

# The Future of Compliance: Artificial Intelligence Innovations in the Financial Services Industry

Rachita Mehta

(Independent Research Paper in Progress)

## Research Structure:

What is AI? How does AI work? Why is AI important? Disadvantages of AI. AI Ethics

Components of AI.

What are the AI Technologies?

- ML
- DL
- NLP
- Computer Vision
- Gen AI

Each AI Tech models; explanation of the models; use case for each model

Some popular AI products for each AI Technology

Future of AI

Financial Services industry background

Different areas where AI can be applied in the Finance Industry

Compliance – areas where AI can be applied.

Trend Analysis if possible:

- Fraud Trends
- Insider trading trend
- Credit Card default trends
- Money Laundering trends

How can ML, DL, NLP, CV, Gen AI solve for the compliance issues?

What are the areas for innovation in compliance?

How can AI be applied to those areas in compliance?

Why are ML projects failing in Compliance? How can Compliance adapt to this innovative ML technology?

- How can compliance perform better data validation checks?
- What is the ML model building process?

- What should the approach be for Compliance to identify and implement ML projects?
- How can this technology be modified? Is there a better process? How should teams be structured to gain maximum advantage of ML?
- What change management strategies can be adopted to guide the change?
- How can Compliance monitor and maintain ML models post implementation?

## AI Ethics

### **What is Artificial Intelligence?**

Artificial Intelligence (AI) is the intelligence of machines or software. Artificial Intelligence empowers computers and machines to simulate and even surpass human cognitive abilities and problem-solving capabilities. The goal of AI is to replicate and enhance human functions spanning learning, reasoning, decision-making based on structured and/or unstructured data, creation or generation of new images, texts, audios, videos, and innovative ideas.

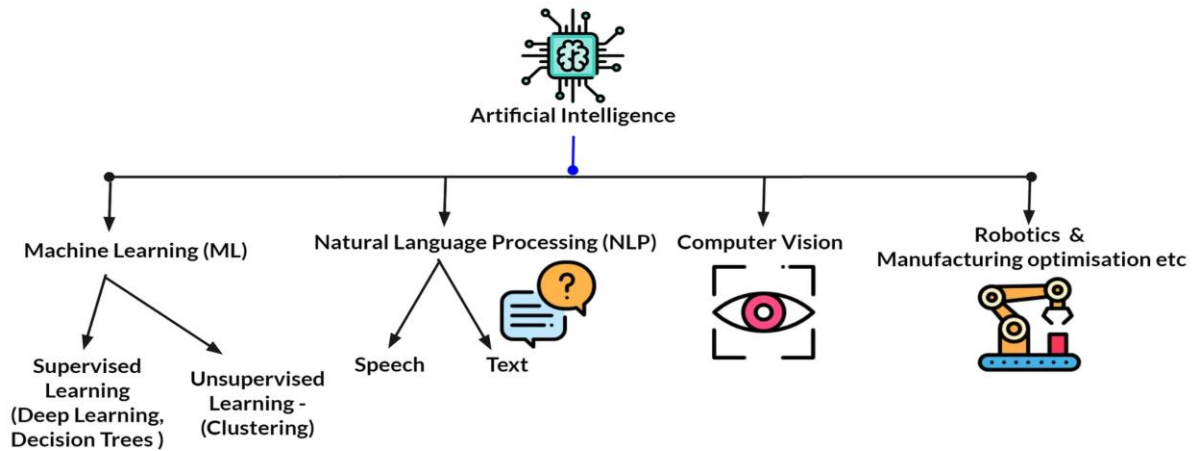
### **Advantages and Disadvantages of Artificial Intelligence**

Implementing AI manifests multiple benefits, notably in reduction of human error. AI improves accuracy and precision in decision-making by leveraging data and sophisticated algorithms that can identify trends and extract valuable information thereby reducing errors. AI decisions are devoid of emotions as the decisions are rooted on logic and reasoning. AI can slash operational costs and time by performing repetitive tasks. Furthermore, AI provides personalized experiences by adeptly learning from user behavior data to provide tailored recommendations.

On the flip side of the coin, AI poses a threat to the society due to the ethical considerations such as privacy violations, social manipulations such as deepfakes. Deepfakes are artificial media produced using deep learning techniques and a portmanteau of “deep learning” and “fake.” Deepfakes replace features on one image with those of another. AI may also result in job loss because of automation of repetitive tasks. Deep Learning involves the use of artificial neural networks which creates the black box problem, the inability to track how neurons make their decisions which makes reliability on the decision questionable. Autonomous weapons can be powered by AI which poses a serious threat to the human life.

The threats can be mitigated by developing a legal framework to safeguard against the risks and to use AI responsibly. In 2023, President Joe Biden issued an [executive order](#) requiring federal agencies to develop new rules and guidelines for AI safety and security. Balancing high-tech innovation with human-centered thinking is an ideal method for producing responsible AI technology and ensuring the future of AI remains hopeful for the next generation.

### **Components of AI**



## I. Machine Learning

### Citation Links:

<https://builtin.com/artificial-intelligence/risks-of-artificial-intelligence>

[https://www.simplilearn.com/advantages-and-disadvantages-of-artificial-intelligence-article#what\\_is\\_artificial\\_intelligence](https://www.simplilearn.com/advantages-and-disadvantages-of-artificial-intelligence-article#what_is_artificial_intelligence)

<https://medium.com/swlh/a-beginners-guide-to-understanding-the-buzz-words-ai-ml-nlp-deep-learning-computer-vision-a877ee1c2cde>