

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 4, Issue 1, March 2024

Enhancing Banking Chatbot Experience through Hybrid Conversational-Generative AI Approaches

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Abstract: In today's digital age, chatbots have become an integral part of the banking industry, offering customers quick and efficient assistance. However, to meet the growing demands of customers and provide a seamless user experience, banking chatbots are evolving beyond rule-based systems. Traditional rulebased chatbots often fall short in handling complex queries and delivering personalized responses. This research proposal outlines a study aimed at enhancing the banking chatbot experience through the hybrid conversational-generative AI approaches.

The primary focus of this research is to combine the strengths of conversational AI, which excels in understanding and generating natural language responses, with generative AI, capable of generating creative and context-aware responses. By merging these two AI paradigms, banking chatbots can provide more human-like interactions, understand complex queries, and offer personalized responses.

Keywords: chatbots, conversational AI, natural language, generative AI, hybrid AI

I. INTRODUCTION

Over recent decades, AI has undergone a rapid expansion, becoming an indispensable asset across various industries. Financial institutions deal with millions of transactions each day. Manual processing leads to errors and delays, which can be costly for the bank and its customers. To improve their speed while keeping the high quality of their services, banks must incorporate artificial intelligence automation and combine it with the human touch and expertise. The evolution of Artificial Intelligence architectures, such as Generative AI, Conversational AI, and Hybrid AI, has triggered a profound transformation in traditional corporate practices, fostering heightened efficiency, adaptability, and productivity. Al's pioneering architectures are reshaping the world. There are three pivotal advancements in AI: Generative AI, Conversational AI, and Hybrid AI. Generative AI unleashes machine creativity, enabling the generation of lifelike art, videos, and captivating narratives. Conversational AI bridges the gap toward human-like interactions, empowering chatbots and virtual assistants to understand and respond to our queries and emotions. Finally, Hybrid AI amalgamates diverse AI methodologies, offering robust and flexible solutions to intricate problems.

1.1 Banking Chatbots

A chatbot is a computer program that simulates human conversation through text or voice commands. More advanced bots can use natural language processing (NLP) to understand and respond to customer queries and machine learning algorithms to learn from previous interactions and improve their responses over time.

Chatbots can transform the banking industry by providing a personalized customer experience while helping banks manage and process transactions more efficiently. AI conversational agents can handle up to 80% of routine customer support tasks, such as answering account balance inquiries or transaction history requests.

1.2 Types of Chatbots

There are mainly two types of chatbots: Rule-based and self-learning (intelligent chatbots)

- Rule-based chatbots: They use a set of pre-defined rules to understand and respond to user input. These rules specify the exact phrases or keywords that the chatbot should look for and how it should respond to them. These are very limited in their understanding as well as their functionality.
- Self-learning chatbots: These chatbots use machine learning algorithms to learn from interactions with users and improve their responses over time. They can handle a wider range of inputs and may be able to understand

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natural language. Popularly known as intelligent virtual assistants, these chatbots uses NLP and machine learning algorithms to understand and respond to user input. They can learn from interactions with users and improve their responses over time. With platforms like kore.ai and the recent advent of Large Language Models and Generative AI technology, they need minimal to no training to get started and they can be very sophisticated in their responses.

In both cases, when a user interacts with the chatbot, the user's input is analysed and processed, and a response is generated and sent back to the user. The chatbot may also access external databases or APIs to gather additional information to provide a more complete response to the user. Some other forms of chatbots are mentioned below:

- **Hybrid chatbots:** These chatbots combine features of both rule-based and self-learning chatbots, using a combination of predefined rules and machine-learning algorithms to respond to user inputs.
- **Voice chatbots:** These chatbots are designed to work with voice commands and dialogue. They are typically used in smart devices, home automation, and even at contact centers.

