoke about a lack of agency. Therefore, ID was highlighted as only one component in access to better work and financial inclusion.[78]

Some digital IDs may necessitate the presence of digital identity networks or ownership of digital devices. Global smartphone penetration of only around 35% for developing countries puts them at a disadvantage and presents challenges of inclusion for women in such countries.

Therefore, deploying inclusive digital ID requires acknowledgment of these challenges and needs a holistic approach that considers not only the technological aspects of digital IDs, but also the broader social, economic, and cultural contexts in which these systems are implemented.

[74] Bailur, S. (n.d.). *Essay V5: Vulnerabilities*. The Identities Project; Caribou Digital; International Institute of Information Technology, Bengaluru.
[75] Maryville University. (n.d.). *Definitive guide to all-gender inclusion* Maryville Online. Retrieved April 16, 2024.
[76] Observations from the field, Aapti Primary Research
[77] Bailur, S. (2019, September 9). *Women and ID in a digital age: Five fundamental barriers and new design questions*. Medium. Retrieved April 30, 2024.
[78] Savita Bailur. (n.d.). *When ID works for women: summary findings from Bangladesh*. Medium. Retrieved April 16, 2024.

4.3 Incorporating human-first approaches when building systems

Design thinking

Design thinking is a human-centred approach to innovation that draws from the designer's toolkit to integrate the needs of people, possibilities of technology, and requirements for business success.[79] Design thinking has a human-centred core, and encourages entities to focus on the people they are creating for, leading to better products, services, and processes.[80]

In a digitised world, digital IDs are rapidly integrated with multiple services and become essential to access welfare and schemes. Therefore, design thinking is essential in the context of digital IDs and can be used to achieve gender inclusion and holistically improve digital identity systems. [81]

User-centric thinking

The ***user-centric approach*** in design thinking emphasises understanding user needs, behaviours, and pain points. It establishes that the users' experiences are at the forefront of design and that digital identity solutions should be user-friendly and meet real-world requirements. Digital IDs involve a complex set of attributes, including personal information, biometrics, and credentials. Design thinking can help in breaking down this ***complexity of identity*** by focusing on creating intuitive interfaces and experiences making it easy for users to manage and control their digital identities. Diverse needs, abilities, and preferences of people can be accommodated with design thinking as it encourages ***inclusive design*** by considering a wide range of user perspectives. It is particularly important to ensure that the digital identity systems are accessible to individuals with different backgrounds, abilities, and levels of technological literacy.[82] Identity is often influenced by cultural and contextual factors, and design thinking encourages understanding and incorporating ***cultural and contextual sensitivity*** into the design process, ensuring that digital ID solutions are culturally sensitive and contextually relevant.

[79] IDEO Design Thinking. (n.d.). *How do people define design thinking?* IDEO Design Thinking. Retrieved April 16, 2024.
[80] IDEO U. (n.d.). *Design thinking.* IDEO U. Retrieved April 16, 2024.
[81] Bailur, S. (2019, September 9). *Women and ID in a digital age: Five fundamental barriers and new design questions.* Medium. Retrieved April 17, 2024.
[82] OECD. (n.d.). *Legal instruments, Recommendation of the Council on the governance of digital identity.* OECD. Retrieved April 17, 2024.

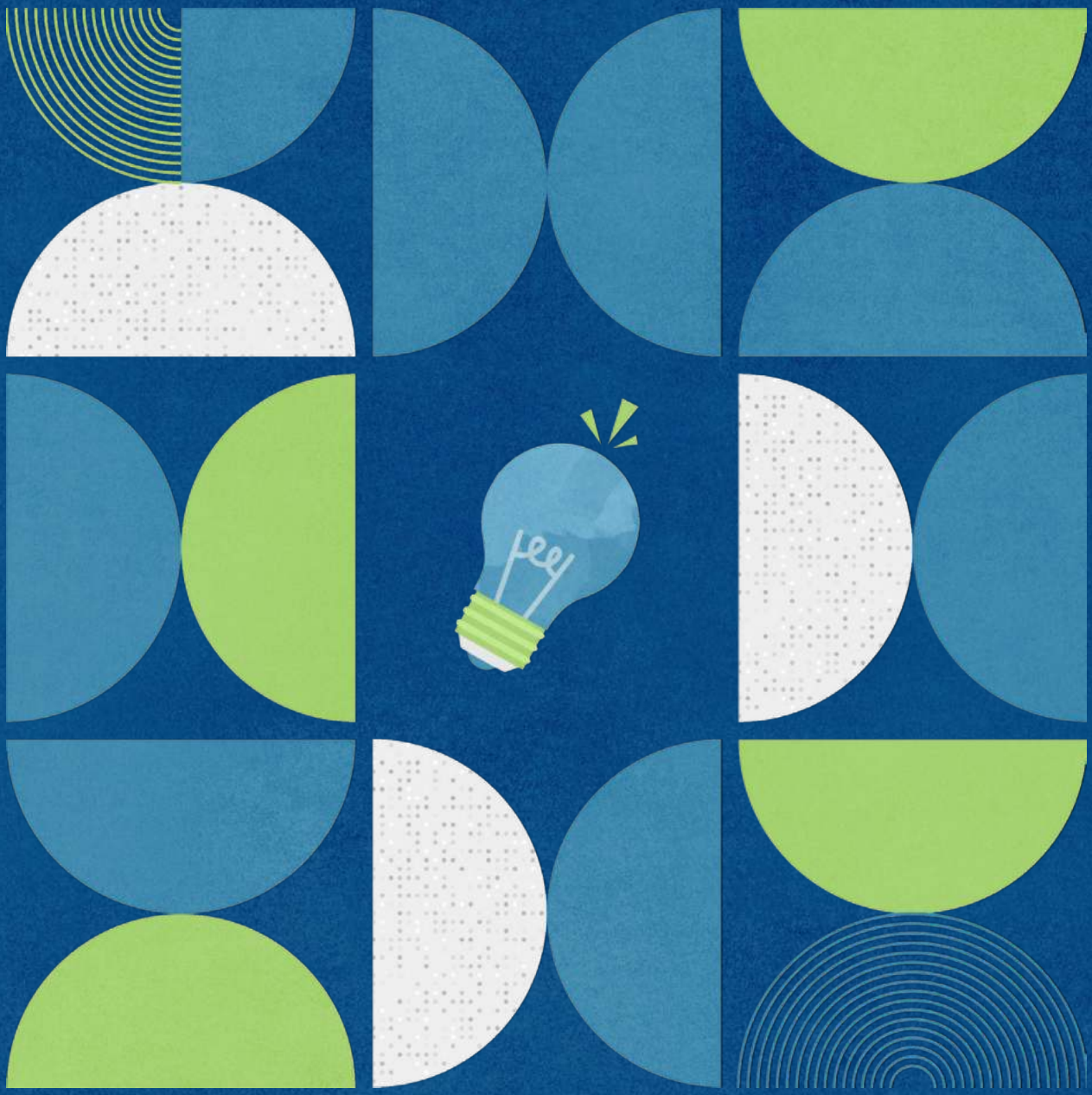
Frequent and continuous evolution

The digital landscape is constantly evolving, and so are its potential risks. Therefore, ***adaptability and evolution*** are needed to operate and course-correct. These methods promote an iterative approach, allowing for continuous improvement and adaptation to changing circumstances, technologies, and user needs. ***Prototyping and testing*** with users could benefit system design. In their research on building a digital signature application, Fadila, Wibowo, and Aribowo, proffer a user testing methodology, as coined by John Brooke.[83] This approach helps identify users' experiences with specific applications, helps determine trends and refine specific solutions before rolling out any application. In addition to testing during development, developers of digital ID systems should continuously evaluate their systems (for example, conducting impact and data protection assessments), ensure recognition of concern areas, and provide transparent communication around their redressals.

[83] Fadila, Wibowo, and Aribowo. (May 2022). *Design and Evaluation of Smart Digital Signature Application User Interface for Document Legalization in COVID 19 Pandemic.* Scientific Journal of Informatics 9(1):63-72. DOI:10.15294/sji.v9i1.34058

PART 3

Learnings from the study



PART 3

Learnings from the study

This section focuses on the various barriers and enablers, observed during this study, to articulate the nuances of the interactions between women and digital ID systems. The exploration has been done based on the A2U framework. This section then dives into the pathways that digital ID developers and deployers can adopt to build gender-inclusive systems.

CHAPTER 5 | The Awareness, Access, and Usage (A2U) framework

5.1 Background: Designing a framework to understand women's digital ID journey

A thorough review of pertinent literature makes it evident that governments worldwide[84] are harnessing digital ID systems to facilitate access to essential services. However, at the individual level, citizens face several challenges when interacting with these digital systems. The research indicates that women face more challenges than men to obtain and utilise IDs for various purposes.[85]

Analysis revealed the need to create a framework to meaningfully understand women's interaction with the non-technological layers of digital IDs. The study adopted a user-journey approach to map a woman's journey toward obtaining an ID. To classify the different challenges faced by women during each stage of obtaining an ID, the team created the **Awareness, Access, and Usage (A2U) framework.**

[84] Biometric Update. (n.d.). *Uganda launches inclusive digital govt roadmap to facilitate access to services.* Biometric Update. Retrieved April 17, 2024.

[85] World Bank Group. (n.d.). Addressing the gender gap in ID access. ID4D. Retrieved April 17, 2024.

Figure 6. The Awareness, Access, and Usage framework

5.2 Pillars of the framework

5.2.1 Awareness

When engaging with digital ID systems, women's efforts to understand these systems emerged as a key need for this framework. Understanding this relationship emphasised the need to identify challenges faced by women, and the role of socio-political norms impacting this relationship. These challenges may be viewed under three categories. However, they may vary by geographical, political, and socio-economic contexts.

- Information challenge
- Unfavourable social norms
- Lack of agency

Detailed findings from research

The following categorisation elucidates the barriers and enablers in place, where **the barriers have been highlighted in red**, and **the enabling measures in green**. Notably, in some cases, the enablers themselves could have further implications, which require consideration and course-correction.

INFORMATION CHALLENGE

While attempting to interact with any digital system, women face several barriers that restrict them from understanding digital IDs.[86] Women often lack access to

[86] UNICEF. (n.d.). *What we know about the gender digital divide for girls: A literature review.* UNICEF. Retrieved April 17, 2024.

relevant and comprehensive information about the requirements and uses of digital identity and the processes involved in digital ID systems.[87] Additionally, limited knowledge of communities and families inhibits women's understanding of such systems.[88] Moreover, with low priorities allotted for obtaining legal identity,[89] women often detach themselves from the efforts to understand the benefits of digital ID.[90] Therefore, without proper information, the benefits of digital identities tend to elude women.[91]

Information around existing processes and future challenges post-registration are often missing.

Before registration, women are often unaware of:

- Processes and requirements around subsequent action steps, such as needing to update ID credentials – address, date of birth, required documentation.
- Missing communication channels for information gathering - formal communication around ID concerns happens predominantly over text messages or email in most countries.
- Inability to understand how and where to use digital IDs; typically emerging from a lack of use cases where IDs can be used for authentication.
- Record of incorrect credentials – in cases where countries have multiple ID systems, mismatches with other IDs often leads to service provider hesitations.
- Implications of linking shared devices or credentials; women often owned a shared device resulting in limited agency when using interfaces that avail services.

Knowledge transfer and information sharing can be undertaken by community-level actors.

In some cases, this challenge is mitigated by registration centre operators or visual collaterals (such as standees) at the centre.

[87] GSMA. (n.d.). *W20 digital inclusion background paper March 2018.* GSMA. Retrieved April 17, 2024.
[88] Paul, A., & Thompson, K. M. (n.d.). *View of negotiating digital spaces in everyday life: A case study of Indian women and their digital use.* First Monday. Retrieved April 17, 2024.
[89] World Bank Group. (n.d.). ADDRESSING THE GENDER GAP IN ID ACCESS. ID4D. Retrieved April 17, 2024.
[90] Observations from the field, Aapti primary research, 2023
[91] Squicciarini, M. (n.d.). *Bridging the digital gender divide.* OECD. Retrieved April 17, 2024.

- Operators and centre staff often provide verbal information during the registration process.
- Information around processes is often displayed at registration centres.

Intermediaries serve as both information points and service providers for ID-related services.

- Women often visit registration centres or intermediaries as information sources for document requirements, process, and charges.

Principles of digital ID systems such as transparency and visibility help strengthen deployment strategies.

- Deployers benefit with strategic communications teams, and by appointing communication specialists within registration centers.

Intermediaries often lack incentives to share information.

- In urban settings, some intermediaries lacked incentives and motivation to share relevant information.
    - Operators stated that the task of answering queries and repeated information sharing without any financial incentives was frustrating.

Various (financial and non-financial) incentives could help address intermediary and operator motivation.

- Increasing intermediary recognition and visibility and improving transparency around career path for operators were suggested by respondents as potential non-financial incentives.
- Respondents in some sites stated that competitive compensation could help improve motivation.

Information gaps between intermediaries and users impact the way women obtain information.

- Difference in information accessibility and knowledge transfer between formal (ID centre operators) and informal sources (family or community members) often leads to discrepancies in the knowledge of intermediaries.
    - Observation in rural settings revealed that women, gathering information from informal intermediaries, found inconsistencies in the information provided.

In some cases, stronger communication channels and proactive informal intermediaries helped bridge this knowledge gap.

- Information around processes were put up on official websites or through collaterals in registration centers.
- Collaterals made by ID authorities were either shared or repurposed by informal intermediaries.

Outdated, vague, or absent Information about centres can often create information asymmetry.

- In rural areas, the absence of or outdated information about the centre's location and operation can lead to uninformed decision making.
- A lack of offline (or other alternative) modalities to share this information also hamper dissemination to women.

Community behaviour plays a role and serves as a source of motivation for intermediaries to facilitate information dissemination.

- In rural settings, centre operators and women users often belong to the same community. Hence, formal intermediaries aspire to contribute to the community's well-being by creating informational materials for distribution at high-footfall locations such as printing shops, registration centres, and entrances to the town or village.

UNFAVOURABLE SOCIAL NORMS

Social norms such as negative perception about digital IDs, lack of support from women's families and communities, dependence on male relatives to register, access, and use digital IDs[92] can create unfavourable conditions for women trying to access identity systems.[93] This cyclical process makes it difficult to produce champions of change, where available agents are unable to support hesitant seekers of digital systems. Thus, the community and family are pivotal to overcome a lack of awareness and develop a positive perception of digital systems.[94]

Women's access to digital devices and IDs are often managed by family members.

- While some respondents shared that collective storage of identities is often a matter of convenience, others admitted that women often must seek permission to use their IDs.
- In some cases, respondents reported that women's access to digital devices were also monitored by family members.

Community champions often spread awareness around the process of obtaining an ID.

- In some cases, community champions, community leaders, dedicated groups, or self-help groups shared information on the process of registration and authentication.

Women are often unaware why IDs are required.

- In rural settings, women were often unsure whether they even needed IDs as most household responsibilities requiring documentation were handled by their male family members. Family members, and certain community members often replicated this behaviour.

[92] Digital Rights Monitor. (n.d.). *Women disconnected: Feminist case studies on the gender digital divide amidst COVID-19.* Digital Rights Monitor. Retrieved April 17, 2024.

[93] UNICEF. (n.d.). *What we know about the gender digital divide for girls: A literature review.* UNICEF. Retrieved April 17, 2024.

[94] Jarrahi, J. (2021, March 12). *Massive gender disparities in digital ID systems persist, ID4Africa panel says.* Biometric Update. Retrieved April 17, 2024.

Community-level actors play a crucial role in information dissemination.

- In some cases, informed community champions, involved community leaders, or proactive self-help groups provided information around why digital access and the right to identity are necessary enablers for women. While observation of behaviour change around such norms takes time, some observations indicated positive sites outcomes in creating change.

LACK OF AGENCY

The lack of agency and information barriers are closely linked as they both affect women's ability to make informed decisions and act in their lives.[95] This study also acknowledges that socio-political norms play a factor in impacting agency. However, a separation of this challenge category is justified as it warrants specific recommendations for stakeholders. Although efforts to create more equitable environments evolve,[96] women still face significant obstacles when trying to access digital solutions.[97]

A holistic approach to overcoming these longstanding issues will benefit women and improve their attitudes towards digital technology. Negative institutional structures and norms create barriers that limit women's agency and reduce their motivation to seek digital solutions like ID systems.[98]

Lack of agency dissuades women from availing information.

Observations indicated that:

- Women lack confidence to seek ID-related services independently due to a limited understanding of the system.

[95] Smertnik, H., & Bailur, S. (2019, September 9). *Women and ID in a digital age: Five fundamental barriers and new design questions.* Retrieved April 17, 2024.

[96] World Bank Group. (2020, October 5). *Women's access to identification cards can accelerate development in Afghanistan.* World Bank blogs. Retrieved April 17, 2024.

[97] Plan International. (n.d.). *Bridging the digital gender divide.* Plan International. Retrieved April 17, 2024.

[98] OHCHR. (n.d.). *Association for progressive communications, Bridging the gender digital divide from a human rights perspective: APC submission to the Office of the High Commissioner for Human Rights.* OHCHR. Retrieved April 17, 2024.

- Women are hesitant to avail services in the absence of credible (in some cases government backed) information or before most of the relevant information is collected.

Women's social environment plays a significant role in determining and impacting their access to information.

- Urban settings: It was observed that informal intermediaries situated in the vicinity of women's homes facilitate easy access to information.
- Rural settings: It was observed that women's daily interaction with their family and neighbourhood plays a prominent role in making them aware.

5.2.2 Access

When accessing registration centres, registration-related infrastructure, or other service provision systems, women often face challenges that can be classified into the factors below. These factors, in instances of changes or updations post-registration, continue to impact how women engage with digital ID systems or the digital ecosystem at large.

- Logistics based barriers
- Constraints faced because of resources
- Normative constraints

Detailed observations

The following categorisation elucidates the barriers and enablers in place, where **the barriers have been highlighted in red**, and **the enabling measures in green**. Notably, in some cases, the enablers themselves could have further implications, which require consideration and course-correction.

LOGISTICAL CONSTRAINTS

When accessing digital ID systems, particularly registration and service centres, logistical constraints such

as costs of travel, long waiting period, differing schedules, and hidden fees tend to make women more hesitant during their ID journey.[99] While digitisation of government and private services makes individual access possible, new challenges continue to emerge.[100] While there is hope for logistical solutions to solve some infrastructural challenges,[101] a tech-based approach could also improve women's access. These challenges typically emerge because of infrastructure or system design.

Inhospitable facilities and long queues plague women's interactions with registration centres.[102]

- Women overseeing household responsibilities, childcare, and family care reported having to wait significant amounts of time before being registered.
- Interactions with women revealed that centres without appropriate facilities (such as waiting rooms, lactation rooms, family rooms) caused hesitations and demotivated them from visiting these centres.

Provision of facilities on-site significantly improved women's experiences.

- Waiting areas, lactation rooms, queueing systems, appointment scheduling and similar interventions reduced waiting time for women specifically at registration centers.
- When visiting collectively, women or other family members often took turns to take care of children and family.
    - In some cases, operators would also provide such support.

