Sa-Dhan
Fostering Inclusive Impact Finance

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Bridging the Divide: Digital Literacy as a Gateway to Technology Driven Microfinance

KNOWLEDGE PAPER OCTOBER 2026

SECTOR AT A GLANCE

6.3 Cr	₹3.30 Lakh Cr	84.9 Lakh	37,380	91%
Unique active borrowers across India	Total loan outstanding, as of March 2026	SHGs credit-linked (₹3.33 Lakh Cr outstanding)	Branches / touchpoints nationwide	Loans utilised for income generation

Source: Equifax India

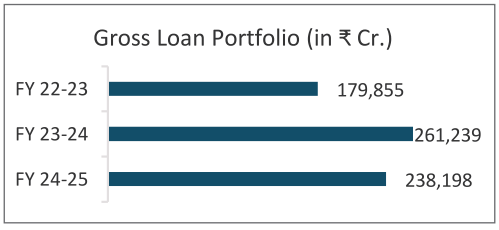
Scope and purpose of this knowledge paper: *This paper looks at the changing role of digital technology in India's microfinance sector. It examines how MFIs are adopting digital systems, what is driving this adoption, where gaps continue to exist, and what practices are emerging as the sector moves towards a phygital, data-enabled model.*

INTRODUCTION TO THE MFI SECTOR

Evolution of Indian Microfinance

India's microfinance ecosystem has evolved through two broad institutional pathways: the SHG-Bank Linkage Programme (SHG-BLP), initiated by NABARD in 1992, which connects community-based self-help groups with formal banking institutions. The second is the Joint Liability Group (JLG)/MFI-led model that emerged almost at the same time. While SHG-BLP has remained an important community-based pathway for connecting low-income households with formal finance, the JLG model has emerged as the dominant mechanism for micro credit delivery.

The traditional JLG model itself is also changing. Changing borrower behaviour, urban migration, weakening peer pressure and multiple lender exposure have reduced the effectiveness of traditional group-based mechanisms. These changes point towards the need for a model that retains the strengths of group lending while allowing greater individual accountability and greater use of technology and digital channels.



Digital Transformation from Cash-Based JLG to Phygital, API-Integrated Lending

The MFI sector's digital journey has progressed in stages: from cash and paper ledgers at group meetings, to partial digital to full digital including eKYC, app based onboarding and API-integrated lending stacks connecting MFIs with credit bureaus, payment rails, and co-lenders. The transition is increasingly **phygital** rather than fully digital, combining digital infrastructure with human assistance. For low-income customers, field staff and community-level interactions continue to play an important role in building trust, explaining products and supporting digital adoption.

DIGITAL SHIFT TIMELINE

Pre-2019	2020-22	2023- Present
		
Cash-based, paper-ledger JLG meetings, BC agent networks, e-KYC, POS collections	*COVID-led surge in UPI/QR digital collection*	*Present App-based, API-integrated, phygital lending*

Digitisation also involves more than replacing paper-based processes with digital ones. This could mean reducing operational effort, making transactions easier for customers, improving decision-making or strengthening service delivery.

Post-COVID Acceleration & Institutional-Level Change

COVID-19 accelerated the sector's shift towards digital processes. With group meetings and physical collections disrupted during the pandemic, MFIs increasingly explored remote collections and QR/UPI-based payments. The wider increase in digital payments during this period also supported this transition, and many of these practices have continued after the pandemic.

At the institutional level, digitisation now covers several parts of the MFI value chain. This includes back-office MIS and core banking systems as well as mobile-first onboarding and API integrations with payment aggregators, credit bureaus and co-lenders.

Digital adoption is accelerating across the sector, but the pace and benefits of adoption are not uniform. Larger MFIs have generally been better placed to invest in digital systems, while smaller MFIs continue to face challenges in adopting and scaling such solutions. Addressing this gap will be important for the sector's next phase of growth.