1.3 Different AI Model

- Conversational AI: Conversational AI facilitates natural interactions between humans and machines, powering technologies like chatbots and virtual assistants such as Alexa and Siri. It leverages natural language processing and machine learning to understand and respond to human language, continually refining its responses through interaction and learning. By analyzing language structures and processing data through neural networks, Conversational AI models decode user input, understand context, and generate suitable responses. Notable examples like OpenAI's GPT-3 showcase its proficiency in various tasks, from customer service to crafting complex content like legal documents.
- Generative AI: Generative AI empowers users to create new content using machine learning algorithms and trained data, spanning text, images, sounds, and animations. Utilizing deep learning and neural networks, it identifies patterns in training data to generate novel outputs, incorporating diverse learning methods like supervised learning for content accuracy. Foundation models like GPT-4 and PaLM2 serve as core AI systems for tasks such as text translation, content creation, and image analysis, boasting adaptability and versatility across various applications. Examples of popular generative AI applications include ChatGPT, Google Bard and Jasper AI
- Hybrid AI: A hybrid model of conversational AI and generative AI chatbot in banking merges two AI models
 to enhance efficiency, cost-effectiveness, and customer service. Conversational AI understands natural
 language, while generative AI quickly generates content in various formats. This combination delivers a more
 personalized customer experience, boosting satisfaction and loyalty.

Hybrid AI's strength lies in merging rule-based systems' precision with machine learning's flexibility, impacting diverse industries. Its integration with no-code platforms democratizes AI, empowering individuals innovate effortlessly across sectors. For Example, in finance, companies like ZestFinance leverage Hybrid AI to assess loan applications while adhering to regulations, reducing risks and biases in decision-making. This blend of advanced AI capabilities reshapes industries by democratizing AI and driving innovation without coding expertise.

II. METHODOLOGY

Exhaustive literature review & a plethora of research papers were studied to understand the functioning, use cases, implementations, challenges, and aligned issues around Hybrid chatbots model in general and the BFSI sector. Apart from that, emphasis was given to getting the primary information from the market.

III. LITERATURE REVIEW

In their 2023 paper, "A Theoretical Review of Generative Artificial Intelligence towards Digital Disruption in All Walks of Life," Mondal, Das, and Vrana emphasized Generative Artificial Intelligence (GAI) as a transformative force in bridging the real and digital worlds for businesses. They highlighted its increasing influence across academia, research, and industry, citing examples like ChatGPT and Bard AI. The research discusses academia conomic impacts, recommending businesses adapt strategies for hybrid experiences to offer personalized customer experiences.

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Volume 4, Issue 1, March 2024

However, challenges such as errors in learning and content filters persist, along with debates about ownership and ethical concerns.

Another study, "Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy," gathered insights from 43 experts on tools like ChatGPT, highlighting their potential across industries but also raising concerns about privacy, biases, and misinformation. Despite these challenges, experts suggest more research to understand AI's implications, manage digital changes, and address ethical concerns. Additionally, studies by Haleem, Javaid, Singh, and Ali & Aysan delve into ChatGPT's emergence and its potential in diverse sectors like support systems in academia, financial services, and beyond, emphasizing the need for ethical frameworks and robust data integration for its transformative impact.