[99] Rose, R. (n.d.). *Reducing bribery for public services delivered to citizens.* Chr. Michelsen Institute. Retrieved April 17, 2024.
[100] Sharma, S. K., Dwivedi, Y. K., & Metri, B. (n.d.). *Challenges Common Service Centers (CSCs) face in delivering e- government services in rural India.* Bradford Scholars. Retrieved April 17, 2024.
[101] World Bank Group. (n.d.). *Identify constraints: Identification for development.* ID4D. Retrieved April 17, 2024.
[102] Jarrahi, J. (2021, March 12). *Massive gender disparities in digital ID systems persist, ID4Africa panel says.* Biometric Update. Retrieved April 18, 2024.

Limited presence of government ID centres in the vicinity, compared to private centres.

- Even within urban spaces, the lack of recognised or official ID authority centres can often lead to access-related challenges for women.

Sharing resources to optimise existing infrastructure was dependent on community-level actors.

- In some cases, resources (buildings, registration kits, etc.) were shared between governmental authorities. For example, Common Service Centers provided information and access to various services in addition to ID registration.
- In some cases, operators decided to change the location of a centre based on the convenience of the community.

Biometric authentication failures and ID updates adds up costs.

- Observations in rural areas revealed that biometric registration/authentication failures often created an additional burden on women users as well as operators. In some cases, this was particularly impactful for women as these unknown variable costs triggered further visits or financial decisions.

Operators with a high understanding of hardware requirements sometimes found workarounds.

- In some instances of failed or improper authentication, operators found ways to complete registration.

Information asymmetry around ID centres (operation and availability) leads to challenges such as unnecessary expenses and prolonged delays.

- The lack of updated and accurate information on ID centre locations results in additional time and money expenditure for women.

Presence of supportive champions of change, community members, and elected officials often strengthens women's ability to access centres.

- In both rural and urban settings, there are champions such as women's access networks supported by Civil Society Organisations (CSOs), elected officials (Gram Panchayat officials, Barangay captains), and community members who facilitate access to information as well as services.

RESOURCE CONSTRAINTS

Women often find it challenging to overcome basic resource constraints like access to digital resources, documentation, and limited affordable solutions for women, perpetuating a further divide and weaker connection to the digital ecosystem.[103] Resource constraints faced by women could result from a combination of societal norms and infrastructure, often leading to low prioritisation when accessing technology.[104] This culminates in reduced effort from family, community, and ecosystem-level actors to strengthen women's efforts. Moreover, myriad household responsibilities and unfavourably implemented systems make it harder for women to obtain digital identities. Although costs have may be reduced over time, obtaining a basic ID and utilising digital platforms can continue to be difficult for women, further decreasing their willingness to engage with the system. These challenges typically emerge through the user interaction experience.

Lack of access to personalised digital devices among women.[105]

- Observations revealed that digital device ownership vary but tend to be unfavourable for women users. Digital devices (smartphones, feature phones) are often limited and can hinder access and information availability.

[103] GSMA. (n.d.). *Exploring the gender gap in identification: Policy insights from 10 countries.* GSMA. Retrieved April 17, 2024.
[104] OECD. (n.d.). *What we know about the gender digital divide for girls: A literature review.* UNICEF. Retrieved April 17, 2024. link
[105] Squicciarini, M. (n.d.). *Bridging the digital gender divide.* OECD. Retrieved April 18, 2024.

- Women often did not personally own a digital device.
- In some instances, women shared a family device, or their device was shared within the family for various functions.

Presence of intermediaries that provided access to digital platforms and solutions.

- Observations revealed that intermediaries such as print shops and local internet cafes often facilitate interactions[106] and address the ownership divide.

Women continue to face various personal logistical constraints in accessing ID-related services, including registration sites.

- Several women stated that accessing registration or ID service centres often required significant planning and taking time off from paid work, household work, and childcare, resulting in additional costs.[107]

ID implementation process, along with policies to address logistical constraints faced by women, can ensure meaningful access.

- Interactions highlighted that setting up dynamic or static centres in strategic locations significantly improve access and impact enrolment rates.
- Conducting pilot drives for registration have seen high enrolment of women, especially in rural areas.
- Setting up registration centres in sites with good public transport connectivity could also improve access.
- Observations also revealed that portability and convenience of the registration kits could strengthen efforts to continue operations in limited access areas.[108]

Multiple trips to find registration centers often leads to additional logistical and resource spend.

- In urban areas as well as in low-resource settings, dependability and functioning of centres varied due to

[106] Observations from primary research interactions; interaction with the women users at registration centres.
[107] Ibid
[108] Observations from primary research interactions; interaction with the NIDP Program Management team.

uninformed changes, such as closed or relocated centres.

Presence of dependable intermediaries establishes a network of access.

- Observations in rural settings revealed that women preferred dependable service providers based on prior service access experiences and passed on the information further, creating a network of access and trust.

Logistics planning creates various economic and non-economic costs.

- Observations in rural settings revealed that women sometimes select resource intensive (such as travelling to city centers) to register or avail services due to the logistical planning involved, thereby incurring costs.

Women users typically prefer safety and convenience when accessing state services.

- Observations in rural as well as urban settings revealed that women prioritised familiarity and community support over convenience during facility selection.
- Observations in rural settings revealed that women's ID decisions are often influenced by community information and action, which can collectively drive engagement.

Absence of relevant documents, including functional IDs, acts as a barrier for women in obtaining a foundational ID.

- Observations in the rural setting revealed that lack of functional documents acted as barriers in getting a digital ID, and thereby hindered access to essential services.
- Observations in urban settings also revealed that gaps in proof of formal education was a major hurdle for women in rectifying ID credentials such as Date of Birth, and Name.

Increasing accepted credentials often improved registration processes.

- In some cases, the range of usable documents or credentials was increased providing more options of pre-existing documentation to be accepted. This seemed to ease constraints and allowed more women to enrol.

NORMATIVE CONSTRAINTS

Barriers to access can often be created by individual actors, in addition to the larger ecosystem, typically stemming from an outdated sense of women's roles and responsibilities within the family and community.[109] While policy-level changes can bolster women's agency, behavioural change at the community level is required to overcome the challenges. The multiple challenges identified include unrealistic expectations, and the need for more diligent effort in bridging the digital gender divide, starting at the family level. In overcoming existing limitations, family and community-level stakeholders could play a positive role. Their support could improve women's access to digital solutions, even with the onset of newer technologies.

Lack of privacy and women personnel in registration centres impacts women's access.

- Due to socio-normative practices, women are often hesitant to engage in the registration process:
  - Women are often uncomfortable with only male operators in the registration centres.
  - They may be wary of biometric authentication.
  - They sometimes withhold personal information such as marital status, addresses, and date of birth.

[109] Amazon. (2016, November 7). *Making the connection: How internet access could help lift women and girls out of poverty.* Retrieved April 17, 2024.

Measures put in place by system deployers, and operators often helped reduce hesitations amongst women during registration.

- Registration centres equipped with privacy booths often helped improve registration times.
- Female operators often helped improve the comfort and security of women's registration process.
- In some instances, presence of a centre supervisor helped with grievance redressal, troubleshooting, and general comfort.

Women require support for accessing information and facilitation when availing services.

- In certain communities, women are often limited in their ability to make decisions and take action. Observations indicated that these women were often accompanied by male family members and required approval to make decisions while at the centres.

Women personnel and champions of change were sometimes able to provide support when accessing registration centres.

- Observations in urban areas revealed that presence of female operators at the centres reduced women's hesitancy in availing services.
- The presence of local or last mile champions of change further improved access.

Women's ownership of existing identity documents is often restricted based on their employment status and socio-normative practices in the country.[110]

- Due to socio-normative structures, women employed informally or engaged in household work often lack identity credentials or use those of their male family members to access essential services.[111]

[110] Ibid
[111] GSMA. (n.d.). *Driving adoption of digital identity for sustainable development: An end-user perspective report.* GSMA. Retrieved April 18, 2024.

- In addition to determining ownership over identity documents, socio-normative structures often restrict the usage of digital assets and media.[112] This could restrict the interactions when women interface with digital ID systems. E.g., restricted usage of digital assets could hamper pre-registration processes. Similarly, accessing an ecosystem of digitised services using digital solutions could be restricted heavily by lack of digital device ownership and/or family and community-level stakeholders.

The widening of accepted credentials or registration through nomination eased the process of registration or service provision.

- Using existing and widely prevalent documents as credentials for a new ID registration was found to ease processes. Reducing the cost of obtaining such documentation and using a variety of credentials was seen to help improve the enrolment process for women.
- In some cases, the process of registration through nomination, where someone with a registered ID vouches for new registrants was also observed. This was particularly helpful for women who might have migrated from different communities and geographies (reason for migration could vary from economic opportunity or marital status).[113]

5.2.3 Usage

The usage pillar highlights factors that hinder women's full participation in digital activities; utilising their digital identities. Even after acquiring identities, women may face challenges in using digital IDs for authentication, availing other services, or updating information on digital IDs. Here are the principal observations.

- Affordability and continued ability to engage with digitised ecosystem

[112] Squicciarini, M. (n.d.). *Bridging the digital gender divide.* OECD. Retrieved April 18, 2024.

[113] Observations from primary research interactions; interaction with NIDP Enrolment and Program Implementation team.

- Protection of users through the presence of supportive regulation, policy, or system measures
- Tough to use or non-interoperable user interface or experience
- Under-representation in the various layers of infrastructure
- Interference caused by societal norms

Detailed observations

The following categorisation elucidates the barriers and enablers in place, where **the barriers have been highlighted in red**, and **the enabling measures in green**. Notably, in some cases, the enablers themselves could have further implications, which require consideration and course-correction.

AFFORDABILITY AND CONTINUED ENGAGEMENT WITH DIGITISED ECOSYSTEM

Digital IDs are the starting point to access digital services. Once registered, engagement with the digitised ecosystem is propelled by this system. Although costs for infrastructure (mobile network, access centres, and so on) are expected to reduce over time, individual-level costs can still hinder women's continued usage of digital solutions.[114] Additionally, expecting women to leverage digital tools to optimise their engagement through digital IDs might require a more holistic effort to strengthen interoperable system design.[115]

Women are often unable to access digitised services due to limited digital device ownership or lacking digital literacy.

- In various contexts, personal ownership of digital devices was limited. Even for those women owning digital devices, inability to navigate digital service provision portals was a challenge.

[114] GSMA. (n.d.). *Exploring the gender gap in identification: Policy insights from 10 countries.* GSMA. Retrieved April 17, 2024.

[115] United Nations. (n.d.). *Gender equality and empowerment of women through ICT.* United Nations. Retrieved April 17, 2024.

Utilisation of on-ground infrastructure often helps overcome digital divides.

- Presence of local community centres, mobile shops, print shops, often support women to overcome this affordability and navigability challenge.

Presence of multiple portals creates confusion.

- Women mentioned that they were unable to understand which portal to use for a specific service, with very little information available about its purpose and usage.
- While some portals have walkthroughs, certain assumptions around usage often create a divide, especially for users with low levels of literacy. These assumptions could include understanding drop down lists, usage of cursors and so on.

On-ground organisations sometimes create interventions to overcome this challenge.

- Interactions with organisations revealed that strategic efforts were put in place to overcome information and identification costs of services. On-ground organisations often create consolidated digital solutions, and aid navigation, to improve access to specific services, such as welfare schemes, justice, etc. Some on ground organisations were seen to have created a long list of selectable welfare schemes, and matched users to relevant schemes.

Cost of paying for ID-related services, or other services, was often seen as a hindrance.

- For women who are financially dependent, costs to update IDs, access services, or register, especially in the case of failed attempts, often hinder women from accessing services.

Subsidised costs to access services has been observed to improve affordability for women.

- The research found that the authorities fixed a minimum charge (or no charge) for such services in some instances. This minimum charge anticipated instances of corrupt attempts and attempted to place pre-emptive remedies.

Strengthening the use case ecosystem

- Building tangible use cases where such digital IDs may be used, has been observed to improve trust in the larger system. An example of this could be in cases where women were able to use ancillary services, such as free-to-use public transportation, while using their state-provided ID.

PROTECTION OF USERS THROUGH THE PRESENCE OF SUPPORTIVE REGULATION, POLICY OR SYSTEM MEASURES

The governance of the various elements complementing such systems is key to enabling women and underserved population groups. The policy landscape surrounding digital identification,[116] including regulations and grievance redressal mechanisms, plays a crucial role in creating an enabling ecosystem for the use of digital IDs by women.[117]

Unfortunately, efforts to improve women's experience and interaction with digital goods and services remain siloed. Missing recourse, lacklustre data protection policies, poor understanding and dissemination of technological advances, inability to upskill users with apprehensions or existing abilities with digital technology, missing communication channels, lack of consolidated or collective efforts—the areas for strengthening ecosystem-level improvements are plenty. While the protection of users' information and identity are crucial, communication around these efforts need to be equally prioritised. For

[116] Equality Now. (2021, November 15). *Ending online sexual exploitation and abuse of women and girls: A call for international standards.* Equality Now. Retrieved April 17, 2024.

[117] Amnesty International. (2017, November 20). *Amnesty reveals alarming impact of online abuse against women.* Amnesty International. Retrieved April 17, 2024.

instance, regulatory bodies are still unable to improve women's presence in the digital ecosystem.[118] Moreover, with difficult-to-access grievance redressal mechanisms or bodies, harms (such as online harassment) continue to run rampant, and plague women who use any form of digital technology.[119] To build trust with any form of digital technology, protection of users requires systemic level change.

Most countries don't have user data protection regulation: for those that have, it isn't designed to enable women specifically.

- Policy analysis has indicated that efforts to provide data protection by countries may be lacking. This often endangers or reduces trust amongst users.
- For countries that have good data protection laws, intentional gender prioritisation is often missing.

Ecosystem actors are attempting to create global governance standards in the absence of missing regulation.

- Various efforts, such as advocacy efforts by CSOs, from ecosystem actors indicate movement towards data protection policies, guardrails or protection from human rights lenses.
- In some cases, gender-intentional and specific frameworks are also emerging.

Systems lack accessible and effective grievance redressal mechanisms to address ID related concerns.

- Unaddressed grievances around ID theft, misplaced credentials, data security further hinder women's usage of such ID systems.

[118] Duggan, M. (2017, July 11). *Online harassment 2017*. Pew Research Center. Retrieved April 17, 2024.

[119] Bureau of Justice Statistics. (n.d.). *Visibility of identity theft*. Bureau of Justice Statistics. Retrieved April 17, 2024.

Operators often absorb the function of grievance redressal in case of missing mechanisms.

- Formal and informal intermediaries often guide women towards some form of grievance redressal (online or offline), albeit in a limited manner. Where connections between formal and informal intermediaries were stronger, they yielded stronger feedback loops to the central authority.

UNSUPPORTIVE OR NON-INTEROPERABLE USER EXPERIENCE

User interfaces around digital ID portals need strengthening. Besides, service providers that interlink services to digital IDs (number), create separate portals or applications. User Interfaces (UI) of these ancillary platforms also play a significant role in women's ability to trust digital ID and to have a meaningful user experience (UX) with a digitised ecosystem. Three key points emerge around this issue.

- Intentional gender-inclusive user interfaces: Research has highlighted that biases exist at the design level of any digital platform, solution,[120] which are often coupled with technological and societal biases. These tend to create or further amplify existing challenges around incorporating gender-inclusion perspectives in digital systems.[121] Although technology is considered gender neutral, some evidence points to the contrary, further widening the gender divide.[122] 'Pitfalls' that emerge when interacting with such systems, some of which are not designed with gender intentionality, often reduce usage over time, particularly in the case of women.
- Building an ecosystem of interoperable solutions: Whether in the form of hard or soft infrastructure,[123] when interoperable networks are being set up, frictionless transition between these systems should

[120] Oregon State University. (n.d.). *GenderMag.* | University Information and Technology, Oregon State University. Retrieved April 17, 2024.
[121] DAI. (n.d.). *Digital identity series part 3: Barriers to inclusion for all.* DAI. Retrieved April 17, 2024.
[122] Moss, G. A., & Meredith, J. (n.d.). *Gender differences in website design: Implications for education.* ResearchGate. Retrieved April 17, 2024.
[123] MIT Media Lab. (n.d.). *Facial recognition software is biased towards white men, researcher finds—MIT Media Lab.* MIT Media Lab. Retrieved April 17, 2024.

be prioritised. While this study acknowledges that this may vary between countries, it is important to recognise that this interoperable system is the end goal. For this, special considerations need to be considered when building interoperable digital service provision ecosystems, especially around their interfaces and overall experience.

- Finally, hardware solutions such as biometric readers are often interlinked for the registration and authentication-using digital IDs. The quality and dependability of these systems might be low in some cases, often impacting user experience. Sometimes, women have been hesitant to provide such information due to socio-normative or religious constraints.

Usage of biometric for registration and authentication increased onboarding time, often creating hesitations and reduced willingness to access certain services.

- Poor interlinking and interoperability of biometrics could result in laborious processes for women, giving rise to further resource spends and a break in trust. Where such patterns persist or repeat, women's trust in such systems reduces over time.

Countries may be moving towards open source, and vendor-free development of digital ID systems, and making interoperable systems.

- With improvement in hardware technology, the biometric ecosystem is seeing innovation. Additionally, countries are also interested in building vendor-free environments, reducing dependence on specific hardware service providers.

In some cases, digital platforms create 'pitfalls' for women with different interaction personalities.

- On the technology side, women were found to disengage with certain systems where the following features were

either added or part of the design:Additional steps for basic services;

- Out of application/portal steps or actions;
- Abundance of options on service-specific applications; and
- Unguided or poorly-guided walkthroughs.

- On the non-technology side, women were found to be hesitant to engage when the following elements were part of the overall system design:
  - Verification using other forms of ID;
  - Providing one-time passwords through text messages; and
  - Payment for services, typically through third-party applications.

Private actors that provide technology infrastructure, often conduct evaluations on systems to improve gender-intentional process flow.

- To strengthen system design, private actors, and in some cases public actors, leverage ecosystem frameworks to understand how women specifically interact with their systems. Features are then added based on findings from such evaluations.

Women often interrelate inability to procure a service to failure of the entire system, which includes digital ID systems.

- Where interoperable systems are set up, individual systems are often perceived collectively. Failure or lack of trust in one of these systems often results in reduced trust across the digitised ecosystem.

UNDER-REPRESENTATION OF WOMEN

While advances have been made, the technology sector and its affiliated industries still experience a significant

under-representation of women.[124] Whether seen at the development level or on the ground, perspectives of women, and their infusion into system design, has still been limited.

Even though a correlation to lack of inclusivity could stem from the education received at school, agency of women, or the presence of limiting socio-normative constraints, women's voices within these industries are still seen as outliers.[125] This under-representation tends to negatively impact trust in digital systems, and has significant downstream impacts that are observed only when unpacking lived experiences of women.

Registration or service centres are often male-dominated spaces.

- While certain associations might emerge from socio-political norms, men are assumed to be better versed with technology and service provision. This resulted in reduced participation by women thus negatively impacting gender-sensitive nuances at systems thinking and design phases.
- Most informal registration centres and service centres (intermediaries) are operated and staffed by men that could make women hesitant to approach them for ID usage and service access.

Female operators or intermediaries can address specific concerns and often strengthen trust within centres.

