Impact of Robots In The Financial Sector

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I. Introduction

From the ancient civilization there have been user configurable automated devises thatwere used to entertain people. Origin of robots starts from the early 19th century.Robot is a machine which is specially programed and controlled by a computer. They are capable of carrying complex operations automatically either with an external control or with the command embedded inside them. Robots have replaced human in conducting repetitive and dangerous activities which humans are not able to do because of certain limitations.

RPA (Robotic Process Automation) technology, sometimes called a software robot or <u>bot</u>, mimics a human worker.As the application of technology that allows employees to configure computer software or a robot to capture and interpret existing applications for processing a transaction, manipulating data, triggering responses and communicating with other digital systems.RPA is the automation of rules-based processes with software that requires zero (or minimum) human interaction and applies it to Enterprise Resource Planning systems (ERPs), workflows, email systems and databases. In abank RPA has the potential to reduce the operational errors, they can work 24*7, reduce the cost of multiple people for the same task and also multitasking. This helps to increase the sustainability, increase the customer service and also improve the audits.Let me start off by saying that I am not a fan of technology for the sake of technology; I'm a seasoned transformation practitioner focused on deploying pragmatic solutions to my client's problems. Industry study show that know only one in ten use RPA whereas by the next decade 4 out of 10 will use the same.

II. Scope Of Study

The main focus area of this research paper is to understand the changing financial and economic conditions with the advent of modern technology. The data collected is a form of secondary data. I focused my course of study in banking, insurance and a part of capital markets that is the Algo Trading. This study helped me to gain certain insights on the possible outcomes of the introduction of robots in the financial sector and how it will help to ease our business to increase profitability. The possible positive impact of these AI and robots in banking insurance and capital markets.

I am going to focus my study on the changes of digitalisation or automation in the financial sector. Today we stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. Change is constant we cannot avoid the occurrence of the same the only thing we can do is to adjust to the changing environment and upgrade ourselves.The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the third, the connection of human mind and technology together which we call artificial intelligence. Already artificial intelligence is around us from self-driven cars to virtual assistants that guide us when and where to invest computing the risk is to returns factor. Like the previous revolutions the current revolution will also raise global incomes and improve the quality of life all over the globe. Currently ordering a cab, booking a flight, buying a product, making payment, etc can be done remotely. Transportation and communication costs will drop whereas logistics and global chain will be more effective. Economists have predicted that with the current revolution the number of job creation will come down. A time will come where the people will be rewarded for the innovative idea which they give.

So we are focusing on the impact of robots on financial sector. The Automated Teller Machines are there since 1967, but they have not yet replaced the traditional teller jobs. Since complex transactions takes place require human intervention best example is the demonetisation that took place in India. Part of these payments are replaced by various mobile E-Payment wallets. The more surprising aspect is robots actually working in a bank like the IRA a robot introduced by HDFC bank for providing basic customer service. There are many other fields like KYC, Risk, Valuations, Insurance, Limits, etc.

Banking

Robotics has allowed artificial intelligence and machine learning to be a game changer in financial services. It reduces the cost and time both which in turn increases the operational efficiency and productivity. According to CB Insights the investment in robots have increased from155$ in 2011 to 587$ in 2015. These

robots have changed the face of modern day banking which in turn has helped satisfy the mellenails requirement of technology.

Robotic process automation has also dramatically streamlined a wide variety of back office processes that always used to consume time of the bank workers. By shifting these tedious, manual tasks from humans to machines which have direct impact on their performance and efficiency levels. RPA also provides full audit traits for each process that will help to achieve process compliance and reduce risk. There is a great deal of records in the life cycle of a normal banking customer right from deposits, withdrawals to loan documentaries. It was indeed very tedious job for the customer as well to maintain a record of the same. One of the greatest things that robots have done is it has introduced a solution for the banking industries through which the data management has improved and we need not be starting from the scratch. With the help of this technology the bank employees will be able to have access to information at all times at just a click away. The other part where it is usefull is the compliance and audit part instead of paying money to the consultant this can be done easily with the help of this. For example, Bank of Tokyo- Mitsubishi introduced Nao, a 58-centimetre (1ft 11)-tall, 5.4 kg robot developed by Aldebaran Robotics. It is equipped with a camera and microphone and has visual recognition and remote control capabilities. It can recognise 19 spoken languages, interact and communicate with customers in branches, and provide response to queries. They also developed a robot named Pepper which is a robot that entertains the customers with games and multimedia functions.

