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Agentic AI-enabled accounts receivable

Revenue cycle management

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Executive summary

Revenue cycle management (RCM) in healthcare is increasingly challenged by escalating denial rates and protracted reimbursement cycles—a trend expected to intensify by 2025. The industry continues to grapple with core issues related to the inherently manual and complex nature of accounts receivable (AR) management, characterized by extensive navigation through disparate data sources, high human error rates and significant time investments in interpreting intricate claim details.

This document presents a comprehensive strategy to address these issues. The proposed solution introduces a agentic AI framework designed to automate critical AR processes, with an initial focus on denial management.

The solution leverages cloud-based agentic AI tools to process and synthesize vast amounts of data, including process instructions, claim notes and historical claim data. This data is meticulously curated and ingested to train a customized agentic AI model, utilizing prompt engineering to extract pertinent information and generate actionable recommendations.

A proof of concept (POC) was conducted to validate the efficacy of this model, utilizing live examples of common denial types. The results demonstrated the model's ability to accurately provide relevant recommendations, thereby significantly reducing the manual effort required for denial resolution.

The future roadmap envisions expanding the agentic AI integration to automate other AR processes, such as appeals creation, claim status retrieval and patient billing. By streamlining these processes, the solution aims to alleviate the administrative burden on healthcare organizations, allowing them to focus on delivering quality patient care while maintaining financial stability.

Introduction

According to a report in Business Wire, the global healthcare revenue cycle management (RCM) market is valued at USD 169.7 billion in 2025 and is expected to grow to USD 292.9 billion by 2030, with a CAGR of 15.84% from 2025 to 2030. Additionally, the services segment led the market with a 67.1% revenue share. Due to this trend, outsourcing has increased as many healthcare services require the right skill set and technology to drive this growth. (See figure 1)

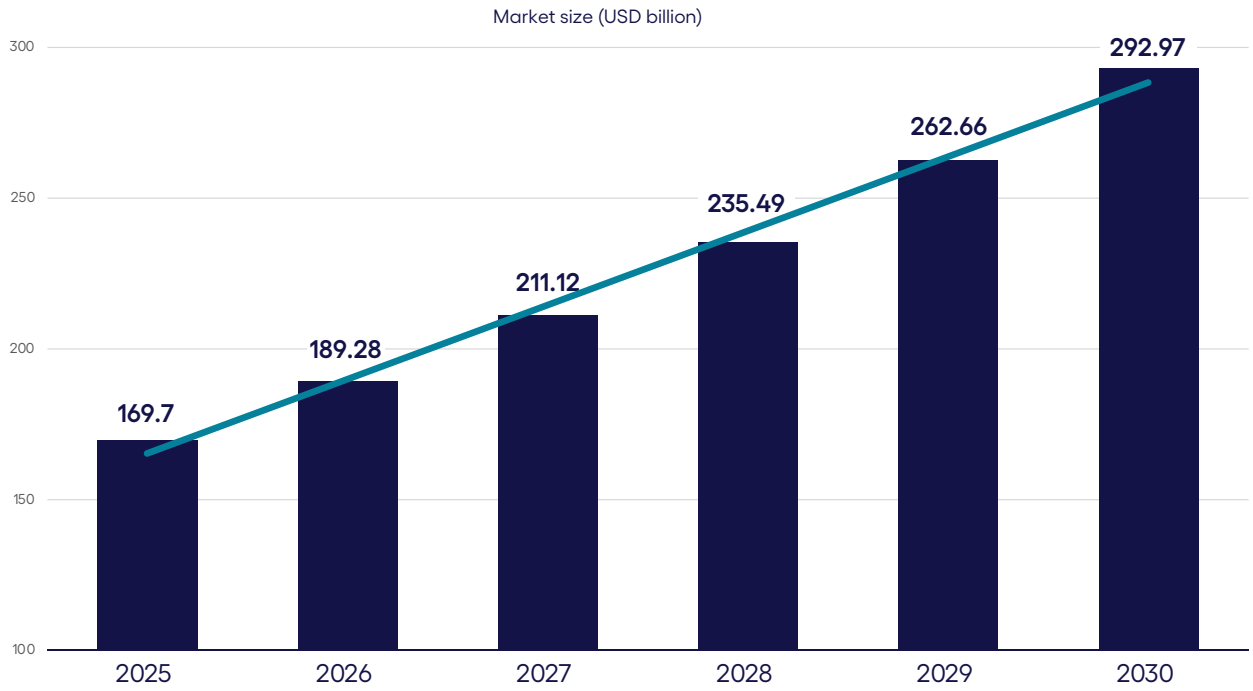


Figure 1: Global healthcare revenue cycle management (RCM) market revenue
Source: Towards Healthcare