- Female operators at the centres can play a positive role for women to access services and comfortably gather information or enrol for services.

[124] European Parliament. (n.d.). *The underlying causes of the digital gender gap and possible solutions for enhanced digital inclusion of women and girls.* European Parliament. Retrieved April 17, 2024.

[125] The Guardian. (2020, January 2). Ten years on, why are there still so few women in tech? *The Guardian.* Retrieved April 17, 2024.

Under-representation of women in development teams often reduces diversity of perspective in design choices and deployment-based decisions.

- Digital technology systems are typically designed by men. This under-representation of female perspectives results in a decrease in the diversity of perspectives in the design and deployment processes.

Gender equality, in terms of employment, is indicated as a priority area for the private and public sector.

- International governance standards, human rights regulations, and policies work towards strengthening gender-specific hiring and providing equitable access to livelihood opportunities for women. The Gender Dimensions of the United Nations Guiding Principles, inclusion-specific principles in the DPI Safeguards Initiative are examples of these ecosystem efforts.

COMMUNITY INTERFERENCE

Even with high adoption, continued usage of digital IDs can be impacted by the perceptions and decisions of family and community-level actors. While policies might be enabling, the effects of behaviour change, especially at the family and community level are only observable over time. Community interference and the usage of digital ID by women can be complex and multifaceted, with implications on privacy, autonomy, and access to various services. The interference of communities continues at the usage stage of a women's digital ID journey, further monitoring and limiting usage of digital systems and identities.[126] Additionally, in the absence of champions or agents of change, families and communities still adhere to outdated societal norms that inhibit women from truly mastering digital platforms and solutions.[127]

[126] The Wire. (n.d.). Mobile phones: Patriarchy's new red alert. *The Wire.* Retrieved April 17, 2024.
[127] Squicciarini, M. (n.d.). *Bridging the Digital Gender Divide.* OECD. Retrieved April 17, 2024.

Androcentric structures add social pressure on women with invisibilised household responsibilities, often reduce time and availability to obtain IDs.

- Some women lack support from family and community-level actors to access and avail their IDs.
  - In many instances, this acts as a gatekeeping mechanism; management of this access is governed by male family members.

Ancillary actors such as non-governmental entities or self-help groups, offer guidance or support for women specifically to avail services.

- Peri-urban, urban, and rural areas see the presence of community-based entities, and self-help groups that work towards empowering women through guidance when availing services, and provide courses for digital upskilling.
- In rural settings, common service centre (CSC) and similar facilities provide access to various services and double up as hubs for digital device access.
- In various rural settings, women often leverage existing informal networks, such as self-help groups, to access services.

ID usage is not limited to access the formal system but becomes incidental to access informal system.

- In rural settings, it was observed that IDs are often used to access informal systems as well, which can often work to gate-keep women from cultural, informal, or other activities.
  - Informal systems such as community events often indicate the usage of a specific identity credential, which could be missing.

Familiarity in communities could provide customised user experiences.

- Apart from IDs, familiarity within communities acts as an enabling factor in women's access to services. For example, when women sought access to cultural events, pre-existing relationships within the community helped facilitate entry to said events.

CHAPTER 6 | Strengthening gender inclusivity in digital ID systems

Aapti's ongoing work around digital systems and DPI approach posits not only that the potential of population scale digital systems is immense, but that robust, responsible, and user-first design should be the minimum requirement for the development and deployment of any digital system.[128]

Digital IDs can be a fundamental layer when building digitised ecosystems, allowing countries to provide citizens more efficient access to services. Digital IDs combine both benefits harms of digital and identity systems. If digital identity systems are not designed and deployed with the right intent, actions, motivations, and guidance, such systems could amplify or exacerbate the very problems they are trying to solve. More importantly, if intentionality around the inclusion of women is not prioritised, existing exclusions driven by societal considerations could continue and newer forms of exclusion could emerge.

This project attempts proffers practices and approaches to build the societal architecture for international gender-inclusive design of digital ID systems. Chapter 3 of this report specifically builds the context for why identity infrastructure merits deeper analysis. Further, the research also highlights various areas where concerns around women's engagement could be altered due to unintentionally-designed systems, with a specific look at the non-technology layers. Borrowing from Aapti's existing work, the research concluded that operationalisation of the various

[128] Airan, A., Hodigere, S., & Natarajan, S. (2024, June) *The governance of digital public infrastructure,* Aapti Institute. Insights from Aapti's ongoing research.

principles of DPIs stated below, should be contextualised for countries, especially when building purpose-specific systems. While these principles guide developers, this study adds a critical element of user feedback that might be missing. The principles for DPI prioritise: **(i) inclusivity, accessibility, and equity; (ii) privacy and security; (iii) collaboration and openness; and (iv) transparency, accountability, and effective redressal mechanisms.**[129] To build truly inclusive digital ID systems, elements of all these principles need to be incorporated into the overall system design leading to inclusive deployment.

This study focuses on the journey that a woman, in urban and rural settings, will take to build knowledge, access, and ultimately use digital IDs. Leveraging its context-adaptive qualitative methodology, the study identified key takeaways that have been presented in the format of stakeholder-specific findings and recommendations, and a self-evaluation tool detailed in Building Block 2. While this section offers actionable recommendations within each point, the team is cognisant that overlaps may emerge due to the interconnectedness and dynamic nature of such systems. However, these specific actionable recommendations have been contextualised to address that specific point, and indicate that some interventions could lead to collective gain.

To intentionally prioritise the inclusion and empowerment of women, a collaborative and ecosystem approach is critical. This research framed recommendations for digital ID developers, and deployers as they are the primary levers of change. The recommendations framed below have been mapped to the gender inclusion tool ((GIT) housed here) that allows developers of such systems to self-identify areas of concern, understand their implications, and learn from global practices to strengthen system design.

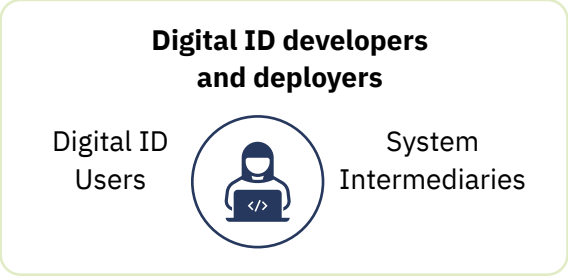


Figure 5. Critical actors of digital ID systems

[129] Airan, A., Hodigere, S., & Natarajan, S. (2024, June) Page 27, *The governance of digital public infrastructure',* Aapti Institute. 27. Insights from Aapti's ongoing research.
[130] Aapti Primary Research Observations, highlighted in Chapter 5 of report, 2023

ID Authority: ID Developer and ID Deployer

The recommendations for the ID authority and deployers aim to guide system design, improve communication strategies and last-mile access, and suggest policies that are gender-inclusive and improve access mechanisms.

1. Defining the purpose and scope of a digital ID

ID deployers should determine the purpose of any digital system or digitised identities. While digital IDs can be open-ended and multi-purpose, articulating the ways in which a digital ID can be used is essential. This articulation helps a variety of other downstream elements, such as communication, perceptions, usage, and interoperability. A digital ID should be built as a legal identity that facilitates access to other digitised services. While manifestations of these digital IDs could change depending on the country context, defining and articulating the purpose of digital ID systems is beneficial for women users.

While identity itself is a complex manifestation of an individual's social, individual, and legal expressions, interactions revealed that women, remain unaware of the purpose and usage of digital IDs.[130] Chapter 3 of this report delves into the ways that identity can manifest itself and sheds light on the various approaches observed.

- Digital IDs are facilitators to other services, hence, system developers should consider building interoperable systems that allow easy linking, holistic governance, and relevant safeguards and protections.
- ID deployers should consider building the use cases of digital IDs prior to its deployment. Deployers should prioritise strengthening the technology, ecosystem, and infrastructure required for a digital ID to serve its purpose.

The GIT poses specific questions around the purpose of digital ID systems under the 'Awareness' pillar and the 'Information' sub-category, and sheds light on various practices where purpose articulation of digital systems have led to improvement in gender-inclusive outcomes.

2. Prioritising the protection of their users, their data, and the various sensitivities and contexts of its users

With the rise of such complex and interoperable digital systems and infrastructure, a significant amount of personal and sensitive information is often collected from individual users. **Incorporating gender-sensitive and responsive collection, storage, and management processes for personal or sensitive information is key to protecting the rights and information of women users.**

Interactions revealed that women were more cautious about protection from bad actors or actions such as data leaks or identity theft.[131] The priority of developers should be to protect its users, especially those that are historically marginalised.

- Technical architecture should incorporate layers of security and encryption that protect sensitive information.
- In instances of bad actor actions, access to recourse should be made available to all identity holders. Transparency around this process should be maintained.
- Contextualised evaluations such as data protection evaluations, impact assessments, should be conducted in addition to deployment or pilot evaluations, to ensure the need and protection of these systems.
    - Conducting assessments often sensitise developers and deployers of such systems to become more aware of their citizens and allow for more responsible practices to emerge.

The 'Policy' section and the sub-category 'Process' (under awareness) pose questions, implications, and observed practices that deal with information security and safety, identity theft, safeguards, and data protection. Implications where such processes and policies are missing along with observed global practices have also been highlighted within the tool.

3. Intentionally building systems and infrastructure with women as the priority

Intentional and strategic efforts to include women's perspectives and lived experiences should be prioritised by system developers and deployers to ensure the infusion of more

[131] Ibid

diverse perspectives. Various digital systems often adopt gender-blind approaches, or purpose-specific problem solving.[132] Research has indicated that when an intentional approach is missing, the collective responsibility or ability to include women fades over time.

Women continue to be excluded through various instances of societal and technological biases and face disproportionate impact because of these gender-blind systems, either furthering divides or needing to incorporate additional layers to facilitate access. Some measures to strengthen this holistic approach could include:

- Hiring women at various levels of the system, starting from registration centres to leadership positions in ID authority bodies.
- Consulting gender specialists (experts or entities) when testing or releasing a system.
- Incorporating the voices of women users through feedback loops and conducting evaluations designed specifically for women users.

Across the various pillars of awareness, access, and usage, the GIT urges digital ID developers and deployers to understand the nuances of women's experiences, by exploring the questions under 'Resource Ownership', 'Presence of pre-existing identification documents', and 'Literacy levels'. Increasing diversity of perspectives and incorporating more intentional approaches could inform the way in which digital ID systems are built.

4. Incorporating the feedback from non-technological layers to inform holistic system design

While ID developers might not be able to provide measures for all situations, **continuous efforts to build enabling mechanisms, create feedback loops, strengthen citizen communication channels, and incorporate grievance redressal mechanisms should be prioritised when building any system.**

Digital systems are made up of various crucial components, of which the interfaces used by service provision and identity registration portals are critical. Equally important are the following non-technological components of the system.

[132] Henriques, A., Rafael, S., Almeida, V., & Gomes Pinto, J. (2023). The problem with gender-blind design and how we might begin to address it: A model for intersectional feminist ethical deliberation. *ACM Digital Library*, 1–12. Association for Computing Machinery.

- The registration centre experience and physical infrastructure
  - The accessibility of registration centres and the costs incurred to access ID
- The appointment, capacity, and capability of centre operators
- The perceptions around digital IDs and the emergence of invisible costs
- The family and community awareness around relevant information pertaining to ID systems
- The existing digital device ownership and literacy levels
- The presence, capability, and capacity of intermediaries

Under the DPI approach, digital systems are being built to benefit both the state and user. Incidentally, as Chapter 4 of this report suggests, systems should be built keeping the user at the centre. Women's experiences are often under-represented, invisibilised, or aggregated, especially when complemented by other intersectional concerns. In cases where such feedback is not accounted for, addressed, or acknowledged, system deployers could fail to build trust with their users, especially women users. Some measures that could be adopted include:

- Subsidising the cost of IDs or service provision;
- Strengthening partnerships to subsidise invisible costs (such as transportation and access);
- Conducting women-centric assessments to better understand its nuances;
- Appointment of gender experts in design and deployment teams;
- Recognition and capacity building of informal intermediaries; and
- Strengthening connection between formal and informal intermediaries to improve the communication between the ID deployers and its users.

Feedback for a system can be envisioned through several channels. The GIT poses questions to ID developers and deployers under 'Processes' (Awareness pillar), 'Feedback Loops' (Access and Usage pillars), and 'Grievance Redressal' (Access and Usage pillars) to understand areas where such feedback loops can be created.

5. Strengthening user-first design principles

Technological elements, non-technological elements, and infrastructure should be built or structured cohesively to strengthen overall system design. Deprioritisation of any of these elements could weaken the larger system and cause exclusions. This research uncovered various benefits for countries and governments to implement a digital ID. However, the study also posits that the goal for such systems should be to ease service access for users. Measures to build user-first systems are discussed below. They may vary between countries.

- **Building user-friendly interfaces:** Portals, interfaces, and user-facing digital access points should be easy to navigate and should allow meaningful information transfer. Assessments to understand and design interfaces for differing personality types should be leveraged to find suitable design practices and should be built to meet the needs of women users specifically. This research highlights that digital literacy divides and portals typically built with philosophies of 'gender-blind' design disproportionately impact women users.
- **Building alternative systems:** This research identified that course correction on most non-technology elements of the system are 'added' to existing system design. Countries implementing new digital ID systems that involve building centres, customising registration kits, and so on, should start with building systems for women registrants. Building for 'edge-case' groups often addresses challenges faced by larger percentages of the population.
- **Building enabling systems:** If the purpose of digital ID systems is to facilitate access, developers and deployers should work collaboratively towards building an interoperable ecosystem. For example, on the technical side, complementary services could benefit by building systems with similar design features, similar decision flows, reducing compatibility challenges, reducing authentication failure by leveraging existing data, creating various use cases and smoothening their interoperability, and so on. From the non-technical perspective, leveraging existing physical infrastructure and personnel, implementing co-location strategies to provide multiple services under one roof, creating routes for offline access,

strengthening information and knowledge transfer with community-level champions, and so on.

While the scope of building systems and incorporating enablers might be limited for digital ID developers and deployers, supporting and complementary initiatives could help bolster women's interactions with digital ID systems. The GIT poses several areas of exploration such as questions under the 'Usage' pillar that identify the availability of offline systems under ecosystem infrastructure. Under the 'Access' pillar, questions around enabling women who may not have agency or autonomy over economic or non-economic resources pose similar questions. Finally, under the 'Awareness' pillar, portals and platforms assume a certain level of literacy, which could be lacking due to a myriad of socio-normative constraints. Questions under 'Awareness' help ID developers explore practices where they could build complementary training programmes, provide intermediaries, or upskill them to aid underserved areas.

6. Strengthening communication channels

Transparency and accountability are essential elements that determine perceptions of the system. **Communication strategies should build awareness amongst women users by providing relevant information—should clearly provide information about the process and operations of obtaining an ID; should continuously highlight the various ways services can be accessed; and explicitly communicate information around updates.** Where evaluations reveal specific challenges faced by women registrants, actionable steps around how women users can overcome the specific challenges should also be communicated.

Another set of observations indicated that communication strategies are often created to convey a singular message through various modalities. However, interactions indicated that **stakeholder-specific communication should be created.** Information required for decision making may be different for men and women. For example, an informally employed woman in a rural area might want to know more about how their data is being protected from bad actors, while a formally employed man in urban settings might want to understand more about how they can avail

financial services using their ID. Additionally, information required by different levels of stakeholders also varies. For instance, intermediaries require reliable, up-to-date, and actionable information on the technical system to help serve citizens, while citizens may require reliable information about the centre's operational hours. Deployers must prioritise the following points when building communication strategies.

- The 'how' of information dissemination. Most countries have cultural and contextual diversity even within specific urban or rural settings that are hard to address using singular strategies or interventions. This research has also highlighted that differences emerge around how male and female citizens consume, conceive, and comprehend information.
- Presence of information in multiple major and minor languages; easy to follow or visual information for users with lower literacy levels.
- Nature, accessibility, and presence of multi-modal or offline mechanisms for information dissemination should be built. In addition to challenges such as notification fatigue, information dissemination is often not optimised for all types of devices (smartphones versus feature phones). Additionally, actual absorption of this information might be hard to determine if singular modes of communication or access are in place. This study acknowledges the associated costs with building such robust strategies. However, using alternate forms of communication such as radio broadcasts or social media could help reduce system based costs and diversify communication channels.
- Communication and information transfer should be a two-way process. Developers of such systems should create, manage, maintain, and improve mechanisms that allow feedback to be collected about the system. This may be done by empanelling trusted intermediaries, allowing open consultations with civil society and other community stakeholders, and conducting frequent user perception assessments. To truly leverage these systems, the key is to build in feedback loops that lead to meaningful change and regular system updates and have transparent communication around decisions.

- Any system, by design, should have a grievance redressal mechanism. Grievance redressal allows citizens or other actors to provide specific instances of systemic or user challenges. **Grievance redressal systems should be incorporated into system design. It should be easily and equally accessible to all stakeholders, should consolidate and provide feedback to developers and deployers, and include mechanisms for timely and efficient action based on the feedback.** While building feedback loops and robust communication strategies have been addressed above, this study places special emphasis on the incorporation of grievance redressal mechanisms within digital systems. In some cases, grievances should also help inform country-level policy changes. Such mechanisms could be used when new features or services are piloted, or to gather feedback on the larger system.

The GIT dedicates entire sub-categories, such as 'Information' under the Awareness pillar, and 'Creating and disseminating progress' under the 'Usage' pillar to help digital ID developers and deployers identify practices that could strengthen communications between state and citizen. Finally, under the 'Usage' pillar, practices that help build robust grievance redressal mechanisms have been consolidated.

7. Building alternative and complementary mechanisms to strengthen access

Countries are moving towards digitisation and costs of both digital devices and connectivity are reducing. However, individual ownership and ability to use digital devices optimally remains a roadblock for women. In the efforts to build a digitised ecosystem, **digital ID developers should incorporate alternative mechanisms that could bolster the experiences and interactions of women.** Here are some measures that could help move in this direction.

- **Building multiple pathways for authentication:** ID authorities should incorporate offline authentication mechanisms when registering citizens. This can help users who lack access to requisite digital infrastructure during service provision.

- **Collaborating with civil society organisations:** ID authorities should consider engaging with civil society organisations during all phases of ID deployment to leverage their presence at the grassroots level and ensure last-mile access.
- **Allowing registration through nomination:** Some women reported that they did not have any pre-existing identification documents. In such cases, women were unable to register for IDs, despite their willingness. A 'registration through nomination' process often enabled these under-represented women to obtain and access legal IDs.
- **Measuring the Gender ID Gap:** Continuous monitoring and evaluation should be conducted by the ID authority to identify gender gaps. The team should also conduct timely evaluation of the available pathways to facilitate women's access to IDs.

Under the 'Access' Pillar and 'Infrastructure' sub-category of the GIT, digital ID developers and deployers will find questions, implications, and practices that can help them think and strengthen alternate access mechanisms for women registering for digital IDs.

8. Reducing the effects of exclusion created by mandating ID credentials

After articulating the purpose, stakeholders should understand that the role of digital IDs is to provide legal identity, and respect the rights of the citizen to obtain this ID. Based on the user-first design principle, **developers should attempt to create, enable, or allow alternate forms of identification or authentication.** Further, developers and deployers should develop measures that allow offline registration, verification, or authentication of citizens.

