



A Study on Integration of Applied Artificial Intelligence in Accounting, Finance, Insurance and E-Commerce Sectors

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ABSTRACT:

Presently the rapid-fire development of information technology and the necessity of economic society, artificial intelligence has introduced in the golden age. The application of artificial intelligence technology in the accounting field is an inevitable trend, which will bring tremendous changes and development to the accounting industry. The finance sector now a days are emerging its capability I certain extent where the extensive use of statistical data, analysis result of large data set is really require to understand the continuous changes of financial health of an organization, eventually a sectors and after all for the market. This financial data analysis not only require to understand the financial positions and outcomes but also its require to take some action to address the gaps identified by analysis or to address the upcoming financial need of organizations and market.

Keywords: Capital Market Sectors, Customer Trending Information, Current Asset and Capital Flow, Insurance Demand and Trend to cover the risk, Deep Learning, Market Capital Optimization, Anti-Money Laundering and Countering Financing of Terrorism.

Introduction of Artificial Intelligence in Finance and E-Commerce Sector:

In finance and sales service industry merely the section where the Artificial Intelligence or machine learning can be used to help huge data analysis and provide optimal resolution can be categorized as "Capital Market Sectors", "Consumer Service" and "Insurance Industry and Services". By analyzing the "Customer Trending Information", "Current Asset and Capital Flow" and "Insurance Demand and Trend to cover the risk", Artificial Intelligence can help to provide optimal "Capital gaining opportunities", Ready to use "Demand addressing Report" of range of Customer and current "Insurance and Risk Management Trend" in market. Artificial Intelligence can also address the most current trends of financial sectors such as "Increasing the risk management requirement and regulation", "implementation of most agile mobile and web based technology to address the need of e-financing", "Building of future road map of any service wing using deep learning of that particular sector" such as High Frequency Treading, Fraud Detection in Finance sector and Cyber security etc. A report from TCS is depicting that the mostly the insurance companies are going to spend around \$90 million in Artificial Intelligence by 2020 and total Artificial Intelligence market revenue will be \$59.8 Billion by 2025. Companies from different financial sectors not only concentrating to adopt Artificial Intelligence but also organizations are doing instrumentation changes according to the futuristic analysis and market changes. Many organization such as "Dreamquark", "Motions Cloud", "Quantenstein" and "Cap Analysis" etc are already developing high end market suitable financial solution to support Artificial Intelligence based analysis and "Deep Learning" to address and adopt the futuristic changes.

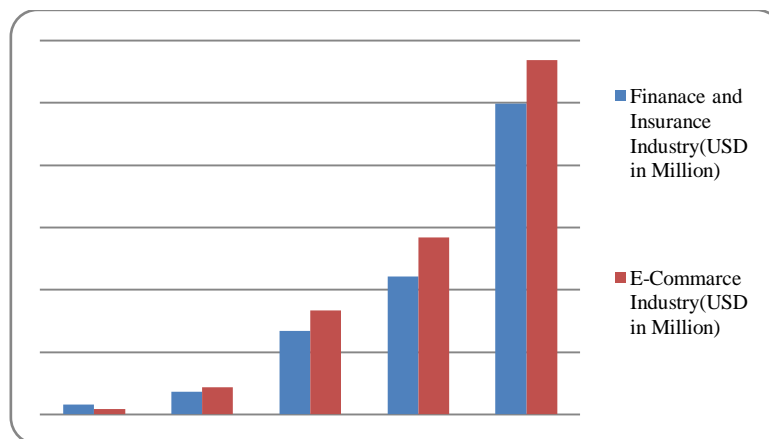
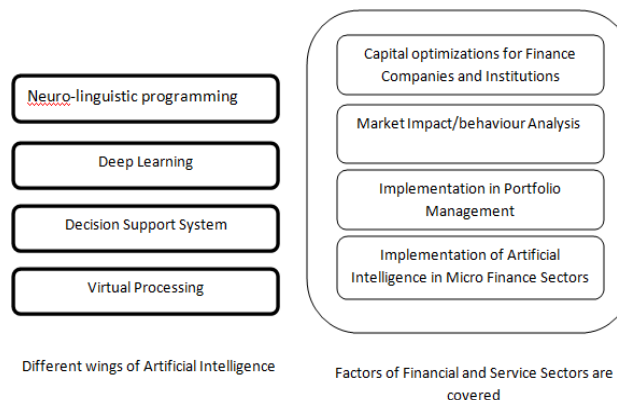


