

## **EXPLORING THE POTENTIAL OF CHATGPT** IN BANKING, FINANCIAL SERVICES & INSURANCE

## OVERVIEW OF ADOPTION OF ARTIFICIAL INTELLIGENCE IN THE BFSI INDUSTRY

The banking, financial services, and insurance (BFSI) sector has been at the forefront of adopting AI and machine learning technologies. AI has enabled these industries to automate processes, reduce costs, and improve the customer experience. With the advent of digitization and the increasing amount of data available, banking, financial services, and insurance companies have been leaders in using AI and machine learning. The market

capitalization for AI and advanced machine learning in the BFSI sector is expected to increase to \$61.24 billion by 2030, with a CAGR of 23.1% between 2021 and 2030.

To Improve business processes and customer experience, these companies have invested heavily in AI research and development to stay competitive in the market. A brief list of AI solutions from BFSI market leaders.

#### BANKING

J.P. Morgan created the firmwide Explainable AI Center of Excellence (XAI COE), led by AI Research, to perform cutting-edge research in explain ability and fairness. The XAI COE brings together researchers and practitioners to develop and share techniques, tools, and frameworks to support AI/ML model explain ability and fairness, and to advance the state-of-the-art by publishing in top AI/ML venues.

BlackRock's Aladdin Wealth provides an institutional-quality solution to wealth management firms and banks, including enterprise-wide business and risk oversight and portfolio analysis and construction capabilities. For example, they create and review over 1 million daily risk and exposure reports on portfolios through Aladdin, which are generated from vast data sets.

One of the 'big four' US banks Wells Fargo, a holding company providing financial, banking, and insurance services in the USA, Canada, and Puerto Rico, constantly invests in improving customer support. It successfully uses an Al-based chatbot to communicate with users more productively and provide supportive assistance using accounts and codes.

#### INSURANCE

Allstate Business Insurance Expert, ABIE, comes in. ABIE, pronounced "Abby," is an artificial intelligence chatbot that provides real-time insight into topics on the minds of small business owners. And since this artificial intelligence expert learns on the go, ABIE will regularly add questions and answers to continue to meet the evolving needs of entrepreneurs.

Progressive Insurance is reportedly leveraging machine learning algorithms for predictive analytics based on data collected from client drivers. Progressive telematics mobile app, Snapshot (integration of telecommunications and IT) has collected 14 billion miles of driving data. Progressive incentivizes Snapshot for "most drivers" by offering an auto insurance discount averaging \$130 after six months of use.

Swiss Re has recently developed AI models to integrate with magnum pure, their Life & Health automated underwriting API and cloud-based solution platform, to orchestrate and utilize both Human and Machine Intelligence at scale. With Magnum Pure, expert-backed, AI and machine-learning enabled risk assessment solution can be easily deployed across multiple distribution channels and within Point-of-Sale tools.

## **CHATGPT TO ENHANCE AI IN BFSI**

ChatGPT is a state-of-the-art Natural Language Processing (NLP) technology-based large language model. Its user-friendly interface has contributed to its quick adoption and hype, reaching 1 million users five days after its launch in November 2022. ChatGPT is trained on a diverse range of conversational text, allowing it to perform tasks more accurately than previous models' large language models. Training parameters play a significant role in determining the effectiveness and accuracy of ChatGPT models. These parameters dictate the size and depth of the model, the amount and quality of training data used, and the optimization algorithms employed. The more parameters a model has, the larger and more complex it can be, resulting in better performance, but also higher training costs and resource requirements. ChatGPT-4 is the latest model in line with the GPT series to be published by open AI. The number of parameters used in training ChatGPT-4 is not the information OpenAI will reveal anymore, but another automated content producer, AX Semantics, estimates 100 trillion (Opens in a new window). Arguably, that brings "the language model closer to the workings of the human brain in regard to language and logic," according to AX Semantics. (OpenAI's CEO, Sam Altman, says that is not an accurate number).



It also has a wide range of language patterns and styles and it can analyze vast amounts of data, for understanding context, and generate responses that are human-like, coherent, and relevant to the conversation. ChatGPT's ability to learn from context and patterns in data makes it an ideal tool for BFSI applications. GPT can perform a wide range of natural language processing tasks, including language translation, summarization, and question answering, with minimal fine-tuning. While there could be numerous possible use cases of generative AI in the BFSI industry, this white paper details four broad use cases common for both BFS & Insurance industries.