IV. RESULTS AND DISCUSSION

4.1 The key findings from the secondary data collected from market research reports and surveys

- The generative AI market is expected to grow substantially, from \$43.87 billion in 2023 with a projected CAGR of 47.5% from 2023 to 2030, reaching \$667.96 billion by 2030.
- The market for generative AI in chatbots is projected to reach USD 1,224 million by 2032, driven by personalized experiences and efficient customer support.
- Cloud-based deployment dominates, and the customer service segment anticipates the highest CAGR.
- The customer services market is expected to grow at a rate of 25.11% during 2023-2032, with North America leading in revenue.
- The marketing segment is forecasted to grow from USD 1.98 billion in 2022 to USD 22.02 billion by 2030, driven by demand for effective customer service and personalized experiences.
- North America is anticipated to lead the market, with Europe and Asia Pacific showing significant growth potential. Major players include IBM, Microsoft, Google LLC, Adobe, AWS, and SAP SE.
- McKinsey's economic potential report adds a broader perspective, estimating generative AI's annual
 contribution to be between \$2.6 trillion to \$4.4 trillion. It highlights major value in customer operations,
 marketing, software engineering, and R&D across various industries, with significant potential in banking,
 high tech, and life science with potential value in banking reaching \$200 billion to \$340 billion annually.
- The unique attributes of the banking sector position it as an ideal environment for integrating generative AI, driven by ongoing digitization efforts, a substantial customer-facing staff and strict regulatory mandates. Pioneering institutions are embracing innovative solutions such as ChatGPT across various use cases, showcasing the sector's readiness for advanced AI integration.
- Challenges include data security concerns, unresolved projects, ethical considerations, integration complexity, regulatory uncertainty, and a lack of skilled talent.
- Continuous innovation and integration of generative AI across industries are expected, with persistent enthusiasm among decision-makers.

In essence, the generative AI market emerges as a frontrunner in technological progress, poised for substantial growth and economic impact across multiple sectors. Ongoing innovation and deliberate investments are reshaping industries, with AI driving transformative changes. While growth prospects are promising, it's imperative to tackle challenges effectively to foster trust, uphold ethical standards, and seamlessly integrate AI technologies across diverse industries.

4.2 Hybrid Model Integration

A hybrid model blending conversational AI and generative AI can significantly enhance the banking chatbot experience by offering more personalized, context-aware, and dynamic responses.

- Response Selection: The system dynamically selects responses based on the complexity and relevance of the
 query. If the query is straightforward, predefined responses might suffice. For complex queries, the generative
 model can generate more nuanced and detailed responses.
- Context Switching: The hybrid model seamlessly switches between predefined responses and generative Algenerated responses, ensuring a consistent and informative conversation.

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DOI: 10.48175/IJARSCT-15603

2581-9429

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- User Feedback Loop: The system collects user feedback to continuously improve the hybrid model's performance. Feedback helps refine both the conversational AI and generative AI components.
- Security and Compliance: Ensure that the hybrid model complies with banking regulations and security standards. This includes handling sensitive information securely and maintaining privacy standards throughout the conversation.
- Continuous Learning and Improvement: Periodically retrain both the conversational and generative AI
 components using updated data to enhance accuracy and relevance of information available.

An illustrative instance involves integrating ChatGPT with fintech or banking applications, thereby revolutionizing the sector with personalized customer service, operational efficiency, and cost savings. Leveraging machine learning, ChatGPT analyzes financial data to discern client needs, detect patterns, and craft customized solutions. It also aids in monitoring for fraudulent activity, risk identification, and necessary interventions. The training process encompasses data collection, model refinement via user feedback, and seamless integration with APIs and databases, ensuring precision, compliance, and security in fintech and banking applications.

For Example: ChatGPT Whatsapp Integration

Integrating WhatsApp chatbots with advanced technology like ChatGPT introduces a transformative opportunity in business interactions. With ChatGPT's capabilities, these chatbots become highly personalized and contextually proficient, harnessing its ability to generate diverse responses. A ChatGPT-powered WhatsApp chatbot utilizes OpenAI's GPT-3 or GPT-4 language model to engage users through the WhatsApp messaging platform, facilitated by the WhatsApp Business API for seamless message exchange. It provides personalized virtual assistants, investment advice, risk management and compliance, and life insurance underwriting. ChatGPT allows banks and financial institutions to serve their clients better and improve efficiency.