DIGITAL ADOPTION LANDSCAPE

India's Digital Public Infrastructure (DPI) status

India's Digital Public Infrastructure has grown from small pilot projects into large-scale systems that now support identity checks and everyday payments across the country. On payments, UPI has moved from a fast-growing platform to the dominant channel for digital transactions in India. According to NPCI's product statistics, UPI processed 24.51 billion transactions worth ₹29.82 lakh crore in August 2026 – its highest-ever monthly volume, this represents 22% year-on-year growth in volume. Average daily transactions stood at 791 million in August 2026, with an average daily value of ₹96,205 crore. For the full FY 2025-26, UPI processed 24,162 crore transactions worth over ₹314 lakh crore, up 30.0% and 20.6% year-on-year respectively, with more than 700 banks live on the platform by year-end. This scale has made UPI the world's largest real-time payments system, accounting for close to 49% of global real-time payment transaction volume. For MFIs, Aadhaar-linked identity and UPI are nationwide, but internet access- needed for independent use- still lags in rural areas, where most clients live.

DPI SNAPSHOT

144.66 Cr+
Aadhaar Enrolments

₹29 Lakh Cr
Monthly UPI transaction value, Aug 2026

Source: UIDAI; NPCI

Why digital literacy matters?

Digital literacy is increasingly important for MFI borrowers because access to a smartphone or digital financial service does not automatically mean **safe, independent and informed use**. For borrowers, being digitally empowered means being able to independently make and verify digital repayments, use UPI/mobile banking, protect PINs and OTPs, recognise fraud, access account and loan information, and use grievance-redressal mechanisms.
The Government of India's **National Centre for Financial Education (NCFE)** specifically highlights that digital literacy helps borrowers to:

Make and verify digital repayments	Use UPI / mobile banking independently	Protect PINs and OTPs	Recognize fraud and scams	Access account and loan information	Use grievance redressal mechanism

The World Bank similarly identifies digital and financial literacy as an integral part of increasing the effective use of digital financial services, particularly among women and underserved customers.



DIGITALLY EMPOWERED CUSTOMER

- Independent
- Safe
- Confident

Status of MFIs in the digital journey

India's Digitization now touches most parts of the MFI value chain- core banking, LMS, mobile onboarding, e-KYC, e-sign and cashless disbursement/collection via UPI and BBPS. Larger, better capitalized NBFC-MFIs have integrated the full customer lifecycle.

Key Challenges:

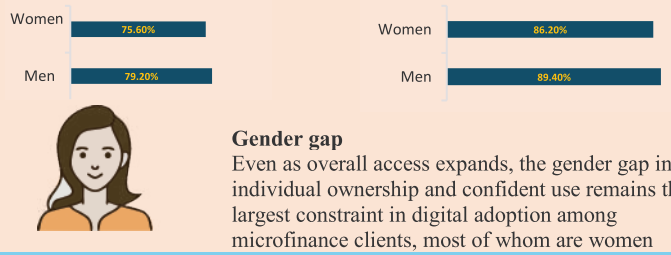
High implementation costs	Legacy-system integration	Shortage of skilled IT staff

Status of the end Customer

85.5% Households with at least one smartphone

86.3% Households with internet access (at home)

Gender gap in smartphone ownership



Gender gap
Even as overall access expands, the gender gap in individual ownership and confident use remains the largest constraint in digital adoption among microfinance clients, most of whom are women

Customer snapshot

85.5% Households with at least 1 smartphone	**75.6% vs 79.2%** Rural women vs men (smartphone ownership)	**51.7% vs. 74.8%** Rural women vs men (15-24 years, mobile ownership)

Source: Ministry of Statistics and Programme Implementation[1]

Institutional digitisation in practice

identity and UPI are nationwide, but internet access- needed for independent use- Digital disbursement among Indian banks and NBFCs grew >12x, between 2017 and 2020, from ₹11,671 crore to ₹1,41,821 crore. NBFCs raised their share from 6.3% to 30.3%. The core technology stack - Aadhaar e-KYC, e-Sign and DigiLocker, and UPI for both disbursement and collection - is now visible at the institutional level in microfinance as well[2]

Muthoot Microfin & NOCPL (BC partner)
E-KYC, e-sign, credit bureau checks

NABARD Money Purse App
(ODISHA GRAMYA BANK & SOUTH CANARA DCCB)
SHG-level banking via BC agents

Source: Sa-Dhan's Bharat Microfinance Report 2025

Across MFI tiers, the pace of digitisation remains uneven. Larger, better-capitalised institutions have progressed furthest - private banks account for 55% of digital disbursement share and NBFCs 30% - while smaller institutions lag behind. This is consistent with BMR 2025 data showing that MFIs with portfolios above ₹2,000 crore hold 81% of the client base and are furthest along on digitisation, while smaller MFIs are still building out foundational digital onboarding and collections capability.

