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How the Digital Portfolios of the Poor Study Was Done

Methodology and Country Coverage

Decodis

In partnership with the Henry J. Leir Institute at Tufts University

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1. Why we did the study

Digital financial services have expanded rapidly across the Global South, yet low-income users and women in particular remain among the least engaged. Not because they lack access to devices, but because the products designed to serve them have not been built around how they experience trust. Lack of trust is frequently cited as the reason people do not use digital financial services. But digital trust remains poorly defined. There has been little rigorous effort to measure what that trust deficit looks like, how it differs between people, or what providers could do differently to address it.

This project sets out to develop a comprehensive framework of digital trust as described from the perspective of actual and potential users, understanding not just what people do with digital tools, but why they engage, what they fear, who they hold responsible, and what would make them trust more. The aim is to put that understanding directly in the hands of the digital financial service providers closest to the people it is meant to serve, equipping them to design products and services that genuinely work for their most underserved members.

Three objectives shape the study. First, to develop a globally relevant framework of digital trust philosophies as described from the perspective of actual and potential users. Second, to determine whether there are commonalities across countries, segments, phone ownership, or other digital service use. Third, to test whether these frameworks help digital service providers generate ideas about how to increase trust.

Most research on digital financial inclusion measures usage: who has an account, how often they transact, on which channels. This kind of data tells you what people do. It reveals very little about the why and how behind digital behaviors. Two people might both use mobile money, but one does so only after triple-checking with their bank and a trusted friend, while the other simply accepts things as they are. Standard segments would group these two together, missing the radically different trust philosophies and therefore the radically different types of support they need.

Understanding how customers experience trust is only valuable if that understanding leads to action. For this project, the workshops with digital financial service providers are the critical bridge between research and real-world change, the mechanism through which data collected from over 3,400 respondents across four countries can be translated into decisions made by the people with the power to act on them. What we find across six solutioning workshops in Nigeria and Kenya is that something changes when institutional staff hear their users speak. When a compliance officer hears a woman describe the terms of a loan product as impenetrable. When a product manager hears that a failed transaction felt, to a user, like her money had simply vanished. The gap between what institutions know about their users and what they do about it begins to close, not because of a presentation or a strategy document, but because real voices, heard in real time, are harder to dismiss than data on a slide.

2. Who We Were Trying to Reach

The Digital Portfolios of the Poor study sets out to understand how people across the Global South think about and trust digital financial services. We worked across four countries: Nigeria, Kenya, India, and Pakistan.

Kenya — Fieldwork covered six regions: Kisumu, Nairobi, Kericho, Mombasa, Malindi, and Turkana County. The final sample was 992 respondents. Interviews were conducted in Swahili, Luo, Kalenjin, and Turkana. Women represented 58% of the sample. The sample skewed toward the 26-35 age group, with 52% falling in that range.

Nigeria — Fieldwork covered three cities spanning northern, southern, and eastern Nigeria: Kano, Lagos, and Enugu. The final sample was 960 respondents. Interviews were conducted in Hausa, Yoruba, and Igbo.

India — Fieldwork covered eight states: Bihar, Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Jharkhand, Uttar Pradesh, Delhi, and Haryana. The final sample was 939 respondents. Interviews were conducted in Hindi, Tamil, and Telugu. Women represented 52% of the sample. The sample skewed younger, with 46% in the 21-30 age group. Recruitment was conducted in partnership with Gram Vaani.

Pakistan — Fieldwork covered six cities in Punjab province: Lahore, Faisalabad, Okara, Bahawalpur, Lodhran, and Muzaffargarh. The final sample was 406 respondents. Interviews were conducted in Urdu and Punjabi.

Across all four countries, sampling was stratified across urban and rural settings and across gender. In all countries, respondents did not need to be literate to participate — a core design requirement that shaped every aspect of how the survey was built and delivered.

3. How We Recruited

Recruitment approaches differed by country, each designed to reach the specific populations the study was targeting.