## BANKING AND FINANCIAL SERVICES USE CASES

The following infographic shows the anticipated interest generated across banking and financial services topics, by service providers and clients over the next 3-year period.



ChatGPT has the potential to disrupt traditional practices across multiple lines of business such as retail banking, wealth management, commercial banking, investment banking etc.

#### RETAIL BANKING, WEALTH MANAGEMENT

- KYC and due diligence during customer onboarding
- Rapid and effective resolution of common questions and fixing simple issues
- Provide personalized financial advice based on client's investment objective and risk appetite

#### COMMUNITY BANKING, COMMERCIAL LENDING, INVESTMENT BANKING

- Loan underwriting and borrower risk assessment for retail loans
- Determining the creditworthiness of new businesses without a credit history
- Providing feedback on lending decision outcomes
- Stress test scenario generation and risk profiling for investment banking portfolios



#### CARDS AND PAYMENTS

- Credit profile evaluation
- Merchant dispute resolution
- Flag potential fraudulent payments and money laundering attempts by analyzing transactional attributes

#### COMMERCIAL BANKING, INVESTMENT BANKING

- Reviewing transactions to identify potential compliance violations
- Monitoring the regulatory landscape for new regulations, amendments and updates
- Sampling regulatory reports to detect any lapses or misrepresentation of data submitted to regulators



- Comparisons
  Provide personalized recommendation on product, coverage, riders, renewal,
- cross-selling based on client's risk evaluation

#### PROPERTY & CASUALTY LIFE | HEALTH REINSURANCE

- Accurate risk analysis based on weather patterns, economic conditions, demographic trends customers' spending habits, financial situation, lifestyle, and health-related activities
- Recommendations for specific risk mitigation measures and predictive modeling of future risks



Customer Service & Engagement

Underwriting & Risk Assessment

**Fraud Detection** 

Regulatory & Compliance

#### PROPERTY & CASUALTY (COMMERCIAL LINES)

• Examine customer's damage

description, history of claims,

and social media content to

identify fraudulent behavior

data

• Help insurance companies obey regulatory requirements by tracking insurance transactions and detecting potential compliance violations

 Monitoring the regulatory
 landscape for new regulations, amendments and updates

### **CUSTOMER SERVICE AND ENGAGEMENT**

ChatGPT is a powerful tool for insurance companies to improve customer service and engagement. Unlike traditional AI chatbots that lack emotional sensitivity and empathy, ChatGPT excels at understanding and responding appropriately to complex customer needs. ChatGPT's vast capacity for multi-layer representation learning allows it to efficiently comb large datasets, identifying relevant content based on subtleties within user questions. It learns from customer interactions and feedback, enabling it to provide better services with time. Leveraging artificial intelligence (AI) and machine learning technologies, ChatGPT can analyze customer feedback and seek ways to improve its performance and thus provide better customer experiences. ChatGPT can provide real-time responses to customers, which enhances customer satisfaction. ChatGPT can work efficiently round the clock without requiring physical resources, significantly reducing the operational cost of the insurance companies.

Listed below are some key categories of queries which ChatGPT could address:



### **COVERAGE AND POLICY DETAILS**

Coverage amount, premium payments, beneficiaries, policy riders, terms and conditions



#### **UNDERWRITING AND ELIGIBILITY**

Application process, medical exams, health history, factors that impact eligibility



Claims process, including how to file a claim, how long it takes to receive benefits



### **RENEWALS AND CHANGES**

Renewing a policy, making changes to coverage, and other administrative details.



What is the current trends, changes in regulations, and new products or services



How different life insurance policies compare to with a competitor or each other



How much life insurance coverage is needed, based on income, debt, and dependents

### **STREAMLINED UNDERWRITING & RISK ASSESSMENT**

ChatGPT can automate many of the tasks involved in underwriting, such as data entry, document classification, and risk assessment. This can free up underwriters to focus on more complex tasks, such as developing new products and services. ChatGPT neutrality as an AI system reduces human bias in underwriting decisions, ensuring fair treatment of all applications. Its transparent and algorithmically derived decision-making criteria minimize personal biases, increasing public trust in the insurance industry. ChatGPT's open architecture seamlessly integrates with industry standards like ACORD and ISO, avoiding costly mistakes and ensuring consistent quality in underwriting processes. By analyzing vast amounts of data, ChatGPT can quickly and accurately assess the level of risk and provide insurers with insights on which to base their decisions. Especially, ChatGPT can analyze unstructured data from sources such as social media profiles, emails, and phone recordings that traditional underwriting models cannot incorporate, which results in tailored coverages, better premiums, and increased customer satisfaction and loyalty. Presented below is an indicative framework leveraging hybrid AI models for streamlined underwriting and risk assessment.

