Rewiring the system: Financial education as infrastructure, not isolated programs

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Key definitions

In this brief, we have used four terms distinctly while forming a continuum.

Financial education includes interventions or delivery mechanisms, such as programs, tools, or content.

Financial literacy refers to the knowledge, attitudes, and skills that these interventions seek to build.

Financial capability describes an individual's ability to apply this literacy in real-world situations, often under constraints, such as time pressure, limited information, or resource scarcity.

Financial health is the overall outcome that encompasses financial resilience, day-to-day control, and confidence in the future.

Executive summary

Financial education (FE) incur spends by default. Therefore, the question should not be whether FE needs investments, but rather how to invest wisely. In this regard, the evidence is clear: Generic, classroom-style "knowledge" programs rarely change behavior. Targeted interventions perform better when delivered at the moment of real decisions, such as when people take a loan, choose an account, or renew their insurance. These interventions are most effective when linked to a specific action and reinforced over time. The gains may be modest, but they often endure.

Yet, FE alone cannot deliver consumer welfare at scale. Structural levers deliver faster results and achieve broader impact. Product rules, disclosure standards, provider liability, and grievance mechanisms shape outcomes more reliably than education by itself.

The experience of MSC (MicroSave Consulting) across more than 50 countries shows that FE works when we design it around the user's life stage, current constraints, and behavioral frictions. Funding should follow that logic. FE should be supported only when it is modular, adaptable to changing risks, and built to improve through feedback loops. If a program cannot meet these tests, it needs to be redesigned or replaced with a better intervention, including structural reforms that deliver better outcomes for a similar cost.

FE should not be designed as an attempt to make consumers compensate for complex, risky, or poorly governed markets. It should be part of a broader financial capability infrastructure in which regulation, provider accountability, product design, disclosure, grievance resolution, and timely education work together and enable appropriate financial behavior.

1. The gap

Financial inclusion relies on financial education to address problems it cannot solve. Most of what determines if financial services can keep consumers safe, informed, and well-served is decided upstream. The deciding factors include how products are designed, how providers are held accountable, how supervisors set conduct rules, how liability is allocated, and how grievances are resolved. FE has a real but limited role within this system. It cannot substitute for systemic safeguards. The first step in fixing the access capability gap is to stop asking FE to fix things it was never designed to address.

1.1 What FE cannot do

FE is not broken. It is overused and often misapplied.

Too often, FE is treated as the default response to problems for which it was not designed. Are people overindebted? Are consumers not saving enough? Are fraud losses rising? The default response is often that they need FE. In practice, FE is frequently used as a policy fig leaf that shifts responsibility for systemic failures onto individual consumers, rather than addressing the underlying drivers of harm.

Findings from Fernandes et al. show that FE explains only a minuscule share of variation in financial behavior across 201 studies. Thus, they are not merely a program design challenge that can be addressed through better implementation. They point to a structural limitation in what FE can realistically achieve when used on its own.

FE cannot reliably:

- **Compensate for poorly designed products or hidden pricing:** If the product is unsafe, consumer education cannot make it safe.
- **Substitute for weak conduct supervision or absent liability:** Where provider behavior drives harm, targeting consumers is the wrong intervention.
- **Keep pace with fraud innovation:** Fraud evolves in weeks, while FE programs update over years. The difference in speed matters.
- **Close information asymmetries** between providers and users in complex products: Disclosure rules and product standards address this gap. Education alone does not.

This is not a critique of FE. What we critique here is asking FE to do work that belongs elsewhere. As Lauren Willis argues, FE has often functioned as a mechanism that externalizes the costs of financial complexity onto consumers, while allowing providers and systems to avoid deeper reform.

This paper argues for a clearly defined position. FE complements regulation and provider accountability, rather than substituting for it. It helps policymakers, regulators, and practitioners achieve the intended outcomes of responsible product use and customer safety. Structural interventions tend to produce larger and more enduring effects on consumer outcomes than FE at comparable cost. Such interventions include behaviorally informed disclosure (Bertrand and Morse, 2011), default changes and automatic enrolment (Thaler and Benartzi, 2004), and shift of liability to providers. An example of the latter is the UK Payment Systems Regulator's mandatory authorized push payment (APP) fraud compensation, which reached 88% of the money lost to victims in its first year, versus 65% under the earlier voluntary regime. While FE should be funded where it can plausibly improve outcomes, structural reform should be funded where the problems are structural.

1.2 The real capability gap

The most recent cross-national measurement of adult financial literacy comes from the OECD/INFE 2023 Survey, which found that, even in OECD economies, nearly half of adults fall short of foundational competence. Between 2011 and 2024, account ownership increased from 51% to 79% of adults globally, yet the Global Findex 2025 reports that financial health has not improved in proportion. The gap between financial access and financial capability is real, persistent, and appears to be widening as digital financial services scale faster than user understanding.

More than 90 countries now have national financial literacy strategies. Two decades of evaluation evidence show that FE interventions generate positive but generally modest average effects on financial behavior. This includes the most rigorous meta-analysis to date by Tim Kaiser et al. (2020), covering 76 randomized experiments and more than 160,000 participants, alongside the broader review by Daniel Fernandes et al. (2014) across 201 studies. The strongest impacts emerge in just-in-time, behavior-linked interventions, while generic, one-off programs often produce effects that are difficult to distinguish from zero at scale. The useful policy question is therefore not whether FE "works" in general. It is under what conditions it produces sufficient returns to justify continued investment, and what it should not be expected to do.

2. What the evidence shows

2.1 The effectiveness evidence

The evidence base on financial literacy (FL) has grown substantially. Major longitudinal datasets and systematic reviews now offer a clearer picture of impact. Financial inclusion has grown rapidly, yet has not automatically produced financial well-being. Structural gaps in literacy remain large and persistent, particularly across gender, income, and geography. Together, this evidence reframes the question of whether financial literacy programs should exist and how they should be structured, connected, and continuously improved.

Kaiser et al. (2020) conducted one of the most rigorous quantitative syntheses to date and analyzed 76 randomized controlled trials, which covered more than 160,000 participants. The study revealed meaningful, lasting improvements of approximately 0.2 standard deviations (SD) in knowledge and 0.1 SD in behavior, comparable to benchmarks across other education fields. Critically, the authors found no systematic evidence of rapid decay. They recommended continued investment in FL, with greater attention to design quality, relevance, and cost-effectiveness.

These effect sizes call for honest interpretation. A 0.1 SD improvement in behavior is small in absolute terms and is well short of the magnitude needed to close the capability gaps the evidence identifies. The meta-analysis flags significant heterogeneity across studies.

On publication bias, Kaiser et al. (2020) correct it methodologically, but the development sector under-evaluates and under-publishes programs that fail. This suggests that the meta-analytic average likely overstates rather than understates true performance. Meta-analyses of RCTs also aggregate programs that secured sufficient design quality, funding, and institutional support to be evaluable. They over-represent the upper end of real-world FE programming and under-represent the substantial share of FE spend that is never evaluated rigorously. The defensible reading is that well-designed FE produces remarkably small, durable effects rather than transformative ones.

Kaiser and Menkhoff (2017) reinforced these findings across 126 impact evaluation studies. They found that just-in-time financial education produces the strongest and most enduring effects when delivered at or when people make a financial decision. Programs that support people as they open

accounts, take loans, or receive government transfers consistently outperformed standalone classroom-based instruction.

Fernandes et al. (2014), while often cited as evidence against financial education, are more precisely a critique of poorly timed and generic programs. Their review of 201 studies found that financial education explains only a small fraction of behavioral variation when delivered without reference to the moment or context of a financial decision. Their recommendation to replace broad, curriculum-based programs with targeted, timely interventions is, in fact, consistent with the more recent, rigorous evidence.