Kenya — Recruitment was conducted through five partner NGOs and community organizations, each assigned to a specific region. Copia recruited 200 respondents in Kisumu, with interviews conducted in Luo. AIS recruited 200 respondents across Kericho, specifically in Kipkelion West Sub County and Ainamoi Sub County, with interviews in Kalenjin. Vision Magnet recruited 125 respondents in Malindi, in Swahili. Swahilipot recruited 125 respondents in Mombasa, in Swahili. Startup Lions recruited 150 respondents in Turkana County, in Turkana. Nairobi was recruited directly, in a mix of Luo and Swahili, targeting 200 respondents. Across all regions, the target sample was 1,000 respondents, stratified by age (18-35 and 35-50) and gender, with a breakdown

of 275 men aged 18-35, 360 women aged 18-35, 115 men aged 35-50, and 250 women aged 35-50.

Nigeria — Recruitment was conducted by a survey company across three states chosen to represent Nigeria's geographic, ethnic, and linguistic diversity. Kano was selected to represent the predominantly Hausa-speaking Muslim north, with a target of 500 respondents. Enugu was selected to represent the Igbo-speaking south-east, with a target of 500 respondents. Lagos was selected as the predominantly Yoruba-speaking commercial capital, with a smaller target of 250 respondents reflecting its existing higher levels of digital financial inclusion. Across all three states, the total target was 1,250 respondents, stratified by age and gender: 58% aged 18-35 and 42% aged 35-50; 39% male and 61% female.

India — Recruitment was conducted in partnership with Gram Vaani, using their existing network of community radio clubs operating across six states. Crucially, recruitment was purposeful: respondents were drawn from specific community groups rather than general populations, ensuring the study reached low-income and underserved users. In Bihar, nine clubs were used across Rohtas, Muzaffarpur, Munger, Gidhaur, Nalanda, Samastipur, East Champaran, Jamui, and Madhubani, with a total target of 268 respondents in Hindi. In Tamil Nadu, three clubs were used — Namma Kurla, TK Tiruppur Kural, and Urimai Kural — all specifically recruiting women from the workforce, including garment and textile factory workers. The total Tamil Nadu target was 240 respondents in Tamil, representing the largest single state allocation at 22% of the sample. In Jharkhand, three clubs were used across Bokaro, Hazaribagh, and Ranchi, targeting 165 respondents in Hindi. In Madhya Pradesh, clubs in Shivpuri and Chindwara targeted 120 respondents in Hindi. In Andhra Pradesh, 82 respondents were targeted in Telugu. In Uttar Pradesh, fieldwork was concentrated in Ghaizipur with a specific focus on respondents with existing financial inclusion, targeting 110 respondents in Hindi. In Delhi NCR, 110 respondents were targeted in Hindi. The total India target was 1,095 respondents, with 10% attrition allowance built in. The sample was 66% female and 34% male, with 58% aged 18-30 and 42% aged 31-50.

Pakistan — Recruitment was the most structured of all four countries, using a stratified sampling design across two regions of Punjab province. The sample was divided into a main population and a special population of women who use shared phones, the latter recruited specifically to ensure representation of a particularly digitally vulnerable group.

The main population was split across Central Punjab and South Punjab. In Central Punjab, three districts were covered — Faisalabad, Lahore, and Sialkot — each with a target of 210 respondents, split equally across urban and rural settings. Within each district, targets were further stratified by gender, age (18-34 and 35-50), and household income level (low, middle, and high), with the majority of targets set at the low household income segment. In South Punjab, three districts were covered — Bahawalpur, Lodhran, and Muzaffargarh — each with a target of

128 respondents, again split across urban and rural settings with the same gender, age, and income stratification. The total main population target, including a 20% recruitment buffer, was 1,014 respondents.

The special population of shared-phone women was recruited across all six districts in both urban and rural settings, with targets of approximately 18-19 per district location in Central Punjab and 11-12 per district location in South Punjab. The total special population target, including a 20% buffer, was 180 respondents.

4. How We Ran the Survey

A core design requirement is that respondents do not need to be literate to participate. All questions are pre-recorded by local voice actors — not AI-generated — speaking in the respondent's own language: Swahili, Luo, Kalenjin, and Turkana in Kenya; Hindi, Tamil, and Telugu in India.

Surveys are administered via IVR (Interactive Voice Response) and web links. Each survey is organised into seven modules in Kenya and eight modules in India, combining two response types — keypad responses to capture quantitative prevalence, and open-ended voice responses to capture qualitative nuance.