Research indicated that countries are moving towards accepting multiple forms of identification when registering citizens. While these measures help with obtaining a digital ID, some service providers still require other forms of identification that either provide function-specific identification or determine eligibility. Interactions with women indicated that many of them did not want to get any form of ID, the reasons for which vary significantly. These are listed in the observations section of this report.

Users must be able to use multiple forms of proof or credentials to create newer forms of ID. Mandating specific ID credentials when accessing services often creates pressure on women to obtain said IDs without having the required information to make that decision. It reduces access to services, and excludes women who do not have that specific ID. Service providers are often unable to overcome system design that only allows access with specific identification credentials. The following measures may help overcome singular identity exclusion.

- Various formats of digital IDs can be provided to citizens, such as 'Lite' versions, QR based authentication, alternate forms of ID, and so on.
- In some cases, identity can be established or 'vouched for' due to relationships formed with community actors.
- In cases where the ecosystem of service provision is equally mature as the digital ID system improving its interoperability, citizens may prefer receiving physical artefacts, such as laminated IDs containing unique ID numbers.

This study acknowledges that digital IDs attempt to overcome some of the challenges caused by paper-based or non-digital identification, such as efficient retrieval of identity credentials and ubiquitous usage of these credentials where digitised access is present. However, the lack of alternate forms of identity can often cause unintended exclusion. Under the 'Infrastructure' category of the 'Access' Pillar, the GIT collates practices of countries that provide alternate identity documents, ones they can continue to govern in some capacity.

9. Recognition of informal intermediaries as awareness builders, access facilitators, and guides for usage

Recognising informal intermediaries as part of the system is crucial to ensure that an ecosystem approach is leveraged. More than recognition, strategic and intentional efforts should be put in place by ID deployers to build capacity; provide relevant, accessible, and reliable information; and provide resources or access-based support to informal or last-mile intermediaries, especially for the critical registration portals.

While governmental systems have the potential to reach far-flung areas and prioritise inclusion, several gaps were observed while mapping the awareness, access, and usage of women's digital IDs. These gaps were often filled by a plethora of intermediaries who provided varied solutions. However, interactions with intermediaries revealed that they often felt unprepared or inadequately serviced citizens' needs and queries. In more mature systems, informal intermediaries provide information on welfare and schemes, overcome digital literacy barriers, and provide guidance on usage.

This ecosystem approach reduces support costs for formal intermediaries, reduces oversight costs for deployers, and most importantly, provides citizens multiple pathways for access. Measures to help strengthen the network approach include:

- Providing reliable information and knowledge to intermediaries will help strengthen awareness amongst women in areas where government interventions are missing.
    - Recognition and incorporation of such intermediaries could also allow system developers to govern such layers and help reduce invisible costs and misinformation.
- Imparting training to local intermediaries could strengthen registration processes, efficiency of the updation process, and improved access to essential services for users.
- Providing hardware and software to intermediaries could improve the efficacy of processes.
- Providing recognised intermediaries with governance support and incentive structure will result in more meaningful achievement of registration goals.

This research recognises the presence, role and importance of informal intermediaries as a crucial layer for the digital ID system. Across various touchpoints, the role of informal intermediaries was observed to help facilitate women's access to digital IDs. Questions, implications, and practices that recognise, provide support, and leverage informal intermediaries can be found in each pillar of the GIT, with a special focus on their differing role at each stage of a woman's digital ID journey.

10. Leveraging existing infrastructure, expertise, and capacity

Infrastructure such as buildings and resources put in place prior to the current deployment system should be repurposed. **Government officials, or community-level actors, or community-level infrastructure should be leveraged wherever possible to achieve efficiency gains.** Newly implemented systems could rely on existing infrastructure to become more efficient and allow for better user relatability and recognition to leverage existing elements instead of starting afresh.

Our interactions indicated that women prioritised community relatability, relationships, and knowledge over other considerations. For example, female respondents mentioned that if they would much rather visit an older registration centre that was located farther away, then a new one that may be closer to their homes.

Community-level actors or service providers are often wary of existing community or problem specific nuances. These insights and learnings will benefit digital ID developers and deployers when such programmes are being deployed. Here are some pathways to leverage existing infrastructure.

- Leveraging co-location strategies with other/ancillary stakeholders, such as private/public banks, post offices, schools, community centres and so on.
- Hiring officials or representatives who have been trained in complementary domains and understand local context could strategically benefit registration centres, service centres, and updation processes.
- Leveraging or upskilling common service centres, community centres, or digital service centres could reduce costs of infrastructure and strengthen community presence and trust for digital ID systems.

The GIT identifies leveraging of existing infrastructure under the ‘Access’ pillar, the ‘Availability of Infrastructure’ sub-category, and shares global practices with readers on how to incorporate more strategic efforts when building efficiency within non-technology deployment layers.

11. Informing and strengthening the ecosystem: Systems and policy

Given the importance of legal identities, ID developers and deployers play a crucial role in informing the service provision ecosystem and the policies that lead to its effective governance. While this study acknowledges the restricted jurisprudence of ID authorities, its **stakeholders should aspire towards becoming ecosystem leaders, influencing policy, larger system level change, and behavioural change at hyper-local levels.** When creating an interoperable system, ID authorities play a key role in determining interoperability and governance standards. ID developers can also provide expertise and resources to public and private sector players to build complementary services in the form of non-financial contributions. ID authorities can contribute to improving accessibility for women in the following areas.

- **Women-friendly access points:** The available access points for obtaining ID or for other service provision could include facilities like lactation rooms, waiting areas, women staff members, and sanitation facilities.
- **Easing documentation requirements:** To include typically underserved populations including women, ID authorities should prioritise flexibility and accept a wider range of documents when registering.
- **Gender-inclusive policy to facilitate ID for women:** Policy with explicit provision to facilitate registration/updation of digital IDs and other functional IDs for women as individuals without legal bar or conditions such as need for consent from family/community.
- **Strengthen by use cases:** ID authorities should collaborate with the partnering governmental bodies, such as Department of Women and Child Development or Ministry of Social Justice and Empowerment to build strong use cases for women's digital ID to act as incentives.
- **Actions against bad actors in the system:** ID authorities should closely govern processes and actions against harms such as ID theft, misuse, corruption within the ID value chain, and other such malpractices.

- **Building a robust safeguard mechanism:** ID authorities can contribute to the country's policy safeguards and legal recourse and users' privacy. By leading such efforts, developers and deployers of these systems can strengthen national policies.

The GIT encompasses the above measures within various categories in the Awareness, Access, and Usage pillars. The measures above can be navigated through questions around grievance redressal, policy questions, resource considerations, to name a few.

12. Planning and allocation of strategic resources to ensure gender inclusion

This research identified in several instances that costs for implementing new evaluations, incorporating newer strategies, or to build more robust interventions, could be tougher given the absence of resources required to implement them. For example, evaluations carried out to understand the differences between female and male interactions with digital ID systems, often emerge as additional costs, and typically, at a later stage. **To ensure the continued management and sustainability of ID systems, leaders of such systems should plan and allocate specific resources towards building gender-inclusive systems. This strategy could also be applied to ensure the inclusion of other marginalised groups.**

- Delineation and allocation of budgets, that allow for gender sensitive or responsive measures/interventions, should be treated as priority and should be accounted for when building initial budgets.
    - Where systems incorporate gender sensitive or inclusionary measures at later stages, newer budgets should be designed keeping in mind costs of gender-intentional evaluations, interface upgrades, and so on.
- When staffing or creating processes for registration centres, developers should intentionally put in place measures to ensure diversity of perspective, equal representation, and gender-sensitive training or skilling.

- When selecting, repurposing, or creating hard infrastructure, such as registration centres, deployers should ensure that facilities should include waiting rooms, family rooms, lactation rooms, privacy screens, and so on that could specifically improve the experience of its women registrants.

Strategic recourse that could benefit digital ID developers and deployers have been highlighted across various categories of the GIT. For example, staffing registration centres with women operators can be found in the 'Access' pillar in the 'Infrastructure' category.

Conclusion to Chapter 6

The recommendations have been provided here with a stakeholder-specific lens, and have been articulated for the consideration of ID system developers and deployers. This study also recognises the role that intermediaries and users play. A separate, dedicated set of recommendations for these stakeholders has been articulated in the building blocks section of this report. Additionally, while overcoming androcentric societal norms around digital systems might not be within the purview of digital ID authorities, this study urges the stakeholders of these systems to acknowledge gender-specific limitations and put in place possible enablers that can help overcome these normative challenges.

To further strengthen specific practices, this team has built an assessment tool for ID developers and deployers that can be found on the Inclusion Hub website. The details of this self-assessment questionnaire is provided in Asset 3 of the building blocks section of this report. This dynamic and evolving tool hopes to guide ID developers around the various ways they can strengthen women's awareness, access, and usage of digital IDs. We urge ID developers and deployers to familiarise themselves with this comprehensive tool to further identify the sites that might require special attention and incorporate the collated global practices to strengthen their inclusionary practices.

CHAPTER 7 | Conclusion

As the journey towards a more digitised approach continues, this study sheds light on the various ways that digital ID systems could be designed more inclusively, particularly for women. Given the impact that digital ID systems can have in enabling digitised ecosystems, there is a unique opportunity for digital ID developers and deployers to lead the way towards more inclusive growth. By merging various strands of thinking, this study urges digital ID developers and deployers to build user-first and gender-intentional systems.

For this, understanding that different population groups interacted with digital ID systems uniquely was crucial. Hence, the study documented the awareness, access, and usage journey that women take when interacting with such systems. Utilising this journey mapping, the study identified the role that information, intermediaries, resources and logistics, and societal norms play in enabling or preventing women's enrolment and access to digital IDs and other digitised services.

It then used a multi-country approach to unpack the various barriers and enablers to meaningful interactions with such systems. The study consolidated pathways for ID developers and deployers to build or strengthen gender inclusivity within systems. These appear in two forms—(i) as recommendations within this report; and (ii) as a self-assessment tool that allows developers and deployers of such systems to identify the various sites where frictions emerge, and consolidated global practices to help inform strategic interventions. In conjunction, these recommendations emerge as a starting point for ID developers and deployers to incorporate gender-inclusive thinking and design within their systems.

The team also documented their major learnings, details of which can be found in the building blocks section of this report. The following learnings hope to help inform the larger ecosystem.

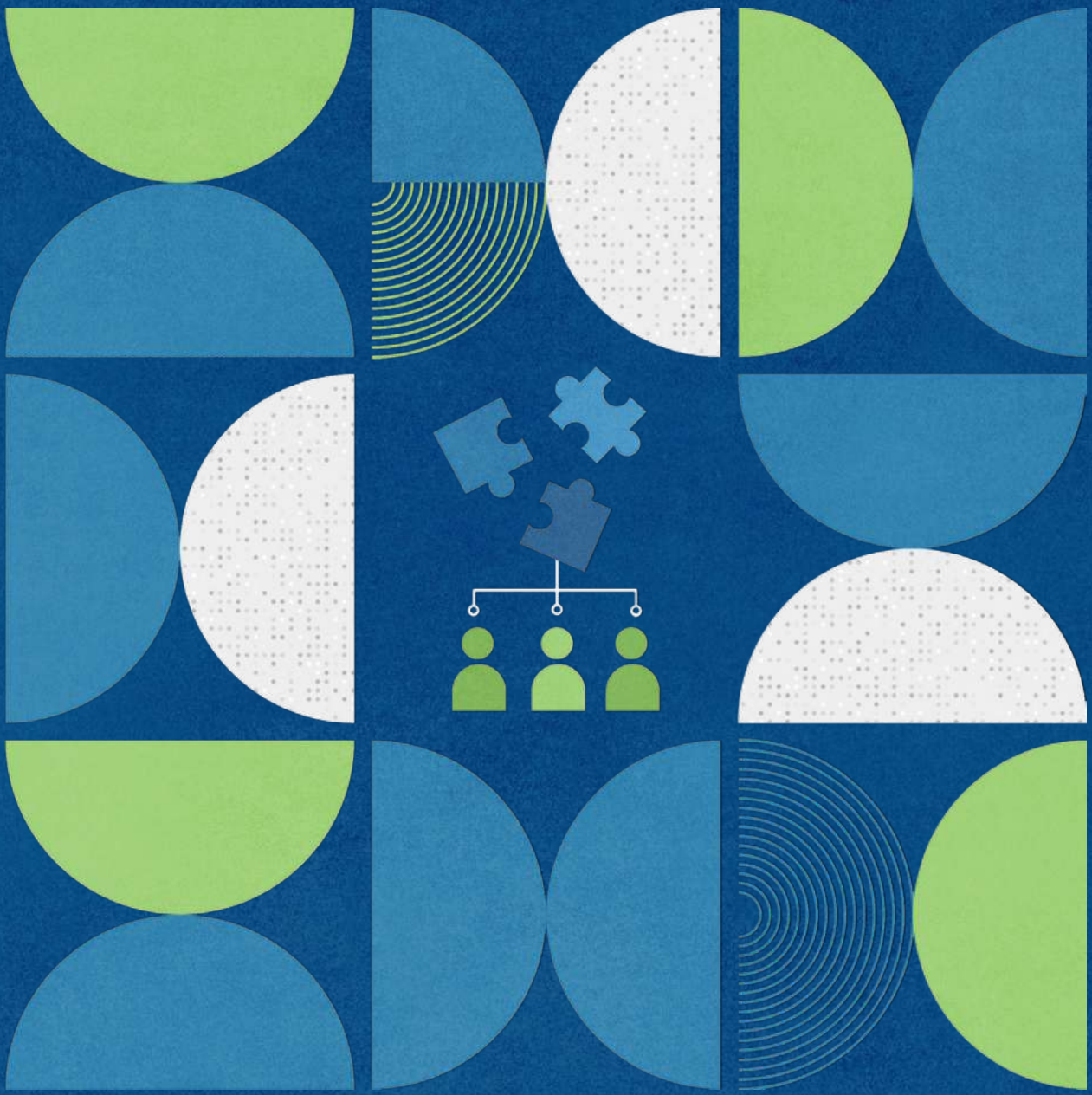
- Identifying the key stakeholders within this domain, their roles, and the potential roles they can play.

- Detailing the rationale, approach, and nuances of the self-assessment tool created for ID developers and deployers.
- Elucidating the 'Community of Practice' approach adopted to visibilise on-ground experiences and learnings.
- Detailing the learnings derived from multi-country explorations.
- Consolidating recommendations for other key ecosystem actors such as intermediaries and users themselves.

This study looked at various models of digital ID systems globally and proffered that building inclusive systems required a **holistic, collaborative, and gender-intentional approach.** The challenges observed as part of this study indicated that women's experiences are often unique and require specific and strategic interventions to be addressed.

PART 4

Key elements and building blocks of the study



PART 4

Key elements and building blocks of the study

As part of this study, the team consolidated relevant learnings that help unpack the various nuances of the digital ID ecosystem. This section contains:

- **A guide on stakeholder types and their roles;**
- **An explainer on the Gender Inclusion Tool;**
- **An explainer on the 'Community of Practice' initiative;**
- **A guide on the digital ID deployment formats;**
- **Country-specific observations; and**
- **Recommendations for other ecosystem actors.**

ASSET 1 | Digital ID ecosystem: Stakeholder types

An identity (ID) system is a complex system that involves various stakeholders, each playing a crucial role in its functioning with a variety of actors involved in establishing, maintaining, and using throughout its lifecycle.[133] These stakeholders span a spectrum of entities, ranging from government bodies, private organisations, to individuals, intermediaries, and civil society organisations.[134] With each stakeholder having a distinct role to play, it is essential to understand diverse interests and responsibilities of these stakeholders for the effective development, implementation, and maintenance of an ID system. In the context of the national ID system, the following stakeholders are usually involved. This asset details the various functions or roles that these stakeholders play in the context of digital ID systems.

[133] World Bank Group. (n.d.). *Stakeholders and roles: Identification for development.* ID4D. Retrieved April 17, 2024.

Governments or public sector actors

The government's, in this case the ID authority, role as a stakeholder in the national ID system is multifaceted.[135] In addition to providing designing and deploying ID systems, ID authorities register, onboard, and authenticate users, inform policy and help streamline welfare or service delivery.

- **ID Deployment:** Government agencies such as national identification authorities or similar bodies are often the primary architects of ID systems. They are responsible for issuing and managing ID documents, maintaining databases, and safeguarding the overall integrity and security of the ID system.[136] They issue and manage credentials, provide authentication or verification at different levels of assurance, conduct public consultation,[137] and establish a grievance redressal for continued upgradation of the system.
- **Inform policy**: Governments design policies, establish legal frameworks, and ensure compliance with regulations. In the context of digital IDs, a dual communication channel exists, where policy design enables inclusive enrolment, and learnings emerging from enrolment improve inclusive policy design.
- **Service delivery:** A country's government leverages the national ID system to enhance its ability to streamline and provide essential services to citizens, ensure efficient resource allocation, reduce fraud and corruption in service delivery. From an economic standpoint, the government benefits from a more transparent and accountable financial system with unique identification numbers. Accurate demographic data obtained through the system can aid in formulation and implementation of policies and programmes that ensure utilisation of public resources. In this context, ID authorities help facilitate service delivery through authentication related services. However, functional IDs may be issued and administered by different government departments and agencies.

Thus, the government is responsible for creating secure identities to ensure efficient use of ID for access to services. The government, including national ID agencies and various departments, could be considered to the primary lever for change.

[134] UNECA. (2023, May 22). *Implementing digital ID systems in Africa: ECA's stakeholders dialogue explores pathways for leveraging Digital ID Systems and disruptive technologies.* United Nations Economic Commission for Africa. Retrieved April 17, 2024.

[135] McKinsey & Company. (2020, August 31). *How governments can deliver on the promise of digital ID.* McKinsey & Company. Retrieved April 17, 2024.

[136] World Bank Group. (n.d.). *Stakeholders and roles: Identification for development.* ID4D. Retrieved April 17, 2024.

[137] Biometrics Update. (n.d.). *Stakeholders review Ethiopia's proposed digital ID legislative framework.* Biometrics Update. Retrieved April 17, 2024.

Private sector actors

Private companies in the technology and identity verification ecosystem play a significant role in the development and operation of ID systems and their supporting infrastructure.[138] These entities could range from technology developers, system integrators, digital ID solution providers, identity verification service providers to data storage and security management companies. It is the responsibility of private sector actors to ensure efficiency, security, and interoperability of systems.

Specifically, private sector actors provide the necessary technological infrastructure to countries,[139] develop software solutions, and collaborate with government agencies to ensure a functional and secure ID system. Private sector service providers should ensure interoperability and flexibility when designing and/or operating national digital IDs.

