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Revolutionizing claims adjudication using Agentic AI
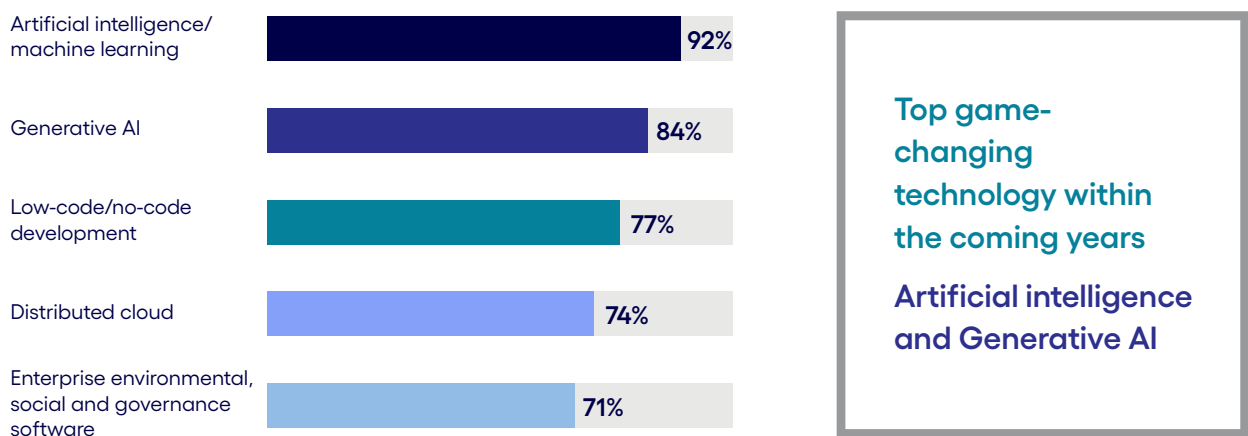
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Executive summary

The US healthcare industry is grappling with rising inflation and labor costs, compelling CIOs, IT leaders and business professionals to pursue cost reductions and efficiency enhancements. This challenging environment has spurred innovation, with Generative AI emerging as a pivotal disruptor. The 2024 Gartner report on top technology investments highlights that AI/ML will become a top priority by 2026, with 84% of respondents recognizing Generative AI as a transformative force within the coming years.

Which technologies are most likely to be implemented by 2026

Technology	Percentage
Artificial intelligence/machine learning	92%
Generative AI	84%
Low-code/no-code development	77%
Distributed cloud	74%
Enterprise environmental, social and governance software	71%

Top game-changing technology within the coming years

Artificial intelligence and Generative AI

Source: 2024 Gartner report on top technology investments and objectives for healthcare payers

While the integration of Generative AI presents risks such as increased cybersecurity threats and ethical dilemmas, our comprehensive strategy ensures innovation is balanced with robust safeguards. This white paper details a nuanced approach to incorporating Generative AI in claims adjudication, addressing the associated risks and mitigation strategies.

Introduction

Global CEOs are making Generative AI a top investment priority. In 2023, a survey was conducted by KPMG, encompassing 1,325 C-suite leaders from 11 countries across 11 industries that include asset management, automotive, banking, consumer and retail, energy, infrastructure, insurance, life sciences, manufacturing, technology and telecommunications. Each of these companies has more than US$500 million in annual revenue. The survey results show that 70% of companies are investing heavily in Generative AI—to ensure having a competitive edge in the future. At least 52% expect to see a return on investment (ROI) in one to three years. In fact, increased profitability was cited by 22% of respondents as the primary advantage of adopting Generative AI within the company.

While global CEOs are willing to go ahead and make investments in Generative AI, they also recognize the need to address risks that come with Generative AI. While 82% of respondents believe that Generative AI has heightened cybersecurity risks by enabling new methods for intruders or malicious entities to launch attack, 57% cited ethical challenges as the top concern, followed closely by a lack of regulation and integration complexity.