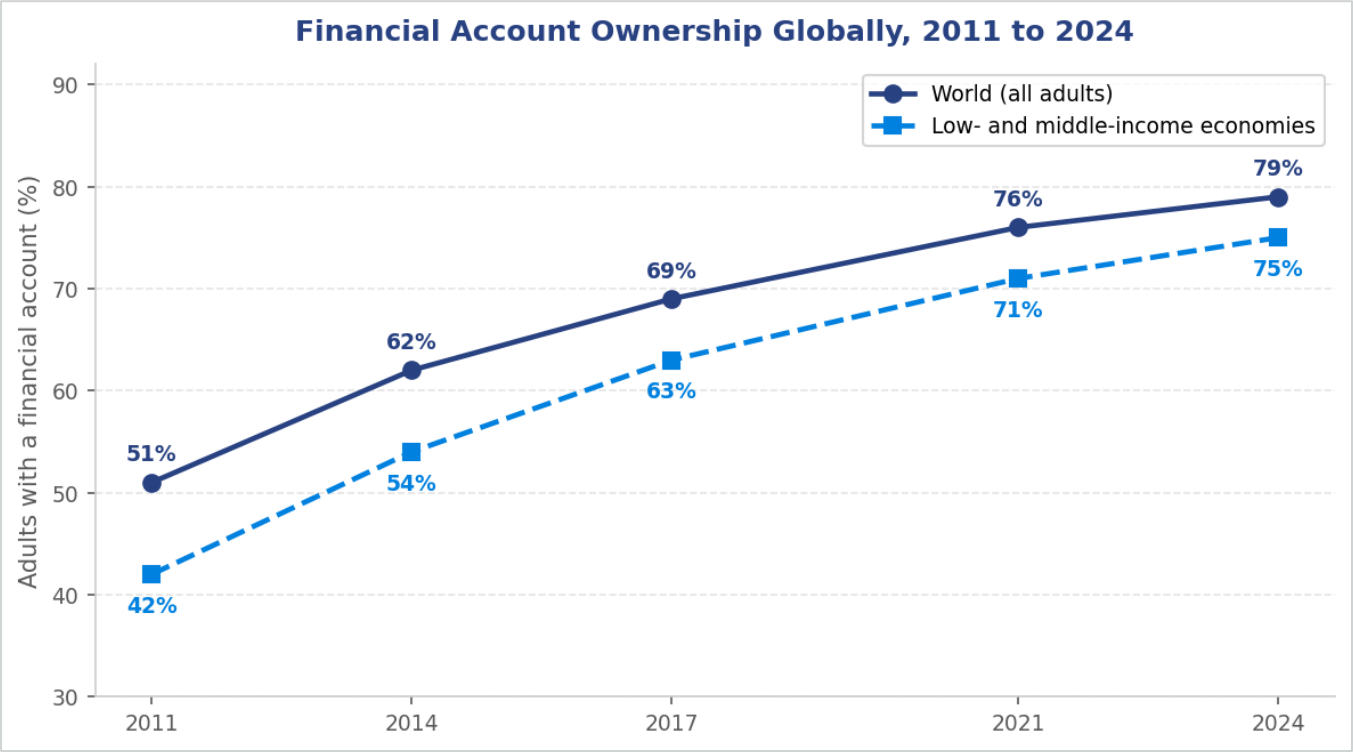
Across the 201 studies in the Fernandes study, financial education explained approximately 0.1% of the variance in the financial behaviors measured. This is a ceiling estimate, not an outlier. The appropriate response is not to dismiss the finding but to scope the claim it constrains. FE cannot be the primary instrument to improve financial outcomes at the population scale. Where FE produces impact, it does so in the vicinity of a specific decision, for a targeted behavior, among users positioned to act on what they learn.

The more recent just-in-time evidence from Kaiser and Menkhoff (2017) and Kaiser et al. (2020) does not overturn the Fernandes ceiling so much as identify the design conditions under which FE reaches the top of it.

2.2 The access and capability data

The three figures below draw exclusively from data from the World Bank Global Findex Database 2021 and 2025 and the OECD/INFE 2023 International Survey of Adult Financial Literacy. They present three dimensions of the evidence. These are trends in financial account ownership over time, shifts in key financial inclusion indicators between 2021 and 2024, and the distribution of financial literacy (FL) scores across countries in the most recent international measurement.

Figure 1: Global financial account ownership, 2011 to 2024.

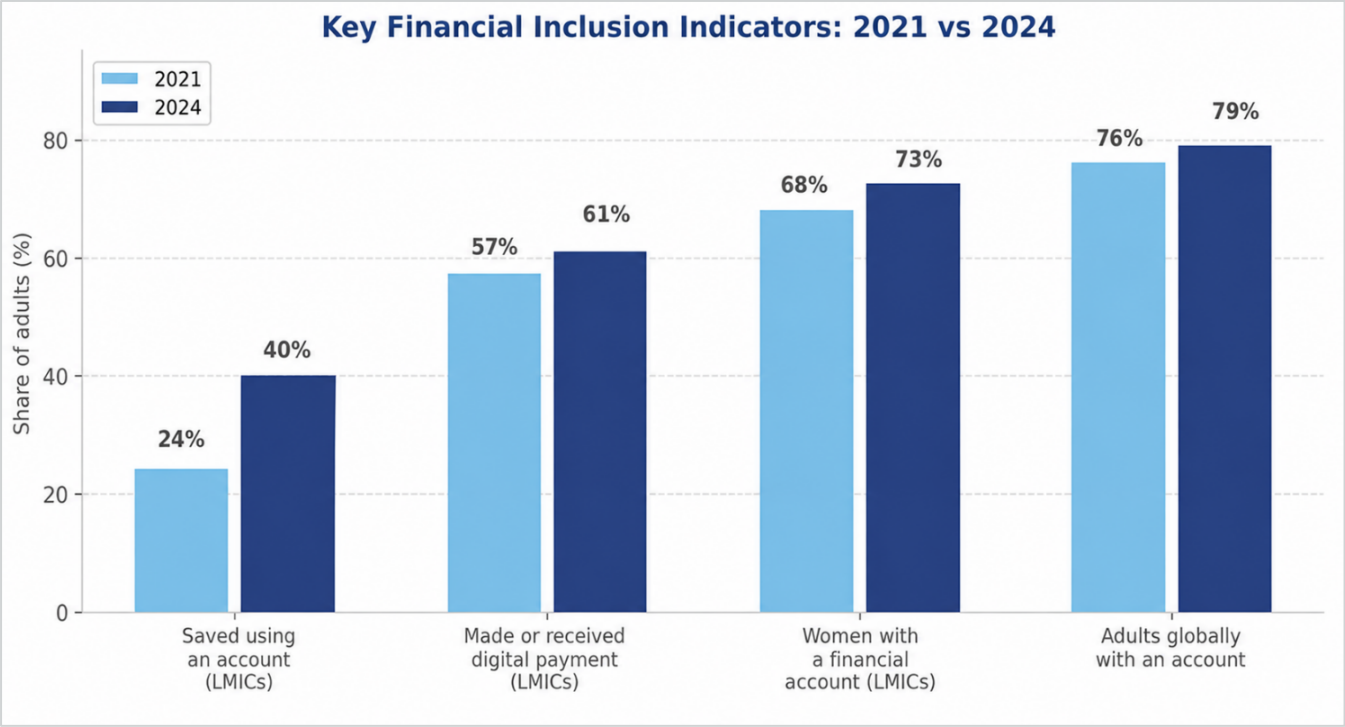


Source: World Bank Global Findex Database 2025 (Klapper et al., 2025)

Figure 1 charts the sustained rise in financial account ownership from 51% of adults globally in 2011 to 79% in 2024, a 28-percentage-point increase over 13 years. In low- and moderate-income economies, the gain has been even more pronounced, from 42% to 75%. This growth has been driven primarily by mobile money and digitally enabled accounts. This growth has allowed populations historically excluded from formal banking to participate in the financial system.

However, the Global Findex 2025 is explicit that access has outpaced capability, as 1.3 billion adults still lack accounts. Account ownership has risen sharply, but financial health has not kept pace. Among those who hold accounts, the ability to pursue financial goals, manage emergencies, and feel confident about one's finances remains largely unchanged. This gap between access and meaningful use is precisely where financial literacy programs must focus.

Figure 2: Key financial inclusion indicators, 2021 vs 2024.

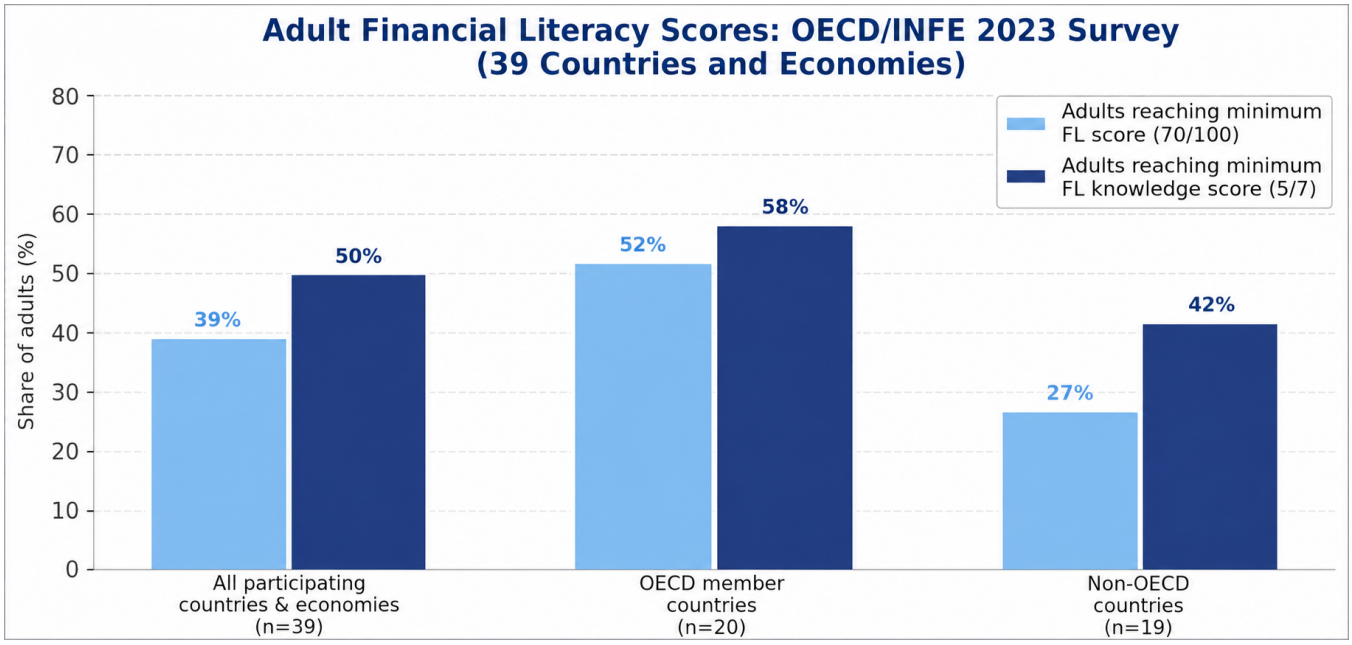


Source: World Bank Global Findex Database 2021 and 2025. LMICs = Low- and moderate-income economies.

