



Review of Applicability of Artificial Intelligence in Various Financial Services in India

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Abstract

This paper discusses how artificial intelligence can be applicable in various financial services like banking, insurance, credit rating etc. Researcher has elaborated on his observations regarding which areas and functions can make the use of artificial intelligence and while doing so what challenges will be faced by banking and financial services industry. Lastly this paper also enlists the advantages and disadvantages of AI implementation. By referring to secondary data author has made an attempt to explore possibility of AI applicability and provide a reference point for further research.

Introduction

Artificial Intelligence: According to a research paper by John McCarthy of Sandford University, one of the founders of AI, it is the science and engineering of making intelligent machines, especially intelligent computer programmes. Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed

Various computer languages are used to write Artificial Intelligence Programmes. The most common of them are Prolog, C/C++, recently Java, and even more recently, Python. AI is a technology of making machines over time learn from actions and take decisions on your behalf. The machine is able to do the job of a human without any manual intervention. Artificial intelligence includes programming computers for certain qualities such as information processing, giving logic, solving problems, studying behavioral patterns, self-learning, strategizing etc.

AI general usage examples:

Apple's Siri is a pseudo-intelligent digital personal assistant. Machine-learning is used to get smarter and better. It is able to predict and understand our questions in natural-language and requests.

Amazon's Alexa usefulness and its ability to recognize speech from anywhere in the room has made it a revolutionary product that can help to explore the web for information, buy products, schedule meetings, set alarms and a million other things, but also help power our smart homes and be a conduit for those that might have limited mobility.

Elon Musk's Tesla Cars have the advantage of collecting data from the entire fleet and how drivers behave at certain GPS locations, using camera & redars, then using that information to make future decisions.

Cogito is a fusion of machine learning and behavioral science to improve the customer interaction for phone professionals (eg – voice is tensed, lapses while speaking, in hurry, annoyed and takes action accordingly)

Literature Review

Sabharwal, Munish. (2014). " The use of Artificial Intelligence (AI) based technological applications by Indian Banks ". International Journal of Artificial Intelligence and Agent Technology. 2. 1-5.

His research clearly suggests that none of the banks selected by the researcher in his research except the new private sector banks use artificial intelligence based technological applications. The new private sector banks also use artificial intelligence mainly for petty purposes like automatic cheque book re-order facility.

Mrs. Madhura Ayachit (2017) " ICT Innovation in Indian Banking Sector: Trends and Challenges " IOSR Journal of Business and Management (IOSR-JBM) PP 21-27

Mrs. Madhura has enlisted very important facts in her research paper as below :

Indian banking sector is heavily investing in automation via Robotics and Artificial Intelligence (AI). Intelligent machines are being deployed to cater to every need of today's modern tech savvy customer. Various banks like SBI, HDFC, ICICI, DIGIBANK has implemented AI at various levels in their operations e.g. chatbots to increase the quality of customer interaction and various automated softwares to minimize the error and processing time.

Need for the Study:

Various studies have been done so far which depicts global perspective towards adoption and implementation of AI in International Banks and Financial Services industry. A study needs to be carried out to review applicability of similar models and strategies in Indian context.

Objectives of the Study:

- 1) To explore areas / functions where AI can be implemented in banks and financial services industry
- 2) To study challenges involved in implementation of AI
- 3) To analyze advantages and disadvantages of AI implementation for banking and financial services industry

Research Methodology:

Research Design:

In this paper, author attempts to study the secondary data available in the form of published literature like books, websites, newspapers, research papers etc.

After referring various case studies and observing existing AI implementation practices, researcher has made own observations and discussed various challenges, advantages & disadvantages in towards use of artificial intelligence.

Data Collection:

Secondary Data Collection:

- **Journals, Magazines, Newspapers**
- **Articles from websites**
- **Various Research papers**

Automation and digitization has been key to the evolution of banking and financial services in India and abroad. There has been tremendous transformation in terms of role of banks and financial intermediaries i.e. from traditional branch banking to completely automated branches offering almost all services and products to its customers. There are many repetitive and unproductive tasks which are currently taken care by major human resources and the roles which requires creativity and decision making are handled by few. AI is a facilitating factor which can replace such monotonous tasks which will be performed by systems and machines with prefeed data. Making machines smarter is the wisest way to make effective use of human resources towards innovating new strategies for the betterment of the economy.