CEOs perspective on Generative AI

70%

Generative AI is their top investment priority

57%

Ethical challenges are the number one concern when it comes to implementing Generative AI

82%

AI may provide new attack strategies for adversaries

Source: 2023 KPMG survey

As we address the concerns raised by global CEOs, it is important to understand what Generative AI is and how we can reduce upfront investments in Generative AI.

Generative AI is a type of artificial intelligence technology that uses pre-trained large language models (LLMs) that can produce several types of content, including text, imagery, audio, and code or synthetic data. LLMs use the transformer architecture, a type of neural network, which has two components—an encoder and a decoder. The encoder takes the input data, extracts meaning and context from the data and passes it on to the decoder, which then generates the output.

Cognizant has partnered with Amazon, Microsoft and Google to leverage their cloud computing platforms, which have inbuilt foundational models. These platforms provide additional features to develop custom models. In addition, leveraging open-source AI frameworks and libraries such as LangChain and Hugging Face Transformers can significantly reduce development and licensing costs.

Cognizant has already identified specific use cases across industries and in various stages of deployment. To accelerate our mission on Agentic AI, Cognizant has invested significantly in upskilling its existing workforce. Also, to mitigate data privacy and security risks associated with Agentic AI, Cognizant has adopted a comprehensive strategy that balances innovation with robust safeguards.
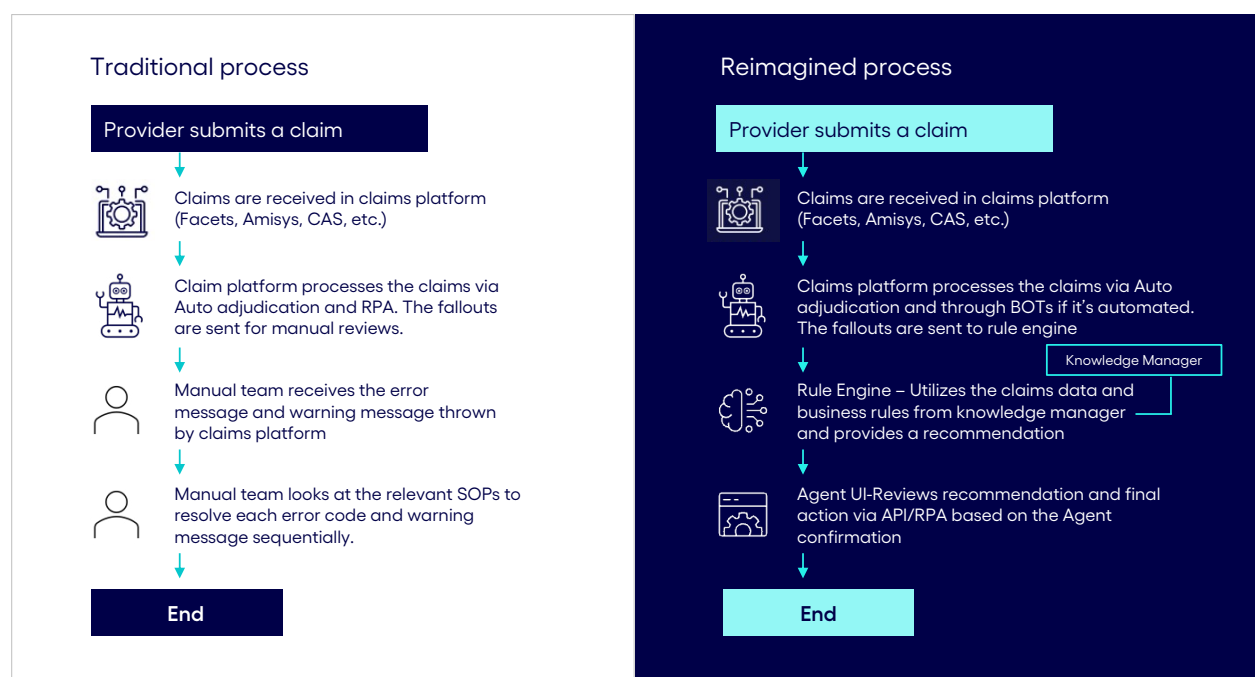
The challenge: Rising cost and complexity of claims management

According to the American Medical Association (AMA), the US healthcare industry loses approximately US$210 billion annually due to inefficient claims processing. Organizations incur this cost despite implementing robust claims adjudication platforms, which feature high percentages of auto-adjudication, because many claims still fall out for manual review. This trend reflects our experience where we have implemented automation for medium-complex and high-volume pends, but a significant number of claims (15%–20%) still require manual adjudication due to the complexity, unstructured data, frequency of process changes and intricacy in decision-making.

