Harnessing AI in Debt Collections: Loss Mitigation, Efficiency, and Scalability

Written by: Dave Wasik, Justin Metacarpa, Syed Raza, PhD, Rachel Eaker, Edon Tamir, and Chris Woods

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Executive Summary

The Collections industry is facing a pivotal moment. Macroeconomic trends and emerging signs of consumer distress are making lenders concerned about future credit deterioration as a more permissive regulatory posture has opened the door to new AI use cases. At the same time, shifting consumer expectations are reshaping how borrowers desire to be engaged with and supported when delinquency occurs.

Traditional Collections operating models are labor-intensive, costly, and often adversarial. They are no longer sustainable in an environment that demands loss mitigation, efficiency, and personalization across both digital and phone-based channels.

The industry's evolution can be viewed in three acts: **Act I** was the era of traditional outbound and inbound calling. **Act II** marked the rise of digital channels such as SMS, email, and in-app messaging. **Act III**, now unfolding, is defined by the use of artificial intelligence (AI) to elevate the sophistication, effectiveness, and financial impact of this omni-channel ecosystem.

AI is not simply another technological upgrade; it represents a structural shift in how Collections will operate going forward. Through automation, improved decision-making, and personalized engagement at scale, **the promise of AI in Collections is to recover more effectively while improving efficiency and reducing compliance risk**. This opportunity also comes with responsibility as successful adoption depends on strong governance, transparency, and an ethical framework that keeps pace with evolving regulations.

For Collections leaders, **the question is no longer whether to adopt AI, but where and how quickly** they integrate it into their strategies and operational processes. Lenders are already using AI use cases effectively in several key areas of Collections. Those who act decisively will lead the next era of Collections; one that is faster, smarter, and more customer-focused than what has come before.

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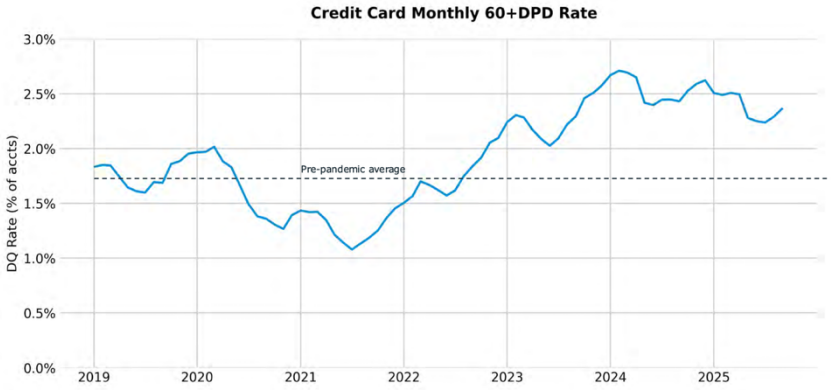
Background

What does the Debt Collection landscape look like today?

Lenders are navigating a murky economic picture. While the overall delinquency picture has been mostly stable, many lenders are preparing for deterioration. Recovery rates have largely plateaued, exposing the limits of traditional approaches such as mass outreach, rigid repayment plans, and one-size-fits-all strategies that fail to adapt to individual consumer behavior.



Source: 2OS, Equifax Ignite. Data as of Oct 20th, 2025

Most traditional approaches to Collections are labor-intensive. Manual segmentation, outbound calling, and repetitive administrative work drive up expenses, while recruitment, training, and agency onboarding add to the cost burden. Scaling operations means adjusting headcount quickly, which is challenging. These traditional models are also often sub-par at meeting customers in their channel of choice. Today's consumers expect digital-first, personalized interactions and reliance on generic call center outreach is becoming less effective [1].

In addition to these challenges, debt collection is one of the most highly regulated areas in financial services. Frameworks such as the FDCPA and Regulation F impose strict federal rules on communications, disclosures, and recordkeeping, meanwhile an increasing number of state-level regulations are adding further complexity.

Taken together, these factors paint a picture of an industry under strain: **higher volumes of debt, a challenging collections environment, significant cost pressure, and more complex regulations**. This creates a well-timed opportunity for technology, specifically Artificial Intelligence (AI), to provide relief and competitive advantage.

What role does AI play in the Collections industry?

AI directly addresses the pain points that weigh most heavily on agencies and lenders. In vendor-reported cases, these capabilities can double collector productivity and reduce operational costs by more than 30%, making AI a high-ROI lever for modern Collections operations [2]. AI in Collections is not a single technology; its impact is driven by a layered set of capabilities that build on one another.