4.2 Advantages of Hybrid Model

- Data-Driven Personalization: The combination of conversational AI and generative AI enables tailored interactions, understanding nuanced customer needs, and providing personalized solutions in real-time.
- Leveraging historical behaviours to generate contextually relevant and personalized responses, thereby improving accuracy in comprehending queries and providing precise information.
- Dynamic Content Creation and Tailored Responses:Hybrid AI, fuelled by historical behaviour data, can
 dynamically create responses that align with a customer's preferences and previous interactions. For example,
 suggesting investment options based on previous inquiries or guiding through specific banking processes
 based on past behaviour.
- Versatility across Channels: Such a hybrid approach enables banking services to be accessible across various channels (text, voice, visual interfaces) while maintaining consistency and effectiveness.
- Seamless User Experience: A hybrid model merges the strengths of both approaches, allowing for smoother transitions between scripted responses and creative, context-aware conversations. This ensures a cohesive and engaging user experience. This can translate to long-term customer retention and loyalty.
- Continuous Learning and Improvement through feedback Loop Integration: The hybrid model allows for continuous learning and improvement by leveraging data from both structured and unstructured interactions, refining responses, and optimizing the overall system.

4.3 Challenges of Hybrid model

- Response Consistency and Coherence: Ensuring consistency in responses and user experience across both AI models can be challenging, especially when handling transitions between scripted and generative responses.
- Data Privacy and Security: Handling sensitive banking information through AI systems requires robust security measures to protect data and ensure compliance with privacy regulations.
- Ethical concerns: Ethical considerations arise due to potential biases, privacy breaches, and transparency challenges, prompting the need for addressing ethical concerns. Combining AI models may exacerbate

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- existing biases or introduce new biases in responses, demanding rigorous monitoring and mitigation strategies to ensure fairness and ethical use.
- Model Training and Adaptation: Training a hybrid model demands extensive datasets encompassing structured and unstructured data, which might be challenging to compile, annotate, and maintain, requiring substantial computational resources.
- Handling Ambiguity and Uncertainty: Generative AI introduces uncertainty due to its ability to produce novel responses, which could occasionally lead to incorrect or ambiguous answers, requiring robust validation mechanisms.
- Integration Complexity: Combining two different AI models requires intricate integration, potentially leading to technical complexities and compatibility issues between systems and frameworks. Compatibility issues and system integration complexities can pose challenges during AI integration with existing banking systems.
- High Implementation Cost: Implementing Conversational AI and integrating Generative AI involves higher upfront development costs due to complex technology and data integration. While traditional rule-based chatbots have lower initial and maintenance costs, they might lack adaptability and personalized interactions. The hybrid AI approach, though costlier upfront and in maintenance, offers greater adaptability, scalability, and potential long-term benefits in customer satisfaction and retention. The financial implications of implementing and maintaining the hybrid AI approach need to be weighed against the added value and competitive advantage it brings to the bank's customer service and overall user experience.
- Regulatory Compliance: Meeting data privacy and financial compliance standards is crucial to avoid legal and financial repercussions. Implementing and maintaining AI-powered systems in the banking sector require adherence to strict regulatory compliance standards and robust security measures, potentially adding to the overall cost.
- User Acceptance and Trust: Different users may hold diverse expectations and perceptions regarding the capabilities of AI systems, potentially resulting in dissatisfaction if the system consistently falls short of meeting their individual expectations.
- Maintenance and Upkeep: Managing and updating a hybrid AI system involves continuous monitoring, maintenance, and updates to adapt to evolving user needs, technological advancements, and security threats. Regular updates and maintenance costs might be higher due to the need for continual training, data management, and model refinement in both conversational and generative AI components.

4.4 Existing Use Cases of Hybrid Chatbot Adoption in BFSI

Tata Capital, a Tata Group financial services arm, has enhanced its chatbot, TIA, by integrating generative AI technology into it. This advancement aims to elevate customer engagement by providing seamless, context-aware assistance. Leveraging ChatGPT's capabilities, TIA now delivers personalized and immediate support, accessible via the mobile app and website. With generative AI, TIA can respond instantly in Hindi and Hinglish, expanding its reach. Initially offering voice-based solutions in 2019, TIA now incorporates speech recognition, natural language understanding, and text-to-speech technologies for a more intuitive user experience.

