

Generative AI for Healthcare

Enhance revenue, boost efficiency and mitigate risk with Generative AI curated for healthcare industry needs.



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Gen AI Expected to Boost Healthcare Revenue by 1.8% - 2.8% Through Enhanced Productivity

The healthcare industry is witnessing the emergence of Gen AI with a mix of excitement and apprehension, as it promises to unlock a portion of the unrealized \$1 trillion improvement potential within the sector. With a projected market size of USD 21 billion by 2032 and a 35% CAGR growth over the next decade, Gen AI's impact is expected to contribute 1.8% to 2.8% of the industry's total revenue through increased productivity.

While healthcare businesses have utilized AI technology for years, Gen AI represents a significant advancement, capable of automating tedious operational tasks and modernizing health system infrastructure. However, integrating these models into existing analytics and AI roadmaps comes with risks, particularly regarding data security and the potential for incorrect responses.

In healthcare, where patient information is highly sensitive, maintaining data security is paramount, and human in the loop is necessary to ensure the beneficial use of Gen AI suggestions. As regulatory frameworks evolve, the responsibility for safe and ethical use will fall on users.

This eBook outlines emerging use cases for Gen AI in healthcare, with many organizations initially focusing on administrative and operational applications due to their feasibility and lower risk profiles. By carefully navigating these challenges and opportunities, healthcare executives can harness the transformative potential of Gen AI to drive efficiency and innovation in the industry.

The Making of a Generative Healthcare Enterprise

GenAI has the potential to offer a wide range of use cases and applications in the healthcare industry.

Omnichannel Patient and Member Engagement

In Primary Consultation, Gen AI can revolutionize the patient experience by deploying chatbots capable of swiftly analyzing symptoms and suggesting suitable diagnoses and nearby clinics. This not only accelerates the consultation process but also boosts patient acquisition for follow-up appointments with doctors. Through expedited consultations, patient satisfaction rises, enhancing overall healthcare service quality.

As a Care Assistant, Gen AI facilitates seamless tracking of follow-up actions prescribed by doctors during consultations. It enables the provision of real-time, personalized care to patients based on their evolving conditions, thereby enhancing the efficiency of nurses and support staff. By optimizing care delivery, Gen AI contributes to improved health outcomes, ensuring patients receive tailored attention and interventions precisely when needed.

In Marketing & Sales, Gen AI utilizes patients' EHRs and past interactions to deliver personalized medical plans, healthcare offers, and policy recommendations. This not only reduces patient acquisition costs for hospitals and clinics but also amplifies impressions and reach through personalized communication strategies. By leveraging patient data intelligently, Gen AI enhances marketing effectiveness while fostering stronger patient-provider relationships.

Through Patient Data Analysis & Summary, Gen AI consolidates fragmented healthcare records and analyzes consultations and treatment information. By providing comprehensive care notes based on patient conditions and treatment history post-discharge, it helps healthcare professionals make informed decisions efficiently. This leads to higher productivity among doctors and nurses, who can focus more on core clinical tasks rather than administrative burdens. The lower error rates in follow-up diagnosis contribute to enhanced patient safety and care quality.

- **Primary Consultation**
- **Care Assistant**
- **Marketing & Sales**
- **Patient Data Analysis**

Provider Management – Pharma

Gen AI offers transformative solutions in provider management for pharmaceuticals across various critical functions. In Compound Generation, it expedites the identification of potential drug compounds by enhancing target validation, thereby reducing time-to-market and lowering the costs associated with compound identification.

In Virtual Interaction, Gen AI simulates molecular interactions between compounds and target diseases, leading to reduced cycle times between clinical trial phases and increased success rates for candidate drugs.

Furthermore, in Candidate Screening, Gen AI automates the selection of trial participants with specific traits from a pool of potential candidates. This reduces the time needed for participant selection while ensuring higher uniformity and equitable representation among participants.

Gen AI also streamlines Data Integration & Presentation by collating data from multiple clinical trials, providing recommendations, and creating visual aids for board reviews. This enhances research scientists' productivity and leads to higher approval rates between different trial phases.

In Compliance, Gen AI assists research scientists with Q&A support on drug safety standards and performs gap analysis of necessary regulations. This ensures higher compliance with drug quality and efficacy standards, promoting adherence to drug manufacturing processes and security standards.