The scale of data collected is substantial. In Kenya, the study generates 360 hours of voice data across 280 voice response questions and 166 keypad response questions. In India, 340 hours of voice data are collected across 191 voice response questions and 113 keypad response questions. In Nigeria, data are collected across 133 voice response questions and 94 keypad response questions. In Pakistan, the survey comprises 356 questions in total across voice and keypad responses.

Not having a live interviewer means no interruption or social desirability bias, and responses are three times longer than those typically generated in a live in-person interview.

The survey instrument

The survey is organized into seven modules, administered one per week over seven weeks via automated voice call. Each module combines keypad responses to capture quantitative prevalence with open-ended voice responses to capture qualitative nuance. Respondents do not need to be literate to participate — all questions are pre-recorded by local voice actors in the respondent's own language. The modules are as follows:

- **Survey 1 — Demographics and device access:** The opening module establishes the foundation of each respondent's digital portfolio. It collects demographic information including location, age, gender, education, and income, before moving to a detailed exploration of every digital device the respondent has access to — including devices they borrow or share. For each device, the module asks about ownership, SIM card registration, internet connectivity, camera and audio use, and privacy concerns. This module also introduces the survey structure and consent process.

- **Survey 2 — Social media and messaging platforms:** This module explores respondents' use of WhatsApp, YouTube, Facebook, Instagram, and Twitter — covering how often they use each platform, what for, whether they use their own accounts, and what privacy or identity concerns they hold. It also asks about photo editing and file-sharing apps, exploring whether respondents have files or images they are concerned about others accessing.
- **Survey 3 — Digital financial services:** This module covers the full range of digital financial activity — mobile banking, mobile payments, pay-as-you-go services, mobile lending, mobile savings, community savings and lending groups, and cash kept at home. For each, the module asks how respondents use the service, what they worry about, and who they are concerned might access their financial information.
- **Survey 4 — Other digital services:** This module explores a broader range of digital activity including email, entertainment platforms, news consumption, online gaming, online shopping, online betting, government service platforms, and ride-hailing apps. For each, respondents are asked about frequency of use, devices and connectivity, privacy concerns, and any worries about others knowing what they are doing online.

5. Qualitative Depth: Audio Skits

Each survey incorporates six skits in Kenya and four to six skits in India, Nigeria and Pakistan, each followed by eight questions. Audio skits are short, pre-recorded audio stories featuring fictional characters navigating everyday situations. Rather than asking a respondent directly about their own experiences, the study plays a story about someone else in a similar situation and asks what they think. Because respondents are reacting to a character rather than speaking about themselves, they are more likely to share honest perspectives, and nebulous concepts are made concrete.

In Kenya, for example, one skit depicts a market character named Peter going to buy items from Moraa, who refuses mobile money due to an outstanding mobile loan and insists on cash. In India, a skit shows a character named Rajeev receiving an SMS claiming he has won a lottery prize, with his uncle warning him it is a scam. Respondents are only ever exposed to audio versions of the skits via phone call; video versions exist solely for illustration and translation purposes.

- **Survey 5 — Audio skits: mobile scams and digital loans:** The first skit-based module introduces two fictional audio stories. The first depicts a woman receiving a suspicious call from someone claiming to be from a mobile network, with a friend suggesting it could be a scam. Respondents are asked about their own experiences with similar situations, who they believe are responsible for protecting people from scammers, and whether they would pay for a scam protection service. The second story follows a woman who needs money and is considering a digital loan she is unsure she can repay on time. Respondents are asked about the benefits and risks of digital lending, the role of credit reference bureaus, and which they consider worse — falling victim to a mobile scam or being blacklisted for loan default.
- **Survey 6 — Audio skits: fake news and automatic loan deductions:** The second skit-based module presents two further stories. The first follows two people debating

whether a news story circulating on social media is true. Respondents are asked how they judge the truthfulness of online news, whose responsibility it is to verify it, and whether the benefits of getting news online outweigh the risks of misinformation. The second story follows a woman who has taken a digital loan and is considering stopping mobile money payments to avoid automatic deductions, putting her business at risk. Respondents are asked about lenders' power to make automatic deductions, the advantages and disadvantages of digital versus personal lenders, and what they would do in the same situation.