#### Structured Data

**Unstructured Data** 

Property data, claims data, weather data, news articles, social media posts, customer reviews

#### Integrate & Process Data - Data Lake

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Identify variables that contribute to specific outcome

**Decision Trees** 



**Random Forest** 

Estimate the relationship between variables

Linear Regression

#### Regression Predict binary outcomes

Logistic

Likelihood of an event based on a set of variables

Support Vector

Machines

#### Neural Networks

Handles large datasets. useful in image recognition

#### **Traditional Machine Learning Model on Structured Data**



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#### **GPT** model analysis primarily on unstructured data

Comprehensive risk analysis report

Recommendations for specific risk mitigation measures

Insights into customer sentiment and concerns Predictive modeling of future risks

#### **Risk analysis outcome**

## FRAUD DETECTION

ChatGPT can analyze large amounts of claims data to detect fraudulent activity, such as claims submitted for the same damage or geographic location. It can also identify suspicious behavior in customer interactions, such as requests for information not typically requested or inconsistent claims. Additionally, ChatGPT can identify fraudulent activity on social media, such as posts promoting fraudulent insurance schemes or soliciting personal information from potential victims.

ChatGPT can help arrive at a claim risk scoring, a statistical model that predicts the likelihood of a policyholder filing a claim and estimates the expected costs. It helps insurers optimize resources, prioritize customer service efforts, and minimize loss ratios. Advanced analytics techniques such as regression analysis, decision trees, neural networks, and Bayesian algorithms generate a score representing the probability and magnitude of future claims.

Resolve and Consolidate Hybrid Predictive Deploy and Validate Harness Business Rules Data Monitoring for Fraud and **Incoming Claims** Feature Engineering Anomaly Detection Create Data Strategy Data collected includes Carriers often use Leveraging innovative Incorporate it directly into personal identity supplementary internal statistical techniques offers the claims management indicators like name, date datasets, market research a competitive advantage in process by comparing the designing sophisticated of birth, contact details, surveys/panels, public incoming claim with its and social security records, or third-party claim risk models, where corresponding risk score numbers. Additionally, aggregated databases to machine learning algorithms value. carriers need to know construct more robust claim play a significant role. about the nature and risk scores. By blending Machine learning employs **High Risk Scores (Above** location of assets or multiple data sources, firms complex mathematical Average):

> More closely examine the claim; increase scrutiny or request additional documentation or evidence to substantiate the claimant's assertion or verify the details provided. Be prepared for potentially larger payouts, so allocate resources or investigate further if needed.

properties being covered; whether it's residential or commercial buildings, farmland, rental units, vacant lots, vehicles, recreational vehicles, etc. Other important details involve policy terms and conditions, coverage limits. deductibles. endorsements, riders, discounts, and billing

arrangements.

aim to identify subtle nuances or nonlinear relationships that might go unnoticed when focusing exclusively on a single source. Additionally, external macroeconomic factors could impact the insurer's overall portfolio performance.

calculations to recognize previously unknown interdependencies between variables, identifying patterns, detecting anomalies, making probability judgments, or ranking risks.

## PERSONALIZED RECOMMENDATIONS

Insurance companies are always seeking innovative ways to personalize insurance based on customer needs and preferences. By integrating ChatGPT into insurance processes, insurers can better personalize insurance products to meet the unique needs of each customer by considering various key factors such as age, gender, marital status, employment status, income level, health status, lifestyle, geographical location, risk profile, family history, previous insurance coverage, budget, preferred payment frequency and method among others.



#### **RECOMMENDATIONS CATEGORIES**

Product-specific insurance products based on customer needs, preferences, and risk profiles.

