



Utilising Conversational AI to Enhance Financial Literacy for Migrant Workers in Singapore

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Executive Summary

Project Overview

This brief presents findings from a participatory research project exploring how conversational AI can improve financial literacy for migrant workers in Singapore. Through co-creation workshops with Indian and Bangladeshi migrant workers, we developed an AI chatbot prototype designed to provide accessible, multilingual financial guidance that respects workers' lived realities and cultural contexts.

Core Challenge Addressed

Migrant workers in Singapore face significant barriers to financial services and literacy. Many lack the financial knowledge to navigate savings and investments, making accessible financial education critical.

Our research addressed two interconnected challenges:

1. How can we co-create a technology solution with migrant workers to make financial literacy support more accessible?
2. How can we design AI in a way that feels familiar and approachable to people typically unfamiliar with such technology?



Key Findings

- Family motivation is central-solutions must acknowledge and (where possible) involve workers' families
- Co-creation activities must meet people where they are, respecting different backgrounds and goals
- Building genuine relationships with workers is as important as building the technology itself
- Existing digital and financial touchpoints: 92% of migrant workers receive digital salary payments, and DBS/POSB already banks more than 900,000 migrant workers and foreign domestic workers

Mapping of Policy Stakeholders

Primary Stakeholders and Relevance

Ministry of Manpower (MOM)

As the authority overseeing Singapore's foreign labour force, MOM is directly concerned with migrant worker welfare. Our findings highlight financial challenges and literacy gaps that can inform more responsive, worker-centric policies aligned with their fair employment mandate.

DBS Bank

Serving most migrant workers in Singapore, DBS can use our findings to reduce in-branch queries through chatbot integration. Strengthening financial literacy also reduces workers' vulnerability to scams, benefiting both workers and the bank. With more than 900,000 migrant workers and foreign domestic workers banking with POSB, DBS has both the infrastructure and user base for implementation.

Employers and Social Service Agencies (SSAs)

As direct supervisors and nonprofit organizations respectively, employers and SSAs play crucial roles in migrant worker welfare. Our findings help them design programs and outreach that are more relevant, accessible, and impactful.

Migrant Workers

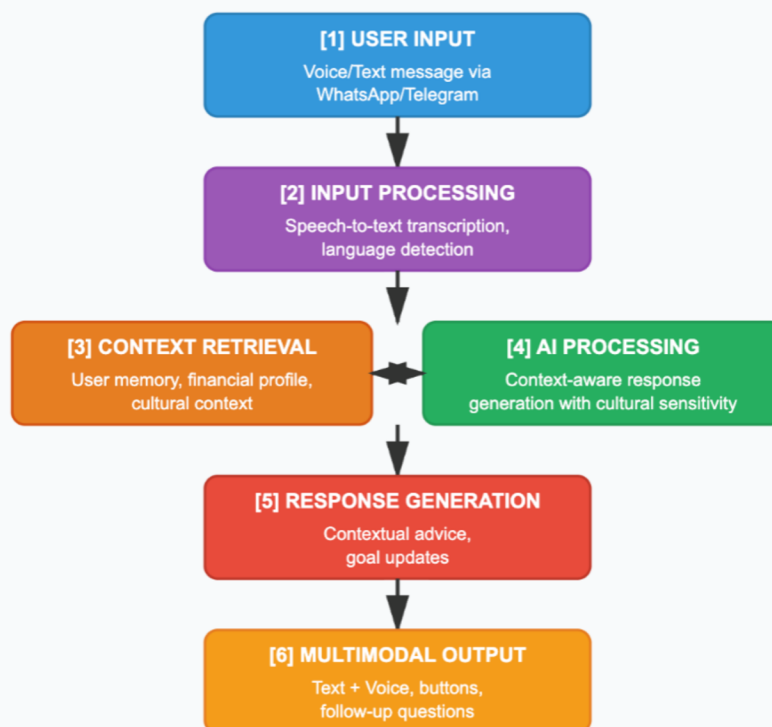
Workers ultimately seek better job opportunities and financial security—the primary reasons they leave home to work in Singapore. Our findings reflect their lived realities and our chatbot prototype offers a tool to help them manage their finances more effectively.



Solutions and Recommendations

Our research recommends implementing a multilingual AI chatbot for financial literacy, integrated into existing digital banking infrastructure and supported by peer ambassador networks. This solution builds on proven models while leveraging Singapore's strong digital banking adoption among migrant workers.

