

TURING



# AI Transformation

BFSI

# What Does ChatGPT Mean for the BFSI Industry?

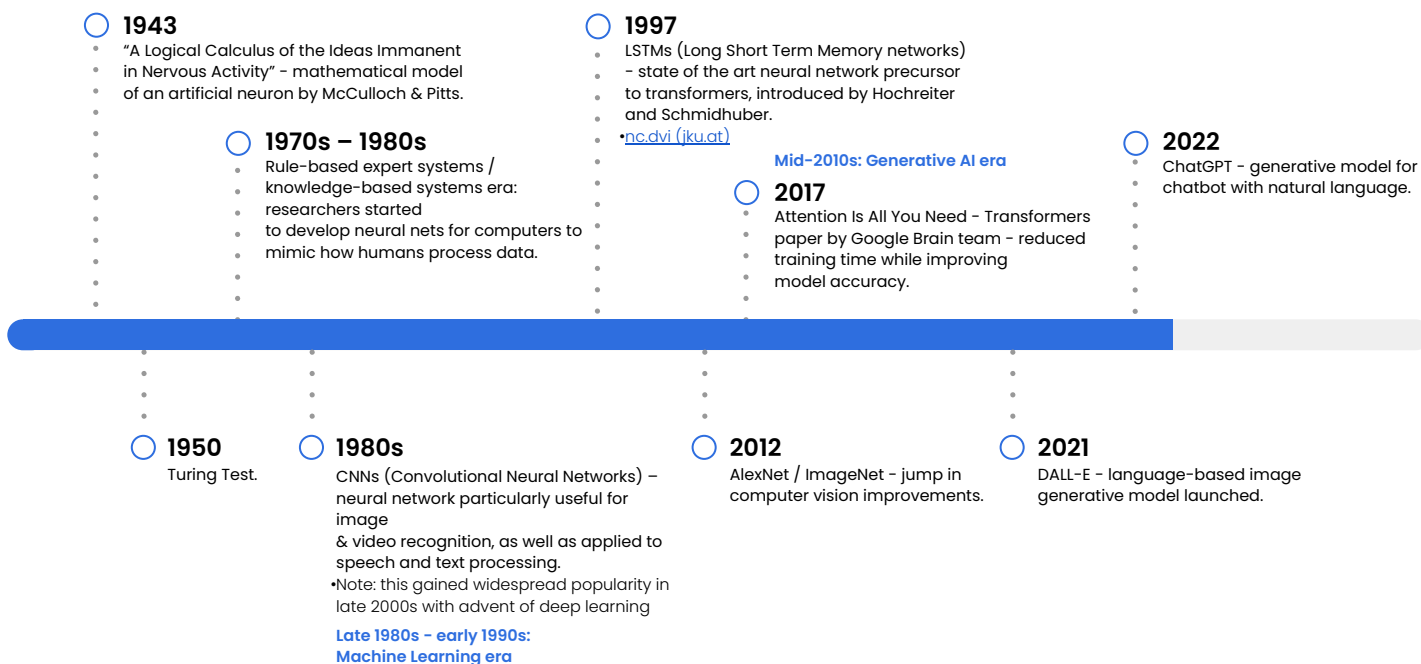
## AI Transformation is the New Digital Transformation

Digital transformation began in the late 1990s and early 2000s as companies started to modernize by integrating new technology into their core operations. For many companies operating in the banking, financial services, and insurance (BFSI) industry, this journey started with the adoption of digital accounts and mobile banking, and direct-to-consumer insurance products sold via the Internet. Technologies such as these radically transformed the way companies in BFSI do business, with effects lasting into the present day.

We stand at a similar exciting precipice right now in which AI transformation is the new digital transformation. With the explosion of ChatGPT and similar technologies, it is clear that every company needs to be an AI-first company in a future where the cost of intelligence trends toward zero. However, many Fortune 500 companies have foundational data, application, and infrastructure work to be done first. Companies need to acquire technical AI expertise and ensure the right data architecture and cloud infrastructure are in place to take full advantage of the massive opportunities ahead. While AI promises to bring benefits across many industries, the opportunities in BFSI are manifold, including improved investment management, fraud detection, and customer experience. Companies like Goldman Sachs, BlackRock, and Metromile are already seeing the benefits of early AI implementation.