Efficient financial management is crucial in healthcare to ensure smooth operations and high-quality patient care. Accounts receivable management, which is part of RCM, involves tracking and collecting payments from patients and insurance companies.

Challenges in RCM

Climbing denial rates, prior authorization requirements and the costs associated with managing both are among the most significant challenges confronting healthcare organizations in 2025. According to a survey conducted by the Journal of Managed Care & Specialty Pharmacy in 2024, 77% of respondents said denials are increasing. Similarly, 67% of respondents said the time taken for reimbursement is increasing. In 2025, 84% of healthcare organizations will make "reducing denials" a top priority. (See figure 2)

According to an American Medical Association (AMA) survey, physicians reported spending nearly two business days per week, completing an average of 43 prior authorizations—many of which still get denied.

To overcome the above-mentioned issues, we need to address the traditional AR management process which includes high navigation time, complex review processes, low productivity and frequent changes in process instructions that lead to human error and delays.

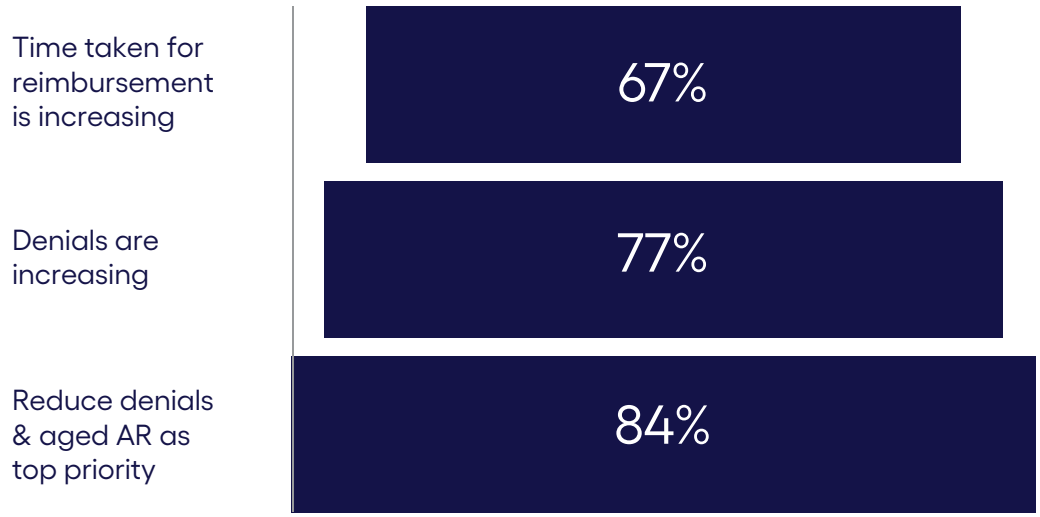


Figure 2: Chart data reflects the survey outcome
Source: Experian

Denials and AR

AR in healthcare represents payments owed to providers for services rendered, including payments from patients, insurance companies and third-party payers. Efficient AR management is crucial for maintaining steady cash flow, ensuring providers can continue offering quality care without financial constraints.

As-is process: The AR process starts with the open inventory file, listing all outstanding claims. Processing of claims is prioritized based on aging, claim value and specific prioritization logic. Cognizant's internal volumetric analysis shows that approximately 30% of claims require direct communication with payers, while the remaining ~70% can be resolved via payer websites. Denials account for 10-15% of claims and require actions such as filing appeals, identifying new payers, rerouting claims for corrections, billing patients or adjusting claims based on provider guidelines. This process ensures each claim receives the necessary attention for successful reimbursement.