- **Survey 7 — Audio skits: online harassment and data privacy:** The final module presents two closing stories. The first follows a woman considering selling products online after hearing about the harassment another woman has experienced from customers on digital platforms. Respondents are asked about their own or others' experiences of online harassment, who is responsible for women's safety in online business, and how worried they are about delivery and payment disputes in online commerce. The second story follows two people discussing how a video platform seems to be recommending content based on their recent activity. Respondents are asked about their understanding of how algorithmic recommendations work, how they feel about platforms using their behavior to generate revenue, and which they consider worse — being subject to data exploitation or experiencing online harassment. This module concludes the survey, and respondents receive their compensation on completion.

Why We Used Skits in the Digital Portfolios of the Poor Study

The core challenge in this study is that we are asking people about trust — a concept that is both deeply personal and often difficult to articulate directly. Topics like mobile scams, digital loan defaults, online harassment, and data privacy carry real social weight. When asked about these things directly, respondents tend to give guarded or socially acceptable answers rather than honest ones.

Skits give us a way around that. Instead of asking a respondent what they would do if they received a suspicious call, we play them a story about a fictional character in exactly that situation and ask what she thinks. The distance between the respondent and the character makes it easier to speak candidly — about fear, about blame, about what she would actually do.

The skits also solve a different problem: abstraction. Concepts like algorithmic data use, credit reference bureaus, or automatic loan deductions are genuinely hard to discuss in the abstract, especially in a voice survey with no interviewer present. By grounding these ideas in a concrete story — a woman named Moraa refusing mobile money because of an outstanding loan, or a character named Rajeev being warned by his uncle about a lottery SMS — we make nebulous concepts tangible and discussable.

Each survey module incorporates between four and six skits, each followed by eight questions. And the approach works: with no live interviewer present and the protective frame of fiction, responses are three times longer than those typically generated in a live in-person interview — giving us the depth of audio needed to analyze not just what people say, but how they say it.

6. How we analyzed the data

Given the scale of qualitative data collected — hundreds of thousands of audio responses across four countries — Decodis uses an AI-assisted thematic coding approach to categorize open-ended voice responses. The process is designed to combine the rigor of grounded theory, which keeps codes anchored in respondents' own language, with the scale that automated tagging makes possible.

Audio processing

Before any coding can begin, the recorded responses have to be made analyzable. The proportion of unintelligible clips is low — between 1% and 9% depending on country, language, and connectivity conditions in the field. With the exception of Swahili — for which Decodis uses its own automated translation model — all audio responses are manually translated into English by local translators, who flag any clip marked as poor quality, unclear, or noise-affected. Flagged clips are excluded from analysis.

Inductive thematic coding

The coding process follows three steps.

Step one — manual coding to saturation: a subsample of responses per question is randomly selected and manually coded by analysts using an inductive, grounded theory approach. Analysts read responses and build categorical themes from the language respondents themselves use, continuing until no new themes emerge — the point known as saturation. This step keeps the coding scheme grounded in respondents' own words rather than in pre-existing analytical frameworks.

Step two — AI-assisted tagging at scale: a structured prompt is then written instructing a large language model to apply the manually derived categorization scheme to the full sample. The prompt specifies the analytical context, the categorization task, the categories themselves, and the precise output formatting required. This allows tens of thousands of open-ended responses to be tagged consistently and at scale, in a way no manual coding team could have matched within the project timeline.

Step three — iterative refinement: codes are iteratively refined through extensive testing to ensure robust fit with the data. Where the model misclassifies responses or produces ambiguous tags, the prompt is revised and the relevant subset re-tagged.

The text analytics platform underpinning this process integrates multiple large language models alongside Retrieval-Augmented Generation (RAG) methodology to maximize accuracy on nuanced notions and uses probability-based techniques to further minimize bias — with human-in-the-loop oversight at each stage to ensure robustness and guard against hallucinations.

The coded variables are then organized into the four pillars of digital trust — Risk Perception, Risk Mitigation, Responsibility Perception, and Benefit Perception — and clustered to produce the archetypes that structure the country findings (described in Section 7).