Figure 2 illustrates the pace of change across four key indicators between the 2021 and 2024 Findex rounds. The most striking shift is in formal savings. The share of adults in low- and moderate-income economies who save in a financial account increased from 24% to 40%. The Findex 2025 report describes this 16-percentage-point increase as the fastest rise in formal saving in more than a decade. Digital payment uses and women's account ownership also grew.

Yet the 2025 Findex data also show that most people who use accounts for saving or payments do so out of habit or because they receive government transfers into accounts, not because of informed financial choices. This distinction matters, as account use driven by external incentives does not automatically build the financial capability people need to manage risk, plan, or make informed borrowing decisions.

Figure 3: Adults who have reached minimum financial literacy benchmarks, OECD/INFE 2023 Survey.



Source: OECD/INFE 2023 International Survey of Adult Financial Literacy (OECD Business and Finance Policy Papers, No. 39).

Figure 3 presents findings from the OECD/INFE 2023 Survey[1], the most comprehensive international measurement of adult financial literacy available. The gap between OECD members and non-OECD participants is substantial. This reflects how income levels, education systems, and market development shape financial literacy. This data reinforces the survey's central argument: Financial knowledge alone is necessary but not sufficient. Behavior and attitudes, both trainable through well-designed programs, account for a significant share of overall financial literacy scores.

Taken together, the evidence does not support a blanket verdict either for or against financial education programs. It supports a narrower conclusion, drawn from the two most rigorous meta-analyses available. Kaiser and Menkhoff (2017) found that just-in-time delivery produces stronger and more enduring effects than standalone instruction. Kaiser et al. (2020) found that design features targeted at specific behaviors produce larger effects than general knowledge content.

Generic, untimed, knowledge-only programs consistently underperform. The practical implication is twofold. First, the FE dollar should concentrate on the minority of designs that can demonstrate modularity, adaptability, and feedback. Second, FE should be budgeted as a complement to stronger conduct regulation, liability allocation, and product-design interventions, not just as a substitute. The Findex 2011–2024 trend substantiates this conclusion empirically. Account ownership rose 28 percentage points globally, while financial health did not move in proportion, and digital financial services are now reaching users faster than at any point in the measured record. Closing the gap will require FE and structural reform working in parallel, with both of them sized to what it can actually deliver.

[1] The OECD/INFE 2023 International Survey of Adult Financial Literacy covers 39 countries and economies, which include 20 OECD members. This is the most recent cross-national measurement of adult financial literacy. The survey found that across all participating countries, only 39% of adults reached the minimum target financial literacy score of 70 out of 100, and only 50% reached the minimum knowledge threshold. OECD member countries scored higher at 52% and 58%, respectively. However, these figures reveal that a substantial share of adults in relatively well-resourced economies still lack foundational financial competence. The survey also introduced digital financial literacy as a new dimension. It acknowledged that the ability to navigate digital financial services safely is now inseparable from financial capability more broadly.

3. Where FE works, the use cases are worth funding

The evidence that supports the claim that timely, behavior-linked FE produces measurable effects rests primarily on two sources: Kaiser and Menkhoff (2017) and Kaiser et al. (2020).

As per this policy brief, FE works when it is behavior-specific, timely, and targeted at users who can act (Kaiser and Menkhoff, 2017; Kaiser et al., 2020). Within those conditions, four use cases consistently produce defensible returns:

- **Decision-moment support:** Users who compare loan options, choose insurance cover, and decide whether to act on a payment request need information they can use at the moment of decision-making.
- **High-consequence behavior reduction:** Users who recognize common fraud patterns, decline clearly predatory products, or avoid repeat over-borrowing stand to gain significantly, as a single avoided harm carries large welfare value.
- **First-time-user confidence:** Women, rural users, and participants in the informal economy face unfamiliarity rather than complexity as their primary constraint. They need enough confidence to engage with a product they are otherwise capable of using.
- **Safe-usage reinforcement:** Users who already have access to products and rules that work need reinforcement to convert that access into active use, rather than being asked to navigate a hostile system.

Whether that represents a credible return on investment depends on the comparison. Against the counterfactual of no FE at all, small positive effects delivered at low marginal cost can produce defensible cost-per-behavioral-gain ratios. Examples of such low-cost interventions include an SMS nudge at the point of account opening, a 60-second prompt before a loan signature, and a 5-Rupee (0.05 USD) IVR module during a teachable moment. This is particularly true when the behavior being moved has a high downstream consequence, such as avoiding a fraudulent transfer or declining a predatory loan.

Against alternative uses of the same dollar, the available cost-effectiveness evidence consistently favors the structural interventions. These can be strengthened through conduct supervision, liability reallocation to providers, simplified standardized products, and effective grievance resolution. Both statements are true, and they are not in tension.

FE is complementary and not a fix. Sized to these conditions, it produces small but real returns. FE wastes money and externalizes the cost of complexity onto consumers if it is used as a substitute for product or regulatory reform.

An improved FE design would align delivery with “teachable moments” close to consumer decision points, such as opening an account, accessing credit, renewing insurance, or facing a major household event. Programs should intentionally combine FE with timely access to relevant financial solutions, so participants can apply new knowledge and consolidate learning through use.

These returns hold under two practical conditions:

- **Low delivery cost:** Designers and implementers should favor interventions such as an SMS nudge at account opening, a prompt before a loan signature, or an IVR module at a teachable moment. Sustained classroom-style instruction rarely passes this test at scale.
- **High-consequence target behavior:** Programs should focus on behaviors where the cost of getting it wrong is high, such as users who need to avoid a fraudulent transfer, decline a predatory loan, or recognize a scam.

Against alternative uses of the same dollar, the cost-effectiveness evidence consistently favors structural interventions, such as stronger conduct supervision, liability shifts, simpler products, and working grievance redress. Three examples illustrate the point.

Bertrand and Morse (2011) showed that a redesigned loan envelope reduced payday borrowing by 11% through behaviorally informed disclosure. Thaler and Benartzi (2004) demonstrated that auto-enrolment defaults raised average savings rates from 3.5% to 13.6% over 40 months. The UK Payment Systems Regulator's mandatory APP fraud reimbursement scheme recovered 88% of money lost to victims in its first year, compared to 65% under the prior voluntary regime.

As a working benchmark from MSC's current portfolio, our fisheries-sector FE program delivers behavior-linked content at approximately USD 6 per participant. This rises to roughly USD 10 per participant when MSC staff costs are included. In parallel, MSC drives financial linkages for trained participants at an additional cost, which offers opportunities to apply new knowledge in real financial decisions. Early documented shifts include improved record-keeping and pre-uptake comparison of financial products during linkage. Reported income gains are not included here as causal attribution requires further analysis. Programs that cannot achieve comparable behavioral gains at a comparable cost may need to be restructured.

4. Build capability into the market, not only the consumer

Three supply-side levers do most of the work. These are rules and accountability, built-in capability, and supervisor data that diagnose what FE cannot fix.

4.1 Rules and accountability

Where harm comes from product complexity, weak liability, or exploitative design, regulation and conduct supervision are the right tools. Consumers should not have to become experts in fraud typologies, hidden fees, or insurance exclusions to be safe.

The UK's mandatory APP scam reimbursement is the clearest recent example. Instead of asking consumers to spot increasingly sophisticated scams, the regime puts the cost on payment providers, who then have a reason to invest in prevention. In its first year of mandatory operation, the UK Payment Systems Regulator's regime reached 88% of the money lost to victims, compared with 65% under the previous voluntary system. India's sub-1% recovery rate on cyber-financial fraud is not a teaching problem but a liability problem.

Provider-delivered FE falls under the same accountability framework. It can be useful when embedded in real customer journeys, but it drifts easily into product promotion, cross-selling, or repayment discipline. Providers must distinguish education from marketing, and report behavioral outcomes for consumers, not only commercial outcomes for themselves.

This tension is well recognized in the practitioner literature. CFI and Accion's review of financial capability practice notes that the same customer touch points that work as teachable moments also function as marketing moments, and points to provider models. Cheston and Rhyne, from CFI/Accion, revealed that these customer points have built-in structural safeguards against the problem. For example, KGFS in India trains frontline staff to provide tailored advice but does not reward them through sales-based incentives.

4.2 Capability built into the product

Products themselves can do FE's job, often better. The strongest evidence in behavioral finance is on this lever, not on consumer education. Bertrand and Morse (2011) cut subsequent payday borrowing

by 11% with a redesigned loan envelope that showed total dollar cost. Thaler and Benartzi (2004) raised average savings rates from 3.5% to 13.6% over 40 months through auto-escalation defaults. Both outcomes worked through product design and not through teaching.