ANZ is using RPA in processing payroll, account payable, mortgage procession, and human resource (HR) functions. ICICI Bank, meanwhile, uses RPA to perform over one million banking transactions in back-end operations per day, reducing response time by 60% and improving accuracy. These software robots are deployed in over 200 business process functions of the bank across retail banking, agri-banking, trade and forex, treasury, and HR. Likewise, Barclays Bank implements RPA across a wide range of processes such as fraud detection, risk monitoring, account receivables processing, and loan application. In India HDFC on of the largest Indian private sector bank has introduced Eva India's first AI-based banking Chabot. They can assimilate thousands of data from different sources and provide solutions in simple language in 0.4 seconds.

EVA stands for Electronic Virtual Assistant.It is developed by Senseforth AI Research Pvt Ltd for HDFC Bank. Senseforth AI Research Private Limited was founded on 27 March 2017. It is classified as a Non-government Company and has been registered at the Registrar of Companies, Bangalore.Chatbot is a short form for chat robot it is a computer programme which creates human conversation or chats through artificial intelligence. Presently a chatbot conducts conversations with a real person but advanced programmes are being made where two chat bots will be able to converse with each other. They are widely used in E-Commerce websites and call centre to solve the customer grievances. The development of chatbots has opened up new arenas for customer engagement and new ways of carrying out business in the form of conversational commerce with the customers. It is now considered to be one of the most useful innovations of technologies that businesses can blindly rely on, very conveniently replacing the traditional methods of making apps and websites more efficient for business and commerce.

EVA makes it easier for customers to get quick access to the Bank's any product information, fees and charges for any products, branch IFSC Codes, application processes, and a variety of information faster than contacting with an agent. EVA is handling more than 50000 queries. The developers claim that everyday interaction with EVA and customers will help to increase its ability to probability to answering their query. It is considered to be the most effective or fastest among their peers. Eva's everyday interactions with users go through a conceptual banking knowledge framework which in turn enhances her ability to field more questions accurately. 'Eva' never sleeps and her learning never stops!" The Google Assistant rollout will make the bank's services accessible to even more customers right on their phones Users can just say "Ok Google, talk to HDFC Bank" to their Google Assistant to interact with 'Eva'.

Our AI-driven chatbots with text messaging and voice interactions will help bring millions of non tech-savvy customers into the fold of digital economy.

SBI In Touch

India's largest banking and financial services company: State Bank of India has taken up digital in a big way. They have conceptualized 'SBI In touch' banking, which has been described as the 'next generation banking initiative'. SBI has collaborated with global IT Services company Accenture to create these futuristic digital branches which will offer some of the most advanced banking services.For example, for the first time in the history of Indian banking, you can now get a debit card within 10 minutes of opening your account.These branches would be empowered with interactive LCDs mounted on walls, which will help SBI customers to map out their financial plans using SBI's expertise and assistance. They also assist you in taking loans, choosing investments portfolios access to mutual funds etc. Another interesting aspect of this is that in case of any queries the customer can directly get in touch with the executives through video conferencing.The latest move by SBI to open up digital banking and futuristic branches is moving in the right direction.You can open your account in

around 10 minutes using the 'Account Opening Kiosk', the smart interactive machines enabled to do all necessary works be it taking the photograph or scanning the documents. You can also get a Personalized ATM Debit card instantly using another machine. Account opening can be done online in a matter of seconds. Like current, saving, PPF etc. We can open savings account in 15 minutes. As we enter the digitalised branch we need to fill in the details that appear in the screen no need of filling any physical forms. Traditionally we had to fill the form submit our documents then sign in the forms. After this process is done we had to revisit the branch for taking the account number and the passbook. After which we needed to fill the forms for mobile, internet banking and ATM.

With the digitalised branch like SBI in touch account opening is made simpler. The only thing we need to do is carry our adhar card and the necessary documents along with us while visiting the branch. We need to fill a digital form which our personal as well as professional details will be asked. We need to verify our fingerprint in with the help of the fingerprint scanner machine. Once this procedure is done our photo will be clicked later on we need to scan our documents. After which we will get our account number. Once we choose the debit card receive our account number we can apply for debit card we can also choose the debit card number. Later on we will receive the debit card with our photo printed on it.The whole procedure is completed in just 15 minutes.

SBI in Touch Contactless Debit Card is a multi-purpose international debit card which comes with contactless technology. This means that the customer can make payments just by waving their contactless card near the POS machine. This makes it more viable to the customers. There is no need of actually swiping or dipping the card and this ensures that the card is the custody of the customer itself. Payments will be faster with the help of such kind of debit cards this with the card being in the hands of the customer. These debit cards can also be used as normal debit cards for withdrawing cash from ATMs.The Visa pay Wave enabled contactless cards ensure that transactions are secure, as the card never leaves the hands of the customer, thereby reducing the risk of card loss and fraud. It also reduces queuing time for customers as checkouts are faster. These cards work on the Near Field Communication (NFC) technology.Contactless card is a new form of plastic money. So that when they are used at a contactless reader they securely transmit purchase information toand from the contactless reader.Contactless Debit Card is secured with a Contact & Contactless Chip along with Magnetic stripe. Black strip behind the debit card. The Chip and the magnetic stripe portion is used for purchases at POS and transactions at ATM and where Contactless payments are not accepted.