This paper aims to discuss the evolution of AI and how it will revolutionize the BFSI industry, as well as share important advice on how to be poised to leverage this technology in your business. It is drafted by leading AI experts at [Turing](#), a technology services company that stands at the forefront of the AI transformation and partners with clients to help them remain competitive in this new technological era.

## The ChatGPT Moment: The Evolution of AI



## The Current State of AI in BFSI

Leading firms in the banking, finance, and insurance industry are taking advantage of this ChatGPT moment to integrate AI and related technology into their operations. Banking and financial services institutions are looking to gain a competitive edge by using AI to increase their profitability, optimize their operational efficiency, and enhance the quality of services and products offered to consumers. Financial consumers will in turn benefit from improved and customized products, data insights that can be used to inform investment strategies, and potentially increased financial inclusion permitted by the analysis of the creditworthiness of clients with limited credit history, such as small- and medium-sized enterprises (SMEs).

The insurance industry is simultaneously deploying AI to improve the accuracy of risk assessment, speed up claims processing, and streamline underwriting processes, leading to enhanced efficiency, profitability, and customer satisfaction. According to *The State of AI in 2022* by McKinsey and *The State of AI in Enterprise 2022* by Deloitte, the deployment of AI-enabled applications across multiple use cases is constantly increasing in enterprise financial and insurance institutions.

### Improved Profitability

We'll start by examining the increasing use of AI to drive profitability across the BFSI industry. This trend is fueled by the availability of vast amounts of data and cost-effective computing power. In some cases, machine learning models autonomously leverage big data to improve predictability and performance, learning and adapting through experience and data without explicit programming by humans.

**Banking:** The banking sector utilizes algorithms to identify credit risks to reduce non-performing assets (NPA) and improve credit portfolio profitability. They also utilize large volumes of customer data to assess creditworthiness, predict default risk, and streamline loan underwriting. This helps banks make faster and more-accurate lending decisions, reduce defaults, and improve profitability. A few examples of companies utilizing such technology include LendingClub, HSBC, and ZestFinance.

**Financial Services:** Financial services firms are using AI's capacity to recognize signals and capture underlying relations in large datasets to improve asset management, algorithmic trading, credit underwriting, and other financial transactions, leading to greater profitability. For example, Goldman Sach uses AI to analyze market trends and identify potential risks associated with investments, trading, and other activities. Asset managers and hedge funds alike have launched AI-based funds that are performing better than their peers, providing improved profitability to the firms. For instance, AI-led hedge funds produced cumulative returns of 34 percent in the three years through May 2020 compared to a 12 percent gain for the global hedge fund industry over the same period [1].

**Insurance:** Similarly, leading firms in the insurance industry have achieved higher profitability by analyzing customer data and preferences to develop personalized insurance products that meet the specific needs of individual customers. This helps insurance companies to provide better products and services, and ultimately improve profitability. For instance, Metromile uses AI-powered tools to develop personalized insurance products that are based on each customer's driving habits and usage patterns.

Additionally, insurers can leverage AI to assess risk more accurately and price policies more competitively, thereby reducing losses and improving profitability. The algorithms leverage a variety of data to create models for identifying risks. This data includes customer data, market trends, and other relevant information to assess risk, predict potential losses, and develop risk management strategies. Swiss Re, Ping An, and Lemonade are a few examples of companies implementing this technology, with Ping An reporting a 15% increase in profits [2].

## Fraud Detection

Institutions have utilized different types of algorithms to identify fraud. Some of the more commonly used ML algorithms include decision trees, neural networks, and logistic regression. The specific algorithms used for fraud detection may vary depending on the type of fraud and the available data. Financial institutions also often use a combination of different AI algorithms to achieve the most accurate results. In the insurance sector, detection systems can analyze customer data, insurance policies, and other relevant information to identify and prevent fraudulent claims and improve risk management.