Conversational Flow Process Layout



Key Overlapping Insights Informing Our Recommendations

- Existing digital infrastructure provides a strong foundation-92% digital salary adoption and a POSB banking base of 900,000+ migrant workers and domestic workers
- Workers demonstrate receptiveness to technology when benefits are clear-POSB remittances grew 45% in one month during COVID-19
- Human connection remains essential-technology must complement, not replace, trusted relationships
- Language and cultural adaptation are central to accessibility and meaningful adoption

Implementation Deep Dive

Context and Political Fit

Policy Alignment

Our solution aligns with multiple recent Singapore government initiatives that create direct policy support:

- Smart Nation 2.0 (October 2024): Explicitly aims to "strengthen social connections and reduce inequalities" through technology, with Prime Minister Lawrence Wong's vision of "A Thriving Digital Future for All"-creating direct policy support for digital solutions serving underserved populations.
- National AI Strategy 2.0 (2023): Positions AI as "the great equalizer" with goals of Excellence and Empowerment, specifically aiming to help "individuals, businesses, and communities use AI with confidence"- directly applicable to migrant worker financial inclusion.
- MoneySense National Financial Education Programme: Co-chaired by MAS and MOM since 2003 with an explicit mandate to help all residents "manage money well and make sound financial decisions." Our chatbot extends this mission 24/7 in workers' native languages, addressing a gap that current in-person workshops cannot fill.
- MAS-IFC-WEF Partnership on Digital Inclusion (November 2023): Created a formal mandate to "advance digital inclusion through financial services" and "reduce inequalities for underserved individuals."

Gap Addressed

While existing solutions for financial literacy exist through workshops or NGO-led programs, these reach only limited participants due to constraints of time, resources, and language. We aim to reach a wider audience by leveraging the scalability of technology, offering personalized and accessible user experiences, and providing on-demand financial education.

MOM's existing S.M.A.R.T. Savings Framework already provides financial literacy content for migrant domestic workers but is currently only available as static PDFs without 24/7 multilingual support. This approach can help make the solution interactive and personalised to each migrant worker's financial situation, while recognising that migrant workers have specific financial realities-including remittance obligations and recruitment debt-that standard frameworks may not fully address.



Institutional and Operational Feasibility

Recommended Implementation Partnership

Based on organizational mandates and existing infrastructure, we recommend a three-part implementation partnership:

1. Primary Government Partner: MOM's Assurance, Care and Engagement (ACE) Group

- Established in 2020
- Mission specifically covers migrant worker well-being including healthcare, housing, and social aspects
- Already operates the "Friends of ACE" (FACE) network, with around 1,000 active volunteers across dormitories islandwide
- Their Communications, Engagement and Partnerships Department develops stakeholder engagement strategies

2. Technology Partner: DBS Bank (POSB)

- Already serves more than 900,000 migrant workers and foreign domestic workers with POSB accounts
- DBS CSO Assistant (launched July 2024) demonstrates in-house Gen AI capability with nearly 100% accuracy
- More than 900,000 work permit holders and migrant domestic workers already bank with DBS/POSB, providing a large built-in user base

3. Financial Education Partner: MAS MoneySense Programme

- Provides pedagogical framework and financial literacy content
- Co-chaired by MAS and MOM, ensuring regulatory alignment



Capacity Gaps That Must Be Addressed

Cultural and Language Adaptation

Tools must be available in migrant workers' native languages (Bengali, Tamil, Bahasa Indonesia, Chinese, English) and tailored to their lived realities. Content must be culturally appropriate and account for varying levels of formal education.

Digital Accessibility

Although 92% of migrant workers receive digital salary payments, the focus should be on making tools easy to interact with and tailored to users across varying levels of digital literacy, ensuring the experience is genuinely relevant to their specific financial context.

Sustained Engagement

Beyond one-off training, systems must encourage long-term usage through habit-building features, gamification elements, peer support groups, and integration with existing government-supported initiatives like Friends of ACE.

Trust Building

Given sensitivities around financial and salary data-including concerns about who can access this information and under what circumstances-transparent data governance is essential to building worker trust.

Financial Considerations and Core Cost Components

Infrastructure Hosting

Server and database hosting costs are relatively low (estimated <SGD \$100/month for pilot phase), scaling up as user base grows.

Commercial LLM API Usage

Costs depend directly on conversation volume. For smaller, optimised models, API costs are estimated at approximately SGD \$1 per user per month at scale. Usage-based pricing means costs scale with adoption but remain proportional to impact.

Human Resources

Resources needed for monitoring conversations, translating and updating content, conducting user research, and continuous iterative improvements based on feedback.

Community Engagement

SSupport for peer ambassador programs, user onboarding, and maintaining trust through in-person touchpoints.