A note on Decodis' broader analytical capability

The text-based coding described above is one half of the analytical toolkit Decodis has developed for working with voice data at scale. The other half is sociolinguistic analysis of the audio recordings themselves: extracting acoustic signals — principally pitch modulation, intensity, and word count — and normalizing each respondent's measures against her own voice across other responses (Lobanov Z-score normalization). Personal baselining controls for known confounds

including gender, dialect, and speaking style, isolating genuine shifts in emotional engagement at the level of the individual.

These signals are interpreted through a framework of two emotional fundamentals drawn from the academic literature — activation (the intensity of an emotion) and valence (its direction) — and used to characterize responses, following Freeman (2019) on prosodic features of conversational stance, as either enthusiastic (upward deviation from baseline) or indifferent (downward deviation). Combined with the thematic codes from the transcripts, this yields composite indicators that can segment populations by emotional state as well as by stated behavior, surfacing dynamics — such as the gap between women who say they use digital safety strategies and those who sound confident doing so — that self-reported responses alone cannot reveal.

The Digital Portfolios of the Poor study itself draws primarily on the text-coded data described above. The sociolinguistic layer is noted here because it is part of the standard Decodis approach to voice data and remains available for future deepening of the Digital Portfolios of the Poor dataset where the research questions warrant it.

7. From Themes to Archetypes

The coded variables are organized into four pillars of digital trust that emerge inductively from respondents' own words: Risk Perception (what do people fear?), Risk Mitigation (how do they act on those fears?), Responsibility Perception (who do they hold accountable?), and Benefit Perception (why take the leap?). These four pillars are consistent across all four countries in the study, though the sub-themes within each pillar differ by country.

The team then runs agglomerative hierarchical cluster analysis across the coded variables — an unsupervised technique that groups respondents by similarity across all trust factors — to identify natural groupings that emerge statistically from patterns in how respondents answer. Across all four countries, three archetypes consistently appear: Assurance Seekers, Protection Seekers, and Control Seekers.

In Kenya specifically, Risk Mitigation does not meaningfully differentiate the clusters — users across all archetypes describe similar mitigation strategies, most often reciting M-PESA fraud prevention guidance almost word for word. For this reason, Risk Mitigation is excluded from the clustering process in Kenya. In each of the other three countries, all four pillars contribute to the clustering, with the relative weight of each pillar varying by country context.

8. Testing the Framework with Providers

Understanding how customers experience trust is only valuable if that understanding leads to action. For the Digital Portfolios of the Poor project, the workshops are the critical bridge between research and real-world change — the mechanism through which voice data collected from nearly two thousand respondents can be translated into decisions made by the people with the power to act on them. To test whether the trust framework holds up outside the research environment, the team runs a series of co-design workshops with digital service providers across both countries: three SACCOs in Kenya — Stima SACCO, Mwalimu National, and Shirika — and three digital service providers in India. Each session brings together cross-functional teams capable of acting

on the insights, with the explicit goal of moving from research findings to institution-specific, departmentally owned commitments within a single sitting.

Each workshop runs for half a day, a format chosen deliberately to make senior attendance feasible and to create the urgency needed to move from insight to action without losing momentum. Participation is intentionally cross-functional: the Stima SACCO session, for example, draws representatives from eleven departments including FOSA, Finance, Shared Services, Marketing, Sales and Research, Treasury, Customer Experience, Credit, ICT, Legal, and Management — ensuring trust insights are interpreted simultaneously through financial, technical, marketing, compliance, and member-facing lenses. The Indian sessions follow the same principle, drawing in product, technology, customer experience, business development, and senior leadership so that any solution proposed has ownership lined up from the start.

