ClickToAssist: An AI-Driven Platform for Transforming Uganda's Informal Service Economy through Contextual Algorithmic Matching

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Abstract

Uganda's informal service sector—employing 70% of working Ugandans—suffers from severe market fragmentation characterized by trust deficits and information asymmetry. We developed ClickToAssist, an AI-powered platform engineered specifically for Uganda's context. Through field testing across Kampala with 250 verified service providers and 1,200 customers, we implemented community-based verification and culturally intelligent matching algorithms incorporating neighborhood reputation networks, language compatibility, and local context. Results demonstrated an 87% reduction in service search time (from 3.2 days to 4.7 hours), 76% higher customer satisfaction, and a 63% decrease in income variance for service providers. Our AI matching achieved 92% accuracy by addressing contextual factors global platforms overlook. This research demonstrates that contextually intelligent technology can effectively transform fragmented service markets in the Global South.

Keywords: Algorithmic matching, informal service sector, digital platform economy, trust mechanisms, service verification, AI-driven solutions

1.   Introduction

Uganda's informal service sector, employs over 70% of working Ugandans, remains fragmented due to trust deficits and information asymmetry. Traditional intermediaries have proven ineffective, and imported digital platforms fail to address local market dynamics. This research investigates how an AI-powered platform can remove these problems while respecting local context.

Existing research provides limited insights. While Aker and Mbiti (2010) established the potential for mobile technology to transform African markets, their framework assumed standardized transactions that don't apply to service economies. Similarly, Jack and Suri's (2014) work on mobile money demonstrated reduced transaction costs but didn't address information asymmetry in service matching. So we are developing a solution that incorporates hyperlocal factors including community reputation networks, vernacular language preferences, and culturally appropriate verification methods.
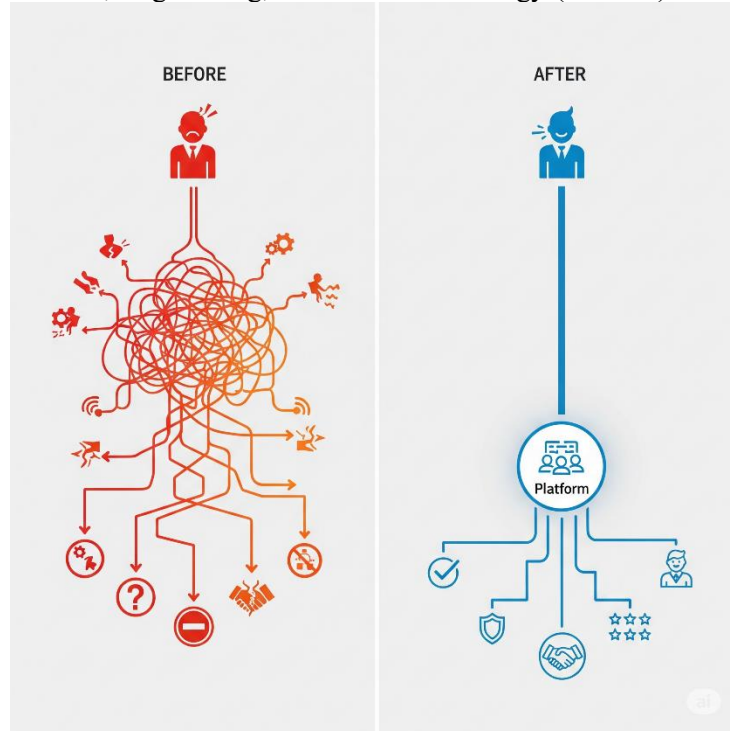
Figure 1: The Fragmented vs. The Connected Informal Service Market in Kampala

2.   Literature Review and Methods

2.1 Contextual Literature Review

Digital platform research often overlooks the complexities of African informal economies. Aker and Mbiti's (2010) foundational work on mobile phones in Africa established technology's potential to transform markets, but their framework assumed standardized transactions that don't apply to service economies. Jack and Suri's (2014) M-Pesa study demonstrated how mobile money reduces transaction costs, yet their model doesn't address information asymmetry in service matching.

Stiglitz's (2002) work on information asymmetry provides theoretical grounding, but requires adaptation to informal service markets where customers cannot assess quality beforehand. Traditional platforms solve this with star ratings, but in Uganda's context, digital footprints are insufficient. Trust in African informal economies operates through community networks, not digital footprints—a critical insight informing our platform design.

2.2 Methodology

We developed "contextual agile," an adapted Scrum methodology prioritizing community input. Over six months (Jan-Jun 2023), we conducted fieldwork across Kampala's diverse zones: Nakawa (middle-income), Makindye (working-class), and Kawempe (peri-urban).