Civil society

NGOs, community-based organisations, academia and various other local stakeholders play a crucial role in stimulating demand and responsible design for digital IDs. They establish links with communities and vulnerable groups and provide access to vital services and social welfare programmes using different IDs.[140] Similarly, they encourage and facilitate citizen engagement and participation in economic, political, and social spheres. International organisations in the development and humanitarian sector may also provide support in various forms, such as financial or technical assistance, to build a country's digital ID system.[141] As part of the digital ID system, civil society stakeholders could improve the digital ID system by strengthening:

- **Feedback mechanism:** Bridging on-ground experience and providing feedback and recommendations on the planning and implementation of the ID system.[142]
- **Last-mile access:** Expanding the reach of digital ID systems and bringing in contextual solutions, CSO level stakeholders often address barriers to access, such as affordability, digital literacy, and connectivity issues, to prevent the exclusion of certain groups from the benefits of digital ID systems.[143]

[138] GSMA. (n.d.). *Digital identity: Towards shared principles for public and private sector cooperation.* GSMA. Retrieved April 17, 2024.
[139] World Economic Truth. (2021, June 10). *The private sector is taking the lead on enabling digital inclusion. Here's how.* The World Economic Forum. Retrieved April 17, 2024.
[140] World Bank Group. (n.d.). *Stakeholders and roles: Identification for Development.* ID4D. Retrieved April 17, 2024.
[141] World Bank. (2022, October 6). *Building inclusive and trusted ID systems to empower people and meet the SDGs: Identification for development.* ID4D. Retrieved April 17, 2024.
[142] Access Now. (n.d.). *Civil society organisations call for a full integration of human rights in the deployment of digital identification systems.* Access Now. Retrieved April 17, 2024.
[143] The Engine Room. (n.d.). *Digital IDs rooted in Justice: Lived experiences and civil society advocacy towards better systems.* The Engine Room. Retrieved April 17, 2024.

- **Policy and Governance:** CSOs often collaborate with government agencies, technology companies, and other stakeholders to develop and implement the effective governance of digital ID systems. They facilitate the alignment of ID usage with democratic principles and serves public interest.[144]

ID Intermediaries

Digital systems often see the presence of various stakeholders between the individual and the service provider. Also referred to as intermediaries, they often play act as facilitators for local communities. In several instances, ID intermediaries are the first point of contact for communities, and therefore, play a crucial role in addressing the awareness, access, and usage gaps. Analysis revealed that intermediary's function in varying capacities and can be classified into formal and informal intermediary types.

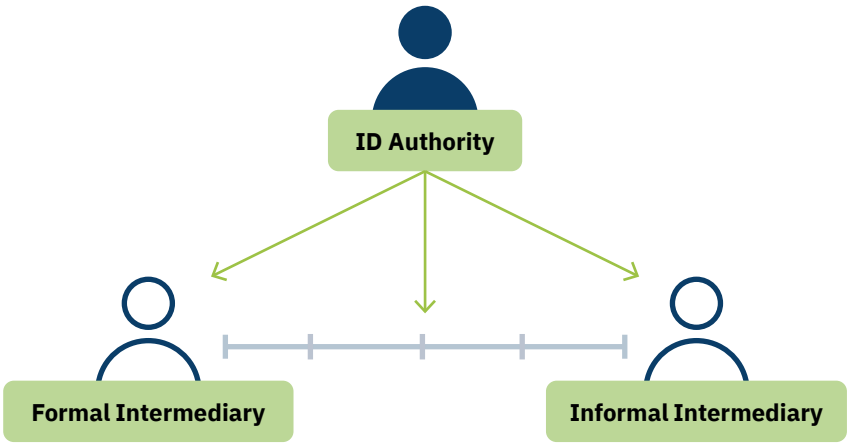


Figure 6. Visual representation of the range of intermediaries

Typically, countries have a range of intermediaries such as data intermediaries,[145] financial intermediaries,[146] and internet intermediaries.[147] ID intermediaries can be referred to as actors between the ID authority and the ID user to facilitate any ID-related transactions, from awareness, to access, and usage. This asset categorises the various intermediary types participating in the digital ID system.

[144] The Law Family Commission on Civil Society. (n.d.). *Civil society in our extremely digital world*. Law Family Commission on Civil Society. Retrieved April 17, 2024.
[145] What are data intermediaries?, Open data Institute.
[146] Financial Intermediaries, Corporate Finance Institute.
[147] Who are Internet Intermediaries?, Oxford Handbook of Online Intermediary Liability, Giancarlo Frosio (ed.).

a. Formal intermediaries:

A formal intermediary refers to national ID authority-recognized entities responsible for implementing the enrolment or authentication process. These entities operate within well-defined structures, follow established rules and regulations, adhere to strict protocols, and are under direct regulatory oversight of ID authority.

For efficient implementation of the national identity system, the ID authority can also leverage the services of various agencies such as *government offices, state government departments, local self-governance offices, post offices, and national banks.* In the Philippines, Barangay captains (highest elected officials in a district) facilitate the ID process as well as the supply of ID in the respective Barangay administrative division. Therefore, formal intermediaries, even though operating under different structures in every country, play a key role in facilitating ID-related services.

b. Informal intermediaries

Informal intermediaries refer to a diverse group of entities that operate in various capacities can be driven by distinct interests. These entities may not be authorised directly by the ID authority or relevant government body. While they may be subject to some structure and rules, they may often have more operational flexibility than formal intermediaries.

Notably in rural areas, there is a substantial presence of informal intermediaries, often surpassing the presence of formal ones.[148] Last-mile actors such as community-based entities act as facilitators by setting up service centres to provide ID-related services, providing doorstep delivery of service, or by creating support networks for women.[149] There are individual actors such as family, friends, or community-level religious and local leaders who are champions of change. These individuals play a pivotal role in supporting women in their ID journey by navigating complex challenges and socio-normative barriers, facilitating access to information and services.[150]

[148] Aapti Primary Research, observations from India field visit, 2023
[149] Idr. (2019). *The missing link in technology.* Doegar
[150] Aapti Primary Research, observations from Ethiopia field visit, 2023

Users

Individuals are the end-users of the digital ID system. For registration, they share biometric details and credentials and document proof to substantiate said identity. Users rely on their identification documents for availing various services, including travel, healthcare, and financial transactions. Therefore, the user's experience with the system directly influences their daily lives, shaping the efficiency and accessibility of essential services.[151]

- **Register to obtain IDs:** The ID user is the end beneficiary and holds a vested interest in the functionality, security, and overall effectiveness of the national ID system.
- **Leverage ID for service access:** Users use the national ID to access services, authenticate, and prove their identity. can serve as a tool for social inclusion and representation.[152]

ASSET 2 | Pathways for other ecosystem actors to support gender inclusion in and through digital IDs

This asset sheds light on the pathways where intermediaries and users can meaningfully interact with digital ID systems, and the role they can play within this ecosystem.

a. Intermediaries

The recommendations for the intermediaries aim to improve their engagement with the ID ecosystem, recognise and utilise their role in providing constructive support to the ID authority, and tap the potential to embed their role in policy formulation around ID services. Intermediaries such as community-based entities (CBEs), non-governmental organisations (NGOs) and civil society organisations (CSOs) play a crucial role in strengthening the ecosystem in collaboration with ID authorities. Uniquely, such intermediaries work towards the following ends.

a. Reducing discovery cost: Intermediaries can provide support with last-mile discovery and access, visibilise low

[151] O'Brien, P. (2021, August 20). The benefits of a single digital identity for government services. *StateTech Magazine.* Retrieved April 17, 2024.

[152] World Bank Group. (2019, August 14). *Inclusive and trusted digital ID can unlock opportunities for the world's most vulnerable.* World Bank. Retrieved April 17, 2024.

representation areas and population groups, and conduct outreach and mobilisation if they are well embedded within communities.

b. Facilitating participation of communities: Some intermediaries are integral participants in, and facilitators for, hyper-local communities. Due to their embedded nature, intermediaries can play a crucial role in facilitating access for women users through a programmatic approach and dedicated resources for a specific cause or purpose. They act as conduits between ID authorities and last-mile users. E.g., some intermediaries conduct programmes that help with enrolment or with accessing essential documentation required for enrolment. Additionally, such entities are also pivotal in identifying hyper-local champions of change and influencing behavioural change.

c. Strengthening ecosystem engagement

- Engaging with ID authorities: CSOs and CBEs should attempt to engage in country-related developments with the ID authority by responding to calls for consultations, empanelment, and knowledge sharing. Additionally, CBEs can also support the ID authority by monitoring the implementation, effectiveness, and further course-correction of gender-inclusive practices put forth by national ID developers.
- Participating in global platforms: CBEs often consolidate and bring forth perspectives that could be valuable within global forums, conferences, or summits. By engaging within these spaces, such entities can highlight specific nuances or provide actionable insights or pathways for global stakeholders to learn from.
- Providing resource support: Semi-formal intermediaries such as community self-help groups, women networks, should provide strategic expertise and resources to ID authorities. Observations indicated that such entities often fill gaps where governmental authorities are unable to.
- Generating meaningful evidence and creating feedback loops: Learnings and insights possessed by CBEs/CSOs/ NGOs are often not available to ID authorities. By documenting programmatic outcomes, or evidence generated from community interaction, such intermediaries

can play a pivotal role in strengthening narratives, creating feedback loops, and driving gender inclusion from the bottom up. Additionally, for specific service provision, they can serve as intermediaries to provide feedback to ID-related services and schemes.

- Seeking recognition and support: CBEs and CSOs often work in spaces where governmental intervention might not reach. Such entities should build innovative partnership models with ID authorities to receive support, receive information, build in-house capability, and formally provide feedback to the system.

d. Policy making: Last-mile actors such as CSOs/NGOs/CBEs can act as mechanisms to provide insights on user needs and working of the ID system, ultimately informing policy of ID systems or digital governance.

b. Users

Users are key stakeholders in the ID ecosystem. As beneficiaries of such systems and services, users can provide meaningful feedback, raise issues in the form of grievances, and make recommendations to ID authorities.

a. Continuously test the system: Users should proactively seek available online and offline pathways to obtain information about IDs. Where such information is missing, users should provide feedback through elected officials, ID representatives, and other stakeholders.

b. Leverage the grievance redressal mechanism: Users should proactively raise grievances and challenges they face when interacting with digital ID systems.

c. Engage in policy consultation: Users should engage in public consultations with policies or system-level changes whenever such opportunities arise.

d. Intentionally enable and empower women users: Family or community-level actors should actively engage in overcoming societal norms or supporting women users to interact with digital ID systems.

Approach for toolkit

This tool was created to understand and address the challenges faced by women while interacting with digital ID systems. It categorises the pillar-specific challenges faced by women, highlights their implications, and incorporates current global practices that address such challenges.

To build this tool, insights were drawn from primary research and secondary literature, and engagement with ecosystem stakeholders to gain a comprehensive understanding of the relationship between women and ID systems.

To this end, the gender inclusion ID tool was designed to provide a structured self-assessment for ID developers and deployers. Through a series of questions, the tool highlights the specific hurdles women may encounter at each stage of awareness, access, and usage.

This tool is intended to serve as a practical resource for stakeholders, offering actionable insights and recommendations to mitigate the identified challenges. Through this approach, the tool seeks to contribute to the advancement of inclusive and gender-responsive digital ID systems.

Building the Best practices tool

The tool is developed on the principles of building women's agency and empowerment. Where agency determines women's ability to act, make decisions, and take risks. Drawing from this, empowerment can be a combination of participation, equitable access, and control over resources. While these frameworks aren't mutually exclusive, the study uses these frameworks strategically. In some cases, the framing of the question and the recommended practices leverage the framework for building women's agency when interacting with digital IDs. Conversely, the tool uses questions and recommended practices to evaluate whether practices or measures can help empower women. The diagrammatic representation (Figure 8) is broken down accordingly.

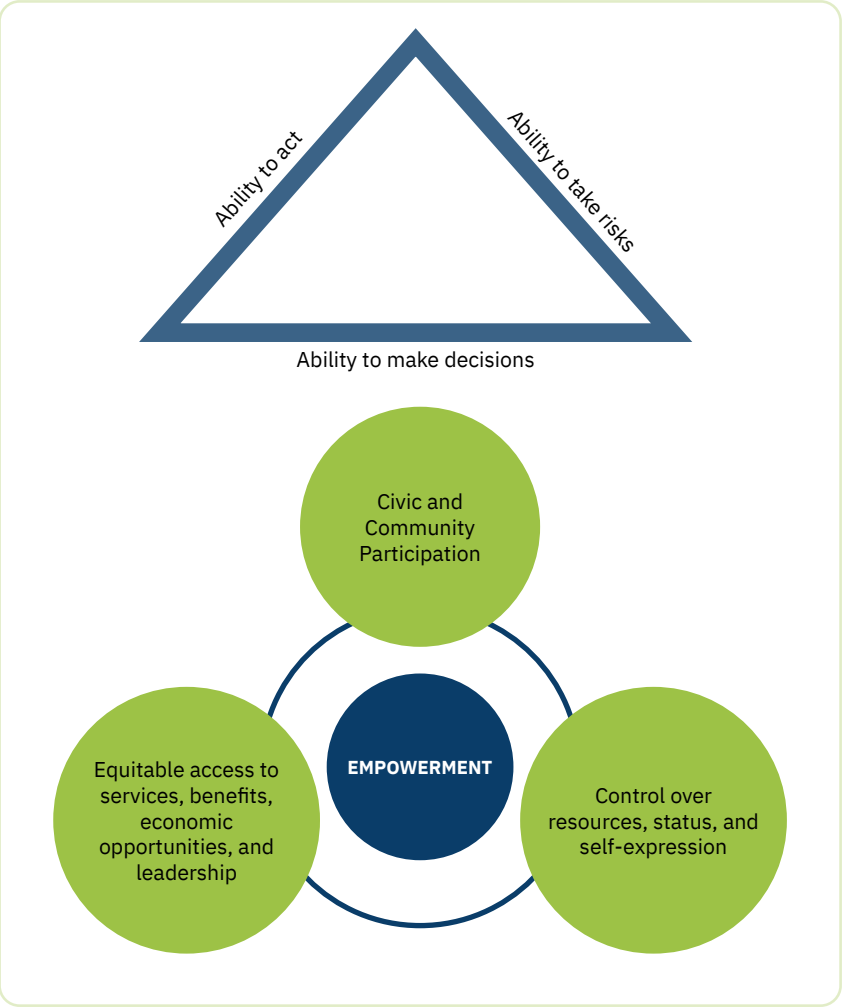


Figure 7. Dimensions of agency and empowerment used for this study

Finally, the identified categories, challenges, and recommendations within the tool have been framed using the A2U framework that has been articulated within this report.

How to use this tool

This tool has been designed for ID developers and deployers—especially for the technology and implementation teams—to identify and address challenges women face when interacting with digital ID systems. The tool allows respondents to self-identify their current system's capability to enable and empower women.

Global ID developers can utilise the tool and consider answering the questions within it. The tool has two paths for assessment. The categorisation of this tool has been done in the following manner.

AWARENESS	ACCESS	USAGE
Understanding the pathways to access digital ID systems. The Awareness Pillar revolves around 2 key anchor points: • Role of information • Role of literacy and training	Identifying and connecting these pathways to interact with digital IDs. The Access pillar revolves around 2 key anchor points: • Role of infrastructure • Role of logistics and emerging costs	Leveraging a digital ID to improve women's agency and empowerment. The Usage pillar revolves around 1 key anchor point(s): • Ecosystem infrastructure
Common anchor points for all three pillars: • Resource Conisderations within each pillar • Role of actors within each pillar • Role of policy within each pillar		

Table 2. The framework used for the Gender Inclusion Tool

This is a self-assessment tool which denotes the challenges faced by women in the form of implications upon answering questions in the sub-category level. While represented in an interactive format, the flow of the tool is indicated in Table 6.

Structural framework of the best practices tool

Context	Creates universe of potential challenges women users may face with digital ID system interaction
Category	Creates nuanced challenge category
Sub-category	Classifies the challenges under the particular category
Questions	Identifies problems on the non-tech side of the digital ID system
Response	Affirmative or Negative
Implications	Sheds light on the implication for women users if the identified problems are not addressed
Practices Observed	Consolidates observed best practices that can help address identified problems

Table 3. Indicative flow of the Gender Inclusion Tool

The tool includes several categories across the three pillars. For instance, at the awareness level, one of the categories is ***"Information"*** which has four sub-categories: ***Purpose, Process, Infrastructure, and Practices.*** Each of these sub-categories contains a set of specific **questions** that addresses nuanced challenges. For instance, at the purpose level, questions about information availability have been consolidated.

These questions are framed in such a way that answering "NO" guides the user to specific challenges and showcases potential implications that may arise if the gaps are not addressed. The implication is followed by the observed practices, nudging respondents towards potential solutions. However, if the respondents click "YES", they have an option to share their own deployed practices.

Cross-Cutting Challenges

The team identified several cross-cutting challenges that impact women's engagement with digital ID systems. These challenges cut across all levels of the A2U framework and deserve special mention within the tool. The best practices tool has been designed to collate and address these cross-cutting challenges comprehensively. In cross-cutting categories, several challenges like information, infrastructure, resource considerations, and the role of actors have been identified and addressed with observed best practices.[153]

a. Information challenges:

At the level of awareness, information on the purpose of the ID, the process to obtain it, and information regarding the availability of infrastructure is often missing. This absence of information about various facets of ID prevents women from understanding the necessity of having an ID, the steps to obtain one, and where to go for registration.[154] It eventually impedes women's decision-making power to navigate the digital ID system and get an ID.

[153] Aapti Primary Research
[154] Aapti Primary Research, observations from multi-country field visits, 2023

b. Infrastructural challenges:

The importance of infrastructure availability at the level of access and usage is crucial to improve access to digital ID systems and increase its usage. While at the level of awareness, the presence of various formal and informal infrastructures play a crucial role in bridging infrastructural gaps. Challenges around the presence, capability, and capacity of infrastructure could arise due to lack of efficient staff or amenities required for operations.[155] Therefore, issues with capacity and infrastructural capability often act as hurdles when accessing digital IDs.

c. Resource considerations:

Ownership of digital devices and other resources plays a crucial role in getting information, accessing the digital ID system, and using ID to access services. At the awareness level, ownership of resources is vital to engaging with available information. At the access and usage level, having digital devices and pre-existing ID/ documents in place is important to engage with the pre-registration and registration process for accessing the ID.[156] Where such resources are missing, women's interaction with digital ID systems is hampered.

d. Role of actors:

The role of different actors at the last mile and systems level is crucial. For instance, family-level actors often act as enablers in bridging information gaps at the household level. Research indicates that women often turn to their families as the primary source of information to build awareness. Family members also frequently provide assistance and support while accessing digital ID systems. Once acquired, families play a crucial role in enabling ID usage. However, it is important to note that families can also limit women's agency by diminishing their ability to make independent decisions, thus fostering dependency on the family to access digital systems. Using the example of other key actors, this category has been built as a horizontal theme in the tool to understand the role and impact of key actors. Furthermore, questions on the role of actors also try to identify ways to enable these actors and the role that an ID developer can play in empowering them.

[155] Ibid.
[156] Ibid.

e. Impact of socio-normative constraints:

Social norms and structures play a significant role in empowering women and facilitating their access to identity documents. However, research has revealed that social norms contribute to the digital gender divide, varying levels of digital and educational literacy, differing formats of employment, ownership and agency over resources. Therefore, socio-normative factors have also been explored as a horizontal theme within this tool, where questions and practices have been framed to ease, enable, or overcome women's challenges specific to digital ID interaction.