Workshops follow a consistent three-part arc. First, participants are grounded in real respondent language — anonymized voice quotes and quantified findings from the Digital Portfolios of the Poor dataset that place actual customer concerns in the room, not abstracted summaries. Hearing users speak in their own words, about their own fears, creates a different kind of urgency: it closes the empathy gap and gives every function in the room a shared starting point. Second, institutions are introduced to the three trust archetypes (Assurance Seekers, Control Seekers, Protection Seekers) and the four trust pillars (Risk Perception, Risk Mitigation, Responsibility Perception, Benefit Perception), and shown how their own customer base maps onto these patterns. Third, participants break into small cross-functional working groups, each assigned to an archetype, and work through three stages:

- Identifying pain points — the specific barriers a user of that archetype would face when using the institution's actual products.
- Co-designing solutions — cross-functional responses that address those barriers across departments rather than within a single team's remit.
- Developing concrete proposals — with short-term (0-3 month), medium-term (3-12 month), and long-term (12+ month) actions, each assigned to a named department with measures of success attached.

Workshops are structured to engage with the archetypes most prevalent in each country simultaneously rather than sequentially. In Kenya, that means working groups tackle Control Seekers (60% of the Kenyan sample) and Assurance Seekers (39%) in parallel, allowing institutions to see how a single product change might serve one archetype while inadvertently alienating another. In India, where Assurance Seekers dominate at roughly half the sample, the parallel sessions help surface where Control Seekers' demand for self-service tools and Protection Seekers' demand for institutional guarantees pull product design in different directions — and where a single intervention can speak to both.

The output is tangible. Across the Kenya workshops alone, dozens of tractable actions emerge, ranging from immediate language and onboarding changes through to medium-term product redesigns and longer-term shifts in governance — including, in some cases, the proposal of board-level trust metrics. Critically, these are not theoretical recommendations produced by external consultants. They are grounded in what users have actually said, calibrated to what institutions can actually do, and owned by the people with the power to make them happen. That ownership — the moment a Credit lead or an ICT manager says "this is mine, and here is when it will be done" — is the workshops' real product. The framework is no longer a research artefact. It has become a working tool.

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Annex: Country Coverage Maps

The Digital Portfolios of the Poor study reached 3,435 respondents across Nigeria, Kenya, India, and Pakistan. The maps that follow show, for each country, the regions where fieldwork was conducted, together with the survey cities, sample size, and languages used. They are intended as a quick visual reference to accompany the country-by-country detail above.

Kenya

Fieldwork in Kenya was conducted across six regions spanning the western lake basin, the Rift Valley, the central highlands, the coast, and the arid north. Recruitment partners delivered the survey in four languages — Swahili, Luo, Kalenjin, and Turkana — with a final sample of 992 respondents (58% women), skewed toward the 26-35 age group.