The use of Generative AI extended traditional machine learning techniques by incorporating unstructured data and enabling more context-aware decisioning. Using Natural Language Processing (NLP) and Large Language Models (LLMs), it can analyze call transcripts, emails, chats, and agent notes to identify behavioral cues, detect hardship signals, and classify sentiment. These insights enrich predictive models, improving segmentation, forecasting, and offer optimization. Gen AI also supports improved efficiency and more tailored strategies through use cases such as an agent copilot, creative message creation, and hyper-personalization.

Agentic AI represents the next evolution in intelligence for Collections. Unlike Generative AI, which produces or interprets content, Agentic AI can reason, plan, and interact with consumers with minimal human intervention. In Collections, it has the potential to manage end-to-end interactions, negotiate with borrowers, and dynamically adjust recovery strategies in real time.

Organizations already incorporating AI within their Collections practice report up to 27% more digital engagement and 16% more payments [3]. Firms that delay investment and implementation risk falling further behind in an increasingly efficiency-driven and competitive landscape. As AI technologies continue to evolve, their practical applications within Collections are becoming clearer. The following section explores where AI is already creating value and how its role is expanding across the Collections process.

AI Use Cases

AI is shaping Collections across three main categories of use cases: agent or internal-facing processes, customer-facing processes, and strategy and model development. To date, most applications of AI in Collections have been concentrated on improving the efficiency of collectors. Most of these use cases currently rely on Generative AI rather than Agentic AI, as fully agentic systems remain in development and are either on the roadmap or in pilot phase for most lenders and agencies. Starting with internal-facing use cases allows firms to experiment and scale these AI solutions in a safer environment before taking the next step to customer-facing use cases.

The following sections outline how firms are applying AI across the three domains described above. These categories are not exhaustive, but they illustrate the breadth of opportunities available and the trajectory of change within the industry.

Agent-facing Use Cases

- **Call Monitoring & Compliance**
  AI systems automatically review every customer interaction, flagging potential compliance issues and automatically creating audit-ready records. This reduces reliance on manual QA while providing coaching insights to improve agent

performance [4]. Solutions exist today that offer real-time QA monitoring, script adherence detection, and automated compliance flagging.

- **Agent Co-Pilot**
  Live support tools prompt agents with disclosures, suggest relevant hardship policies, and summarize calls automatically. They reduce note-taking requirements, improve customer experience, and ensure consistency across agents [5]. Many platforms deliver real-time agent assist, dynamic scripting, and automated call summarization that function as co-pilots during live interactions.

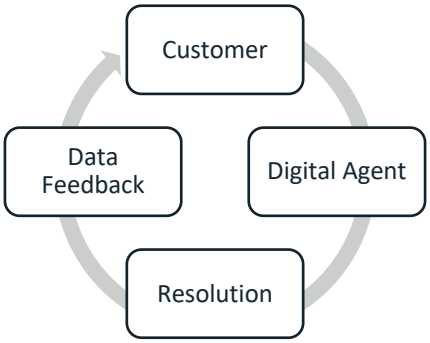
- **AI-driven Training Simulations**
  AI-powered simulations recreate realistic customer conversations and situations for onboarding and continuous training of agents. These scenarios scale faster than human-led training, standardize quality, and prepare agents for handling sensitive situations with empathy. Vendors can provide AI-driven simulation environments that model realistic debtor conversations and offer targeted coaching.

Customer-facing Use Cases

- **AI Chatbots**
  Chatbots provide always-available support through digital channels like web chat, mobile apps, or SMS. They efficiently handle routine inquiries and simple repayment tasks, allowing customers to resolve issues quickly without waiting in a call queue. Chat-based interactions are ideal for borrowers who prefer self-service and written communication.

- **AI Voice Bots**
  Intelligent voice agents give customers 24/7 access to repayment options and account support over the phone. They can handle tasks such as making payments or checking balances without a live agent, reducing call volume and extending service hours. Voice agents often deliver strong customer satisfaction for routine interactions because they are consistently patient, available, and able to maintain a calm, empathetic tone without fatigue or time pressure. This can be particularly valuable for customers who prefer phone interactions or need guided, conversational assistance [6]. However, while voice agents perform well for standardized use cases, highly skilled human agents continue to outperform AI in complex, emotionally sensitive, or nuanced conversations where judgment and adaptability are critical.

- **Continuous Data-driven Refinement**
  As customers interact with these platforms, AI captures behavioral insights (e.g., which repayment options succeed, where customers drop off). These insights inform both automated and human-led outreach, tightening the strategy feedback loop.