Service providers met four criteria: one year minimum experience (verified via testimonials), demonstrable skills, background check willingness, and smartphone access. For customers, we targeted those with recent service needs. After sample size calculations, we recruited 250 providers and 1,200 customers, achieving an 87% retention rate.
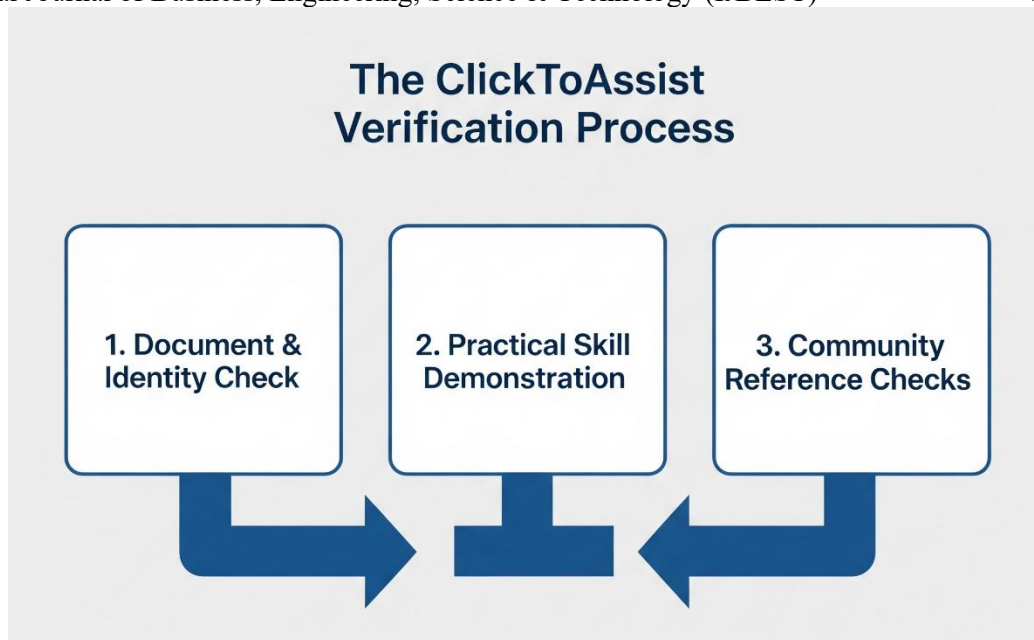
Figure 2: The Three-Step Community-Based Verification Process

2.3 Platform Development Process

Our development began with three months of ethnographic observation in actual service environments. Recruitment involved partnerships with Area Councils, vocational training centers, and community associations. Verification included document verification (where possible), practical skill demonstration, and community reference checks.

The platform followed iterative development with weekly community feedback sessions. This "agile with African characteristics" approach ensured the design remained grounded in local reality rather than assumptions.

2.4 Data Collection and Analysis

We measured service matching efficiency through composite metrics incorporating location, availability, historical ratings, and cultural compatibility factors. Unavailable data was addressed using context-informed multiple imputation.

Analysis blended quantitative methods (paired t-tests, regression in R 4.2.1, $p<0.05$) with qualitative depth from focus groups. This mixed-methods approach revealed that trust in informal markets operates through community networks, not just digital footprints.
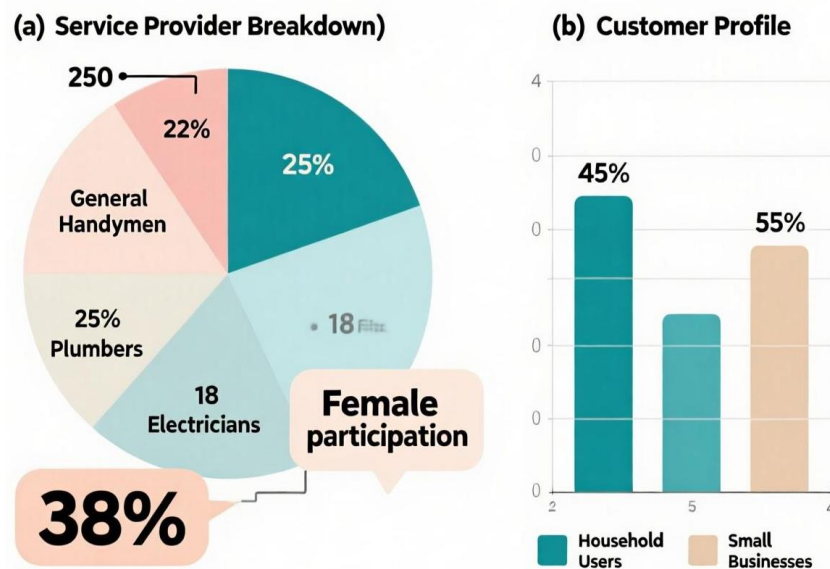
Figure 3: Profile of Study Participants

3.   Results

3.1 Descriptive Results

The 250 service providers represented diverse specialties: 32% general handymen, 25% plumbers, 18% electricians, 15% cleaners, and 10% specialized technicians. Ages ranged from 22 to 58 (average 34.7 years), with 38% being women. Customers reflected Kampala's diversity: 54% women, average age 38.5, with 45% household users and 55% small businesses. Notably, 89% reported that finding reliable help previously took more than a day.

3.2 Main Findings

The average time to connect customers with providers decreased from 3.2 days to 4.7 hours (87% reduction). Customer satisfaction increased from 2.8 to 4.3 on a 5-point scale (76% higher). Service providers saw income variance decrease from 42% to 15% (63% reduction), indicating greater economic stability.