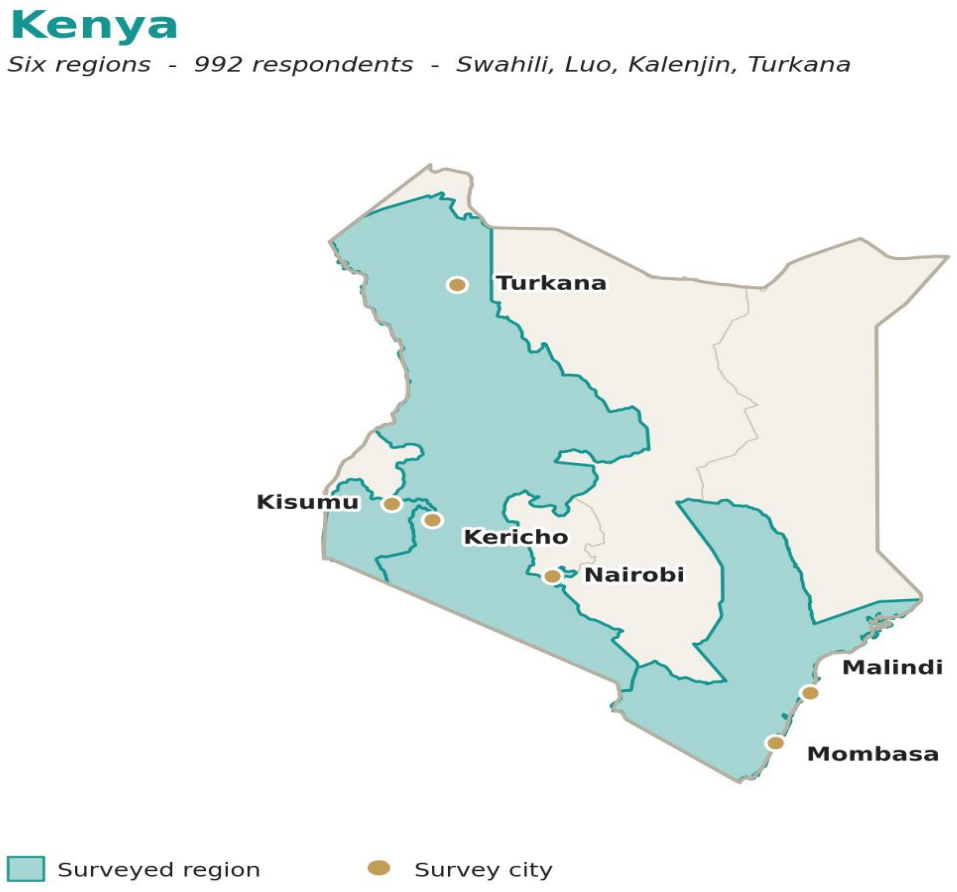

Figure 1. Kenya — six survey regions across four language zones.

Nigeria

Nigeria fieldwork was concentrated in three states chosen to represent the country's principal geographic, ethnic, and linguistic regions: Kano in the Hausa-speaking Muslim north, Enugu in the Igbo-speaking south-east, and Lagos as the Yoruba-speaking commercial capital. The final sample of 960 respondents was weighted 61% female, with two-thirds aged 18-35.

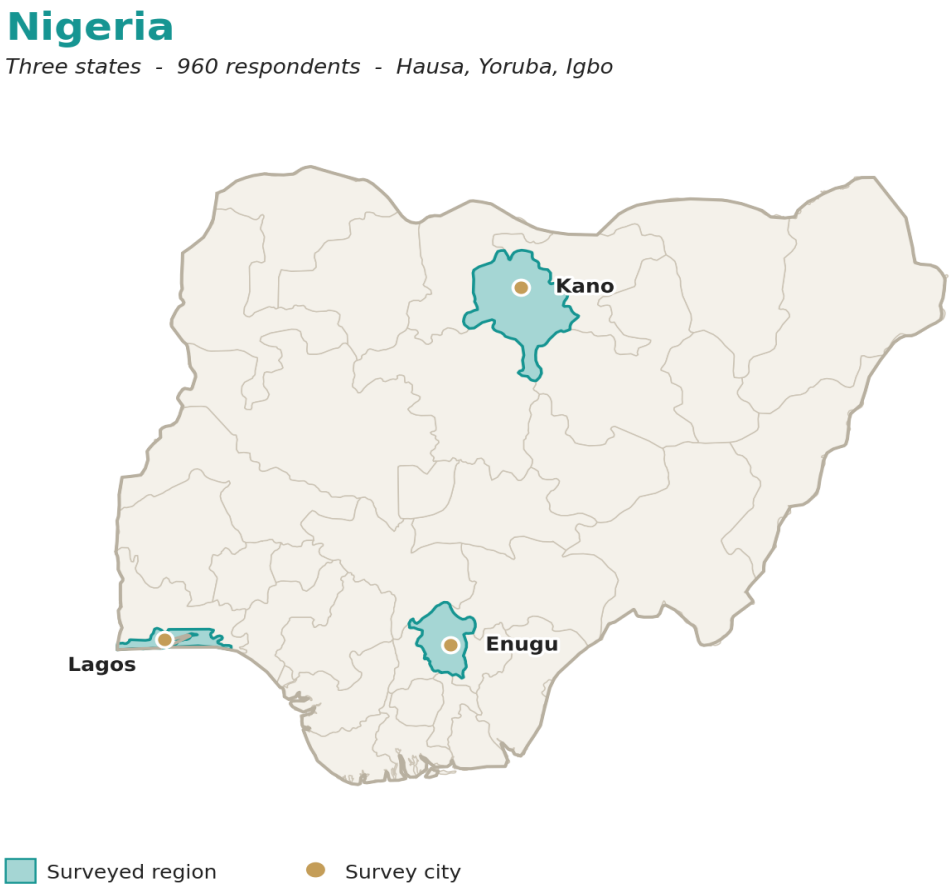

Figure 2. Nigeria — three states representing the country's principal regional, ethnic, and linguistic blocs.