- **Compound Generation**
- **Virtual Interaction**
- **Candidate Screening**
- **Data Integration & Presentation**
- **Compliance**

Provider Management – Clinical

In Onboarding Assistant, Gen AI streamlines patient intake processes by summarizing electronic health records (EHRs), analyzing symptoms, and automating tasks such as room allocation and form completion. This results in reduced emergency department (ED) wait times and overall onboarding duration, contributing to higher patient satisfaction scores and improved operational efficiency.

Continuous Monitoring sees Gen AI leveraging wearable device data to track vital signs, alert doctors of potential issues, and monitor medication adherence and follow-up diagnoses. This fosters higher patient compliance with medical recommendations, leading to increased health outcomes post-operation or consultation through timely interventions and treatment adjustments.

In Smart Buddy, Gen AI creates educational resources, offers Q&A sessions in patients' native languages, and communicates instructions to dependents effectively. This enhances the productivity of doctors and healthcare providers while reducing medication administration errors and ensuring greater oversight in care delivery.

EHR Management sees Gen AI automatically updating electronic health records based on diagnoses and treatments, providing timely updates to healthcare professionals and dependents. This boosts productivity by streamlining documentation processes, reducing patient diagnosis time, and minimizing error rates in medical records.

Gen AI supports Back-Office Operations by assisting in non-clinical tasks such as HR support and financial record management. By optimizing staffing ratios between patients and healthcare providers, Gen AI enhances operational efficiency and increases the productivity of the administration team, ensuring smoother healthcare delivery.

- **Onboarding Assistant**
- **Continuous Monitoring**
- **Smart Buddy**
- **EHR Management**
- **Back-Office Operations**

Healthcare Insurance

Gen AI automates prior authorization by directly integrating into healthcare workflows for real-time orchestration. This helps reduce time taken for prior authorization resulting in faster access to care as well as reduced errors & denials. Automating prior authorization of medical procedures also enables price transparency and interoperability between healthcare providers, payers, and patients to enhance patient engagement.

Fraud Detection & Analysis sees Gen AI employing advanced algorithms to verify medical records and flag claims with a high likelihood of fraud. By sending accurate alert rates to Special Investigation Unit (SIU) teams, Gen AI facilitates faster conversions and processing of alerts, thereby minimizing financial losses due to fraudulent claims and safeguarding the integrity of insurance operations.

Smart Claims Buddy utilizes Gen AI to provide timely updates, answer queries, and address complaints from policyholders regarding filed claims. This enhances policyholder satisfaction rates and ensures faster resolution of queries and complaints, improving overall customer experience in healthcare insurance.

In Medical Claim Adjudicator Assistant, Gen AI offers Q&A support, summarization of cases, and retrieval of relevant past cases for pricing negotiation, streamlining the work of claims processing adjudicators. This results in higher productivity, accurate reimbursement rates, and lower costs incurred by providers, ultimately optimizing the claims adjudication process and improving financial outcomes for both insurers and healthcare providers.

- **Electronic Prior Authorization**
- **Fraud Detection & Analysis**
- **Smart Claims Buddy**
- **Medical Claim Adjudicator Assistant**



Care Management

In Smart Connect, Gen AI plays a pivotal role in efficiently mapping patient symptoms to appropriate diseases or conditions and connecting them with available doctors. By providing summarization and tracking functionalities, Gen AI reduces patient wait times for consultations, leading to increased patient satisfaction scores and ensuring timely access to healthcare services.

For Personalized Care Plan, Gen AI curates customized care programs for each patient based on their specific issues, traits, and diseases. Continuous monitoring allows for the prediction of adverse effects, leading to lower post-operative complications and reduced adverse drug effects. This tailored approach contributes to a decrease in incident rates and fosters better patient outcomes.

In Telehealth, Gen AI-driven tools like Chatbots and virtual health assistants enable synchronous telecare via mobile integrations and teleconferencing, fostering customer engagement, providing real-time policyholder insights, and advancing health equity.

Smart Nurse utilizes Gen AI to summarize doctors' post-operative messages and instructions for dependents, offering Q&A functionality using language models. This enhances the productivity of healthcare professionals and accelerates the speed to therapy, from prescription to drug intake, ultimately improving patient care and treatment outcomes.

In Coordination & Documentation, Gen AI summarizes EHRs, discharge instructions, and individual conditions for follow-up physicians and clinicians. This reduces diagnosis error rates and enhances the quality of follow-up consultations, resulting in improved health outcomes for patients and a smoother continuum of care.