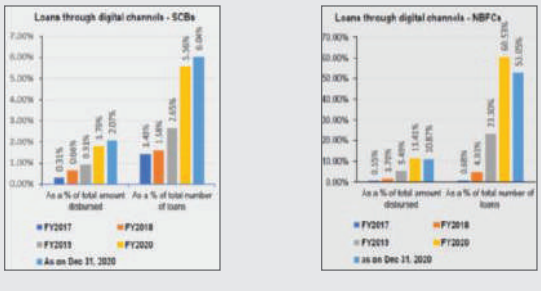


Figure 1 Loans through digital channels- SCBs and NBFCs (Source: RBI)

Digital literacy among clients

Digital literacy - The ability to independently operate a smartphone or app for a financial transaction - remains a genuine constraint even where device access exists.

Managing passwords and PINs securely	Recognising fraudulent messages or calls	Verifying that a transaction has completed correctly before relying on It.

[1]Source: "Results of Comprehensive Modular Survey: Telecom, 2025," National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India (pib.gov.in/PressReleasePage.aspx?PRID=2132330&reg=48&lang=2)
[2]Reserve Bank of India, Report of the Working Group on Digital Lending including Lending through Online Platforms and Mobile Apps, 18 November 2021, Section 2.4.2

As per RBI's digital lending ecosystem report-

Digital lending apps commonly request high-risk phone permissions - and that many borrowers have limited understanding of why such access is required or how the data collected will be used.[3]

High-risk permissions (share of apps)

Managing passwords and PINs securely	Recognising fraudulent messages or calls	Verifying that a transaction has completed correctly before relying on it

As per Sa-Dhan's HSBC India report

The program supported digital inclusion program 2017–2025, it was found:

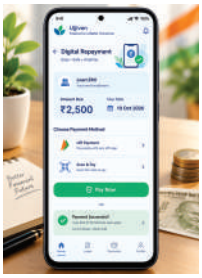
	Independent smartphone use	Basic phone use
	3.67% → 16% (Before → After training)	57.8% → 71% (Before → After training)

Most digital financial services (UPI, QR payments, digital MIS) require smartphone-level-literacy, which most clients still lack even after training.

Digital repayment behaviour

MFI's are shifting to UPI- and API-based repayment infrastructure, with OCEN to reduce reliance on cash collection, and to move lower-value client interactions - such as repayment reminders - to IVR and chatbot channels while reserving field visits for higher-stakes engagement.[4] RBI's Digital Lending Directions, 2025 require all disbursements and repayments through borrower-lender bank accounts (no third pass-throughs).[5] Client autonomy in initiating digital repayment still varies. Many rely on field staff or family members especially in early adoption- consistent with device and internet gaps among rural women (NFHS-5, CMS-T 2025).[6]





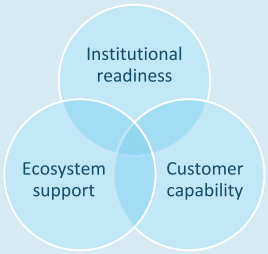
ENABLERS, BARRIERS AND RISK FACTORS

Digital adoption in Indian microfinance is shaped by constraints on three fronts - within MFIs themselves, among their customers, and across the wider digital ecosystem. Understanding these bottlenecks, and the enablers that can offset them, is a precondition for designing realistic digital-transformation strategies.

On the enabler side, India's digital public infrastructure gives MFIs a strong base to build on. The Unified Payments Interface (UPI) has grown from about 2 crore transactions in FY2016-17 to over 24,162 crores in FY2025-26[7], enabling low-cost, real-time disbursement and repayment. Digital identity and the consent-based Account Aggregator framework add to this. Together they let lenders verify clients remotely and, with the client's permission, draw on financial data to assess creditworthiness.[8] This is especially valuable for first-time borrowers who have little or no formal credit history. Financial inclusion policy has also laid the groundwork on the client side. PMJDY had 59.09 crore accounts as of 19 August 2026, with 55.7% held by women and 77.8% in rural and semi-urban areas,[9] so most microfinance clients already have a bank account to receive and repay through. Together, these enablers let MFIs rely on shared public infrastructure rather than building costly systems in-house, which offsets some of the cost, integration and trust barriers above.