Fig 1 Investment in Artificial Intelligence by Finance and E-Commerce industry

Currently the sectors working upon few advance features such as sparse architecture of deep learning which can unveil new pattern in data of Financial input. Few more AI giants are working upon the integration of one app insurance solution to reduce insurance claim cost, claim cycle time, self-service and improve accuracy of claim value. Many companies are also working on integration of Artificial Intelligence in "Market Capital Optimization", "Market Impact Analysis" and "Portfolio Management" which will open a new horizon in Finance sector for applied Artificial Intelligence.

Integration of Artificial Intelligence in different spare of Financial Services and Service providing sectors:

Currently, Artificial Intelligence is applying upon the discrete processes of Finance, Insurance and E-Commerce Sectors. Some time, it is applied to know the trend of market, some time to analyze the interest area of client and customer, many time it used as to find the best pricing and timing of treading of Funds. Merely, it used to identify the AML detection. in below there are few places of the finance and insurance sectors where the modules of Artificial intelligence are applied. Hence all are discrete section and output is not flowing contiguously from system to system hence it is not impacting the much in terms of effort saving, revenue saving and most of the cases system is not able to provide optimal integrated output or report instead of discrete accuracy with modular output to organizational process.



Capital optimizations for Finance Companies and Institutions:

Capital optimization can be done basically in areas such as "Risk-Weighted Asset"(RWA) and "Market Valuation Adjustment"(MVA). A secondary research suggested that, most of the bank can achieve 5-15% RWA saving per annually. For MVA optimization machine learning can help to reduce the initial margin of derivative by combining the pair of derivative trade and executing the strategies that seems to be offset with the same dealer. In this case the machine learning helps to identify from which dealer the portfolio can be obligated to another dealer.

Insurance sector the artificial intelligence can helps to integrate machine learning to understand the current trend of market such as for personal insurance, health cover, Car insurance etc. System analyze the large set of record of past insurance purchase trend, Claim processing data and of course current market trend with all regulatory acts. Many companies in Europe use to implement sensor to understand the car damage trend which helps them to augment the insurance process by adhering the regulatory acts. This helps to come up with new product according to market needs, provide alert to customer about new policies or helps customer to get a risk optimal insurance coverage. According to private sector estimate, Insurance technology related investment totaled was \$1.7 Billion in 2016 where in artificial intelligence the investment was around 30% i.e. \$0.51 million.

Market Impact/ behaviour Analysis:

Market Impact and behaviour are essentially important factors in "Asset Management", "Fund Management, "Bond Management in Financial Companies" because these are highly related with the behaviour of market. Some factors which can be identified and can be a key influensive are as given- i] timing of tread for a bond or particular fund can influenced by market impact ii] Identify the behaviour of bonds or group of bonds where the price movement is impacted by the market impact.

Now a days the financial organizations are investigating the AI tools that can assess such factors by reading the past tread records and built a futuristic model to deal with such factors by augmenting all such scenarios in the knowledge base of the model. The model will be reactive enough where it can have decision support system which can helps the organization to take optimal solution while the market changes identified. AI model also observe the responsibilities to control the timing and process of trade to minimized the tread risk for funds and bonds and ensure the optimal benefit.

Impact of Machine driven solution in Treading Execution:

Machine Learning influence the conventional trading system by analyzing the past history of trading such as i] Client demand and business goal in scenarios of current market situation ii] Current market condition of client in terms of benefit, profit and cash flow along with past records. Each trading use to generate a large volume of data and hence machine learning comes in to the picture. Machine Learning can analyze the factors and past data and create a model which can effectively process the trade with client by effectively identifying their current and future need in terms of business.

The model can help to address the "Pre-Trade" and "Post-Trade" transparency in business Model. For example, in online trading in "Pre-Trade" and "Post-Trade"-organization helps the third-party seller to automatically adjust product price, product genre and helps in demand planning by providing information captured by their artificial intelligence system. In this case seller can make more proactive stance and predict current market competition.