ASSET 4 | The Community of Practice: ID (CoP)

Need for CoP: Digital ID

The CoP refers to a 'group of people who share a concern or passion for something they do and learn how to do it better as they interact regularly.' It stimulates cross-organisation collaboration, knowledge sharing, and relationship building in a specific domain. CoPs have evolved across a range of sectors and invite various stakeholders such as public and private actors, research institutions, and civil society organisations.

In recent years, communities of practice have gained popularity as a tool for democratising digital transformation.[157] Some examples of existing CoPs in the government digital ecosystems are from the United States,[158] and the British Columbia public services,[159] aimed at better digital experience in government and sharing knowledge, expertise, and best practice. Additionally, there are research entities such as the Digital Data Design Institute at Harvard with six communities of practice focused on the interaction of society and business with artificial intelligence (AI) and digital technologies.[160] Depending on the objective, CoPs could be structured based on criteria such as themes, engagement formats, and governance principles.[161]

Although there exist multi-stakeholder coalitions such as the World Bank[162] that convene macro-level players in the digital ID

[157] *Gagne, F., Miller, M., Souza, C., Harris, J., & Siciliano, A. (2022, August 18). Democratizing digital transformation with communities of practice.* EDUCAUSE Review. *Retrieved April 16, 2024.*

[158] *Digitalgov. (n.d.). Digital.gov communities of practice – Digital. gov. Digitalgov. Retrieved April 16, 2024.*

[159] *British Columbia. (n.d.).* Communities of practice in the BC Public Service – Province of British Columbia. *Digital Government. Retrieved April 16, 2024.*

[160] *Digital Data Design Institute. (n.d.).* Communities of practice overview. *D3.Harvard. Retrieved April 16, 2024.*

[161] *European Commission. (2021, September 17).* JRC publications repository - The communities of practice playbook. *JRC Publications Repository. Retrieved April 16, 2024.*

[162] *World Bank Group. (n.d.).* CDD community of practice. *Collaboration for Development (C4D). Retrieved April 16, 2024.*

ecosystem, platforms for key actors like community-based entities that directly engaged with people on the ground were missing. With the CoP: Digital ID,[163] the team hoped to visibilise perspectives and experiences that might have been previously missed. For this, a team from Aapti and MOSIP built the CoP: Digital ID.

CoP: Digital ID as a stakeholder engagement format

The CoP: Digital ID was used as an ecosystem cross-learning mechanism and a way to gain knowledge and learning from the global participants on women's interaction with digital systems. The insights gathered from the CoP session were triangulated with field and desk research to strengthen the findings documented in this report.

This CoP was created to convene researchers, community-based entities, and stakeholders from Ethiopia and the Philippines. To ensure convenience, virtual sessions were conducted every 2 months, with one physical convening taking place in Addis Ababa.

The CoP: ID brought together entities from various countries working towards empowering women, enhancing socio-economic outcomes, and improving access to ID. The four sessions conducted so far have focused on a gender-sensitive approach when interacting with digital systems, understanding women's interactions and challenges through lived experiences, and nuances of gender inclusion in the field.

The sessions[164] deepened the participant's understanding of key themes, brought forth country- and context-specific perspectives, created a feedback loop, and set learning expectations for future sessions. The participants also shared their experiences on various aspects of the Awareness, Access, and Usage (A2U) framework. The CoP established a strong evidence base for gender-sensitive design, implementation, governance, and usage of digital ID systems through a knowledge-based approach.

Road ahead for CoP: Digital ID

The CoP strives to break down information silos among communities working on enhancing inclusion within digital

[163] Inclusion Microsite. (n.d.). *Community of Practice (CoP).* Inclusion Microsite. Retrieved April 29, 2024.
[164] Ibid.

Figure 8. QR code for more information about CoP. This is housed on 'The Inclusion Hub' website.

systems. As an inclusive learning platform, the CoP hopes to fortify ongoing initiatives by providing participants networking opportunities, learning sessions, and participatory sessions. The CoP: Digital ID will continue to address challenges faced by women by extending its reach to encompass different countries and stakeholders.

Learnings and insights from these sessions as well as presentations, critical ecosystem research will be consolidated in a microsite called the 'Inclusion Hub'. To sustain these efforts, this team invites participation from interested entities that either work in the space or want to understand more within it.

ASSET 5 | Country observations: Findings from Primary Research

This asset focuses on uncovering observations from the researched countries, and encompasses insights gathered during field visits to these countries. Each country observation section offers a brief country profile, followed by policy landscape on country's ID systems, and highlights gender-inclusive policies, if any. It dives into its digital ID, national ID authority, and the existing digital ID usage in the country.

Furthermore, each country section presents insights into challenges encountered by women in their interactions with the digital ID system, documented through observations, focus group discussions (FGDs), and personal interviews (PI). These challenges are categorised based on the A2U framework, complemented with enablers identified during the primary research and supplemented with desk research.

Ethiopia

1. Country background and policy landscape

Ethiopia has a diverse population of over 120 million people,[165] with an increasing number of women entering the workforce[166] over the last few years. The newer policies address a variety of

[165] United Nations Population Fund. (n.d.). *World population dashboard: Ethiopia.* United Nations Population Fund. Retrieved in 2024.

[166] World Bank Group, *Data, labor force, female (% of total labor force), Ethiopia as of 2022.*

concerns that might have emerged after the drafting of the 1930 Nationality Law in Ethiopia.[167] The country has seen significant growth and development since the promulgation of the 1995 Ethiopian Constitution which lays special emphasis on empowering women through various enabling policies.

Factoring in Ethiopia's past, the policy landscape has prioritised providing legal identification for marginalised communities. A proclamation released in 2012 catalysed the movement towards providing a digital ID and other civil registry services for Ethiopians.[168] A more recent proclamation released in 2023, further expands on the governing landscape of the ID system in Ethiopia, while keeping in consideration certain data protection, privacy and security concerns. This newer proclamation also states that building a digital ID system should prioritise inclusive practices.[169] In a proclamation released in 2019,[170] Ethiopia articulated its stance towards extending refuge to asylum seekers and recognised refugees. In this context, such groups would be able to obtain specific identity documents within Ethiopia and be able to access various essential services. With such shifts in country-specific policies, gender-inclusive thinking could be on its way to more effective governance.

2. Ethiopian ID landscape: ID system background, national ID, ID program

Historically, Ethiopia has seen the usage of various functional IDs like the Kebele ID, Tax Identification Number (TIN), passports, drivers' licences and so on.[171] With the presence of numerous identity credentials, Ethiopian residents often find it hard to determine requirements when accessing services.[172] This could further complicate service provision through processes requiring multiple forms of documentation.[173]

With the setting up of the National ID Program (NIDP), the Ethiopian government hopes to achieve the goal of providing a foundational digital ID to approximately 90 million residents by 2028.[174] The NIDP is currently operationalising the 'Fayda ID', a digital foundational ID, to improve access to government services and has onboarded more than 12 million residents by 2024.[175] The Fayda ID has progressed rapidly since its pilot phase and has leveraged existing systems.

[167] Fassil, Z, (2020, April 9). *Report on citizenship law: Ethiopia.* CADMUS, EUI Research Repository. Retrieved April 17, 2024.
[168] UNHCR, Refworld. (2012, August 22). *Proclamation on the registration of vital events and national identity card (Proc. No. 760/2012), Ethiopia.*
[169] Proclamation No. 1284/2023, Ethiopian digital identification proclamation, page 14715, Federal Negarit Gazette of the Federal Democratic Republic of Ethiopia.
[170] Proclamation No. 1110/2019, Refugees proclamation, page 11,075, Federal Negarit Gazette of the Federal Democratic Republic of Ethiopia
[171] World Bank Group. (n.d.). *ID4D country diagnostic: Ethiopia.* World Bank Documents. Retrieved April 17, 2024.
[172] Aapti primary research, statement made by multiple respondents at Palace Registration Centre, observations from Ethiopia field visit, 2023
[173] Ibid
[174] As shared by NIDP Representative (April 2025)
[175] Ibid

The commitment of the Ethiopian government to strengthen inclusion through policies and strategic initiatives such as the UNDP Ethiopia's Gender Equality Strategy (GES) can be viewed as strong initiatives for countries with similar population diversity.

3. Key learnings from Ethiopia on Awareness

Since the system is at a nascent stage, observations mostly centred around improving women's access to digital IDs through enrolment and onboarding based on existing credentials. In addition to addressing challenges faced at the access stage, handling challenges that emerge at the awareness and usage stages could lead to a more holistic approach that could empower women to participate in their ID journey.

Awareness related challenges

The awareness challenges pertain to identifying and comprehending nuances of the various channels that exist to improve women's understanding, need, and benefit of digital ID systems.[176] At the awareness level, women often lack access to relevant and holistic information to understand the requirements, uses of digital IDs, and the processes of digital ID systems. In addition to this, limited knowledge among families and communities, and existing societal constraints further inhibit women's understanding of such systems.

I. Challenge: Understanding the need for a digital ID

Information about accessing essential services, the need for an identity document, and the potential uses of such documents are often limited for women.[177]

Enablers: Leveraging community-based infrastructure

- Presence of local shops in metropolitan areas provide access to registration portals.
- Conducting pilot drives in rural areas helps improve awareness.
- Information is disseminated at registration centres, and on the ID program's website.

[176] OECD. (2018). *Bridging the digital gender divide, 2018.* OECD.
[177] Bailur, S. (2019, September 9). *Women and ID in a digital age: Five fundamental barriers and new design questions.* Medium. Retrieved April 17, 2024.

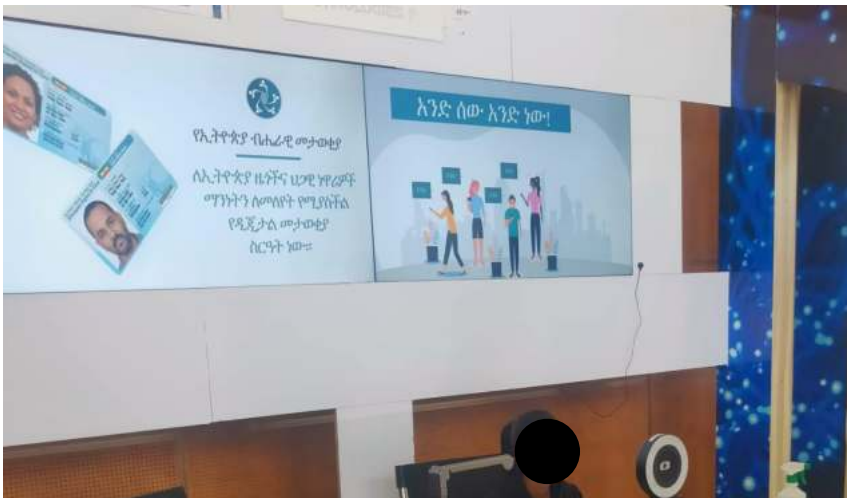


Figure 8. Presence of television screens in registration booths

II. Challenge: Overcoming societal norms about why women need ID

Male-centric structures often result in negative perceptions around women's ID ownership and can reduce their ability to obtain ID.[178] Overcoming such perception barriers will bolster women's willingness to obtain IDs.

Enablers: Easing registration requirements and building hospitable centres

- The Fayda ID registration allows over 30+ pre-existing ID documents as credentials or proof when enrolling.
- The Fayda ID allows registration by nomination.
- Well maintained Fayda registration centres are present in easily accessible urban, semi-urban and rural areas and have female operators.

Figure 9. Female operators in registration centres

[178] GSMA. (n.d.). *Driving adoption of digital identity for sustainable development: An end-user perspective report.* GSMA. Retrieved April 17, 2024.

4. Future of Ethiopia's digital ID

As the Ethiopian government aims to enrol all legal residents by 2025, collaborations with other government agencies such as the Department of Revenue and the Department of Education have been initiated.

The Federal Civil Service Commission has partnered with NIDP to launch Fayda ID as the primary identification for civil servants. It aims to establish the digital ID for digitization of a transparent and secure civil service. The Commission wants to better manage its human resources and overcome malpractices in employment. The development of a superior identifying system for civil servants via the Digital ID is one of the main aspects of this partnership.[179]

The National Bank of Ethiopia has mandated Fayda for all new bank account openings as of January 2025. To enable financial access and improve service delivery standards, the central bank also intends to use Fayda IDs as a requirement for onboarding bank customers.[180]

The Ministry of Health announced a joint initiative called "digital health for health" with the NIDP. It aims to integrate the Fayda ID in the health sector and leverage it for the health registration systems, and use it as foundation for subsequent services such as unique patient index and national insurance schemes.[181]

[179] Agreement made to provide civil servants with Digital ID. (September 15, 2023). Press.et. Retrieved April 17, 2024.
[180] Muthumbi, J., & Saxena, S. (2023, July 10). *NBE to make digital ID primary for use by banks.* Ethiopian Monitor. Retrieved April 17, 2024.
[181] African Demystifier. (2023, September 9). Ethiopia's health sector to deploy digital ID. African Demystifier. Retrieved April 17, 2024.
[182] Country Meters. (n.d.). *Philippines population (2024) live.* Countrymeters. Retrieved April 17, 2024.
[183] Republic of the Philippines, Philippine Commission on Women. (August 2009) Republic Act 9710, The Magna Carta of Women.

Phillipines

1. Country background and policy landscape

Located in southeast Asia, the Philippines has a population of 113.9 million, with 56.9 million women. In 2022, the female labour force participation rate in the Philippines was estimated at 45.96 percent.[182] Various policies aimed at promoting gender equality and empowering women have been implemented in the Philippines. The Magna Carta of Women, enacted in 2010, serves as a comprehensive women's human rights law that seeks to eliminate discrimination against women by recognising, protecting, fulfilling, and promoting the rights of Filipino women, especially those belonging to the marginalised sections of society.[183]

The Women's budget, introduced by the General Appropriations Act (GAA) in 1995,[184] allocates a gender and development (GAD) budget to provide resources to support the execution of gender advocacy and women's empowerment programmes on the ground. It requires government departments and agencies to set aside a minimum of five percent (5%) of their annual budgets for gender-related projects, programmes, and activities. The local government units (LGUs) are required to develop Gender and Development (GAD) Code(s) to ensure sustainable gender-responsive governance.[185] Further, in 2014, the Philippines Commission for Women implemented the gender mainstreaming monitoring system (GMMS) to facilitate the submission of the annual GAD plans and budgets (GPBs) and GAD accomplishment reports (ARs).[186]

Among the ASEAN members, the Philippines' digital economy was predicted to grow at the quickest rate in 2021, by leveraging digital transformation to accelerate the nation's economic recovery.[187] Among the various efforts to promote digital payments and e-commerce, strategic directions including policies have been suggested for accelerating digitisation. This includes effectively implementing the Bangko Sentral ng Pilipinas' (BSP) Digital Payments Transformation Roadmap 2020–2023[188] by using the Philippine Identification System (PhilSys) to promote financial inclusion and innovate digital financial services.[189]

2. Philippines ID landscape: ID system background, national ID, ID authority

Philippine Identification System, known as PhilSys ID, was established as a foundational digital ID system to provide valid proof of identity. The Philippine Identification System Act,[190] was signed into law on August 6, 2018, which mandated the creation of PhilSys, a centralized identification platform for all citizens and resident aliens in the Philippines. It is intended to simplify public and private transactions and as a social and economic platform to promote seamless social service delivery and strengthen financial inclusion for public and private services.[191] To protect the privacy of registered users, a data privacy security unit has been set up under the authority, and the National Privacy Commission monitors the application of the Data Privacy Act to PhilSys ID.[192]

[184] Legislative Digital Resources. (n.d.). *General Appropriations Act 1995.* Senate of the Philippines Legislative Reference Bureau. SENATE LEGISLATIVE DIGITAL RESOURCE. Retrieved April 17, 2024.
[185] Official Gazette, Philippine Commission on Women. (August 2023). Board Resolution No. 003, Series of 2021. Scribd.
[186] PCW. (2024, April 14). *GAD budget.* Philippine Commission on Women. Retrieved April 17, 2024.
[187] Tech For Good Institute. (n.d.). *National-level priorities to grow the digital economy: Spotlight on the Philippines.* Tech For Good Institute. Retrieved April 17, 2024.
[188] BSP Digital Payments Transformation Roadmap 2020–2023. (n.d.). *BSP digital payments transformation roadmap report.* Retrieved April 17, 2024.
[189] *The growing Philippine digital economy: A focus on eCommerce and digital payments.* Congressional Policy and Budget Research Department.
[190] Philippines. (n.d.). Untitled. Senate of the Philippines. Retrieved April 17, 2024.
[191] Philippine Identification System, Philsys.
[192] Aapti Primary Research, responses from a Philippine Statistics Authority representative, 2024

The PhilID is the physical ID card issued after the registration process and contains a registrant's demographic and biometric information such as full name, birth date, address, front-facing photograph, and the PhilSys Card Number or PCN. The ePhilID is the digital version of the PhilID card and has the same validity and functionality.

Philippine Statistics Authority (PSA) is the entity responsible for implementing PhilSys. The implementation of PhilSys involves a multi-year process, including registration of individuals and issuance of a unique PhilSys number (PSN) and PhilSys ID card. The registration process includes the collection of demographic and biometric information, such as fingerprints, iris scans, and facial images. The collected data are securely stored in the PhilSys database. The implementation of PhilSys happened in phases, with priority given to specific groups, such as marginalised sections and those without any existing government-issued IDs. The plan is to gradually expand the coverage until all citizens and resident aliens are registered.

3. Key learnings from Philippines on Access

Access-level challenges

Digitisation of services and access pathways to these essential services are creating efficient value chains. However, identifying and understanding the various ways that women access digital ID systems is crucial when addressing women's inclusion and participation.[193] Women often face a plethora of barriers through logistical constraints, resource constraints, and other normative constraints when accessing digital systems and digital ID.

I. Challenge: Women in far-flung areas find ID services difficult to access

Presence of geographically isolated and disadvantaged areas (GIDA) in the countries creates access problems, both for residents and the ID authority.

Enabler: Implementation of effective registration strategy by factoring geographical and socio-cultural context

Mobile registration kits emerged as an effective strategy to

[193] Aranda-Jan, C., & Qasim, Q. (n.d.). *Increasing access to technology for inclusion*. Retrieved April 18, 2024.

address the access needs in far-flung areas. The kits used in such settings can function offline, collect information packets, which get uploaded once connected.[194]

Enablers: Expansion of registration efforts by the ID authority

- Focus on reaching the geographically isolated and disadvantaged areas (GIDA) with initiatives such as "PhilSys on Boat" to transport personnel and equipment and use of traditional canoes known as "bangka" as mobile registration sites by the PhilSys registration officers. [195]
- Registration efforts first enrolled population groups through subsidy programmes to improve access for vulnerable groups. [196]

II. Challenge: Gender digital divide and financial inclusion gap continues.

Barriers to connectivity due to inadequate infrastructure, limited internet literacy, and expensive connectivity costs,[197] uneven and underdeveloped digital landscape furthers the gender digital divide in the Philippines.[198] Interactions revealed that some women faced issues with the pre-registration portal and had to opt for physical centres or they simply preferred accessing services offline.