Financial Services / functional areas which can use artificial intelligence:

- **Banking:** Definitely banks are the first who have already started implementing machine learning and similar technologies in their day to day operations like interacting with customers, answering their queries, sharing information regarding various services and products. Following the international banks, AI can also be implemented in selling products, studying customer behavior in better, fulfilling service expectations etc.
 - **Credit rating:** Credit rating is another financial service which can be better done with the use of big data analysis. With the increasing linkage of unique identity devices like Aadhar with various financial platforms, fetching the required data which can assist in analyzing credit worthiness of individuals has become easier. Credit rating agencies can effectively use such financial data combined with social media information to predict the creditability of borrowers.
 - **Insurance:** The role of actuary is quite difficult and complicated i.e. compiling and analyzing statistics and calculating insurance risks and premiums. Again, with the use of artificial intelligence this task can be left limited to decision making while taking care of all the arithmetics. In the similar manner, underwriting activity can be made effective and accurate with the use of AI.
 - **Stock Trading:** Algorithm trading is not the new concept but definitely processing big data for making the trend analysis can help in taking better trade positions. This can help in reducing the losses as well as making more profits.
 - **Marketing:** Apart from specific financial services, AI can also be implemented in core business functions like marketing and promotional activities. Understanding buying behavior is important for proper marketing. AI can be implemented to achieve effective marketing techniques and produce more relevant promotional content to the target customers.
 - **Human Resource:** Though not directly but indirectly AI can be used to make better hiring decisions by profiling appropriate candidates for required profiles.
- Challenges involved in implementing Artificial Intelligence:

- **Technology:** Technological infrastructure has always been a challenge as far as its applicability with respect to rural masses are concerned. Looking at current status this scene is improving. Rural India will be transformed into digital India but it will take a while. At this juncture when we are struggling with providing basic necessities to lower strata of the society using artificial intelligence to service such population may not be very productive.
- **Investment:** Innovations always costs you the most. It will require to do lot of research in this area before arriving at a fruitful strategy. Technological Research requires lot of capital allocation. Also, the end benefit and result will be unknown till the same is brought into actual market. It will always be a challenge for startups and small financial institutions to allocate big chunk of their budgets towards experimentation and innovation.
- **Adaptability:** Humans tend to receive more accept more when the information and service is delivered by another human being. We Indians also are not the exception to this phenomenon. Financial institutions can use AI for basic level facilitation but for complex level of interaction one may still prefer to deal with the humans.
- **Implementation:** Strategies are much easier to make than its successful implementation. Same is the case with a country like India. Being high in population and more percentage of rural or non tech savvy population may reduce the pace of implementing services backed by technological platforms. Also, skilled workforce can be a challenge.
- **Employment:** There is a fear that implementing AI can reduce the employment opportunities and may even put current jobs in danger. Roles will be more demanding and employee will have to upgrade their skills which can be a time taking task.
- **ROI:** It may not be easy to immediately converting the investment into huge revenues and organizations might have to wait long to get expected ROI.

Advantages:

- Automating repetitive and unproductive task currently performed by humans
- Cutting down the cost while machines working instead of employees
- Accuracy can be achieved as systems do better while eliminating human errors
- Huge data can be assimilated, recorded and processed within fraction of time to achieve profitability.
- Decision making will become easier and more accurate when machine starts learning on their own
- Better service quality can be achieved with speedy responses without human intervention

- Losses can be avoided by predicting fraudulent transactions and risk assessment techniques
- Access can be improved at a larger level as technology will assist in connecting customers with the service providers.
- Businesses can scale up their operations with the use of artificial intelligence.

Disadvantages:

- Experimentation and innovation will require initial capital outflow without being aware of ultimate output
- Disruptions caused by such strategies may impact employability.
- Transformation in job roles will increase the job of facilitating new training needs
- Older population may not be in favor technological advancement and may still demand humans to deal with.
- Judgement or Opinion based decisions may not be efficiently taken if the dependability on machines becomes very high.

Conclusion:

With the above observations, it can be concluded that Artificial intelligence can be effectively implemented in various critical as well as complex operations in banking and financial services, right from day to day banking operations to risk management. Implementing Artificial Intelligence has its advantages like cost cutting, efficient service delivery, quality interaction with customers etc. and disadvantages like disruptions in business models, adaptability by older population to new technology etc. Definitely advantages will be more as far as use of AI in banking and financial services is concerned. Lastly the financial services industry in India will have to cope up with the challenges in implementing artificial intelligence like investment involved, coming up with useful strategies and uplifting the level of technological infrastructure and its awareness to end user.

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