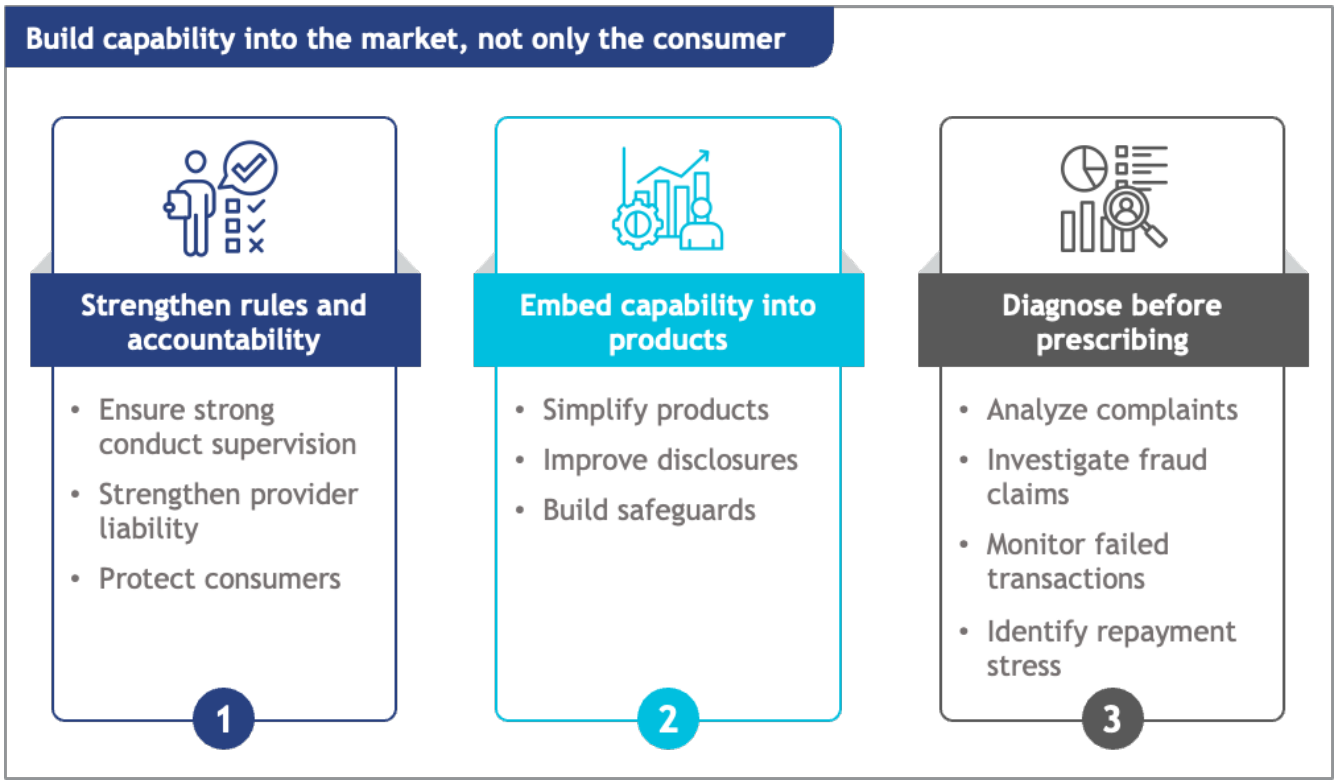
Simple, intuitive product design is itself an underused route to financial capability. Cheston and Rhyne from CFI/Accion concluded in an independent review that such designs were significant enough to have been considered a core principle in their own right.

This applies across product categories. Loan applications can show total repayment cost and consequences before commitment. Savings products can convert goals into recurring actions. Payment interfaces can introduce friction before high-risk transfers. Digital credit can display cooling-off periods, repayment calendars, and cumulative debt. Disclosure should be short, comparable, timely, and decision-linked.

4.3 Supervisor data: Diagnose before prescribing

A self-improving system does not rely only on FL surveys and training completion rates. Supervisors and providers already hold important data, such as complaints, failed transactions, fraud claims, repayment stress, inactive accounts, mistaken transfers, and early insurance lapses.

This data tells what kind of problem you have. If users misunderstand the same fee, the answer is standardized pricing. If they fall for the same scam, the answer lies in transaction monitoring and liability, as MSC documented in Kenya's digital credit market in 2019. If borrowers underestimate repayment stress, the answer is affordability checks and clearer schedules. FE should be deployed only when the binding constraint is knowledge, skills, or confidence, and not the path of least bureaucratic resistance.



5. Ownership shapes design

Global evidence and MSC's work across 50+ countries show that FE works best when it is grounded in how people think and behave. It is most effective when delivered at the moment of a financial decision. These are the "teachable moments" when users are most receptive to learning.

Behavioral research across Bangladesh and Vietnam highlights that low- and moderate-income users face predictable biases, which include present bias, overconfidence, and trust gaps. These biases shape financial decisions. Programs that ignore these realities have a limited impact.

Different actors design and fund these programs, each with its own objectives, which compounds the challenge. Who owns, funds, and implements a program defines the objectives it pursues, the design choices it makes, and the outcomes it is held to. Global experience shows that clarity about ownership intent is a critical design principle. Ownership determines which aspects of knowledge, skills, attitudes, and practices (KSAP) are prioritized and how outcomes are measured.

KSAP dimension	Role in financial capability	What it means
Knowledge	Builds awareness and understanding	People must first understand concepts, risks, or rights before they can act confidently.
Skills	Converts understanding into ability	Knowledge becomes useful only when users can apply it in real financial decisions.
Attitudes	Shapes motivation and confidence	Even skilled users may avoid formal finance if they lack trust or confidence.
Practices	Reflects sustained behavior change	Repeated actions reinforce habits, confidence, and long-term capability.

Regulators and policymakers typically focus on scale, inclusion, and consumer protection. Their programs often emphasize how to strengthen knowledge and awareness of topics such as rights, risks, and grievance resolution. Outcomes include reduced fraud, improved complaint reporting, and greater digital trust. The specific emphasis depends on the most pressing ecosystem problem at the time. For example, where fraud has become a national crisis, any ongoing FE policy must explicitly address it.

NGOs and community-based organizations prioritize empowerment and localization. Their approaches frequently target attitudes and confidence, as well as practical skills. These use participatory and peer-led models to enable vulnerable segments to engage more actively with a financial service or a bouquet of financial services.

Private sector providers often align FE with customer engagement and product usage. These programs tend to focus on strengthening skills and repayment practices, with outcomes linked to improved usage quality, better repayment behavior, disciplined deposits or premium payments, or reduced churn. At the same time, they require safeguards to prevent bias or mis-selling. These safeguards are meaningful only when enforceable. Regulators need clear disclosure and conduct standards that distinguish genuine capability-building from product marketing dressed as education.

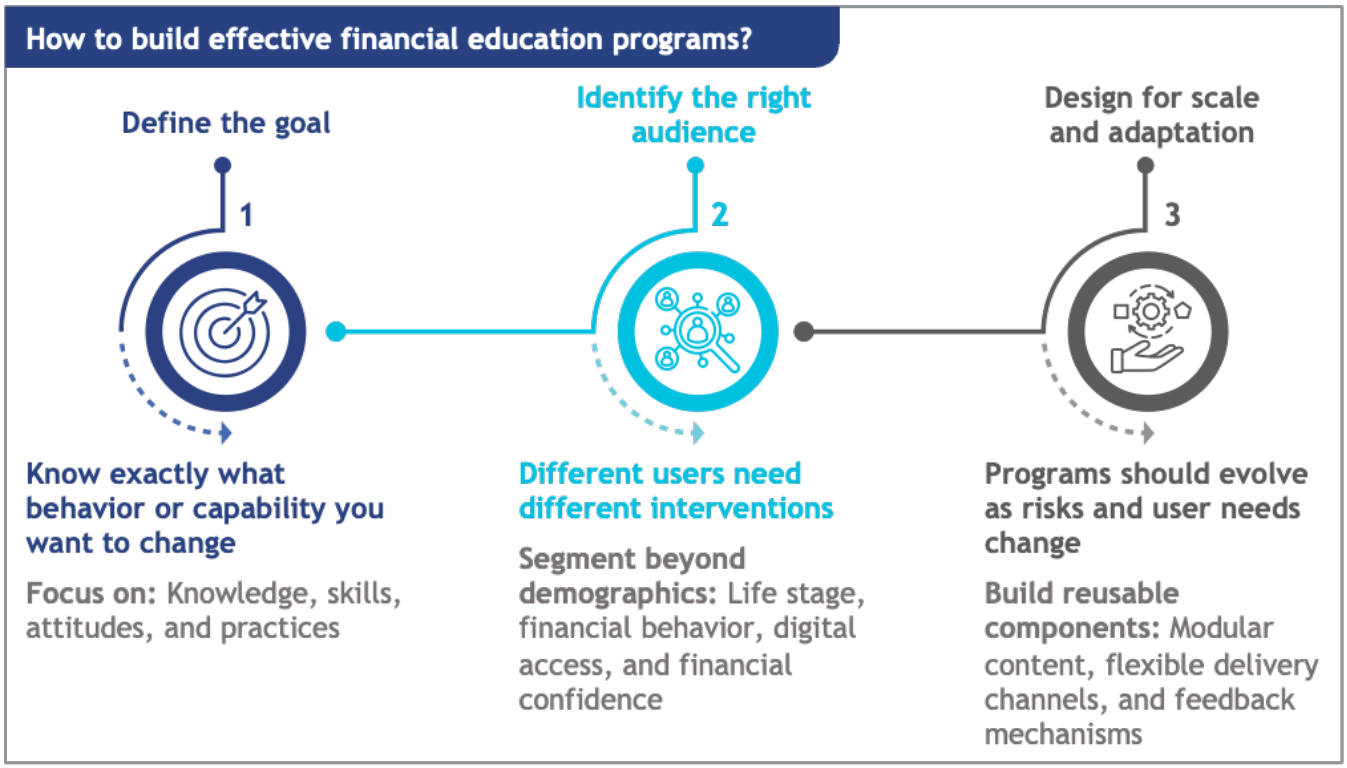
MSC's experience suggests that financial literacy initiatives are more accountable, cost-effective, and impactful when ownership intent, KSAP focus, program design, and measurement frameworks are aligned from the outset.