One Zero, an Israeli digital bank, is launching an innovative generative AI chatbot that swiftly addresses customer inquiries in a natural, conversational manner. Initially tested with 450 customers, it is set to be rolled out to the wider public in upcoming months. This chatbot, powered by AI21 Labs' LLM technology, offers instant replies and personalized money management guidance. Unlike traditional bots, it understands and responds to a wide range of inquiries, from simple account queries to complex financial analysis, using the bank's AI for tailored interactions. It prioritizes security by avoiding public cloud services for language models and intelligently interacts based on customer

Bank of America's AI-driven virtual financial assistant, Erica, debuted in 2018, transforming client engagement with more than 37 million assisted clients across 1.5 billion interactions. Originally a text-based chatbot, Erica now provides tailored financial guidance, conducts transactions, and facilitates voice and video intermetions, owered by natural

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language processing. This self-service approach guides clients while enabling staff to focus on intricate client requirements, and internal development minimizes expenses

and expedites market expansion into new areas. Continuous refinement driven by customer data enriches multiple facets of the business.

Anna, the creation of IBM, stands as a leading-edge conversational AI assistant fuelled by IBM Watson's advanced natural language processing and intelligent search functionalities. Embraced by ABN AMRO Bank customers, Anna efficiently handles around 500,000 interactions yearly, showcasing exceptional precision and a captivating persona. Utilizing a hybrid approach, this virtual agent seamlessly integrates text and voice input, intuitive navigation, and visual elements, fostering emotional connections, enhancing discoverability, reducing cognitive load, and ensuring usability across varied environments, thereby delivering a seamless user experience.

Bankbazaar Implemented Haptik's AI Chatbot to increase customer engagement and enhance customer reach. Haptik.ai is an enterprise-focused generative AI for customer service, sales, and marketing and have the capabilities to integrate with platforms like whatsapp.

4.5 Recommendations for implementing hybrid AI model of chatbot in Banking

Implementing a hybrid model of conversational AI and generative AI chatbots in banking requires a strategic approach. Here are recommendations to maximize its effectiveness:

- Comprehensive Planning: Begin with a thorough understanding of the banking processes, customer
 expectations, and specific use cases. Define clear objectives and desired outcomes to guide the
 implementation.
- Data Quality and Diversity: Gather and curate diverse datasets comprising both structured and unstructured data to train the models effectively. Ensure data quality, accuracy, and relevance for optimal performance.
- Iterative Development: Adopt an iterative approach to model development and testing. Start with smaller pilot
 projects to refine the hybrid model, gather feedback, and make necessary adjustments before full-scale
 deployment.
- Seamless Integration: Invest in robust integration methodologies to seamlessly blend conversational AI and generative AI components, ensuring smooth transitions between scripted and creative responses.
- User-Centric Design: Prioritize user experience by designing intuitive interfaces and interactions. Consider user preferences, language nuances, and accessibility to create a user-friendly banking experience.
- Continual Learning and Improvement: Implement mechanisms for continuous learning by collecting user feedback, monitoring system performance, and iteratively refining the models based on real-time insights.
- Ethical Framework and Bias Mitigation: Develop and adhere to an ethical framework that ensures fairness, transparency, and accountability in AI-driven interactions. Regularly audit and mitigate biases in the models.
- Security and Compliance: Implement stringent security measures to protect sensitive banking data. Ensure compliance with regulatory standards like GDPR, HIPAA, or other relevant banking regulations.
- Scalability and Flexibility: Build a scalable infrastructure capable of handling varying user loads and evolving banking requirements. Ensure flexibility to adapt to technological advancements and changing customer needs.
- Employee Training and Support: Provide comprehensive training and support for banking staff to effectively collaborate with AI systems. Enable them to assist, monitor, and intervene when necessary.
- Communication and Transparency: Clearly communicate to users that they're interacting with AI and set appropriate expectations regarding the AI's capabilities and limitations.