Client-side bottlenecks	MFI Side bottlenecks	Ecosystem-side bottlenecks
Low literacy and education: Limits understanding of loan terms, platforms and fraud risks	**High technology costs:** Upgrading core banking/LMS and API integrations requires capital many smaller MFIs can't prioritise	**Connectivity divide:** Urban internet > 100%, rural ~45%; slow, less consistent speeds (TRAI)
Language barriers: Apps and grievance systems default to English/Hindi	**Limited digital integration**: Deeper digital integration (eKYC, AI-based underwriting, API-led systems) remains concentrated among larger players.	**Infrastructure gaps:** Patchy network, voltage and electricity issues, thin last-mile payment infrastructure
Limited device access: Only 26% rural women vs 47% rural men use mobile internet (GSMA, 2024)	**Change management:** Field staff need structured training, not just new tools, meeting-based models can resist app-based channels.	**Digital skills gap:** Only ~24% rural youth (15-29) can operate a computer vs 56% urban (NSO)
Trust & fraud concerns: ~1 in 5 UPI-using families faced fraud in past 3 years; over half didn't report it (RBI, 2024-25)		**Data & cybersecurity:** Need consent, data minimization and audit controls (DPDP Act, 2023; RBI, 2023)
		Regulatory & industry ecosystem: New frameworks (e.g., FACE SRO-FT, cybercrime portal, 1930 helpline) support safer digital finance, but need internal capacity to implement (RBI)

The transition to high-tech microfinance needs more than technology, it sits at the intersection of:



POLICY AND REGULATORY PERSPECTIVE

RBI's digital lending guidelines and directions

RBI's original Guidelines on Digital Lending, issued in 2022,[10] established a structured regulatory framework covering loan disbursal, servicing and repayment; disclosure requirements including a standardised Key Fact Statement (KFS); grievance redressal; a borrower cooling-off period; and due diligence obligations for Lending Service Providers. Core requirements include that loan disbursal and repayment must flow directly between the borrower's bank account and the regulated entity, without pass-through accounts held by third parties, and that borrower data collection, storage and sharing must follow strict consent and data-localisation rules. In May 2025, RBI issued revised Digital Lending Directions[11] that preserve these core principles while introducing more calibrated exceptions - for instance, permitting salary-linked loan repayment routed through an employer where the lending service provider has no control over the process - and simplifying the cooling-off period to a minimum of one day. For MFIs building or partnering on digital lending products, these directions are the primary compliance reference point, and their continued evolution means digital-transformation roadmaps need built-in flexibility to accommodate future regulatory change.

The microfinance-specific regulatory framework

Separately, RBI's Regulatory Framework for Microfinance Loans Directions, 2022[12] governs the sector's core lending parameters: it defines microfinance loans as collateral-free credit extended to households with annual income up to ₹3 lakh, requires each regulated entity to maintain a board-approved policy on the limit of a household's monthly loan-repayment obligations, and prohibits usurious interest rates or pre-payment penalties. These requirements apply regardless of whether a loan is originated and serviced physically or digitally and set the outer boundaries within which any digital transformation initiative must operate.

Data-sharing infrastructure: DEPA and the account aggregator framework

The Account Aggregator ecosystem, built on the Data Empowerment and Protection Architecture (DEPA) and governed by the industry body Sahamati, offers a consent-based mechanism for sharing financial data across institutions. For MFIs and their fintech partners, this framework is a potential enabler for the kind of alternate credit scoring discussed in Sections 2 and 5, allowing borrowers to share their own transaction history in a secure, revocable way rather than relying solely on formal credit-bureau records, which many first-time or informal-sector borrowers do not yet have.