Strategy and Model Development

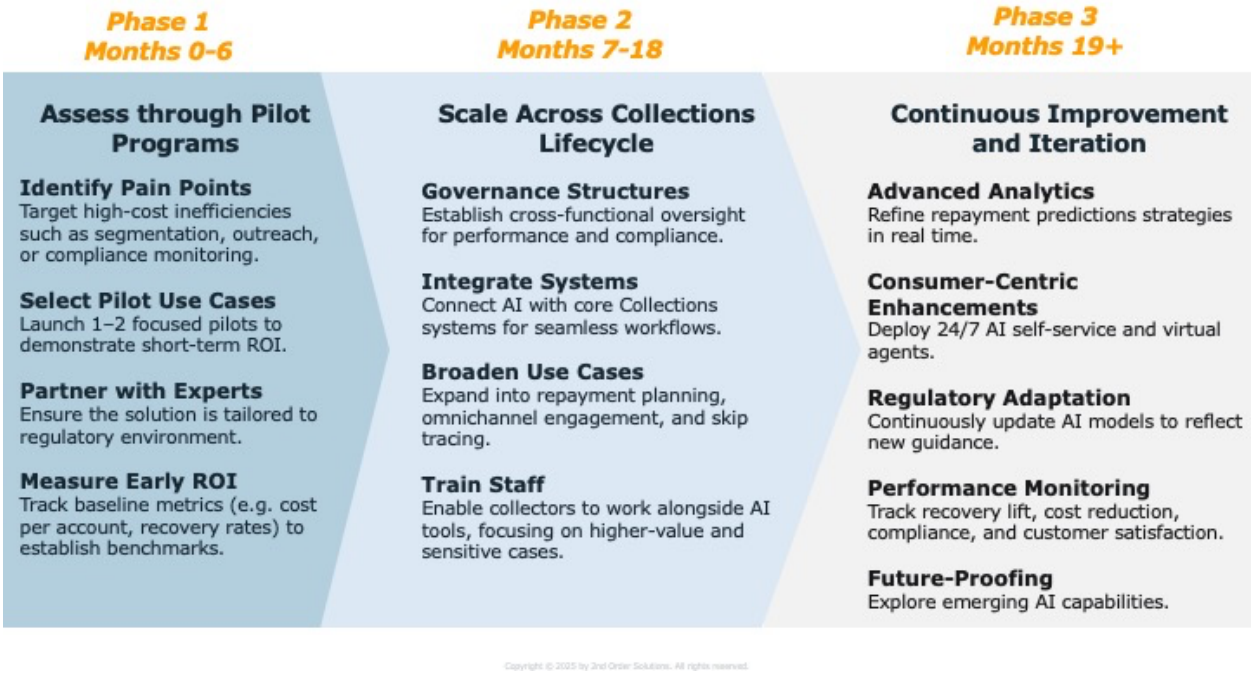
- **Next Best Action**
  In addition to analyzing large volumes of account, behavioral, and interaction data, AI integrates real-time inputs like customer signals or sentiment to recommend the most effective outreach strategy for each customer at each point in time. These models can dynamically adapt as customer behavior changes, prioritizing actions that balance operational efficiency, compliance, and customer experience. As a result, collectors are guided toward more informed, consistent, and empathetic decisions that improve both performance and borrower engagement.

- **Hyper Personalization**
  ML predicts repayment likelihood of different offers (settlement vs. short-term vs. long-term plans), while generative AI crafts communications aligned with those predictions. A growing trend in this space is the shift towards hyper-personalization, where outreach is customized at the individual customer level rather than for large segments of customers. AI models generate customer personas, customize offer structures, and produce creative messaging that allow lenders to tailor outreach based on each customer's financial profile, engagement history, and communication preferences.

Implementation Roadmap

Adopting AI in Collections requires more than technological investment; it demands a structured approach that balances innovation and expansion with compliance and business priorities. To have success with this approach, firms will need to ensure alignment across areas such as Executive Leadership, Risk and Compliance, enterprise-level AI teams, and Collections.

Once these requirements have been met, the following phased roadmap can be used as a practical guide for firms seeking to capture AI's benefits while minimizing risk.



Firms interested in adopting AI into more of their Collections strategies can use this phased framework to build out a roadmap specific to their customer base and business needs.

2OS perspective on questions collections leaders are facing

Where during the Collections lifecycle are voice bots superior or at least equivalent to human agents?

Within the Collections lifecycle, there are many points where voice bots could be deployed, but decisions about where to use them should be guided by more than operational efficiency alone. Using voice bots for all phone interactions would save operational expense, but loss mitigation performance and customer experience would likely deteriorate.