Potential Funding Avenues

- MAS Financial Sector Technology and Innovation (FSTI) scheme
- Ministry of Manpower grant programs for worker welfare initiatives
- DBS Foundation social enterprise grants
- Corporate social responsibility partnerships with employers of migrant workers
- Social Service Agency collaborative funding models



Stakeholder and Social Dimensions

Primary Beneficiaries: Migrant Workers

Engagement Strategy: Trust must be developed through in-person meetings, meals, and personal connections. We will follow proven peer ambassador models:

1. Police Migrant Workers Community Awareness Programme Model
 - Recruit migrant worker volunteers through MWC and CDE, train them as advocates who can translate advisories and create vernacular content. This model reached 3,700+ workers in 2023.
2. Aidha Peer Savings Club Model
 - Aidha demonstrates a 9x multiplier effect (each educated worker positively impacts 9 lives in their family/community).
3. Friends of ACE Network
 - Leverage MOM's existing ~1,000 Friends of ACE volunteers as early adopters and ambassadors.

Potential Opposition and Mitigation Strategies

1. Labor Rights NGOs (TWC2, HOME, HealthServe)

- Concerns: AI chatbots may displace human support services that have built trust through face-to-face interactions. Digital exclusion remains a real concern for a meaningful share of migrant domestic workers, some of whom lack bank accounts, required documents, or digital financial literacy.
- Mitigation: Position chatbot as complementary to (not replacement for) NGO services. Partner with NGOs for community outreach and feedback loops. Ensure offline alternatives remain available.

2. Data Privacy Advocates

- Concerns: General data privacy sensitivities around the handling of workers' financial and salary data, and concerns about potential misuse or unauthorised access to personal information.

- Mitigation: Transparent data governance with clear PDPA compliance. No employer access to worker financial data. End-to-end encryption. Independent privacy audit before launch.

3. Employers

- Concerns: Workers with financial literacy may challenge exploitation; financial independence reduces employer control.
- Mitigation: Frame as reducing administrative burden (fewer salary disputes, fewer emergency loan requests). Emphasize worker retention benefits and alignment with MOM Fair Employment Framework.

4. Traditional Service Providers (Remittance Agents, Financial Advisors)

- Concerns: Fintech disruption of established relationships and revenue.
- Mitigation: Partner rather than compete. MWC-POSB model (2018) successfully integrated multiple service providers. Include licensed agents in referral network for complex needs.



Key Evidence and Remaining Uncertainties

Strong Supporting Evidence

Financial Literacy Gap and Debt Burden

Financial vulnerability among Bangladeshi migrant workers is well documented. The pressure begins even before arrival: Transient Workers Count Too documented that Bangladeshi workers pay between SGD \$6,800-\$10,000 in recruitment fees-equivalent to 5-21 times their monthly salary-placing many in debt before they even begin working in Singapore (TWC2, 2018).

Digital Readiness and Existing Infrastructure

The Ministry of Manpower found that 92% of migrant workers receive their salary credited directly into Singapore bank accounts (MOM Survey, 2024), indicating widespread familiarity with digital banking infrastructure. More than 900,000 migrant workers and foreign domestic workers now bank with POSB (DBS Annual Report, 2023/2024).

Furthermore, 95.3% of migrant workers report satisfaction with working and living in Singapore-the highest rate since 2011 (MOM Survey, 2024)-indicating receptiveness to government-supported programs.

DBS Bank Operational Challenges

Workers report queuing for hours at DBS's Little India branch for basic transactions, traveling long distances from dormitories and losing precious rest time. As bank representatives noted, "Most workers work long hours and only have off days on Sunday; going to a bank poses a challenge."

However, DBS's existing digital infrastructure - including its digibank chatbot and its verified CSO Assistant Gen AI tool - provides a foundation to build on.

AI Chatbot Effectiveness Evidence

A meta-analysis of 62 studies found significant small to moderate positive effects on learning performance from AI chatbots. A Bangladesh mobile banking study demonstrated concrete financial outcomes: after one year, active users increased urban-to-rural remittances by 26%, rural consumption rose by 7.5%, and extreme poverty fell among user households (Lee, Morduch, Ravindran, Shonchoy & Zaman, 2021).



Critical Uncertainties Requiring Pilot Testing

While the evidence above is promising, several critical questions can only be answered through pilot testing:

Effectiveness for Low-Literacy Populations

Limited research exists on chatbot effectiveness for populations with low digital literacy or limited formal education. Pilot testing must assess completion rates and comprehension across different literacy levels, and whether visual aids and voice interfaces can compensate for low text literacy.

Language and Cultural Adaptation

The effectiveness of financial concept translation in Bengali and Tamil remains unknown, as does the cultural appropriateness of saving and budgeting advice across different nationalities. Testing must address whether financial terms translate accurately without losing meaning, and whether budgeting frameworks are culturally appropriate for workers who prioritize family remittances over personal savings.