Our solution

To transform healthcare claims processing, Cognizant has developed an innovative, platform-agnostic framework powered by Agentic AI. Our solution streamlines the handling of claims that fall out of an organization's auto adjudication platform. First, APIs (Application Programming Interfaces) are utilized to extract claims data and route it to a rule engine that leverages large language models (LLMs) to digitize tacit knowledge and pend code guidelines. Then, Agentic AI analyzes unstructured claims data, applies complex business rules, and makes adjudication decisions, which are subject to human validation where necessary, via an intuitive interface. Next, the final resolution—whether Pay, Deny, or Pend—is ingested back into the adjudication platform through APIs. Finally, an in-house, end-to-end workflow management tool further enhances operational efficiency with robust user management, inventory control, and comprehensive reporting dashboards. Throughout the process, our solution is designed to ensure personal health information remains protected and confined within our client's environment.

A high-level view of our detailed solution architecture

Traditional process

Provider submits a claim

Claims are received in claims platform (Facets, Amisys, CAS, etc.)

Claim platform processes the claims via Auto adjudication and RPA. The fallouts are sent for manual reviews.

Manual team receives the error message and warning message thrown by claims platform

Manual team looks at the relevant SOPs to resolve each error code and warning message sequentially.

End

Reimagined process

Provider submits a claim

Claims are received in claims platform (Facets, Amisys, CAS, etc.)

Claims platform processes the claims via Auto adjudication and through BOTs if it's automated. The fallouts are sent to rule engine

Knowledge Manager

Rule Engine – Utilizes the claims data and business rules from knowledge manager and provides a recommendation

Agent UI-Reviews recommendation and final action via API/RPA based on the Agent confirmation

End

Cognizant's Agentic AI based solution has four core components designed to streamline claims processing and enhance accuracy.

Intelligent user interface:

The intuitive interface provides a comprehensive view for manual reviewers. It displays extracted data fields, business rules, processing guidelines and AI-generated recommendations, all within a single screen. For each rule, the interface outlines the outcome, explanatory remarks and proposed actions. Reviewers can efficiently verify, modify and finalize claims.

Agentic AI-powered decision engine:

Leveraging LLMs, our Agentic AI service is designed to capture the nuanced knowledge embedded within complex pend code guidelines. Through prompt engineering, it extracts relevant information from the knowledge repository to make smarter decisions aimed at significantly improving efficiency and reducing manual errors. This intelligent system is designed to learn and adapt – enhancing accuracy over time with continuous refinement of LLMs through supervised learning and improved accuracy and effectiveness of the Agentic AI with every interaction.

Streamlined workflow management:

Our end-to-end workflow is designed to optimize operational efficiency across the entire claims process. It features solutions for robust inventory management, user administration and comprehensive reporting. The workflow facilitates seamless handoffs, monitors service level agreements and tracks claim aging. By integrating these functionalities, we strive to continuously improve accountability and transparency, bridging the gap between the AI interface and other components.

Automated action execution via API:

The system employs APIs for seamless interaction between the Agentic AI solution and core platform to take actions, such as "pay," "deny" or "pend," based on the recommendations.