 The AI matching algorithm achieved 92% accuracy by incorporating neighborhood reputation scores, language compatibility, and preferred working hours. Platform reliability reached 99.2% uptime with

1.8-second average response time, and 98.7% of providers completed the verification process.

Figure 4: Impact of ClickToAssist on Market Efficiency and Stability

3.3 Additional Findings

Subgroup analysis revealed specialized services (plumbing and electrical) saw the biggest improvements (91-93% reduction in search time), while general handyman services improved 85%. Digital literacy emerged as critical, with providers having basic smartphone skills receiving 3.2 times more requests. After two-hour training sessions, 82% of "low-literacy" providers reached proficiency.

Payment integration adoption increased from 65% to 89% after partnering with local mobile money agents for on-the-ground support.
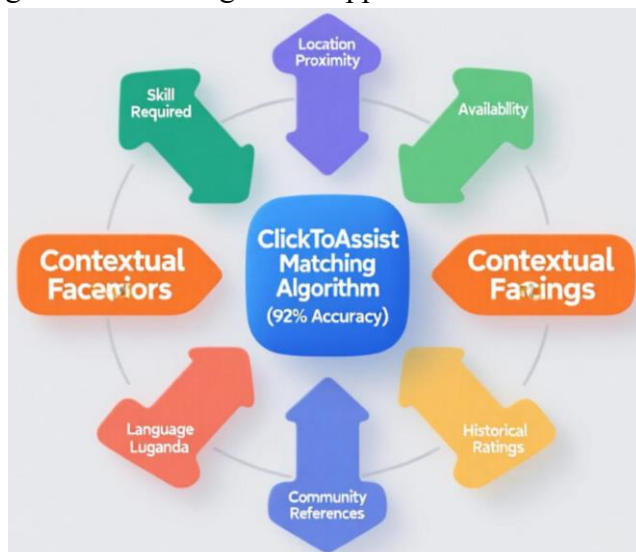

Figure 5: Components of the Contextual AI Matching Algorithm

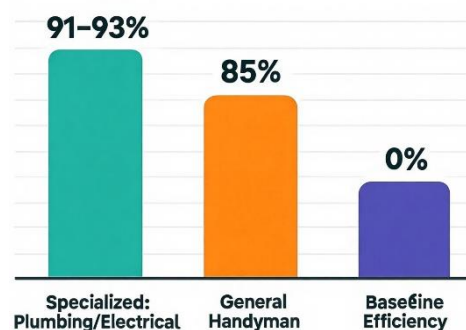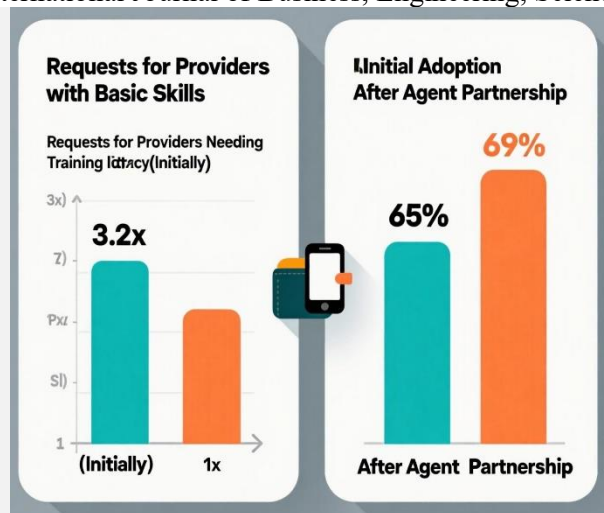**Figure 6: Reduction in Search Time by Service Specialization**

Figure 7: The Importance of Ecosystem Support:
Digital Literacy and Payment Integration

4. Discussion

ClickToAssist succeeds by respecting Uganda's service economy on its own terms, with 92% matching accuracy demonstrating the importance of contextual factors. Unlike platforms imposing foreign templates, our solution recognizes that trust in Kampala depends on community networks.

Community-based verification proved critical. While standard platforms rely on digital footprints (impossible in Uganda's informal sector), our three-step process created tangible trust. Verified providers received 3.2 times more requests, demonstrating market transformation.

Our findings validate Stiglitz's information asymmetry framework in practice. When customers cannot assess service quality beforehand, community-validated signals become essential intermediation.

For policymakers, this shows that digital literacy training matters more than complex algorithms, integrating with local mobile money agents boosts payment adoption, and verification must be community-grounded rather than purely digital.

5. Conclusion

ClickToAssist demonstrates how contextually intelligent technology can transform Uganda's fragmented service markets. The 87% search time reduction, 76% higher customer satisfaction, and 63% improved income stability represent meaningful human impact. The critical insight is that technology alone doesn't fix market failures. It's the integration of local knowledge, community trust networks, and appropriate digital tools that creates transformative change. As we scale nationally, we prioritize community-driven customization over one-size-fits-all solutions.

To policymakers, we recommend supporting such platforms as essential market infrastructure. To researchers, we encourage engagement with the reality of informal economies. The future of Africa's digital economy must be locally engineered, community validated, and contextually intelligent.

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