Enabler: Plugging the financial inclusion and digital divide gaps alongside PhilSys ID

PhilSys used the colocation strategy and collaborated with the Land Bank of the Philippines (LANDBANK) to strengthen financial inclusion. It enabled formal access to financial services for unbanked adult Filipinos through the issuance of a banking card by enabling PhilSys-registered individuals to open transaction accounts simply at PhilSys registration facilities after their Step 2 registration. With this strategy, about 8.4 million unbanked Filipinos were onboarded in 2022 and 5.8 million were able to open transaction accounts.[199]

[194] Aapti Primary Research, response provided by PSA representative, 2024
[195] Philippine Statistics Authority
[196] Aapti Primary Research, response provided by PSA representative, 2024
[197] PIDS. (2023, April 27). PIDS - Philippine Institute for Development Studies. Retrieved April 17, 2024.
[198] Foundation for Media Alternatives. (n.d.). *Filipino women's digital agenda: Inclusion of women's voices towards policy reform.* fma.ph. Retrieved April 17, 2024.
[199] Republic of the Philippines, Philippines Statistic Authority. (February 2021). *PSA, LANDBANK Reaches Financial Inclusion Milestone in 2022; Onboards 8.4 Million Unbanked Filipinos.*

4. PhilSys ID: Present digital ID usage

Research and interactions revealed that policies are being formulated to leverage the potential of Philsys ID, and use cases are being piloted and explored. Due to the relative nascency of the PhilSys ID, the Philippine Statistics Authority has been making persistent efforts on extensive registration to achieve the target of issuing PhilSys ID to 92 million residents by 2030.[200] To this end, the ID authority has continued partnerships with entities such as the Department of Social Welfare and Development (DSWD), transport and food delivery service providers,[201] and regional statistics offices to reach disadvantaged communities in remote areas.[202] Continuing with its co-location strategy, it signed a memorandum of understanding with a rural bank to bring registration services closer to the people and promote financial inclusion.[203] Interactions revealed that women still use different functional IDs despite having the PhilSys ID, and the latter was only being used for identification purposes and for loan, SIM card, and e-wallet applications (GCash and Maya).[204] Currently, the PhilIDs or the ePhilIDs are being used for account verification of mobile wallet service by GCash and make up for 41% of valid IDs submitted by the users.[205]

The ID authority is in the process of developing use cases and is said to have been working on setting up the KYC reporting mechanism[206] for the Philippines-based mobile payments platform—GCash.[207] Currently, only pilot registration under the Civil Registration and Vital Statistics (CRVS) has begun and the authority aims to test it with e-KYC in the future and also plans to use the eGOV PH application developed by the Department of Information and Communications Technology (DICT) to integrate other services.[208] As the use cases are still at a development stage, the authority is still evaluating the impact of the use cases with indicators such as increased transaction speed, reduction in cases of fraud, and system costs. Currently, the authentication is quite low, with eGOV and CRVS as the only two onboarded services. However, interaction with the PSA authorities revealed that efforts are being made to strengthen authentication and develop the e-KYC process. These efforts include identifying and onboarding different services, and finalising regulatory, documentary, legal, and technical requirements.[209]

[200] Ibid
[201] PIS. (2023, December 19). *PSA partners with transport, food delivery service provider for PhilSys registration of drivers, riders.* Philippine Identification System. Retrieved April 17, 2024.
[202] PIS. (2023, November 30). *PSA intensifies PhilSys registration in far-flung areas; reaches out to residents in remote communities in Tawi-Tawi and Quirino.* Philippine Identification System. Retrieved April 17, 2024.
[203] Response from PSA representative, Observations from interactions with experts, Aapti Primary Research, 2024
[204] Response from PSA representative, Interactions with experts, Aapti Primary Research, 2024
[205] Manila Standards. (n.d.). *PhilSys IDs most used to verify mobile wallet accounts.* Manila Standards. Retrieved April 17, 2024.
[206] Comply Advantage. (2023, April 13). *Philippines Central Bank approves new e-KYC rules.* ComplyAdvantage. Retrieved April 29, 2024.
[207] Gonzalez, B. (2024, January 2). *Philippines' digital ID registration expands to more remote areas.* Biometric Update. Retrieved April 29, 2024.
[208] Crawford, B. (2023, September 1). *Philippines launches 'eGov' super app, tests biometric authentication for national IDs.* Biometric Update. Retrieved April 29, 2024.
[209] Response from PSA representative, Observations from interactions with experts, Aapti Primary Research, 2024

In an effort to integrate PhilSys into government databases, processes, systems and services, the Philippines administration has asked all government agencies, offices, instrumentalities, as well as local government units (LGUs), to prepare a PhilSys Integration Implementation Plan (PIIP)[210] for their respective entities.[211] It is proposed to be used as proof of identity to apply for passports and driver's licence, and tax-related operations and getting admission to any government hospital, health facility, or other related institution. To increase the usage of PhilID and ePhilID and avail the benefits of PhilSys, the ID authority has been encouraging registered Filipinos to use it for accessing financial services.[212]

In the social welfare sector, its use is intended for welfare benefits such as the Government Service Insurance System (GSIS), Social Security System (SSS), PhilHealth, and the Home Development Mutual Fund (HDMF). Recently, pilot programmes on open-source government-to-person (OpenG2P) platform with PhilSys integration were undertaken for service delivery by the Department of Social Welfare and Development (DSWD) for the Assistance to Individuals in Crisis Situation (AICS) programme. Similarly, the adoption of PhilSys is also being explored for other programmes, such as the Pantawid Pamilyang Pilipino Program (4Ps), which aims to provide financial assistance to impoverished families,[213] with around 17,740 beneficiaries integrated so far.[214]

India

1. Country background and Policy landscape

With a population of over 1417 million, India is one of the most populous countries in the world,[215] with 48.4% of its population being female.[216] India's female labour force participation has been declining since 2005 but has gained pace over the years and increased from 23.3% in 2017–18 to 37% in 2022–23.[217] Internationally,[218] India has ratified and endorsed various conventions, instruments, initiatives, and strategies that aim to secure equal rights for women. The Indian Constitution grants equal rights and opportunities to women,[219] prohibits discrimination on grounds of sex,[220] and also empowers the Indian State to adopt special measures of positive discrimination in favour

[210] Philippine Identification System, PhilSys Integration Implementation Plan (PIIP). Memorandum Circular (MC) No. 95, s. 2022.
[211] Ibid
[212] Ibid
[213] World Bank. (2017, July 10). *FAQs about the Pantawid Pamilyang Pilipino Program (4Ps).* World Bank. Retrieved April 30, 2024.
[214] Luczon, N. (2023, November 7). *17K 4Ps beneficiaries in NorMin streamlined with PhilSys.* Philippine News Agency. Retrieved April 17, 2024.
[215] United Nations. (2023, April 24). *India to overtake China as world's most populous country in April 2023.* United Nations. Retrieved April 17, 2024.
[216] World Bank Group. Data. (2022). *Population, female (% of total population) – India.*
[217] PIB. (2023, October 9). *Periodic Labour Force Survey (PLFS) Annual Report 2022-2023 released increasing trend in labour force participation rate and worker population ratio constant decrease in unemployment rate.* PIB. Retrieved April 17, 2024.
[218] PIB. (n.d.). *Measures for gender equality and empowerment of women.* PIB. Retrieved April 18, 2024.
[219] Kanoon. Article 14 of the Indian Constitution.
[220] Kanoon. Article 15 (1) of the Indian Constitution.

of women.[221] In 2016, the Indian government also unveiled the draft National Policy for Women which articulates the vision for empowerment of women.[222] Recently, in its G20 presidency,[223] India reaffirmed its commitment to achieve the 2030 Agenda for Sustainable Development,[224] which also includes providing legal identity for all.

India started its journey of digital ID with the launch of the Aadhaar programme in 2009. The setting up of Unique Identification Authority of India (UIDAI)[225] paved the way for the implementation of digital IDs. The passage of the Aadhaar (Targeted Delivery of Financial and other Subsidies, benefits and services) Act, 2016[226] gave statutory recognition to the Authority. Since then, a slew of Aadhaar regulations on enrolment and update,[227] data security,[228] information sharing,[229] authentication, and offline verification have been passed to build a robust ID ecosystem. To promote good governance, ease of living of residents, prevent public funds leakage and enable better access to services, the central government, in consultation with the UIDAI, formulated the Aadhaar Authentication for Good Governance (Social Welfare, Innovation, Knowledge) Rules, 2020.[230] The rules will allow the central government to consider proposals for Aadhaar authentication by requesting entities such as the ministry, central and state department.

2. India ID landscape: Identity documents, Digital ID, and ID authority

Prior to the national Aadhaar ID, voter ID, driving licence, PAN card, ration card, passport and educational certificates were some of the commonly used functional identity documents.[231] The host of identity documents served various purposes ranging from proof of address and education to relationship status, before Aadhaar became the most widely accepted identification document in India. The Aadhaar is a 12-digit individual identification number issued by the ID authority on behalf of the government, that serves as proof of identity and address in India. With a staggering enrolment of over 1.3 billion people, India's digital identity system is the largest ID system globally.[232]

Operating under the Ministry of Electronics and Information Technology (MeitY), UIDAI is the primary identification authority

[221] Kanoon. Article 15 (3) of the Indian Constitution.
[222] Government of India: Ministry of Women and Child Development. (n.d.). *National policy for women 2016 (Draft) i.* Ministry of Women & Child Development. Retrieved April 29, 2024.
[223] Government of India: Ministry of External Affairs. (n.d.). *Varanasi development ministerial meeting: G20 2023 action plan on accelerating progress on the SDGs.* mea.gov.in. Retrieved April 29, 2024.
[224] United Nations. (2015, October 15). *Transforming our world: The 2030 agenda for Sustainable Development Goals.* Retrieved April 29, 2024.
[225] MC, Arthi., & Shanmugam, K. (2023). Implementing unique identification technology: The journey and success story of Aadhaar in India. *Journal of Information Technology Teaching Cases.*
[226] Motiani, P. (2023, January 31). How Aadhaar is helping individuals receive money from the government as per Economic Survey 2023. *The Economic Times.* Retrieved April 29, 2024.
[227] UIDAI. (2016, September 15). *The Gazette of India.* Retrieved April 29, 2024.
[228] UIDAI. (2023, October 23). THE Aadhaar (data security) regulations, 2016 [Updated as on 23.10.2023] In exercise of the powers conferred by clause (p) of s. uidai. Retrieved April 29, 2024
[229] UIDAI. (2016, September 15). Microsoft Word - 4418gi.doc. uidai. Retrieved April 29, 2024.
[230] UIDAI. (n.d.). UIDAI. *The Gazette of India.* Retrieved April 18, 2024.
[231] Business Today. (2016, June 13). Essential documents that you must have. Business Today. Retrieved April 18, 2024.
[232] Shukla, A. K. (2022, April 12). *India leads the global e-governance race with 1.3 bn digital ID users.* ET Government. Retrieved April 18, 2024.

responsible for the national digital identity programme.[233] As a national ID authority, it plays a regulatory role in overseeing the implementation and functioning of the Aadhaar system by setting standards and issuing guidelines for enrolment agencies, authentication service providers, and other entities involved in the Aadhaar ecosystem.[234] Apart from overseeing the enrolment and issuance, it provides authentication services that enable various government and private entities to verify the identity of individuals using their Aadhaar numbers.[235] UIDAI promotes use of Aadhaar for services such as direct benefit transfers, subsidies, and other government welfare programmes. It is responsible for implementing robust security measures to protect the Aadhaar ecosystem and personal information of individuals by ensuring the confidentiality and integrity of the data collected.[236] It plays an important role in promoting widespread adoption of Aadhaar by building public trust, with education and awareness of residents about the benefits of Aadhaar and the proper use of Aadhaar-related services.[237]

3. Key learnings from India on Usage

Due to the fairly mature digital ID system in India, the research team mostly centred their observations around women's usage of the digital ID. The exploration focused on identifying the potential challenges faced by women and the existing enablers in place. Addressing the challenges and adopting the enabling practices could unleash the potential for a wider ID usage among women, and therefore could make the digital ID systems gender inclusive. Understanding nuances and patterns of how women use their digital IDs could help develop targeted interventions, effective policies, and technologies.

Usage-related challenges

As digitization of services continues and the digital ID becomes mandatory to access essential and welfare services, identifying barriers and enablers at usage level are crucial to ensure a complete ID journey for women. Despite possessing digital ID, women face a plethora of challenges ranging from digital literacy to socio-cultural constraints.

[233] UIDAI. (n.d.). *About UIDAI - Unique Identification Authority of India*. Government of India. uidai. Retrieved April 29, 2024.
[234] Aadhaar Act. (2016). Section 23A, Power of Authority to issue directions; Section 54, Power of Authority to make regulations.
[235] Aadhaar Act. (2016). Section 23, Powers and functions of Authority.
[236] Aadhaar Act. (2016). Section 28, Security and confidentiality of information.
[237] Aadhaar Act. (2016). Section 23, Powers and functions of Authority.

I. Challenge: Many women continue to have only notional ID ownership

Despite possessing a digital ID, many women continue to be only notional owners as they depend on family members for using the ID. This dependency is due to low digital and financial literacy and socio-normative constraints that gives limited agency to make decisions around using it.[238]

Enabler: Bridging digital and financial literacy gap among women with family and community support

- Women's community and family networks significantly influence their ID usage and engagement with services.[239]
- Digitally literate children support their parents and facilitate usage on their behalf.

II. Challenge: Negative experiences shape perceptions on ID and its benefits

Usage of ID while trying to access services is often riddled with negative experiences such as not receiving the benefit despite bearing logistical and resource costs for it.[240]

Enabler: Going beyond core ID services and strengthening support for service access

Intermediaries provide support to women during their ID journey by helping obtain an ID card, with claim applications, and checking/monitoring claim status.[241]

III. Challenge: Women's usage of digital ID is tied to its purpose and the attached incentive

Women's need and usage of the ID is driven by family needs and social welfare programmes for family members.

Enabler: Strengthening incentive mechanism and purpose-based use cases

Deployment of family programmes and welfare schemes aimed at women and children acts as incentive for ID registration and usage.

[238] Observations from primary research interactions from India field visit. Aapti Primary Research, 2023
[239] Ibid
[240] Ibid
[241] Observations from primary research interactions from India field visit. Aapti Primary Research, 2023

4. Future of India's digital ID

Development of newer technologies to support India's digital ID system and exploration of use cases has continued in India. To enable faster authentication, a face authentication RD service app allows authentication user agencies to capture live a person's face for authentication. The usage of this method is growing. Some of the recent use cases include the Digital Life Certificate (Jeevan Pramaan),[242] registering beneficiaries under Ayushman Bharat and Pradhan Mantri Jan Arogya Yojana.[243]

In the social welfare sector, the ID authority has been encouraging the state government to use a digital ID-based authentication system for the locally run schemes. It also plans to extend its use to services such as e-commerce, mobile and unified payment interface, and other small, micro-enterprises.[244]

The Indian government plans to move towards a complete digital healthcare system and is exploring the interlinking of its digital ID to maintain health records. Niti Aayog, the policy arm of government, has proposed an implementation framework for the National Health Stack (NHS) for this purpose.[245]

At a policy level, amendments are proposed to the Aadhaar Authentication for Good Governance Rules, 2020.[246] In an effort to improve the experience of citizens, UIDAI has been building the capacity of operators to reduce errors during enrolment, updations, and authentication processes.[247] Inclusion efforts are also being undertaken by the authority as it is sensitising enrolment agencies to assist people with disability in enrolment.[248]

[242] Ojha, S. (2023, October 5). Life Certificate: How super senior pensioners can submit via face authentication. *Mint.* Retrieved April 18, 2024.

[243] Times of India. (2023, June 30). Aadhaar-based face authentication transactions at an all-time high. *Times of India.* Retrieved April 18, 2024.

[244] Aryan, A. (2022, September 15). UIDAI reaches out to states to enhance their involvement in Aadhaar ecosystem. *Economic Times.* Retrieved April 18, 2024.

[245] Chandra, N. (2019, July 15). Govt plans Aadhaar-based identification of patients to maintain health records. *Mint.* Retrieved April 18, 2024.

[246] Government of India: Ministry of Electronics & Information Technology (2023, April 20). *Draft amendments to the Aadhaar Authentication for Good Governance Rules, 2020 to enable performance of Aadhaar authentication by entities other than Ministries and Departments of the Central Government and State Governments for prescribed purposes.* Government of India: Ministry of Electronics & Information Technology. Retrieved April 18, 2024.

[247] Economic Times. (2023, May 12). UIDAI focuses on capacity building of Aadhaar operators to improve residents' experience. *Economic Times.* Retrieved April 18, 2024.

[248] UIDAI. (2023, December 9). *Person without fingers enrolled for Aadhaar.* uidai. Retrieved April 18, 2024.

PART 5

Methodology and supporting tools

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PART 5

Methodology and supporting tools

This study used primary and secondary research methodologies to understand, unpack, and articulate the findings documented above. This section sheds light on the methodological approach of the study to ensure transparency and robustness of the research findings.

ANNEXURE 1 | Methodology

1. Introduction

The journey to unravel the nuances of women's interactions with digital ecosystems, required a methodological approach to capture the depth and breadth of experiences. The team blended primary ethnographic research with secondary research to illuminate the multifaceted challenges faced by women in their digital ID journeys. The initial phase involved an exhaustive review of existing literature and weaving together insights on women's engagement with digital systems, primarily digital ID systems. This laid the foundation for the Awareness, Access, and Usage (A2U) analysis framework; a crucial tool for evaluating challenges faced by women while engaging with digital systems. In the subsequent phases, to validate the hypotheses derived from the secondary research, the team undertook field visits. The primary objective of these visits was to gain a deeper understanding of the real-world experiences of women engaging with digital ID systems.

2. Research objectives and anticipated outcomes

This study charted some key objectives to navigate the dynamic and evolving ecosystem to help frame the study. While the study acknowledges the implications of the evolving technology that supports these systems, a robust approach to unpacking women's experiences with these systems was pivotal to this study. The objectives of this research include:

- Developing a research framework to highlight women's interactions with digital ID and digital technology systems;
- Identifying touchpoints that impact women's interactions with digital IDs at various stages of their deployment;
- Developing recommendations for the key stakeholders to strengthen women's interaction and ability to leverage digital IDs.

While the objectives of the research have been articulated to help guide the study, the outcomes aim to strengthen the understanding for the larger digital ID ecosystem. The study hopes to achieve the following research outcomes.

- The research findings aim to consolidate and contribute to the emerging evidence on the barriers and enablers faced by women when interacting with critical digital public infrastructure.
- The research findings aim to guide the development and deployment of gender-inclusive digital public infrastructure by providing insights and areas of learning to technology and system developers.

The research hopes to highlight areas for future exploration to strengthen gender inclusion, and other intersectional links, that could help bridge other areas of exclusion.

3. Research methods

The following section highlights the research methods used for the study, delving into each of these methods used by the research team.

a. Secondary research

The secondary research consisted of desk research and was aimed at formulating a research framework to study gender inclusion in digital ID deployment. It initiated an examination of existing literature, encompassing women's interaction with the information and communication technology (ICT) and barriers to access. Subsequently, the research team advanced its focus to exploring women's interactions with digital systems, specifically digital identity, culminating in the development of the Awareness, Access, and Usage analysis (A2U) framework. This framework was created to assess the challenges faced by women throughout their ID journey and identify enablers at each journey point.

b. Primary research

To validate the hypothesis and findings from desk research, primary research, by way of qualitative methods, was undertaken in select countries—Ethiopia, the Philippines, and India. The awareness, access, and usage (A2U) framework was leveraged to substantiate the hypothesis on challenges derived through secondary research, gain insights on additional challenges, and identify enabling practices from the ground.