Automated testing framework:

POC model evaluation

The proof of concept (POC) was conducted to validate the efficacy and potential transformative impact of the solution within a controlled and meticulously designed environment. A collaborative team, comprising Agentic AI experts and subject matter experts (SMEs), applied predefined criteria to comprehensively assess the solution's feasibility. To ensure a representative evaluation, top edit codes, selected based on volume and complexity, were utilized for the POC. Comprehensive documentation, including standard operating procedures (SOPs), claims data, expected outputs and reference files, were provided for the edit codes. Leveraging these resources, the Agentic AI solution successfully generated recommendations and rule checklists, enabling agent navigation and validation, as per the established SOPs. Iterative feedback cycles, with a specific focus on refining the rule engine was instrumental in demonstrating measurable improvements within the POC's defined parameters. We are pleased to report that the POC achieved 100% accuracy, confirming the solution's potential to significantly enhance the claims adjudication process.

Conclusion

This paper outlines Cognizant's strategic application of Agentic AI to streamline claims adjudication across diverse platforms. Our platform-agnostic solution employs a robust methodology encompassing comprehensive data analysis, meticulous preprocessing, sophisticated prompt engineering and targeted fine-tuning. This approach enables the model to systematically evaluate and finalize claims decisions (pay, deny or pend) while maintaining essential human oversight for validation. The resulting increase in auto-adjudication rates yields significant improvements in productivity and cost reduction. A key advantage of this solution lies in its scalability across multiple platforms and its replicability across various health plans. Furthermore, its inherent nimbleness facilitates rapid implementation compared to traditional methods. Building upon the success of this model, Cognizant aims to expand its Agentic AI footprint within the claims business, developing innovative solutions for claims adjustments and payments.

About the authors

Debojyoti Hazra

Global Transformation Leader, Healthcare IOA

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.

Mohamed Abdul Sattar

Director, Process Excellence, Healthcare IOA

Mohamed Abdul Sattar is a Transformation Leader within Cognizant's Healthcare IOA business unit, specializing in the development and implementation of transformative solutions for Business Process as a Service (BPaaS) clients. With over 20 years of experience, including more than eight years at Cognizant, he has consistently delivered innovative solutions that drive significant operational improvements. Notably, he has spearheaded the integration of robotic process automation (RPA), achieving a 12-15% increase in Auto Adjudication (AA) rates and a 35-40% reduction in manual effort. His leadership has been instrumental in executing high-impact projects, such as claims interest reduction, overpayment reduction, and premium recoupment, generating benefits exceeding $25 million for health plans. He has also co-developed advanced analytics models, including the Interceptor, to proactively identify claims with a high propensity for interest generation. He currently focuses on leveraging Agentic AI across claims processing, contact center operations, and provider file management to enhance efficiency and improve member experience.

Guruprasad K

General Manager, Business Transformation, Healthcare IOA

Guruprasad is a Transformation leader with over 20 years of experience who is currently spearheading the Agentic AI program management and solutions within Cognizant's Healthcare IOA business unit. His expertise lies in developing and implementing transformative solutions for complex organizations and operations, driving significant operational improvements and savings. During his extensive career, Guruprasad has been instrumental in leveraging Business Transformation, Digitalization, Lean Six Sigma methodologies and process efficiencies to address critical business problems. His strategic thinking allows him to see the bigger picture of processes and technology, enabling him to develop key performance indicators and establish a culture of empowerment within teams. His specialized knowledge spans multiple domains, including U.S. Health Plans, Healthcare Providers and FIS, alongside gaining deep expertise in Automation / Robotics, Agentic AI / AI, Project Management and Analytics. In his previous role, Guruprasad was leading process and business transformation for numerous health plan customers through the strategic application of intelligent automation and AI solutions.

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World Headquarters

300 Frank W. Burr Blvd.
Suite 36, 6th Floor
Teaneck, NJ 07666 USA
Phone: +1 201 801 0233
Fax: +1 201 801 0243
Toll Free: +1 888 937 3277

European Headquarters

280 Bishopsgate
London
EC2M 4RB
England
Tel: +44 (01) 020 7297 7600

India Operations Headquarters

5/535, Okkiam Thoraipakkam,
Old Mahabalipuram Road,
Chennai 600 096
Tel: 1-800-208-6999
Fax: +91 (01) 44 4209 6060

APAC Headquarters

1 Fusionopolis Link, Level 5
NEXUS@One-North, North Tower
Singapore 138542
Tel: +65 6812 4000

WF3406050