More than 59% of hospitals or physician groups outsource collection and denial management to third-party service providers so that they can focus on the core expertise.

High level AR and denial management process

Cognizant's approach

AR processes are highly manual, involving large teams managing transactions. Based on Cognizant's internal time and motion study, approximately 40% of an associate's time is spent reading various notes, support guidelines and multiple sites to determine the next steps.

Process guidelines are specific to each provider's office, requiring associates to access numerous instructions and correlate them with claim notes, explanation of benefits (EOBs) and claim adjustment reason codes (CARC) or remittance advice remark codes (RARC).

To address this issue, we have created a solution that consolidates all relevant information and provides logical next steps for the associate.

Cognizant's solution

Choosing a reliable, scalable and affordable solution is crucial. The tool must meet customer requirements, integrate well, be user-friendly and comply with standards. It should also demonstrate robustness and efficiency to ensure smooth operations without errors.

Introduction of agentic AI into AR: The cognitive capabilities of agentic AI, which mimic human intelligence, have been leveraged in the solution to read through huge practice instruction workbooks and documents, summarizing the logical next steps that need to be taken for the given claim.

Scope and model selection

AR encompasses various sub-processes including AR follow-up, denial management and appeals management. Due to the inherent complexity of denial management, which involves navigating through multiple scenarios and interpreting explanations of payment (EOPs) to determine subsequent actions, it was chosen for the proof of concept (POC).

It is simpler and more efficient to leverage a cloud provider's architecture for agentic AI support. After reviewing the agentic AI tools offered by AWS, Azure and Google, we decided to use the one with the simplest approach for building prototypes.

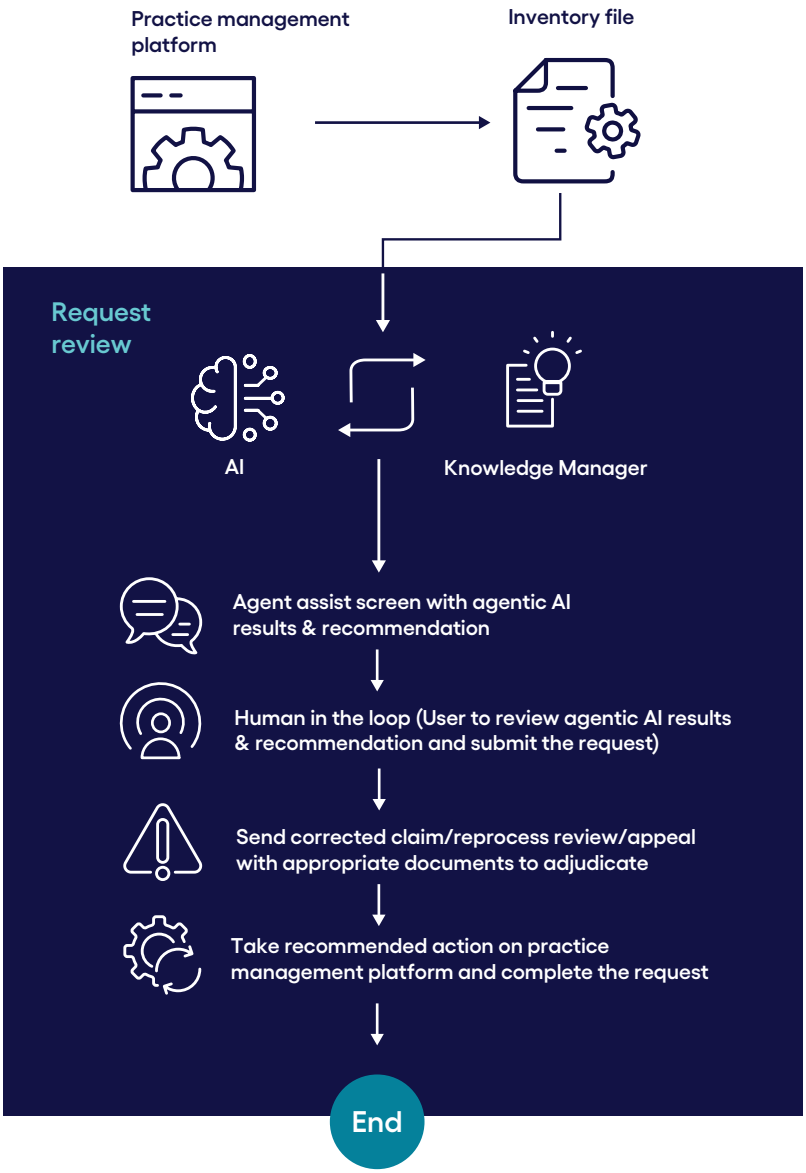
Data collection, preparation and ingestion