Voice bots should not be used for most inbound calling given the current state of the technology. Customers infrequently initiate contact in Collections, and when they do, it is usually with the intention to resolve a delinquent balance or discuss their situation. In these moments, treating them with an automated voice bot risks derailing a high-value interaction. However, a bot that handles after-hours inbound calls or performs initial triage enables firms to offer 24/7 availability without staffing a full-time team.

Outbound calling, however, presents a more appealing set of opportunities. Very early-stage payment reminders present a simple, low risk use case where voice bots can be highly effective. At the other end of the lifecycle, very late-stage customers (B5/6) have such low right party connect (RPC) rates that it is often unprofitable for agents to call them directly. In these segments, automated outbound outreach provides a way to maintain contact attempts while efficiently using agent resources.

Do voice/chat bots amplify or mitigate compliance/regulatory risk?

Large language models are known to hallucinate [7], and in a Collections context even minor inaccuracies can create significant risk. Misstating a customer's balance, misinterpreting intent, or providing incorrect disclosures does not merely erode trust [8]. It can also constitute a direct violation of the FDCPA, Reg F, or UDAAP standards.

Counterintuitively, when designed well and implemented with proper controls, AI systems can reduce certain compliance risks rather than increase them. These systems capture detailed records of every interaction, including exact language, timestamps, and decision pathways, providing compliance teams with greater visibility than manual notetaking. However, audit trails alone do not eliminate risk: a complete record of a flawed interaction remains a compliance failure. To build borrower and regulator trust, institutions must ensure that underlying logic and algorithms are rigorously designed, continuously monitored, and paired with controls that escalate flagged or uncertain interactions to human agents. When auditability is combined with strong guardrails and oversight, AI can operate more reliably in customer-facing Collections environments.

Should lenders and agencies build these AI solutions or purchase them from 3rd parties?

Given the maturity of today's commercial platforms, 2OS generally has a bias toward sourcing 3rd party solutions rather than building in-house. Within typical banks/lending institutions, Collections is only a piece of the overall AI strategy, and centralized AI teams have high priorities across the board, making it difficult for Collections teams to get the bandwidth they require to build out solutions. Vendors offer capable out-of-the-box solutions that enable dynamic, personalized interactions and deliver immediate operational savings. These offerings come without the engineering burden, specialized

talent requirements, or long development timelines associated with custom in-house builds [9].

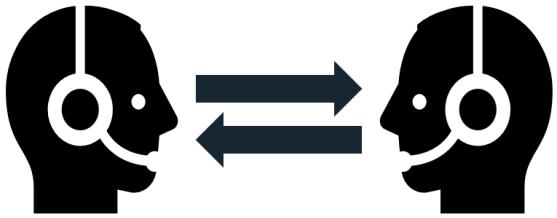
Buying, however, does introduce its own challenges. Upfront costs can vary, and integration with existing servicing systems, dialers, and data infrastructure can be complex. Vendor solutions typically offer a significant time-to-market advantage over fully custom internal builds, which many lenders find compelling given the ongoing demands of model maintenance and compliance.

There are select cases where building an in-house AI system may be justified. Custom builds offer greater control over data, model design, and integration, and can be tailored to specific policies and operations. This approach requires larger investment and longer timelines and would therefore only be recommended for those firms whose primary business is debt collection (e.g., large agencies or debt buyers).

Where does AI fit in the future of Debt Collection?

While the current state of AI in Collections largely focuses on automation and decision support, innovation in Agentic AI points toward a world in which software agents conduct much of the work of Collections directly. These systems will not simply execute predefined instructions, but will reason, negotiate, and adapt in real time.

The near-term future of AI in Collections will focus heavily on automation and optimization. Intelligent systems will streamline back-office processes, ensure consistent compliance monitoring, and recommend the “next best action” for individual accounts across portfolios to minimize credit losses. As these capabilities become embedded in ongoing operational processes, institutions will be able to operate with greater speed and precision, reducing their cost-to-collect while maximizing the productivity of each contact.



One possible outcome is a future in which AI agents represent both sides of the Collections interaction. A bank's digital agent could contact a delinquent customer's personal AI assistant to negotiate repayment terms, exchange data on repayment capacity, and converge on a settlement offer optimized for both parties. Instead of multiple phone calls, missed contacts, and human miscommunication, the interaction unfolds seamlessly between systems, with the customer ultimately presented with the "best available" option pre-vetted by their own AI. While this scenario may sound futuristic, it is quickly becoming technologically feasible. OpenAI's recent releases, including GPT's real-time reasoning and multimodal capabilities and the Agent Builder and Chat with App features, enable AI systems to connect with enterprise platforms and external data sources to perform complex, goal-oriented tasks [10, 11]. Debt Settlement Companies (DSC) are already using voice bots to call lenders on behalf of consumers. These developments point toward a future where lender and consumer agents could negotiate directly, integrating financial data and behavioral insights to reach mutually optimized solutions.