- Danske Bank realized 60% reduction in false positive detection rate and a 50% increase in true positives - which translates to real savings for Danske Bank. [3]
- Bank of America reported using ML models to detect potential fraudulent activities in real-time, resulting in a reduction of false positives.
- PayPal reported managing their fraud transactions rate at only 0.28% of revenue compared to 1.32% fraud transaction loss that merchants see. [4,5]
- Capital One uses AI and machine learning algorithms to detect fraud, alert customers in real-time, and mitigate losses.
- Nationwide has deployed AI-powered fraud detection systems to identify and prevent insurance fraud, protecting its customers and improving profitability.

## Compliance

AI-powered systems can also help financial institutions comply with regulatory requirements and prevent financial crimes, such as money laundering and terrorist financing, by analyzing large volumes of transactions and customer data to identify suspicious activity. A few companies currently using AI for this purpose include Standard Chartered, BBVA, and HSBC.

## Customer Experience

AI implementations are being done to improve the customer's overall experience by leveraging ML models to identify patterns and utilizing natural language processing and conversational AI to increase touchpoints with customers. These deployments help improve the customer experience by providing personalized recommendations, automated customer service, and faster response times.

Investment Advisory Services: AI can analyze market trends and customer data to provide personalized investment advice and portfolio management services. This helps banks improve customer satisfaction. AI can also analyze customer data to identify their spending habits, financial goals, and risk tolerance. This information can be used to create personalized financial plans that meet the customers' specific needs.

- Capital One reported using AI to analyze customer spending patterns and provide personalized recommendations for credit card offers. They have reported 12% increase in new accounts in 2021 [6].
- Wells Fargo offers personalized investment advice to customers with AI-powered tools such as Intuitive Investor and Guided Investing.

Chatbots and virtual assistants: AI-powered chatbots and virtual assistants provide automated customer service, reduce the need for human customer service representatives, and improve response times.

- Bank of America uses Erica, an AI-powered virtual assistant, to provide customers with personalized financial advice and help them manage their accounts. It has reported handling over 1 million customer inquiries per month.
- HDFC Bank utilizes AI chatbots to provide 24/7 customer support and answer common customer queries.
- GEICO utilizes AI-powered chatbots to provide customers with instant responses to their queries and requests, improving customer experience.

## How to Build AI into Your Business

Given the clear value of AI in the BFSI industry, we outline some important steps for making the AI transformation in your business a reality.

**Assessment:** The first step is understanding the most important priorities in your business and then determining whether AI is suited to deliver transformative impact for those priorities or focus areas. Oftentimes, the foundational piece is having the right data infrastructure to support analytics and data science before moving to AI.

**Planning:** The next component is deeply understanding what needs to be built and how to measure success.

We have found the following questions to be most valuable for planning:

1. How do we measure the impacts of this transformation? Is the success measurement aligned with the business priority?
2. What datasets do we have, and what datasets should we collect? What is the quality of the datasets? Is the data structured in a reasonable way? What privacy and security concerns should we have for the data?
3. What is the right ML model to start with for the prioritized usage cases and the datasets? How important is explainability, or demonstration that the model is not subject to certain types of bias?
4. What is the team's operational model? Is it agile enough to allow iteration of the solutions based on business outcomes and customer feedback? Is the business problem one that's suited to rapid iteration, or are there regulatory or other limitations on iteration once the model is in production?

**Execution:** The final piece is to bring your planning to execution. We break down the lessons and best practices we have learned into these four key aspects:

1. **Measurement of success:** This is seemingly straightforward, especially in profit-oriented banking products, but in practice needs careful understanding of the relationship between business metrics and technical metrics. Ideally, the technical success metrics should lead to long-term business success, but we often see common misalignments like:
  - a. For personalized recommendations, optimizing for acceptance of the strategy by the account owner rather than eventual financial outcomes
  - b. For customer service applications, reducing duration of time spent on the interaction, but at the expense of accurate answers and user satisfaction
2. **Dataset:** Teams that are new to AI transformation often overlook the foundational part—their datasets. An AI model is fundamentally a function that transforms input data into more valuable output data. So, if the input data is not of the quality and quantity needed, we have the effect of garbage in, garbage out. When looking at the dataset, we need to focus on:
  - a. **Quality:** This pertains to the quality of the signal or information carried in the data. Especially key is the robustness of engineering systems that affect consistency and availability of data. For financial applications, many problems will also have biased omissions that may require other mitigation.
  - b. **Quantity:** In addition to quality, the quantity of data is important for making reliable inferences and separating signal from noise.
  - c. **Implication for privacy, transparency and security:** Security is a key priority when handling financial data, especially when it contains sensitive personal information that could be used in identity theft. Good data governance policies and proper sequestration of sensitive fields are imperative. In addition, certain insurance and risk model outputs may be subject to regulations that require equal treatment among different demographic groups.