India

India fieldwork covered eight states from the northern plains through the central Hindi belt to the southern peninsula, with recruitment delivered through Gram Vaani's community radio network. Surveys were administered in Hindi, Tamil, and Telugu. The final sample of 939 respondents was 52% female and skewed younger, with 46% in the 21-30 age group. Tamil Nadu was the largest single-state allocation at 22% of the sample, with recruitment specifically focused on women in the garment and textile workforce.

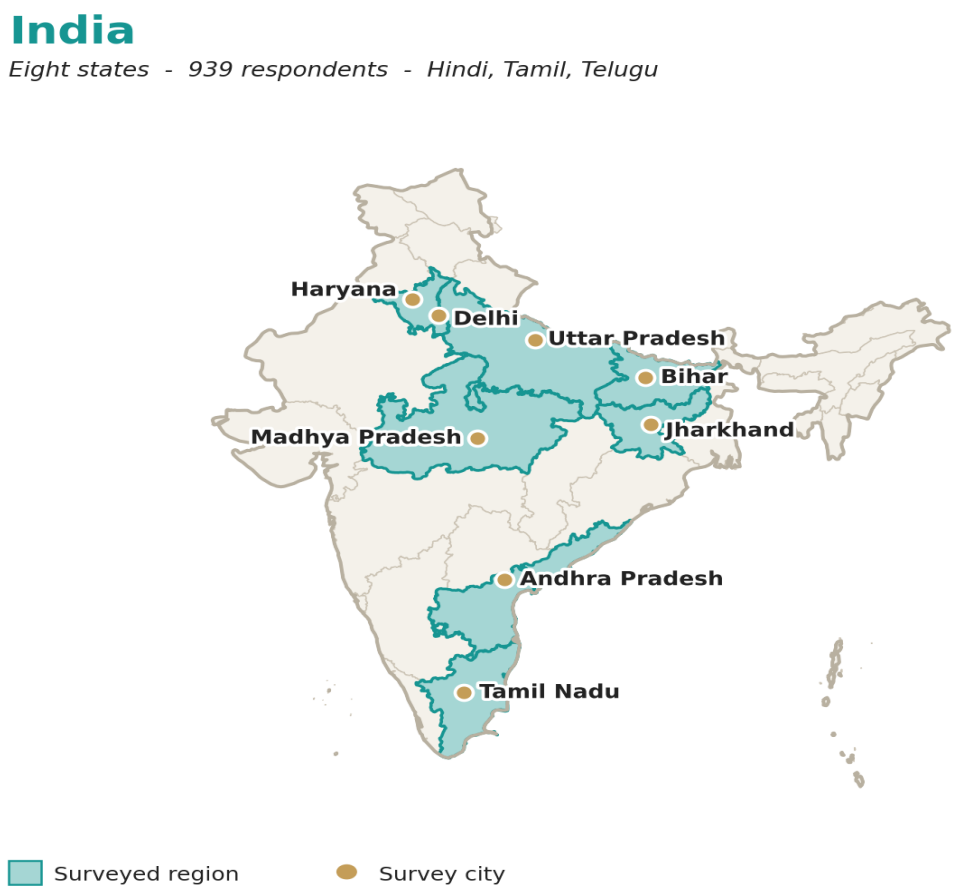

Figure 3. India — eight states surveyed across the Hindi belt, the south, and the National Capital Region.

Pakistan

Pakistan fieldwork was concentrated in six cities across Punjab province — three in Central Punjab (Lahore, Faisalabad, and Sialkot — Sialkot in the recruitment frame, with Okara substituted in the realized sample) and three in South Punjab (Bahawalpur, Lodhran, and Muzaffargarh). Surveys were administered in Urdu and Punjabi, with a stratified design across urban and rural settings and three household income bands. A special population of 180 women who use shared phones was recruited alongside the main 1,014-respondent target to ensure representation of a particularly digitally vulnerable group.

Figure 4. Pakistan — six cities across Central and South Punjab, with a stratified design covering urban and rural settings and three household income bands.

The Digital Portfolios of the Poor study was conducted by Decodis in partnership with the Henry J. Leir Institute, covering Nigeria, Kenya, India, and Pakistan.