Even as AI continues to advance, it will not completely replace the human element in Collections. Debt recovery is both a financial and emotional process, often occurring during moments of stress or hardship when empathy and trust are essential. While autonomous systems will increasingly handle outreach, negotiation, and documentation with limitless patience, human agents will remain critical for oversight, exception handling, and sensitive customer interactions. Their role will shift from executing tasks to guiding AI systems, managing difficult cases, and ensuring ethical and regulatory compliance.

The trajectory is clear: AI will move from supporting Collections to shaping it. Over time, the industry may see Collections evolve into a more dynamic practice, where intelligent systems interact directly, payment plans are tailored and adaptive to real-time information, and human intervention is reserved for specific moments requiring additional empathy, judgment, or creativity. The inevitable introduction of Agentic AI represents a redefinition of what it means to engage with those in delinquency.

How 2OS Can Help

Debt Collection leaders are facing pressure on all sides: a swelling pipeline of AI vendors promising quick wins, regulators signaling heightened scrutiny in the near future, rising consumer expectations for digital-first engagement, and the constant need to reduce costs while improving recovery. Missteps here carry real consequences in the form of wasted investments, compliance violations, and damaged customer trust.

2OS helps institutions move forward with confidence. We combine deep expertise in Collections strategy, risk analytics, and operational design to ensure AI adoption delivers measurable impact without exposing your organization to unnecessary risk. Specifically, we can support our clients through:

- **Vendor Evaluation & Selection**
  Assess the crowded AI vendor landscape (40+ providers and growing), weigh pros and cons, and identify partners that align with your strategic goals.
- **Proof-of-Concept Pilots**
  Design and execute targeted pilot tests that demonstrate ROI quickly while controlling for operational and compliance risk.
- **Governance & Compliance**
  Establish monitoring, documentation, and governance frameworks that meet current regulatory demands while preparing for future ones.
- **Integration with Strategy**
  Embed AI into your Collections playbook so that technology enhances, not replaces, data-driven strategy, human empathy, and customer-first principles.
- **Change Management & Training**
  Prepare your workforce to adopt AI tools effectively, ensuring collectors and compliance teams are empowered, not sidelined.
- **Future Preparedness**
  Anticipate and prepare for what comes next. Specifically, as it relates to Agentic AI, and create a roadmap that positions you ahead of competitors and regulatory shifts.

The industry is at a pivotal moment. AI adoption is no longer a question of *if,* but *where and how quickly.* Institutions that embrace it now will accelerate into greater efficiency, stronger compliance, and deeper customer trust. Those that delay will remain stagnant while their peers surge ahead, turning hesitation into a lasting disadvantage. For a deeper conversation about how AI can be safely and strategically applied to your operations, connect with your 2OS contacts.

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Acknowledgements

Dave Wasik is a Partner and Collections Practice Lead at 2nd Order Solutions and former senior executive at Capital One. He has 25+ years of experience in consumer credit, analytics, and Collections. At 2nd Order Solutions, he has led >100 engagements spanning the full credit lifecycle with a particular focus on Collections and Loss Mitigation.

Justin Metacarpa is a Senior Director at 2nd Order Solutions with 25+ years of experience in consumer credit and loss mitigation. Justin has led dozens of engagements in Collections, Fraud, and Disputes.

Syed Raza, PhD leads the AI practice at 2nd Order Solutions and serves as Senior Director of Data Science. He has worked with multiple top-10 US banks on enterprise AI and Generative AI strategy, driving the deployment of high-impact use cases across the credit lifecycle.

Rachel Eaker is a Business Analytics Manager at 2nd Order Solutions and specializes in Collections at the firm. She has advised many financial institutions on valuable improvements that can be made to all facets of their Collections and Recoveries strategies.

Edon Tamir is a Business Analyst at 2nd Order Solutions with experience in collections diagnostics, strategy and test design, and credit policy. He has advised new entrants to the US credit market on how to structure and scale compliant, data-driven Collections programs and studied Mathematics at Duke University.

Chris Woods is a Business Analyst at 2nd Order Solutions with a degree in Systems Engineering from the University of Virginia. He has experience in consumer lending strategy and recently worked with a large lender refining their Collections strategy.