Behavioural Change vs. Knowledge Gain

Most chatbot studies measure knowledge gain rather than actual behaviour change. The pilot must answer: Does increased financial knowledge translate to changed savings behaviour? What is the optimal frequency of chatbot engagement to sustain behavioural change?

Trust and Data Privacy Concerns

Broader data privacy concerns-particularly who can access workers' financial and salary data, and under what circumstances-remain a key uncertainty affecting willingness to adopt a financial chatbot. Key questions include worker trust levels with AI systems handling financial information, and how privacy concerns differ between government-led vs. bank-led vs. NGO-led implementations.

Comparative Effectiveness

No studies have compared AI chatbots versus traditional methods (Aidha in-person classes, NGO workshops, printed materials) specifically for migrant worker financial literacy. Testing must determine whether chatbots produce equivalent or better learning outcomes, cost-effectiveness per worker reached, and which workers benefit most from which modality.



Prioritization and Technical Assistance for Implementation

Should the project continue, this is what would need to happen next.

Phase 1: Pilot Program (6-9 months)

- Partner with MOM ACE Group and DBS to launch pilot with 500-1,000 workers
- Recruit peer ambassadors through Friends of ACE network
- Integrate chatbot into POSB Jolly App for seamless access
- Conduct rigorous evaluation across all uncertainty areas identified above
- Establish privacy governance framework and conduct independent audit

Phase 2: Evaluation and Refinement (3 months)

- Analyze pilot data on adoption rates, completion rates, behavior change, and satisfaction across different worker demographics
- Refine language, cultural adaptation, and user interface based on feedback
- Compare outcomes against traditional financial literacy methods
- Document best practices and lessons learned

Phase 3: Scale-Up (12+ months)

- Expand to full POSB account holder base (900,000+ workers)
- Integrate with MoneySense content and S.M.A.R.T. Savings Framework
- Partner with SSAs and employers for workplace integration
- Establish ongoing content update and quality assurance processes
- Develop sustainability model for long-term operation

Technical Assistance Needed

Research and Evaluation Expertise

- Behavioral economists to design and measure financial behavior change
- UX researchers specializing in low-literacy and multilingual design
- Data scientists for conversation analysis and chatbot optimization

Language and Cultural Translation

- Professional translators for Bengali, Tamil, and Bahasa Indonesia
- Cultural consultants from migrant worker communities
- Content specialists familiar with adult financial education

Privacy and Legal Compliance

- Data protection officers for PDPA compliance framework
- Legal counsel for terms of service and data governance
- Independent privacy auditors

Community Engagement and Peer Educator Training

- Community organizing specialists
- Training curriculum developers for peer ambassador programs
- Ongoing support for peer educator network

Conclusion

This Solutions Brief presents a feasible pathway to dramatically improve financial literacy access for Singapore's migrant worker population through AI-powered chatbot technology. With strong policy alignment across Smart Nation 2.0, National AI Strategy 2.0, and MoneySense mandates, combined with existing digital infrastructure through DBS/POSB and government engagement networks through MOM ACE, the foundations for implementation are already in place.

The chatbot approach offers scalability that traditional workshops cannot match, 24/7 availability that respects workers' limited rest time, and personalization that adapts to individual financial situations and goals. Most importantly, by building on proven peer ambassador models and prioritizing trust through transparent data governance, this solution honors the core finding from our research: that building genuine relationships with workers is as important as building the technology itself.

While critical uncertainties remain around low-literacy effectiveness, cultural adaptation, and behavior change (questions that only pilot testing can answer) the evidence base is strong enough to warrant immediate action. Given the financial vulnerability documented throughout this brief, the cost of inaction far exceeds the cost of a well-designed pilot program.

We hope this brief can serve as a useful reference for practitioners and policymakers working to build more inclusive, technology-enabled engagement frameworks for underserved populations-and that the evidence gathered here can inform future efforts across the region.





This work builds on the 2024-25 Reach research report, "[Financial Literacy for Migrant Workers Through Conversational AI](#)," by Alexander Tsai Yih Rae, Arif Ahmad Woozeer, Caroline Cheng Hui Xuan, Gigi Foo Wan Qi, Andrew Koh, and all the impactful partners, community members, and mentors involved in the research.

As part of the "Pathways from Evidence to Action" series, inspired by the African Center for Equitable Development (ACED), the Reach Alliance challenged researchers to identify connections, address gaps, and develop recommendations grounded in their findings. The series comprises thirteen briefing notes developing solutions for urgent climate, public health, and economic challenges and engages practitioners and policymakers in advancing pathways to implementation.

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