- **Smart Connect**
- **Personalized Care Plan**
- **Telehealth**
- **Smart Nurse**
- **Coordination & Documentation**

Contact Centre:

- **Cognitive Search:** Facilitating semantic search for customer queries against the content management system.
- **Conversational AI:** Deploying omni-channel digital customer service representatives to reduce wait times and efficiently manage customer calls.
- **Email Intelligence:** Utilizing intelligence to identify, classify, and extract entities from emails.
- **Digital Human:** Enhancing customer interactions through hyper-personalization, facial recognition, and emotional intelligence via avatars.
- **Smarter Bots:** Leveraging RPA, transcription, translation, object detection, and intelligent document scanning services for improved efficiency and effectiveness.
- **Text Summarization:** Condenses lengthy customer queries or documents into concise summaries, facilitating quicker understanding and response.
- **Sentiment Analytics:** Analyzes customer interactions to gauge sentiment, helping in understanding customer satisfaction levels and sentiment trends.
- **Speech Analytics:** Utilizes speech recognition to transcribe and analyze calls, extracting valuable insights for improving service quality.
- **Automated Alerting:** Automatically identifies and alerts on critical issues or anomalies in customer interactions, enabling proactive resolution.
- **Rule-based Monitoring:** Implements predefined rules to monitor and flag specific patterns or behaviors in customer interactions, ensuring compliance and quality assurance.
- **Issue Classification:** Automatically categorizes customer queries or complaints into predefined categories, streamlining issue resolution processes.
- **Root Cause Analysis:** Identifies underlying reasons for recurring issues or trends in customer interactions, aiding in targeted problem resolution.
- **Self-Service Analytics:** Empowers customers with analytics tools to access and analyze their own healthcare data, promoting self-management and informed decision-making.
- **CSR Performance Analytics:** Evaluates the performance of customer service representatives (CSRs) based on various metrics, guiding training and improvement efforts.
- **Caller Segmentation:** Segments callers (patients, providers, insurers) based on various attributes, enabling personalized service and targeted communication strategies.
- **Call Metrics:** Tracks and analyzes key call metrics (e.g., duration, frequency, resolution time) to optimize resource allocation and improve operational efficiency.
- **Product Recommendation:** Utilizes customer data and preferences to recommend relevant healthcare products or services during interactions, enhancing cross-selling and upselling opportunities.
- **Call Volume Forecasting:** Predicts call volume patterns based on historical data and external factors, enabling proactive staffing and resource allocation.
- **Customer Call Intent Prediction:** Anticipates customer intent during calls to personalize interactions and preemptively address customer needs.
- **Agent Churn Prediction:** Identifies factors contributing to agent turnover and predicts which agents are at risk of leaving, enabling proactive retention strategies.
- **CSR Productivity Prediction:** Predicts the productivity levels of CSRs based on various factors, optimizing workforce management and performance.
- **Smart Call Routing:** Routes incoming calls to the most appropriate CSR based on caller information, call history, and predicted call intent, ensuring efficient handling and customer satisfaction.

Healthcare companies have a significant opportunity in leveraging Generative AI across patient and member experience, provider management, health insurance, care management and contact centre. We at Brillio help you assess your readiness with our proprietary Generative AI Readiness index across various dimensions such as strategy, data quality, adoption, governance, LLMOps and CVOps and identify gaps to attain the desired state. We help bridge the gaps identified with a team of cross-skilled professionals that consists of Solution Consultants, Data Scientist, Prompt Engineer, Responsible AI Consultant, Generative AI Ethics Officer, Generative AI and Human Coordinator and Generative AI Bias Detective. Our solution has governance baked in with the principles of Justness, Transparency, Privacy, Compliance, Grounding and Evaluation coupled with domain specific cognizance & validation of Legal, Regulations, Ethics and Policies provide a full coverage. At the end of it all, you get to enjoy faster time to market with our domain-specific technology accelerators for data understanding, model exploration and management.

Connect with us for a readiness assessment.

ABOUT BRILLIO

At Brillio, our customers are at the heart of everything we do. We were founded on the philosophy that to be great at something, you need to be unreasonably focused. That's why we are relentless about delivering the technology-enabled solutions our customers need to thrive in today's digital economy. Simply put, we help our customers accelerate what matters to their business by leveraging our expertise in agile engineering to bring human-centric products to market at warp speed. Born in the digital age, we embrace the four superpowers of technology, enabling our customers to not only improve their current performance but to rethink their business in entirely new ways. Headquartered in Silicon Valley, Brillio has exceptional employees worldwide and is trusted by hundreds of Fortune 2000 organizations across the globe.



<https://www.brillio.com/>

Contact Us: info@brillio.com