By implying the above factors, Amazon uses customer purchase and search trend, the product searching intention, product genre etc. and provide a suggested range of product to user which doing online shopping. It also provide regular notification about the product user shows interest. This approach has influence the sales of Amazon in below trend.

Google constantly integrating AI to promote and trading of its product even. Google has extensively analyzed its customer behaviour in past decades and comes up with the automation in Google Suggest where it got integrated with Gmail to provide rapid reply of email. Many organization educational institutions appreciated this approach. "Google Brain" which is another massive steps towards automation using market behaviour analysis. Many user wants to have a suggested video since many of them could not able to provide proper key word of search. "Google Brain" suggested related video by observing each separate word, user behaviour and trend and by using "Google Brain" the watch time of YouTube has been increase 50% in last three years.

Implementation in Portfolio Management:

By using machine learning and adaptive decision support system artificial Intelligence can identify the price movement of funds for a portfolio. In machine learning the protocol and principals such as regulatory act can be integrated. Machine learning impose systematic investigating of trend of market and fund behaviour. AI consolidated the work base of large team of fund manager to impose its knowledge base and decision support system. The portfolio management also integrate the large value of information of asset managers to construct such decision support system.

Implementation of Artificial Intelligence in Micro Finance Sectors: In Micro-finance sectors Implementation of Machine Learning can help to make process bit faster to execute. It's also helps the user and institutions to understand the functionalities, process to be accomplished and the factors. It also illustrate the formulation of market price along with other factors. "Neuro-linguistic programming"(NLP) is another wing has been used deeply for surveillance and fraud detection including "Anti-Money Laundering and Countering Financing of Terrorism" AML/CFT detection. "Australian Security and Investment Commission is exploring the capability of NLP by exploring the result provided by specific system and finding out its potentiality."Paypal has implemented NLP and Deep Learning for its NLP and in 2017 it reported relatively low fraud case 0.32% of revenue which was 1.32% of revenue in 2016.

Integration of Different Module to provide a Enterprise solution:

Currently, the financial and insurance institutions are using different perhaps discrete Artificial Intelligence module where the organization is taking the help of AI in particular processing. But, since the module require the manual interventions, the outcome many time is not lenient with the actual output and hence need a human validation as a second layer of processing. Since, all the module is not have the AI based solution, the integrate outcome is not showing the expected accuracy in especially in case of finance industry. A study, shows that the 70-80% of process automation by AI where the human intervention will be only as input provider, output carrier and statistical monitor- the result will be 56% more accurate and in this way it can save the effort of each module annually 1200 hrs and increase the revenue by 21-23%.

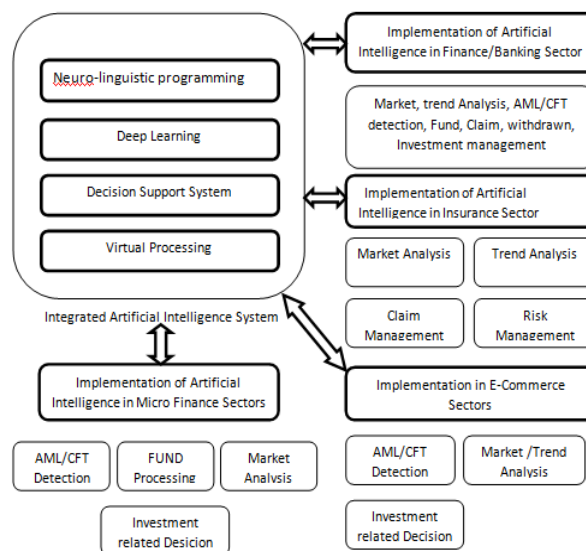


Fig 2 Integration of Artificial Intelligence in Finance and E-Commerce Sectors

Conclusion:

Artificial Intelligence can be a emerging factors in "Finance and E-Commerce" sector. Now a day, both the sectors are working most with "Market and Customer Trends" along with "AML" and "Trading". Since, these complex process require more analysis and intelligence to find the definite output, Artificial Intelligence can be the mark in this sectors. A Secondary study shows, around 25% of organization from these sectors such as AMAZON, E-Bay, CITI etc already started to use the Artificial Intelligence in the business. Mostly, through these giants the revolution in field of data analysis and artificial intelligence will arrive.

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