4.6 Practical Use Cases for Implementing a Hybrid Model of Conversational AI and Generative AI Chatbots in Banking

Here are some use cases where a hybrid model of conversational AI and generative AI chatbots can significantly benefit banking operations:

DOI: 10.48175/IJARSCT-15603





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Volume 4, Issue 1, March 2024

Customer Support and Service:

- Account Inquiries: Assist customers with balance inquiries, transaction history, and account details using structured conversational AI, while leveraging generative AI for complex queries or unique situations.
- Issue Resolution: Handle customer issues like card disputes, transaction errors, or account lockouts using a blend of scripted responses and creative problem-solving from generative AI.
- Product and Service Information: Offer information about banking products, interest rates, loan options, and eligibility criteria through interactive and informative conversations.

Personal Finance Assistance:

- Financial Planning: Assist customers in creating personalized financial plans, budgeting, and investment guidance using a blend of scripted advice and context-aware generative responses.
- Expense Tracking: Provide users with tools to track expenses, set savings goals, and receive personalized spending recommendations based on their financial habits.

Onboarding and Account Management:

- New Account Setup: Guide customers through the account opening process, collecting necessary information using conversational AI, and providing tailored advice and explanations through generative AI.
- KYC Verification: Utilize a hybrid model to manage KYC (Know Your Customer) verifications, ensuring compliance while offering a seamless user experience.

Fraud Detection and Security:

• Real-time Fraud Alerts: Use conversational AI to notify customers of potential fraudulent activities and guide them through security measures, while generative AI can handle complex fraud analysis and risk assessment.

Loan and Mortgage Assistance:

- Application Guidance: Assist customers in filling out loan or mortgage applications, providing personalized advice and explanations tailored to their financial situations.
- Eligibility Check: Utilize AI to assess a customer's eligibility for loans or mortgages based on various parameters, offering immediate feedback and guidance.

Cross-selling and Marketing:

 Product Recommendations: Analyse customer data to offer personalized product recommendations, using a blend of scripted suggestions and AI-generated insights based on their financial behaviour.

These use cases showcase how a hybrid model of conversational AI and generative AI can revolutionize various aspects of banking, enhancing customer experiences, optimizing processes, and providing personalized financial services.

V. CONCLUSION

The study dives into enhancing banking chatbot experiences by integrating hybrid conversational-generative AI methods, recognizing their potential for elevating customer interactions. By combining conversational and generative AI strengths, these systems offer improved contextual understanding, natural language processing, and problem-solving abilities, leading to personalized interactions and efficient query resolution. However, challenges such as privacy, data security, ethical considerations, and maintaining conversational flow persist. Despite these hurdles, the research highlights the transformative potential of hybrid AI in banking, emphasizing the need to address challenges to fully leverage its benefits amid evolving user expectations and technological advancements.

DOI: 10.48175/IJARSCT-15603





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APPENDIX

Analysis of Secondary Data collected from Various Market Research Reports

Market Research Reports studied for analysis:

- Generative AI Market Size, Share and Industry Trends [2030] (fortunebusinessinsights)
- Generative AI in Chatbots Market Size, Share, and Forecast 2032 (marketresearch.biz)
- Generative AI in Customer Services Market Size, Report by 2032 (precedenceresearch)
- Generative AI in Marketing Market Size & Share Report, 2030 (grandviewresearch)
- Generative AI Market Size, Share, Industry Forecast 2032 (alliedmarketresearch)
- Straits Research: Generative AI Market Size & Growth analysis by 2031
- Markets and Markets Report on Generative AI Market Size, Share, Trends, LLMs Industry Impact 2030
- KPMG Generative AI Survey
- The economic potential of generative AI: The next productivity frontier Report by Mckinsey
- Research and Markets
- Survey Conducted by Kapture CX, a leading customer support automation platform

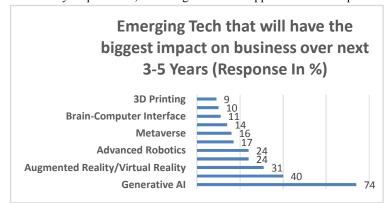


Fig. 1 Emerging Tech and its impact on business (Source: KPMG Market Survey 2023)

Data Interpretation: Generative AI ranked highest among emerging technologies poised to have the most significant impact on business within the next three to five years, with 74 percent of business leaders endorsing its potential.