The project team downloaded the practice instructions, practice level information, process maps and claim notes from the practice platform. The team compiled the details and shared them with the solutioning team. They prepared different scenarios from the specific denial types to ensure that edge cases and rare events were included as part of the historical data, enhancing the accuracy and robustness of the model.

Customized model creation

We leveraged prompt engineering to extract relevant information from the practice instructions, and the pertinent data was used for the downstream processing of claims. Using input data and established rules, an expected output template was provided for agentic AI POC validation. This template included a claim summary, denial name, sub-scenarios, response, subsequent suggestions, recommended action and standardized note.

Agentic AI-enabled process



POC model evaluation

Live examples from top denials—such as coding denial, timely filing limit expired and authorization missing or invalid—were used. An input sheet, with initial details from the inventory report and other key information from the practice management (PM) platform, was created for analysis and final action. This included CPT level details, ERA / EOB details, historical user comments and actions from PM for each claim, shared in an excel template for use in a agentic AI model POC.

The initial test showed that all example tests returned the correct initial and subsequent response code and the right sub-scenario from the rulebook.

Conclusion

This agentic AI based solution targets the rising denial rates and slow reimbursements by automating complex AR processes, particularly denial management. The successful POC, focused on interpreting EOBs and CARC / RARC codes, demonstrated its ability to accurately extract denial-specific data and provide actionable recommendations, significantly reducing manual effort.

This innovation promises to streamline denial resolution and overall RCM, thus enhancing operational efficiency for healthcare providers.

Impact and benefits

The future state aims to integrate agentic AI to automate AR processes such as denial management, appeals creation, claim status retrieval and patient billing. This integration is expected to reduce service costs by 20-25%, decrease manual interactions by ~20% and improve collection accuracy and time-to-collect metrics. It would offer benefits to providers and hospitals currently experiencing issues with these metrics.

These advancements are particularly important for facilities handling high volumes of claims and denials, as they can lead to improved operational sustainability and cashflow.

About the authors

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Debojyoti Hazra is a visionary Transformation Leader with over two decades of experience spearheading digital roadmaps, AI-driven innovation, and enterprise-wide technology strategies. As the Head of Innovation & Transformation for Healthcare IOA at Cognizant, a role he has held since 2014, he has been at the forefront of AI-driven advancements, with a particular emphasis on agentic AI within the healthcare sector. He currently drives Process Excellence, Automation, and Analytics, with a keen focus on agentic AI applications across the payer and provider lifecycle. His proven expertise in leveraging AI, Analytics, and intelligent automation has delivered over $500 million in savings for global enterprises, including $150 million through operational efficiency programs that optimized over 7,000 FTEs. Notably, he has engineered AI-powered customer experience enhancements, achieving a 30% increase in member retention. He was the program owner of driving Process Mining across IOA, leading to significant business insights and identification of large transformation projects. A strategic collaborator, he forges key partnerships with Fortune 100 technology leaders to foster co-innovation. He is also the author of a handbook on BOT resumes, facilitating the rapid adoption of robotics.

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Manab is a seasoned leader with over two decades of experience driving digital innovation and solutions within Cognizant's Healthcare IOA. Specializing in revenue cycle management, he excels at developing and implementing transformative strategies that yield significant operational enhancements and cost savings. His expertise encompasses business transformation, digitalization, Lean Six Sigma, and process optimization, enabling him to address complex business challenges with strategic foresight. Manab's proven ability to integrate technology, such as automation, agentic AI, AI, and process mining, with deep domain knowledge in US health plans, providers, finance and accounting, empowers him to establish robust performance metrics and cultivate high-performing teams.

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