6. Proven practices across the program lifecycle

MSC has drawn on years of program design and implementation to identify key elements that distinguish high-impact FE interventions from low-value ones.

6.1. At conception: Clarify ownership and core goals

- **Clear objectives and aligned outcomes:** Program designers should define precise objectives using the KSAP framework. This means they need to clarify exactly what change is needed. They must understand knowledge, such as compound interest; alter attitudes, such as believing saving is feasible; build skills, such as calculating loan costs; or drive observable practice, such as consistently using a bank account.
- **Data-driven segmentation:** Program designers should use socioeconomic, geographic, and digital access indicators to accurately define and prioritize target groups. They must go beyond demographic profiling to include behavioral and psychographic insights, such as financial confidence, device usage patterns, and transaction frequency. Vulnerable populations, such as women in self-help groups (SHGs), informal workers, smallholder farmers, and gig economy participants, benefit most from customized approaches that match their literacy levels, income cycles, and access channels.
- **Primary and secondary targeting:** Effective program design accounts for trickle-down effects, where informed participants influence peers, households, and community members. Primary targeting focuses on high-need or high-impact groups through customized, intensive interventions that build deep capability and trust. Secondary targeting engages adjacent segments through lighter-touch, scalable formats that reinforce key messages and sustain behavior change across social networks.



Stakeholder	Our call to action
Policymakers	Before policymakers endorse any FE program under a national strategy, they must ask the implementing organization to specify which KSAP dimension the program targets, which segment it prioritizes, and which behavioral indicator it will report. Policymakers should integrate the link between FE and consumer protection into regulatory design, disclosure norms, and market conduct supervision, not as separate workstreams but as an integrated mandate. They must make these commitments publicly reportable.
Donors	Before donors approve an FE program grant, they should mandate applicants to answer three questions in their proposal: 1. Which KSAP dimension the program targets, 2. What behavioral indicator will it report, and 3. How will the lessons from this program be made available for future programs to reuse? Donors must fund only those programs that answer all three questions. They should encourage grantees to distinguish proximal KSAP outputs from distal financial health outcomes and require quasi-experimental evaluation designs rather than pre-post awareness surveys.
Providers	Providers should define the program's goal in behavioral terms before designing content. They should not do this for safer usage in general, but for specific, measurable behavior, such as reporting a fraud attempt within 24 hours or completing a loan cost comparison before signing. Providers should then ask whether this program can be updated without a new funding cycle if the financial landscape changes mid-program, such as the emergence of a new fraud type or the introduction of a new product to the market. If the answer is no, providers should build the update mechanism in before launch, not after.

This stage is where modularity is determined. Effective FE at scale cannot be built as a single monolithic program.

- The program must be structured as a system of interoperable components, including content modules, delivery mechanisms, assessment tools, and feedback instruments, which can be disaggregated, recombined, and adapted across segments, life stages, and financial contexts.
- The choices made here, such as which KSAP dimensions to target, which segments to prioritize, and which outcomes to define, decide whether such modularity is possible. Programs that begin with vague goals cannot be modular, because they lack the precision needed to be reused or recombined. Clarity at birth is what enables scalability without constant redesign.
- AI can strengthen this modular architecture by enabling continuous personalization, adaptive content delivery, real-time feedback loops, and dynamic targeting across user segments. In turn, this would allow FE systems to evolve with consumer behavior and financial risk patterns, rather than relying on static program design.

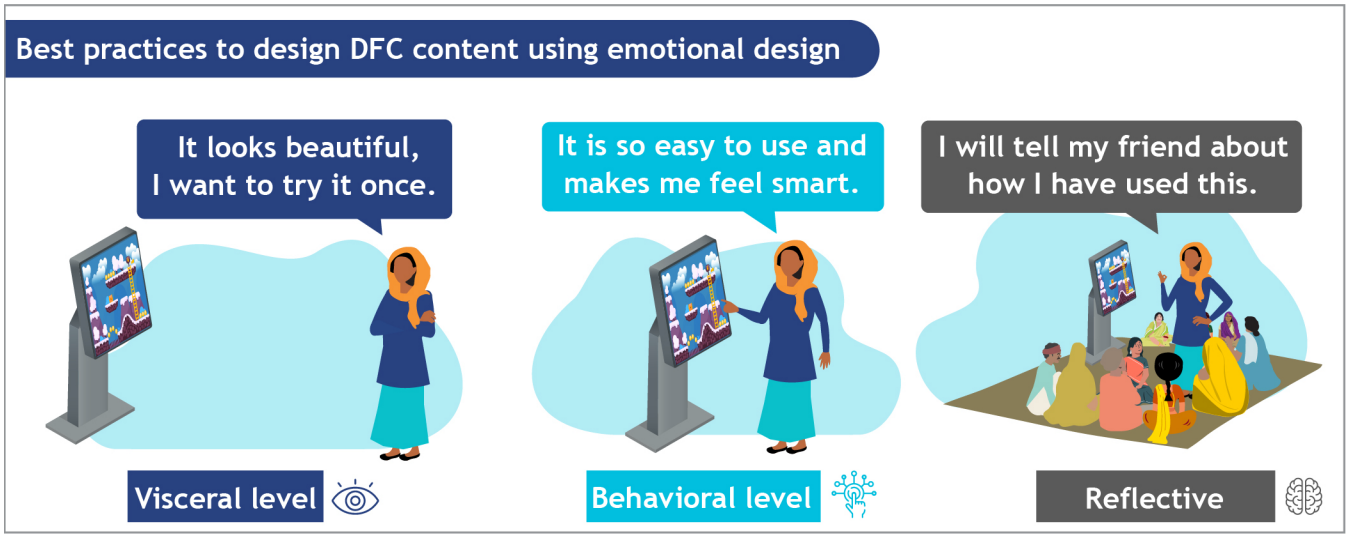
The practical implication is that funders, policymakers, and program designers must invest in both the components and the programs. Each component has value beyond any single program if built to standards that allow reuse. These can be a content module that teaches fraud recognition, a delivery mechanism that integrates into a BC agent workflow, or an assessment instrument that measures digital financial confidence.

6.2 Design and implementation: Linking content to behavior

Effective design starts with the target group and works outward to content, format, and channel. The segments below illustrate how delivery choices must be tailored to the specific literacy levels, life circumstances, and access constraints of each group:

- **Salaried youth:** Gamified, goal-linked learning that builds early saving and budgeting habits and fosters lifelong financial behavior.
- **Low-income informal workers:** Peer-led, community-based models build trust, strengthen financial habits, and drive adoption. For example, MSC's rural women pilots increased the uptake of savings accounts by 233%, against a matched comparison baseline, drawn from a quasi-experimental study across three Indian states using pre-post measurement over 18 months. The referenced working paper has the full methodology.
- **Rural women:** Relatable narratives, confidence-building activities, and peer-driven learning help overcome social and digital barriers to empower women to engage with financial services actively and safely.
- **Older adults:** Simplified tools and assisted digital solutions support older adults as they manage finances confidently and securely in a rapidly digitizing environment.

These segment-specific delivery choices directly shape what content is prioritized, which channel is used, and how learning is reinforced over time.



The following are some best practices in the design of DFC content through emotional design:

- Prioritize topics with universal relevance and urgency, such as fraud prevention, digital safety, and seasonal cash flow management; customized focus areas build relevance, allow quick adaptation to emerging risks, and ensure stronger engagement and lasting impact
- Curate content with storytelling, role-play, and real-life simulations
- Take advantage of the "Ikea effect" and have participants create their own learning materials, such as videos, posters, and stories, to increase ownership and retention

Use of behavioral economics principles and interactive pedagogy to combat myths about DFS

The following are some best practices in the design of DFC content through behavioral science principles and interactive pedagogy:

- Combine digital tools, such as SMS, IVR, and mobile apps, with human touchpoints, including peer educators and community meetings
- Tailor delivery formats, such as voice messages for low-literacy elders, gamified apps for youth, and interactive storytelling for rural women
- Use mascots and edutainment for recall, and integrate these into existing trusted networks, such as SHGs, SACCOs, and CBOs
- Use teachable moments, life events, or transaction points when people are most receptive to learning, to build their confidence and trust rather than push products.