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[3] Reserve Bank of India, Report of the Working Group on Digital Lending including Lending through Online Platforms and Mobile Apps, 18 November 2021, Section 4.3.2.2, Table 4.1.
[4] Sa-Dhan, Bharat Microfinance Report 2025 , Chapter 1.5, "Rails for the Next Wave of Inclusive Growth in Microfinance," p. 8–9.
[5] Reserve Bank of India, Reserve Bank of India (Digital Lending) Directions, 2025, notification dated 8 May 2025.
[6] International Institute for Population Sciences (IIPS) and Ministry of Health and Family Welfare, National Family Health Survey (NFHS-5), 2019–21 ; National Statistical Office (NSO), Comprehensive Modular Survey: Telecom (CMS-T), 2025.
[7] PIB (2026). UPI completes 10 glorious years. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2257087
[8] Department of Financial Services, Ministry of Finance (2026). Account Aggregator Framework (data as on 31.03.2026). https://financialservices.gov.in/account-aggregator-framework
[9] PIB via DD India (2026). 12 Years of PMJDY. https://ddindia.co.in/2026/08/12-years-of-pmjdy-59-09-crore-accounts-opened-deposits-reach-%E2%82%B93-17-lakh-crore/
[10] Reserve Bank of India. (2022, September 2). Guidelines on digital lending. RBI notification
[11] Reserve Bank of India. (2025, May 8). Reserve Bank of India (Digital Lending) Directions, 2025. RBI notification
[12] Reserve Bank of India. (2022, March 14). Master Direction – Reserve Bank of India (Regulatory Framework for Microfinance Loans) Directions, 2022 (updated July 17, 2025). RBI Master Direction

BEST PRACTICES FROM INDIA AND GLOBAL EXPERIENCE

Across India and other emerging markets, institutions are combining digital financial infrastructure with trusted human and community channels to improve access, adoption and repayment. The examples below highlight different approaches to making digital finance more inclusive.

Indian case studies

Avanti Finance - Digital-First, Partner-Led Lending

- 580,000+ customers; 26 states; ~90% women; ~60% new-to-credit.
- Agent-facing paperless onboarding using Aadhaar/DPI; digital agreements, disbursement and communication.
- Works through 60+ partner NGOs/community organisations/MFIs.

Midland Microfin - Digital Disbursement and Collections

- MidFin app enables UPI/QR/UPI-ID repayments.
- Centralised credit sanctioning and risk monitoring.
- Digital disbursement and collections while retaining JLG-based, women-focused lending.
- Operates across 16 states + 2 UTs.

Annapurna Finance – Digital Disbursement and Collections

- Proprietary A-Pay app enables cashless disbursement and digital EMI collection.
- Digital client onboarding, with GIS-based mapping used for operational and portfolio risk monitoring.
- Over 1.12 million active digital users, with ~75% of customers based in rural areas per Infobip (technology partner)
- Retains SHG-based (rather than JLG) lending model while digitising the customer lifecycle.

Global case studies

Bangladesh - BRAC's Cashless-Branch Pilot

- Remote Noakhali pilot trained women clients to receive remittances, repay loans and save via mobile money.
- Directly addressed literacy/confidence barriers.

Indonesia, the Philippines and Vietnam - Fintech for Women Entrepreneurs

- ADB examples include AMAAN–Bank Jago co-lending in Indonesia.
- Technology supports credit scoring/products for women-owned micro and small enterprises.

Kenya (Safaricom/CBA) – From M-Shwari to Fuliza

- M-Shwari (2012): Mobile-data credit scoring on M-PESA - 9.2M savings accounts, 20.6M cumulative loans, 6-second loan turnaround (by 2014).
- Fuliza (2019): M-PESA overdraft successor product using the same data-driven scoring approach.
- 9.1M active users (up 22% YoY), KES 629.2 Bn disbursed in H1 FY26 (Safaricom, Nov 2025).
- Shows mobile-money credit scoring maturing into large-scale digital lending infrastructure.

5- Step Adoption pathway

A structured approach for MFIs to identify a specific customer or operational problem, design a suitable digital intervention, test it on a small scale, assess results and user experience, and scale it when there is sufficient evidence of customer value and institutional feasibility.