3. **Select the right ML models:** Popularity of large language models skyrocketed recently due to the initial success of ChatGPT. However, when looking at a specific business problem, the larger models are not necessarily better. Look at different options (see table below) with the considerations of the nature of the job (different jobs have different SOTA models), the dataset quality and availability, the cost of training and serving, and the talent in your team.

Incomplete List of Options	Example Jobs	Required Data	Cost of Training and Serving	Talent Required	Leveraging Future SOTA	Explainability
Direct using pre-trained large model	Bot for day-to-day conversation (w/ GPT). For instance, optical character recognition (translation).	Minimal	Minimal & fast	Low	Easy	Low
Using pre-trained large model with customized contexts (a.k.a prompt eng)	<ul style="list-style-type: none"> <li>-Bot for conversation tailored to specific use cases, with requirements for tone or type of support/information provided.</li> <li>-Entity recognition and entity linking</li> <li>-Money laundering detection</li> <li>-Market trend and sentiment analysis</li> </ul>	Small	Small & fast	Medium	Easy	Low
Building your own (smaller) models for your usage case	Specialized fraud detection models	Large	Medium-high & slower depending on the models	ML specialist	Hardest	Depends—rule-based would be highest; Deep Learning-based would be low

4. **Building the agile and iterative operation muscle in your team:** Going through the AI transformation will take large investments over a long period of time with many technological breakthroughs that we cannot fully predict. The more iterative your team is, the higher chance you can succeed on such a journey.
- a. Build a team culture of iteration. For an AI initiative, break down the business and technical reasonings into multiple assumptions or hypotheses so that you can get early, quick feedback for the initiative.
  - b. Find the quickest way to validate or invalidate the key hypothesis as early as possible. For example, if a hypothesis is that a particular signal will improve the ML model, can you quickly test the model performance before waiting to launch to production?
  - c. Build a process that can iterate very fast. An operating model with 6-month to hire + monthly iteration would be much slower than a model with 2-week to hire + daily iteration.
  - d. Pay attention to the operation. Launching a new model is the beginning of a long journey. Business metrics could evolve, data could be polluted, and models could drift. It's necessary to set up monitoring and alert processes to identify these changes and provide feedback for the metrics, data, or models in a structured way.

Getting these four key areas right requires careful strategic decisions on the executive level. There are investment tradeoffs among these areas, such as how much time to invest in getting the right data versus experimenting with different ML approaches. Turing can help you to think through these strategic decisions and tradeoffs.

Getting these key areas right also requires very strong execution in both speed and quality. Turing can help with the know-how of building the data and ML assets and also empower you to get onto a very fast iterative model.

## Companies Are Already Successfully Leveraging AI

Our belief is that AI will play a crucial role in the future of the BFSI industry. The advances in machine learning and natural language processing will have a continued impact on the above-mentioned areas of financial functions. Most notably, we believe we will see more of:

- Personalized financial products, with specific targeting and recommendations for investment vehicles or financial strategies tailored to individual goals. As mentioned above, this is already being done to varying degrees by banks such as Capital One and Wells Fargo.
- AI-enabled customer experiences, including chatbots, such as those provided by Bank of America, HDFC, and GEICO.
- Faster claims processing by removing slow, manual steps, as done by Lemonade and others.
- AI throughout the backend of must-have bad actor detection, including fraud detection and anti money-laundering measures. These models are already ubiquitous in this space but will become increasingly sophisticated due to adversarial responses by bad actors.

Turing can help build AI into your business. Learn more about our offerings at [Turing.com](https://www.turing.com). Our current BFSI clients include:



### References

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Thank you