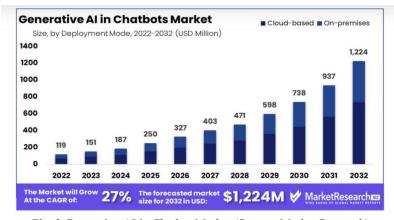


Fig. 2 Generative AI in Chatbot Market (Source: Market Research)

Data Interpretation: The projected value of the Generative AI in Chatbots Market is anticipated to surge to approximately USD 1,224 million by 2032, marking a substantial growth from USD 119 million in 2022. This growth trajectory reflects a robust Compound Annual Growth Rate (CAGR) of 27% between 2023 and 2033.

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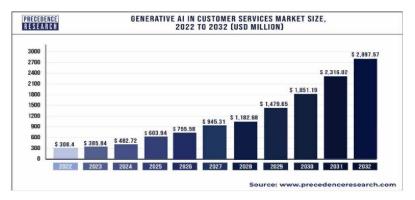


Fig. 3. Generative AI in Customer Service Market Size (Source: Precedence Research)

Data Interpretation: The market size of global generative AI in customer services reached USD 308.4 million in 2022 and is forecasted to exceed USD 2,897.57 million by 2032, showing a robust growth rate of 25.11% during the forecast period from 2023 to 2032.

Performing self-service HR functions (onboarding and employment processes)	33%
Analyzing customer feedback/improving customer relationships	33%
Identifying security threats and network system anomalies	30%
Identifying new products and use cases (e.g., drug discovery in healthcare)	26%
Developing external chatbots and/or virtual assistants	25%
Developing internal chatbots and/or virtual assistants	23%
Supporting inventory and/or supply chain optimization	23%
Writing code or other development documentation	22%
Automating data governance	22%
Drafting and reviewing legal documents	21%
Creating sales and marketing collateral	20%
Assisting in forecasting, modeling, and projections	20%
Supporting fraud protection	20%
Interviewing and candidate assessment	16%
Contracting and invoicing	15%

Fig. 4 Prioritized use cases of Generative AI across all functional areas in organizations (Source: KPMG Generative AI Survey 2023)

Data Interpretation: Top prioritized use cases are self-service HR functions, analyzing customer feedback, and identifying security threats followed by developing external/internal chatbots or virtual assistants.

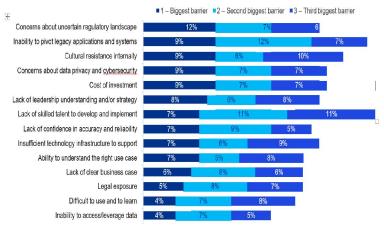


Fig. 5The biggest barriers to implementing generative AI within organization

(Source: KPMG Generative AI Survey 2023)

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DOI: 10.48175/IJARSCT-15603

′ISSN 2581-9429

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International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Impact Factor: 7.53

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Data Interpretation: The most significant barrier to implementing generative AI is regulatory uncertainty; most leaders also grapple with lack of skilled talent.

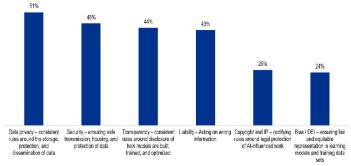


Fig. 6 Areas where the organization anticipates the most immediate regulatory action(s)

(Source: KPMG Generative AI Survey 2023)

Data Interpretation: Business leaders expect the most regulatory action regarding data privacy, with less anticipation around copyright and bias.

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