MSC's experience shows that low-income and vulnerable populations learn more effectively through intuitive, non-traditional channels. Rural women and migrant families have benefited from IVR-based audio prompts and interactive SMS modules that use familiar devices and local languages to deliver key messages. Similarly, comic-style flipbooks and group discussions among women microfinance clients created emotional connection and strengthened confidence in financial decision-making. By embedding behavioral design and emotional framing into such channels, MSC's financial education interventions tap into attitudes and intuitions to drive practical engagement and lasting improvements in financial capability.

MSC developed the PTE (phygital, teachable, and engagement) framework to bring these elements together. It guides programs to identify the right mix of physical and digital channels, capitalize on teachable moments, and sustain engagement through repeated, context-sensitive interactions. This approach ensures delivery remains both scalable and deeply relevant to target beneficiaries.

PTE framework - DFC delivery channels

Finalize **PHYGITAL** modes	Identify **TEACHABLE** moments	Deploy **ENGAGEMENT** tools
Choose the right combination of physical and digital modes	A time most favorable to educate the target segment	To avoid fatigue due to high content absorption

The PTE framework

Stakeholder	Our call to action
Policymakers	Policymakers should integrate FE into real customer journeys, such as onboarding, loan applications, claims, and digital activation by embedding it within regulatory design and market conduct supervision. They should ensure frameworks distinguish between proximal KSAP outputs and broader financial health outcomes and require robust evaluation approaches, including pilots and quasi-experimental methods, to establish clear links to well-being.
Donors	Donors should fund programs that reinforce learning through sustained, multi-touchpoint engagement, such as SMS, WhatsApp, IVR, community interactions, and app-based prompts. They should prioritize investments that support continuous engagement and behavior reinforcement rather than one-time interventions.
Providers	Providers should align FE design with the program's core objective defined at the outset. Programs that target fraud reduction, credit discipline, or resilience should differ in content, delivery, and measurement, and be tightly embedded within customer journeys and actual usage behavior.

It reaches a stage where **adaptability is built into the system**. Static programs fail not because their content is initially incorrect, but because financial ecosystems, risks, and user contexts evolve faster than program cycles.

- Adaptability requires designing programs that can continuously stay updated through dynamic content, flexible delivery channels, and real-time insights from user behavior. The PTE framework operationalizes this by ensuring that programs are not one-time interventions, but evolving systems that adjust to when, how, and why users engage with financial services.
- Adaptability requires building change into the system's architecture rather than treating redesign as an exceptional event. This means programs should be designed with explicit update

cycles, and they should maintain live connections between risk monitoring and content delivery. The programs' governance should also be structured so that what is learned in the field informs what is taught without the need for a new funding cycle or institutional mandate each time.

Adaptability also operates at the individual level. A system that delivers the same content to all users regardless of their demonstrated knowledge, behavior, or confidence is not adaptive. An adaptive system adjusts the content, timing, sequencing, and channel of delivery based on what it knows about the user and what the user has demonstrated through their own behavior. This individual-level adaptability is where digital infrastructure and AI create a new capability for the field, though the gains depend on reliable connectivity, local-language data coverage, and user-level data-protection safeguards that are not yet universal in the markets this paper addresses.

Novel delivery methods are already emerging across markets, including gamified simulations and scenario-based learning tools that allow users to experience the consequences of financial decisions in low-stakes environments. These tools enable providers to understand user behavior patterns, identify knowledge and confidence gaps, and deliver content that suits the individual's lifecycle stage rather than a generic curriculum. This shift from broadcasting information to building capability through interaction and experience is the direction the field is heading, and it proves the modularity and adaptability principles described above.

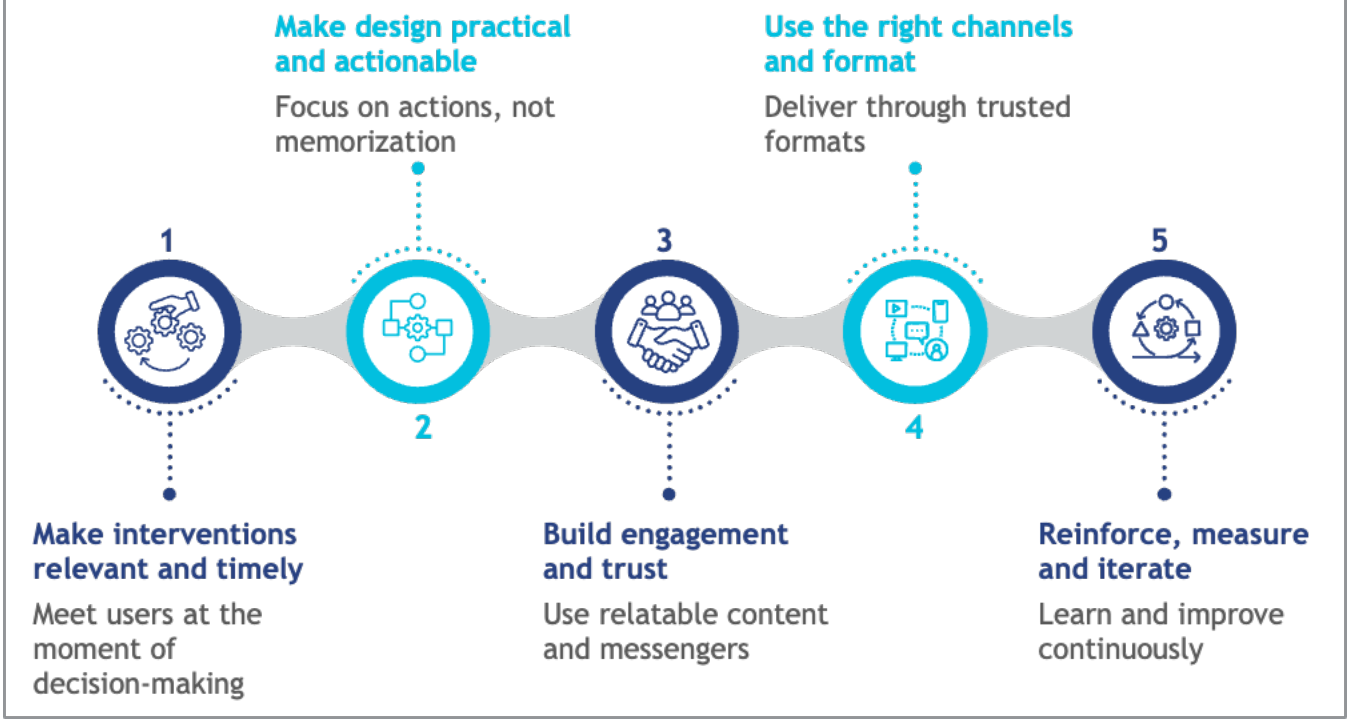
6.3 Measurement, learning, and sustainability

For FE programs to have a long-term impact, sustainability must be embedded in their design rather than treated as an afterthought. A well-structured program aligns incentives, measurement, and ownership from the outset to preserve momentum beyond donor or project timelines.

- ROI metrics should align with the program owner and the program objective. For financial service providers, ROI is measured commercially through client retention and product uptake, while for regulators, donors, and development partners, it is assessed via broader systemic indicators, such as improvements in national financial health. Program designers should build ROI measurement into the program from the start by tracking cost per beneficiary against sustained behavior change.
- The program should be institutionalized by the program designer to institutionalize FE through national financial inclusion strategies, regulatory accreditation, and integration with education or consumer protection policies.

Adaptive, accountable, and system-oriented approaches are needed to embed sustainability into FE design. FE programs evolve continuously, remaining relevant, scalable, and resilient over time when they ensure flexibility to emerging risks, integrate broader policy frameworks, and institutionalize rapid prototyping. Sustainability then becomes more than financial continuity. It reflects a self-reinforcing ecosystem in which knowledge, confidence, and trust develop together to create lasting financial capability.

Practitioners must translate evidence into effective program delivery in the real world.



Stakeholder	Our call to action
Policymakers	Policymakers should establish clear evaluation standards by requiring programs to define outcome indicators upfront, such as reduced fraud incidence, improved repayment quality, and increased active usage, and set timelines for assessment. They should mandate robust evaluation frameworks that distinguish between proximal KSAP outputs and broader financial health outcomes. Policymakers should also require rigorous methods, such as pilots and quasi-experimental designs, to test attribution rather than assume it.
Donors	Donors should prioritize funding for programs that demonstrate cost-effectiveness through metrics, such as cost per active user, cost per complaint avoided, and cost per loss from scams prevented. They should support longer evaluation horizons and invest in evidence generation that enables continuous learning rather than short-term reporting.
Providers	Providers should embed continuous feedback and learning into program delivery by tracking user-level outcomes and adapting interventions accordingly. They should use transparent reporting mechanisms, such as dashboards and periodic disclosures, to strengthen accountability, build trust, and contribute to shared ecosystem learning.

Cross-cutting (All stakeholders)	All stakeholders should ensure alignment between ownership intent, design logic, and measurement frameworks from the outset, and refine programs continuously based on evidence. They should also evaluate programs against their specific objectives, be it knowledge, skills, attitudes, or behavior, to avoid misleading conclusions and improve effectiveness over time.

At this stage, the **self-improving feedback loop is either activated or lost**. Traditional FE programs rely on endline evaluations that serve as post-mortems rather than as mechanisms for improvement.