Assess
- Assess readiness for a specific digital intervention
- Define the problem; assess customer access, digital literacy, connectivity, staff capability, existing systems, process gaps and risks

Design
- Design the digital intervention/process that will address the identified problem
- Define the customer journey, technology/channel, human assistance, training, safeguards, workflow and integration with existing MFI systems

Pilot
- Test whether the intervention works with actual users
- Select pilot branches/customers; establish baseline; run intervention for a defined period; track implementation

Learn
- Determine whether it worked, for whom and why
- Compare baseline/endline; assess adoption, independent usage, customer experience, staff effort, efficiency and risks; collect feedback

Scale
- Decide whether and how to expand
- Assess customer value, operational feasibility, cost, risks and institutional capacity

Criteria for Pilot Readiness

✓ Client-Centric	✓ Infrastructure Fit	✓ MFI-Size Scalable	✓ Regulatory Aligned	✓ Measurable Early
Solves a problem customer already experience	Works with Aadhaar, UPI & e-KYC - no new rail	Viable for mid & small MFIs, not only large NBFC-MFIs	Compatible with RBI guardrails as they stand today	Meaningful signal within one lending cycle

RECOMMENDATIONS AND THE WAY FORWARD

The next phase of digitalisation in microfinance needs to focus on making digital financial services more accessible, usable and secure for customers while also improving the efficiency of MFI operations. This calls for a coordinated approach involving MFIs, regulators, government institutions, FinTech companies and other ecosystem stakeholders.

MFIs AND FINTECHS

- Upgrade core banking/LMS where feasible.
- Pair technology investment with staff capacity-building and client digital literacy.
- Build simple, affordable, interoperable solutionsaround real customer constraints.
- Provide technical support

CREDIT BUREAUS AND INVESTORS

- Extend microfinance-grade reporting infrstructure to smaller, less-digitised MFIs.
- Fund digital infrastructure with patient, longer-horizon capital.
- Use blended finance to de-risk investment for smaller MFIs.
- Tie capital to responsible-digital - lending and data-provacy practices.

REGULATORS

- Enable innovation while protecting customers.
- Proportionate standards and controlled testing such as regulatory sandbox.

GOVERNMENT

- Improve connectivity, digital-risk awareness, reporting mechanisms and last-mile partnerships.

Way Forward: The future of digital microfinance will depend on how effectively technology, customer capability, and institutional systems develop together. The transition from high-touch to high-tech should not be viewed as a replacement of human interaction, but as an opportunity to combine the efficiency of digital systems with the trust and support built through frontline and community-level engagement.

- **Near term:** Consolidating what already works - strengthening digital repayment adoption, improving data-reporting discipline to credit bureaus, and closing basic digital-literacy gaps among existing borrowers so that current digital touchpoints (app-based repayment, e-KYC, SMS/IVR channels) are used with confidence rather than dependence on field staff to complete them.
- **Medium term:** Deepening interoperability - linking MFI systems more closely with the Account Aggregator framework and UPI rails, piloting alternative credit-scoring models with bureaus, and building the cybersecurity and data-governance capacity needed to handle the higher volumes of customer data digitalisation generates.
- **Longer term:** Institutionalising a fully **phygital model** where digital channels handle routine transactions at scale while human touchpoints are reserved for onboarding, financial counselling, grievance redress, and moments of customer distress - with regulatory frameworks, investor expectations, and MFI capacity all evolving in step with this shift.

Each stakeholder carries a distinct part of this. MFIs need to invest in staff retraining alongside technology, not instead of it, since frontline credibility is what makes digital adoption stick in rural and semi-urban markets. Regulators and government institutions need to keep pace with emerging models (alternative scoring, AA-based lending) rather than only regulating after risks materialise. FinTech companies need to design for low-bandwidth, low-literacy contexts rather than porting urban product design directly into rural markets. Credit bureaus need to extend microfinance-specific data infrastructure to smaller and less digitised MFIs, not just the largest players. Investors need to price in the multi-year payback horizon of digital infrastructure rather than expecting immediate portfolio returns.

A coordinated approach across these actors can create a digital microfinance ecosystem that is not only more efficient, but also responsive to customer needs and capable of sustaining financial inclusion through cycles of regulatory change and market stress. The ultimate test is practical, not technological: whether digital transformation makes it easier for a rural woman borrower to access credit, understand her repayment obligations, and resolve a problem when something goes wrong - with inclusion, trust, and responsible use of technology kept at the centre of the sector's evolution throughout.

Sa-Dhan Fostering Inclusive Impact Finance

This paper is jointly developed by Sa-Dhan and Samavit Vikas Pvt. Ltd.

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