To derive meaningful insights from the primary research, the research team conducted focused group discussions with women users, interviews with key informants, and undertook observational visits to the registration sites. Employing this strategy enhanced the depth of the study, and ensured robustness of its research findings.

4. Country Selection Rationale

Globally, an estimated 150 countries have digitised national IDs, and more countries are expected to adopt digital IDs by 2024.[249] Each of these countries varies in the socio-cultural and geographical aspects, and are at different ID development and deployment stages, with distinct policies and governance structure around their ID system.[250]

[249] digwatch. (n.d.). *Digital identities in 2024*. Digital Watch Observatory. Retrieved April 16, 2024.

[250] Moody, R. (2024, February 1). *Digital IDs: 50 countries ranked by digital ID requirements and use*. Comparitech. Retrieved April 16, 2024.

To understand gender inclusion in digital ID systems, the study needed to be rooted in lived experiences to identify the challenges and existing practices. Therefore, it required development of parameters for country selection, keeping in mind the objectives of this study. The exploration led to the development of three key parameters—the presence of national digital ID; ID development stage; and MOSIP-leveraged digital ID for the filtration and identification of the final research countries. The study also explored India's digital ID to identify nuances in the usage stage.

a. Presence of national digital ID:

As per existing research, the countries were categorised depending on the identity systems being studied, and this broadly included national identity systems, digital national identity, and digital ID. The digital ID could be further distinguished into private digital IDs and National IDs. The study looked at the countries with national digital IDs. To account for the geographical diversity in the country selection and insights therein, the research team also looked at countries from different regions of the globe.

b. ID development stage:

Globally, different countries are in varying stages of ID system development, spanning from ideation to pilot to deployment. This parameter aimed to identify countries with differing maturity levels of the digital ID systems to understand each journey point—awareness, access, and usage. To assess this, the research considered factors such as the ID's longevity, its development, and the ID programme's evolution within a country. It looked at the penetration of digital IDs in countries to gauge the programme's reach within the population. This helped understand how widely adopted or accepted the national ID system is within a country.

Further, to categorize the countries by ID development stage, the research team also looked into use cases to understand ID service access, which helped researchers comprehend the diverse purposes for which individuals use their IDs. For this, existing provisions on service access in the country were studied to examine the inclusivity of the ID system.

c. Countries leveraging MOSIP infrastructure:

Studying national digital ID systems in any country needs support from the ID authority and collaboration with the technology developers. As a research partner to Aapti's research on gender inclusion in digital ID, MOSIP provided support in establishing relationships with the identified countries and their ID authority. Therefore, the research team also looked at countries that have leveraged MOSIP infrastructure.

In summary, the combination of the above parameters helped develop a robust filtering process, provided a comprehensive framework for understanding the global Digital ID landscape, and helped in the country selection.

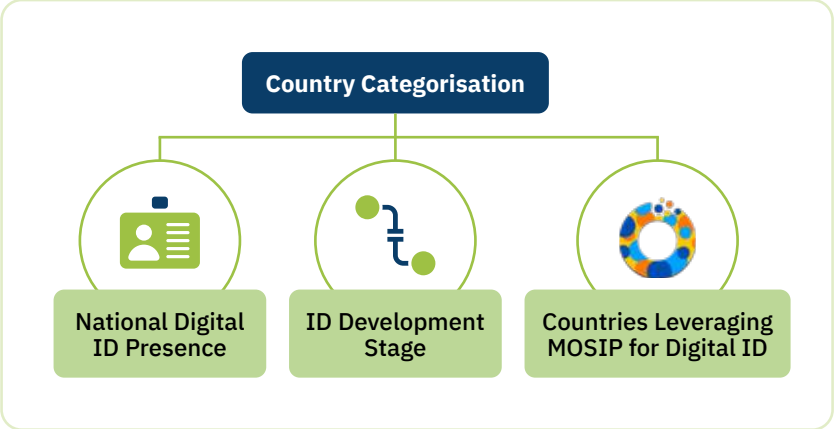

Figure 10. Parameters for selection of research countries

As the research aimed to study countries across the spectrum of the maturity level of ID systems, various countries were classified into three broad categories: countries with mature systems, countries in the deployment stage, and countries in the pilot phase.

Among the mature systems, India stood out as the most mature, boasting a digital ID system in place for over a decade, with a staggering nearly 99.3% of the people registered.[251] The Philippines, in its deployment stage, registered 80 million people with the PhilSys ID.[252] At the time of the study, Ethiopia was found to be at the pilot stage of national digital ID implementation, having registered 1.4 million citizens.[253]

Based on the above parameters, the Philippines, Ethiopia, and India were selected for this research study, and a blend of primary

[251] Statista. Share of population covered under Aadhaar in India from financial year 2018 to 2023.
[252] Philippine Statistics Authority. (January 2024). PSA to continue extensive PhilSys registration, ID issuance efforts.
[253] Abuya, K., Ndege, A., Author, G., & Muhammad, M. (2023, September 8). *Digital IDs are coming to Ethiopia*. TechCabal. Retrieved April 16, 2024.

and secondary research, based on feasibility, was undertaken in the above countries.

5. Geographic Selection Criteria

To gain robust information for the study, representative sampling method was employed to identify the respondents and finalise field sites within the countries. The research team used the following criteria to identify sites in the countries for field visits.

GEOGRAPHICAL AREA	RATIONALE FOR SELECTION
Urban areas It is typically a high-density population area and could be considered non-agricultural in nature with high levels of economic development.[254] E.g., Dwarka (Delhi, India), Addis Ababa (Ethiopia), Manila (Philippines)	• To ensure diverse representation of various cultures, societies and communities • To understand impact of higher access to information around technology • To understand how better infrastructure availability impacts residents
Rural areas It is typically a low-density population area with agriculture as the primary economic activity.[255] E.g., Jinka in the Debub Omo Zone (Ethiopia), and Agusan del Norte (Philippines), Cabadbaran (Philiipines). Manavadar, Vanthali, Bantwa; Gujarat, India	• To ensure representation of areas with more challenging infrastructure • To understand relevance of how geographically distant communities access government services • To understand how distant communities access technology
Peri-urban It is typically a mix of urban and rural areas, wherein the transition from rural to urban takes place by developing service-based economies while continuing with agriculture. Due to its nature, the population density and diversity are considered transitional.[256] E.g., Shahdara in Delhi, India; Laguna areas within the Laguna region in Calavarzon (Philippines).	• To understand how transitioning populations access technology and government services • To understand larger groups of population with similar socio-economic backgrounds

Table 4. Parameters for field site selection

[254] Weeks, J.. (2010). *Defining Urban Areas.* 10.1007/978-1-4020-4385-7_3. ResearchGate.
[255] Rural Area. *National Geographic Society.*
[256] Rahayu, P., & Mardiansjah, F. H. (2018). *IOP Conf. Ser.: Earth Environ. Sci.* 126 012164. Characteristics of peri-urbanization of a secondary city: a challenge in recent urban development

6. Research Sampling Strategy

To understand women's interaction with the digital ID system, qualitative research methods were adopted by the research team. Qualitative research involves studying social phenomena, human behaviour, and the underlying reasons and motivations in their natural settings. Therefore, it is important for researchers to interact with key system stakeholders to gain a deeper understanding of the context, nuances, and complexities of the system being studied. By engaging with stakeholders, researchers can identify important factors and uncover variables that may have been overlooked. Building trust and rapport with stakeholders is also crucial for obtaining candid responses during interviews or focus group discussions, which can provide rich and reliable data.[257]

The research sampling strategy aims to capture the viewpoints of various stakeholders involved in the ID system.[258] The digital ID ecosystem has several stakeholders but can be used interchangeably depending on the context. For this study, the research team identified relevant stakeholders and defined their roles in the ID process. These stakeholders include the government, users, ID authority, and civil society.

7. Interview Process and Rationale

The team adopted the semi-structured interview method to gather data from respondents, with questions centered around the primary research theme. Despite the structured questions, the interviews were conversational, providing users with the flexibility to respond.[259] This method was particularly useful for exploring complex behaviours, opinions, emotions, and diverse experiences of women. It is especially relevant when discussing topics such as identity and representation, and is a widely adopted method used by researchers in the past.[260]

The team conducted semi-structured interviews with women users to gain insights into their experiences with the digital ID system. These interviews involved personal interactions with women users, as well as focus group discussions. Similar interactions were conducted with operators to understand their roles in facilitating ID

[257] Researchmethod.net. (March 2024). Strategies, Processes & Techniques utilized in the collection of data, Qualitative Research – Methods, Analysis Types and Guide. (March 2025).
[258] Researchgate.net. Varvasovszky and Brugha. (2000). Stakeholder analysis. *Health Policy and Planning 15(3):338-45*
[259] Agius. SJ. (2013). Qualitative research: its value and applicability. *The Psychiatrist,* 37(6). 204-206.
[260] Caribou Digital. (n.d.). Identities Report. identitiesproject.com. Retrieved April 16, 2024.

access, and implementation authorities to grasp the vision and strategies behind implementation. The team focused on how challenges at the enrolment stage were being addressed.

8. Approach used to gather insights

To understand how women interact and engage with their digital ecosystem and its various instantiations—in this case, digital identities, the study started with a hypothesis.[261] The following activities were undertaken.

- Evidence was consolidated from various sources determining its initial framework.
- Barriers and enablers to women's interactions with digital IDs were consolidated and categorised.
- Ecosystem experts were consulted to validate, strengthen, and further nuance the problem statement.
- Field research was conducted to identify on-ground realities and their nuances.
- Findings were triangulated and recommendations, for the system and its various actors, were articulated.

Through this research, the team attempted to understand how women's inclusion and participation in their communities can be empowered through digital identities. This study unpacks user experiences, initiating a feedback loop to better inform system design.

9. Generating ecosystem assets for ecosystem actors

This research has been documented and articulated through four key assets that serve different functions:

(i). Comprehensive research report;

(ii). Gender Inclusion Tool;

(iii). Online repository or microsite; and

(iv). 'Community of Practice' initiative.[262]

[261] *The detailed methodology can be found in Annexure 1 of this report.*

[262] *Further details on these assets can be found in the Annexure sections of this report.*

Collectively, these assets hope to provide developers, civil society organisations, and other interested entities a detailed understanding of the digital ID ecosystem, and pathways for equitable and inclusive outcomes. They do so by:

- Highlighting the identified areas of concern from a user-centric and gender-inclusive lens;
- Identifying the approaches for digital ID stakeholders to strengthen system thinking and design;
- Creating a platform for reflexive feedback allowing relevant inputs, consultations, and collaborations; and
- Providing a repository for relevant research and evidence building.

To create these assets, the team:

(i). Engaged deeply with the global digital ID ecosystem and its stakeholders;

(ii). Collated perspectives from global ecosystem convenings, conferences, and summits;

(iii). Conducted on-ground interactions and gathered information;

(iv). Interacted with governments, civil society organisations, multilateral entities and ecosystem experts; and

(v). Convened and facilitated a community of practice.

The report encapsulates various explorations, key elements, and insights that emerged because of the study. The study starts by building the context around digital IDs, by bringing together the digital approach being adopted in service provision. The report then delves upon the various elements and concepts that make up the word ‘identity’. The report then submits the need for gender-inclusive thinking and design in critical infrastructure like digital IDs.

After setting the context, the report highlights the awareness, access, and usage framework (A2U) that was designed for this study, while presenting a classification of the challenges that women face during their ID journey. The report then highlights the key areas of the study, and articulates the recommendations for key stakeholders. Finally, it provides context to the toolkit,

community of practice initiative. The study shares the methodology and the various emerging elements that further evolved the context for ecosystem actors.

While the team believes that this report is comprehensive, efforts required to build robust and inclusive systems must be continuous. Given the dynamic and evolving nature of such issues, periodic research is key to strengthening understanding around gender-inclusive design. The study also acknowledges that the pace and evolution of technology in this space could organically address concern areas and that observations documented here could have been addressed in some form by key stakeholders.

10. Respondent Selection

The research team primarily focused their interactions on two key stakeholder groups—ID implementers and users. To better understand the implementation strategy and how challenges during the enrolment stage were addressed, the team engaged with ID authorities. Stakeholders, such as ID implementers and operators, were identified based on their specific roles in the implementation and ID journey through purpose-based classification. Furthermore, the team reached out to ID users to gain insight on how they utilize digital ID in their respective countries. Since the study specifically aims to understand gender inclusion and women's engagement with digital ID, users were primarily selected based on gender.

STAKEHOLDER TYPE AND FUNCTION	NATURE OF INTERACTION	NUMBER OF INTERACTIONS
Addis Ababa, Ethiopia		
NIDP leadership team Central program management unit for Fayda	**Semi-structured interactions**	3 interactions

Table 5. Breakdown of sample respondents in each country

STAKEHOLDER TYPE AND FUNCTION	NATURE OF INTERACTION	NUMBER OF INTERACTIONS
Addis Ababa, Ethiopia		
NIDP Monitoring and Evaluation team Responsible for assessing impact, and analysing and course-correcting strategies	**Semi-structured interactions**	2 interactions
NIDP Technical team Responsible for creating and managing the technical infrastructure of the Fayda ID	**Semi-structured interactions in group format**	1 interaction
NIDP marketing and communication team Responsible for creating and managing the technical infrastructure of the Fayda ID	**Semi-structured interactions in group format**	1 interaction
Registration sites Access point for residents to register for the Fayda ID	**Centre observations**	Palace Parking Registration Center Science Museum Registration Center
Ministry of Education Government body for education in Ethiopia	**Semi-structured interactions**	1 interaction with official from department
Ministry of Revenue Government body for revenue-related activities	**Semi-structured interactions in group format**	1 interaction with officials from department
Users (Women)	**Semi-structured interactions**	12 interactions

Table 5. Breakdown of sample respondents in each country

STAKEHOLDER TYPE AND FUNCTION	NATURE OF INTERACTION	NUMBER OF INTERACTIONS
Phillipines		
Users (Women)	**Focused Group Discussions**	6 interactions Manila City (2), Quezon City (1), Caloocan City (1), Valenzuela City (1), Pampanga (1), Bulacan province (2)
Barangay captain	**Semi-structured interactions**	Aurora province (1)
Philippine Statistics Authority (PSA)	**Semi-structured interactions**	1 Official
India		
Gujarat	*Vanthali, Bantwa, Junagadh, Manavadar*	
Delhi NCT	*Dwarka and Shahdara in Delhi, Parthala Khanjarpur in Noida*	
Users (Women)	**Personal Interaction**	10 (Guj), 9 (Del)
Users (Women)	**Focused Group Discussion**	**Gujarat** 2 FGDs (4+4) = 8 Women **Delhi** 4 FGDs (2+4+4+3) = 12 Women, 7 men
Operators at the enrolment sites	**Semi-Structured interviews**	5(Guj), 3(Del)
Registration and Service centers observations	**5 site visits in Gujarat** **6 site visits in Delhi**	**Gujarat** a. BRC centre, Vanthali b. ICDS centre, Vanthali c. Nagar Palika centre, Bantwa d. Post office centre, Bantwa e. Nagar Palika centre, Manavadar

Table 5. Breakdown of sample respondents in each country

STAKEHOLDER TYPE AND FUNCTION	NATURE OF INTERACTION	NUMBER OF INTERACTIONS
		Delhi a. Diksha enterprises, Goyla Vihar b. Om enterprises, Goyla Vihar c. Aadhar Seva Kendra, Dwarka d. Aadhar Seva Kendra, Nawada e. UIDAI Center–Kashmere gate f. Microsoft Yojna Kendra, Noida

Table 5. Breakdown of sample respondents in each country

11. Research tools

The research team utilised various research tools like focus group discussions (FGDs), key information interviews (KIIs), and centre observations to gather primary insights and perform qualitative analysis. The FGDs followed the awareness, access, and usage (A2U) framework, which helped in interactions with women user groups to understand their experiences across three stages. The key informant interviews focused on women's lived experiences, and their journey with the ID system. The centre observations were conducted to gain insights into the role of stakeholders such as ID operators in the public and private centres, and the functioning of the registration centres.

This information was then aggregated and codified for easy analysis. Personal interviews were also conducted to better understand the challenges that women face when using digital ID systems. The information collected from the field was analysed to gain insights into women's awareness, access, and usage levels. All data collected was anonymised for privacy purposes.

ANNEXURE 2 | Limitations of the Study

In any research project, the pursuit of knowledge is often accompanied by a set of limitations.[263] These constraints are an integral part of the scientific process and provide valuable insights into the scope and boundaries of the study.[264] Therefore, this section aims to transparently acknowledge and address the limitations faced by the team and share the attempts made to mitigate them.

a. Operational limitations:

The study faced a few operational limitations in conducting primary research due to the challenges in obtaining necessary authorisations. Access to certain information or settings introduced a level of dependence on external parties, thereby influencing or affecting the depth of the research.

Mitigation strategy: The team relied on local researchers from the research country working in the domain of digital ID systems. The team conducted knowledge sessions to guide local researchers to conduct primary research in select field sites.

b. Access limitations:

Limited interaction with stakeholders such as ID implementers in some field countries posed a barrier to gaining comprehensive insights and diverse perspectives on the subject. Limited access to individuals or user groups might result in limited insights or a lack of nuanced understanding of the context, leading to some gaps in findings.

Mitigation strategy: To address the above limitation, alternative modes of interaction with stakeholders, including verbal and written communication, were adopted. Additional research was conducted to supplement and strengthen findings by incorporating secondary research.

[263] USC Libraries. (2024, April 11). *Research guides: Organizing your social sciences research paper: Limitations of the study.* Research Guides. Retrieved April 16, 2024.

[264] Greener, S. (2024, March 5). *Research limitations: the need for honesty and common sense.* Retrieved April 16, 2024.

c. Methodological limitations:

The research faced some initial methodological challenges due to varying levels of digital ID maturity in the research countries. In Ethiopia, the nascency of digital ID systems, coupled with limited registration, restricted the pool of registered users as subjects, potentially restricting the research sample. The infancy of identification mechanisms also implied evolving strategies, policy frameworks, and lack of standardised protocols around them. Similarly, with the Philippines at the deployment stage, one could only conduct a limited study of usage in both countries. Therefore, limited registration, developing use cases, and limited ID usage affected the generalisability of research findings and needs to be highlighted.

Mitigation strategy: To address these limitations, the research methodology was adapted to the maturity level of the digital ID system in the respective countries under study. To identify the challenges and facilitators at each stage of the ID journey in research countries, a uniform awareness, access, and usage (A2U) research framework was followed. However, more emphasis was placed on awareness in Ethiopia, access in the Philippines, and usage in India, based on the status of the ID system in each country.

ANNEXURE 3 | Research tools

The research tools used for the study at each field site can be accessed by the readers of the report through the links provided below:

Ethiopia Questionnaire

Philippines Questionnaire

Philippine Statistics Authority Questionnaire

India Questionnaire

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