In contrast, a self-improving system embeds continuous feedback into program design. Every user interaction, whether completing a module, responding to a prompt, or making a financial decision, generates data to inform the next interaction. This transforms measurement from a reporting function into a core design feature that enables programs to learn and evolve in real time.

AI offers conditional scaling potential for FE in terms of the capacity to personalize, test, and adapt at the individual scale, where conditions allow. The framing matters, as this is a conditional and not a transformative scale-up path.

The evidence base for AI-specific FE gains in low-resource settings is still thin. The promise depends on conditions that are distributed unevenly: Reliable connectivity, training data in local languages, affordable inference cost, and regulatory capacity to audit algorithmic systems.

Where those conditions hold, AI-enabled systems can identify which content produces behavior change and which does not, personalize content and timing at scale, and reveal early warning signals. Such warnings can relate to rising fraud victimization in a segment, declining engagement with a content type, or emerging knowledge gaps as new products enter the market. Where those conditions do not hold, assisted-access and human-intermediary models continue to outperform AI delivery, and should remain the primary design for offline and low-connectivity populations.

Critically, the feedback loop must be built and governed. AI systems that learn from user behavior will reflect the biases and gaps in that behavior if not designed with explicit safeguards. Responsible AI in FE goes beyond a design principle and requires named accountability. It needs to reveal who audits the system, under which data-protection regime (DPDPA or equivalent), and with what forensic capabilities.

Responsible AI must also include explicit fairness considerations across language, disability, and literacy-level segments. It requires optimizing for genuine capability outcomes, such as reduced fraud victimization, better credit decisions, and improved financial resilience, not for engagement metrics that may be uncorrelated with or even inversely related to those outcomes. MSC's work on responsible AI design, including its dark patterns simulation, demonstrates what those safeguards can look like in practice.

7. Conclusion: The allocation rule

The question is not whether to invest in FE. More than 90 countries already do, and existing national strategies will continue to allocate public and philanthropic resources to FE for the foreseeable future. The harder, more useful questions are narrower. For instance, within the existing spend, which programs produce measurable behavioral gains at defensible cost, and what should FE be sized to do within a broader consumer-welfare strategy that it cannot carry alone?

The evidence base gives a clear answer to the first question. Poorly designed programs waste funds and goodwill. Well-designed, behavior-linked programs produce small yet durable capability gains that are concentrated at the moment of a specific financial decision, targeted to a specific outcome,

and most effective when reinforced over time. These effects are real and worth capturing. They are not, based on current evidence, large enough to substitute for the structural reforms that do the heavier lifting on consumer welfare, such as in product regulation, fair disclosure, liability allocation to providers, and effective grievance resolution.

The evidence, alongside MSC's experience across 50+ countries, points clearly to the lifecycle approach as the allocation rule for FE spend that will continue under existing strategies. FE anchored to the user's specific life stage, financial moment, and behavioral context outperforms programs that treat knowledge delivery as an end in itself.

The question for every funder, regulator, and program designer is, therefore, diagnostic: Among the programs already being funded or proposed, which meet a minimum standard for continued investment?

The test is three-part. Does this program demonstrate **modularity**, that is, is it built from reusable, reconfigurable components? Does it demonstrate **adaptability**, that is, can it update when the risk landscape or the user's context changes? Does it have a **self-improving feedback loop**, that is, does it become more effective with every interaction, rather than delivering the same content regardless of what it learns?

Programs that meet all three criteria are worth continuing. Programs that do not meet them should be restructured or defunded in favor of investments that produce measurable gains, such as better-designed FE programs or structural reforms that, at equivalent cost, outperform them.

Bibiliography

Bertrand, Marianne, and Adair Morse. "Information Disclosure, Cognitive Biases, and Payday Borrowing." *Journal of Finance* 66, no. 6 (2011): 1865–1893. https://doi.org/10.1111/j.1540-6261.2011.01698.x.

FA Solutions. "Globally Only 33% of Adults Are Financially Literate." March 17, 2021. https://fasolutions.com/blog/only-33-of-adults-are-financially-literate/.

Fernandes, Daniel, John G. Lynch Jr., and Richard G. Netemeyer. "Financial Literacy, Financial Education, and Downstream Financial Behaviors." *Management Science* 60, no. 8 (2014): 1861–1883. https://doi.org/10.1287/mnsc.2013.1849.

Global Financial Literacy Excellence Center. *Financial Literacy around the World: Insights from the Standard & Poor's Ratings Services Global Financial Literacy Survey*. 2015. https://gflec.org/wp-content/uploads/2015/11/Finlit_paper_16_F2_singles.pdf.

Hasler, Andrea, and Annamaria Lusardi. *The Gender Gap in Financial Literacy: A Global Perspective*. Global Financial Literacy Excellence Center, 2017.https://gflec.org/wp-content/uploads/2017/07/The-Gender-Gap-in-Financial-Literacy-A-Global-Perspective-Report.pdf.

Kaiser, Tim, and Lukas Menkhoff. "Does Financial Education Impact Financial Literacy and Financial Behavior, and If So, When?" *World Bank Economic Review* 31, no. 3, 2017: 611–630. https://doi.org/10.1596/31469.

Kaiser, Tim, Annamaria Lusardi, Lukas Menkhoff, and Carly J. Urban. "Financial Education Affects Financial Knowledge and Downstream Behaviors." NBER Working Paper 27057, 2020. https://doi.org/10.3386/w27057.

Klapper, Leora, et al. *The Global Findex Database 2025*. World Bank, 2025. https://www.worldbank.org/en/publication/globalfindex.

MicroSave Consulting (MSC). “Digital Credit Kenya: Consumer Assessment to Refine Consumer Protection Principles.” 2019. https://www.microsave.net/signature_projects/digital-credit-kenya-consumer-assessment-to-refine-consumer-protection-principles/.

MicroSave Consulting (MSC). “Digital Financial Capability—Revealing Teachable Moments through Phygital (Physical + Digital) Channels.” May 22, 2023. https://www.microsave.net/2023/05/23/digital-financial-capability-revealing-teachable-moments-through-phygital-physical-digital-channels/.

MicroSave Consulting (MSC). “"Digital Financial Capability—Using Emotions to Design Content.” " May 21, 2023. https://www.microsave.net/2023/05/22/digital-financial-capability-using-emotions-to-design-content/.

MicroSave Consulting (MSC). “"Eliminating Dark Patterns in Digital Financial Services.” " July 25, 2025. https://www.microsave.net/wp-content/uploads/2025/07/250725_Building-trust-through-design_MSC.pdf.

MicroSave Consulting (MSC). “ePaathshala: Customer-Centric Digital Module for Financial Literacy (Contact Program).” http://financialeducation.microsave.net/ePaathshala-Contact-Program.html.

MicroSave Consulting (MSC). “ePaathshala: Easy to Access, Quick to Use Digital Training.” August 27, 2025. https://www.microsave.net/signature_projects/epaathsala-easy-to-access-quick-to-use-digital-training/.

MicroSave Consulting (MSC). “Multilingual Informative Comic Booklets on Enhancing Awareness and Precautionary Behavior among MFI and SHG Staff and Clients during COVID-19.” June 11, 2025. https://www.microsave.net/signature_projects/multilingual-informative-comic-booklets-on-enhancing-awareness-and-precautionary-behavior-among-the-staff-members-and-clients-of-microfinance-institutions-mfis-and-self-help-groups-during-the-covid/.

MicroSave Consulting (MSC). *Making Digital Credit Truly Responsible: Insights from Analysis of Digital Credit in Kenya*. 2019. https://www.microsave.net/wp-content/uploads/2019/09/Digital-Credit-Kenya-Final-report.pdf.

OECD. “Financial Education.” OECD Topics, 2025. https://www.oecd.org/en/topics/financial-education.html.

OECD/INFE. *OECD/INFE 2023 International Survey of Adult Financial Literacy*. OECD Business and Finance Policy Papers, No. 39. OECD, 2023. https://www.oecd.org/en/publications/oecd-infe-2023-international-survey-of-adult-financial-literacy_56003a32-en.html.

OECD/INFE. *OECD/INFE International Survey of Adult Financial Literacy Competencies*. OECD, 2016. https://cradall.org/content/oecdinfe-international-survey-adult-financial-literacy-competencies.

Thaler, Richard H., and Shlomo Benartzi. “Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving.” *Journal of Political Economy* 112, no. S1 (2004): S164–S187. https://doi.org/10.1086/380085.

Tiwari, Anup, Ajay Singh, Mukesh Singh, Nishant Narain, and Rahul Srivastava. “Role of Information Sources in Financial Capability.” MicroSave Report RP166. MicroSave Consulting (MSC). 2013.https://www.microsave.net/files/pdf/RP166_Role_of_Information_Sources_in_Financial_Capability_Tiwari_et_al.pdf.

UK Payment Systems Regulator. “APP Scams Reimbursement Dashboard for Q3 2025 (Covering 7 October 2024–30 September 2025, First Year of the Mandatory Reimbursement Regime).” 2025. https://www.psr.org.uk/information-for-consumers/app-scams-reimbursement-dashboard/.

Visa Economic Empowerment Institute. “Technology Driving Financial Inclusion: World Bank Global Findex 2025 Insight.” 2025. https://corporate.visa.com/en/sites/visa-economic-empowerment-institute/world-bank-global-findex-2025-insight.html.