Coverage - appropriate coverage amounts + types based on customer information.

Riders - add-ons to the base policy based on the customer's needs.



Renewal - renewal options based on changes in customer needs and preferences.

Cross-selling - additional insurance products such as health or disability insurance

Upselling - higher coverage limits or more comprehensive policies

## CHALLENGES AND LIMITATIONS OF CHATGPT IN THE BFSI INDUSTRY

One of the biggest challenges is the interpretability and explainability of Generative AI models. Finance is a heavily regulated industry, and it is crucial that AI models can be understood. Additionally, the data quality and quantity can sometimes be a bottleneck, making it difficult for Generative AI models to give accurate predictions. Another significant challenge is data privacy and security. Banks and insurance

companies hold sensitive financial and personal data, and ChatGPT's integration poses a potential risk of data breaches. This challenge demands significant investment in Al-based security systems to ensure data security. Customers may have unique requirements or questions that can only be addressed through human interaction or personalized service. Moreover, ChatGPT's output is limited to the input data given during training, which can result in biased or inaccurate results. The legal and regulatory environment can challenge ChatGPT's adoption in the BFSI industry. ChatGPT's inability to evaluate its output's accuracy and ethics can create challenges to regulatory compliance. With every new challenge comes an opportunity to innovate and improve.

## HOW IS HAPPIEST MINDS Supporting BFSI Businesses in Their chatgpt initiatives?

We started our journey in Generative space at Happiest Minds a few years ago. However, with the recent disruption of ChatGPT, we started concentrating on building technical capabilities/use cases around this space. This includes a deeper understanding of Large Language Models (LLMs), POCs, and training our people to be ready. We're focusing on data processing and prompt engineering to make ChatGPT more adaptable to a wider array of queries. This is akin to training an athlete - improving the bot's ability to understand and react to various prompts, increasing its utility across different scenarios.

We created a focused team to research in this area, especially:

Advanced In-context Search, Enhancing ChatGPT Interactions, Tailored Al Solutions, Integrating Al into Software Engineering, Exploring Open-Source Language Models LLaMa, BioBERT, FinBERT, Exploring ChatGPT Plugins, Ensuring Data Privacy.



## CONCLUSION

Generative AI, Transformers & LLMs are rapidly evolving, and we too are evolving our strategy. As an Al language model, ChatGPT is constantly evolving and improving through ongoing research and development efforts. We have seen how performance of the language models has drastically improved with GPT-4, which has shown remarkable language generation, accuracy, and faster performance. We believe that this will continue, and new use cases will keep evolving. While we currently focus on technology and building use cases, at Happiest Minds, we have a dedicated task force to stay current with the latest market and industry developments.

In conclusion, ChatGPT undoubtedly has the potential to revolutionize the BFSI industry. By providing personalized customer service, reducing operational costs, and

enhancing customer engagement, ChatGPT could create a transformative financial industry. However, it is essential to address the challenges and limitations faced by ChatGPT, which include data privacy and security, context understanding, legal and regulatory compliance, and effective integration. For ChatGPT to be a successful addition to the BFSI industry, it must be deployed with extensive research and proper planning to provide optimal outputs that align with ethical, regulatory, and operational standards.

Partner with us to be part of the movement pushing boundaries, breaking molds, and blazing trails to brighter horizons. Let us create a world defined by innovation, cooperation, and endless possibility!



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## **ABOUT HAPPIEST MINDS**

Happiest Minds Technologies Limited (NSE: HAPPSTMNDS), a Mindful IT Company, enables digital transformation for enterprises and technology providers by delivering seamless customer experiences, business efficiency and actionable insights. We do this by leveraging a spectrum of disruptive technologies such as: artificial intelligence, blockchain, cloud, digital process automation, internet of things, robotics/drones, security, virtual/augmented reality, etc. Positioned as 'Born Digital . Born Agile', our capabilities span digital solutions, infrastructure, product engineering and security. We deliver these services across industry sectors such as automotive, BFSI, consumer packaged goods, e-commerce, edutech, engineering R&D, hi-tech, manufacturing, retail and travel/transportation/hospitality.

# CHAT GPT

A Great Place to Work-Certified<sup>™</sup> company, Happiest Minds is headquartered in Bangalore, India with operations in the U.S., UK, Canada, Australia and Middle East.

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