Willis, Lauren E. “Against Financial-Literacy Education.” *Iowa Law Review* 94 (2008): 197–285. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1105384.

Willis, Lauren E. “The Financial Education Fallacy.” *American Economic Review* 101, no. 3 (2011): 429–434. https://doi.org/10.1257/aer.101.3.429.

World Bank. “Digital Technology Is Unlocking Financial Inclusion.” *World Bank Blogs*, July 16, 2025. https://blogs.worldbank.org/en/developmenttalk/digital-technology-is-unlocking-financial-inclusion.

World Bank. *The Global Findex Database 2025: Connectivity and Financial Inclusion in the Digital Economy*. World Bank, 2025. https://www.worldbank.org/en/publication/globalfindex/report.

Annex A: MSC’s engagements in digital financial capability

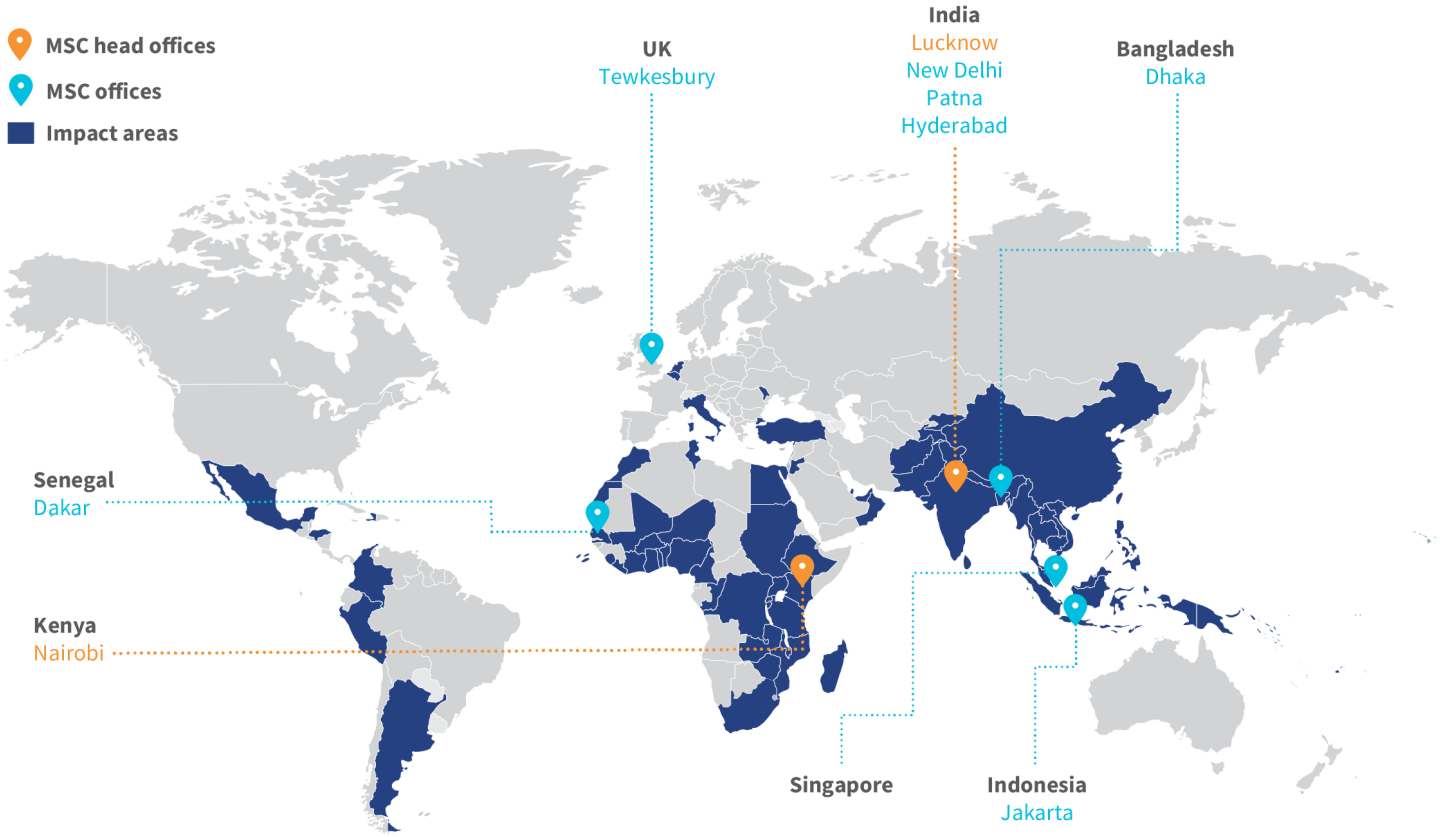
We have reported reach figures in cases where outcome measurement is not yet available. MSC shifts progressively to engagement reporting based on pre- or post-behavioral indicators that align with the standards advocated in this brief.

Financial capability intervention	Description	Impact to date
Aspirational District Programme, India	Policy design and ecosystem intervention that supports digital financial inclusion in India’s aspirational districts; targeted low- and moderate-income populations, women, and government stakeholders to improve usage and delivery of financial services	More than 25 million people from 29 districts of India
Jagruti Digital Mitra, India	Financial literacy intervention design using community-based digital *mitras* who deliver financial and digital awareness content; targeted rural women, elderly, and low-income households to drive adoption of digital financial services	More than 2,300 people from the Sewapuri district, Uttar Pradesh
ePaathshala, India	Financial content delivery through digital learning platforms using multimedia and behavioral design; targeted banking correspondents, agents, and frontline staff to improve digital financial literacy and operational capabilities	Used by banks across India, serving more than 300 million people, and content accessed by more than 20 million people

Financial capability intervention	Description	Impact to date
M-KOPA financial assistance bot, Kenya	Financial content delivery and intervention design using an AI-enabled chatbot to provide real-time financial guidance; targeted low-income customers to improve repayment behavior and financial decision-making	More than 5 million M-KOPA customers
Architecture for financial literacy delivery, and design, India	Financial literacy program and intervention design that developed a scalable architecture for delivery across channels; targeted policymakers, providers, and low-income segments to improve effectiveness, behavior change, and program outcome	Ongoing
Design of the national strategy for financial education 3.0, India	Policy design engagement to develop a next-generation national financial education strategy; targeted regulators, financial institutions, and citizens to drive coordinated, behavior-focused financial capability and inclusion outcomes	Ongoing
Development of financial literacy programs for growing microenterprises in CLMV nations	Financial literacy program design for micro and small enterprises across CLMV countries; focused on business skills, financial management, and capacity building for microentrepreneurs and small business owners.	Strategy for four countries, which includes 71 conversations with consultations
National financial inclusion and financial literacy strategy for Qatar Central Bank	Policy design engagement to develop a national financial inclusion strategy; targeted regulators, financial institutions, and underserved populations to strengthen inclusive finance ecosystems and regulatory frameworks	More than 2.26 million people
Consultancy to the National Financial Inclusion Strategy in support of the National Bank of Ethiopia	Policy implementation and ecosystem strengthening project that supported the regional rollout of the financial inclusion strategy; targeted government agencies, financial institutions, and underserved populations to enhance access and usage	Several million Ethiopians reached through the regional rollout

Financial capability intervention	Description	Impact to date
Financial Literacy Toolbox (FLTBX), Africa	Financial content delivery through digital learning platforms using multimedia and behavioral design; targeted banking correspondents, agents, and frontline staff to improve digital financial literacy and operational capabilities	More than 8,000 participants trained, which includes more than 150 local technical assistance providers
Vistaar non-financial services, India	Financial literacy program and intervention design using short animated modules; targeted SME borrowers in rural and semi-urban India to improve financial management, business planning, and responsible borrowing behavior	More than 200,000 clients trained and videos converted to 11 languages and used to onboard users in 16 states of India
IFC-DHL MSME Toolkit, India	Financial content development and program design that created SME training toolkits; targeted small and medium enterprises in Africa to build financial management, logistics understanding, and business growth capabilities.	Over 50,000 MSMEs trained in the last 2 years
Smallholder farmers training, Kenya	Financial literacy intervention design and pilot delivery for smallholder farmers; used tailored, context-specific training to improve financial capability, agricultural investment decisions, and uptake of formal financial services	Over 100,000 farmers have accessed the contents and have benefited from an understanding of better management of money and agriculture
Nestle-Business on Wheels Program, the Philippines	Financial literacy and intervention design integrated with value chain development; targeted micro-entrepreneur distributors in FMCG networks to improve financial management, access to credit, and sustainability of last-mile distribution models.	More than 35,000 business on wheels owners (BoWers) have been trained, and more than 20,000 have borrowed from financial institutions to set up their businesses
Financial literacy program for refugees and the host community, Tanzania	Financial literacy intervention design delivering tailored content through multiple channels; targeted at refugees and host communities to improve financial capability, resilience, and access to digital financial services	More than 130,000 refugees from camps in Tanzania

Financial capability intervention	Description	Impact to date
Financial literacy program for individuals and businesses in Papua New Guinea	Financial literacy and business development services training program; targeted microentrepreneurs and small businesses to enhance financial management, enterprise growth, and livelihood outcomes	Designed six financial education modules and have trained 300 plus trainers from contracted or partner institutions who have trained more than 100,000 people; the trainers also delivered training to 22,000 micro and small entrepreneurs on business development services



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