As contactless transactions require significantly less time compared to traditional card based transactions, these cards enhances the customer convenience, while at the same time enabling the This card can be used at merchant locations where contactless payment is accepted. It can also be used at millions of Merchant locations where standard Card payments are accepted.

Advantages

- Faster day to day payments at merchant locations accepting Contactless Payments.
- Shopping at 10 lakh merchant outlets in India and over 30 million worldwide, accepting Card Payments.
- For booking movie tickets, utility bill payments, travel, other online purchases and payments over the internet.
- For withdrawing cash from SBI Group ATMs or other ATMs in India and worldwide.
- Safe online shopping and e-commerce transactions.

There is a minimum withdrawal of 100 and maximum limit 40000 rupees. The steps to apply for a debit card is that the person should have an account.

Insurance

You cannot physically see robots but they have entered through your internetecommerce site etc. Some firms are adopting robotics into their claims management process to help predict the eventual outcome of the claims process. It will help us to suggest the most appropriate strategy based on that prediction (for example, recommending an early settlement on cases where the data suggests a high potential for long-term litigation). Others are exploring how robotics could help identify potential mismatches between the policy terms set internally and those submitted by brokers. This is helping insurers to identify – at policy inception – policies that may lead to subsequent losses. Much like other new technologies, business users are starting to create bots within their own functions. As these bots start to interact and one starts to depend on the output of one and another. Data will also create a challenge. Cognitive computing and machine learning relies on building a repository of reliable historical information from which the bots can learn. The recent 'chatbot' debacle illustrated how the quality of the data being fed into the machine influences the quality of the results. Making sure the machines are working from the right data (and that they are all agreeing on the same version of 'the truth') will be critical to safely unlocking the value of cognitive robotics.

Insurance CEOs will also need to deal with new cultural considerations. What role will bots play in the future model? How will bots and humans interact? How will questions of ethics and morality be managed and reflected? These are questions that will require clear vision from CEOs. Whatever the answers are to these questions, there seems little doubt that the pace of robotics development is set to continue unabated. The insurance industry is outdated in the aspect of use of technology. Filling claim looks often the same as it was before just fill in the forms and the restwill go on. Earlier the concept of insurance was based on pooling concept like there would be one main agent then he will sell policies to a person Mr A then the policies which will be sold by Mr A will be marked under him and the commission for the same will be received by Mr A as well as the initial agent. Due to this kind of structure if the agent goes on leave due to some personal reasons then the claim requests of his clients will remain pending till the time he does not resume office. Due to such kind of situation the workload increases and in turn causes the loss of the customers. However with the development of AI in insurance a new process of touch less insurance claims with minimal human intervention will be planned. These robots will analyse the claims with the help of algorithms and recognise if there is something fraudulent. The robots will analyse the claim settlement process with the help of trend analysis and the past statistics which will help them to settle the claims in a speedy manner. In a recent survey conducted it saw that around 74% customers prefer computer controlled system. They are planning to introduce chatbots as majority of the customers are using mobile phones.

The future of the insurance field can be the majority of the time spent by the companies for analysing the underwriting process. Instead Artificial Intelligence and bots can automate the entire process. For example someone who has a healthy lifestyle, good medical background and stable job is person who is considered to be a safe driver with low amount of premiums. AI can analyse the data regarding the customers risk better than the humans with minimal errors. With the help of AI the policies can be broadly classified into three parts like

a)   Behavioural Pricing Policy

  It means IOT (Internet of Things) sensors will provide personalised data for pricing strategy. For example if a person is safe driver with minimal accidents and faults then they need to pay less premiums for car insurance. IoT sensors allow insurance carriers to price coverage based on real events, in real time, using data linked to individuals rather than samples.Telematics sensors allows real-time tracking of an underlying asset (cars) allowing for the roll-out of a new product line in the related insurance market (auto insurance) by personalizing the risk of the event being insured (a car accident).

b)   Customer Experience & Satisfaction

        AI will ensure seamless automated experience and the chatbots will ensure that there is adequate customer satisfaction. This will also ensure a wide range of insurance policies on offer for the customers and also the processing time for these insurance will also reduce.Chatbots will recognise our face and identity related data can be collected from the social data which can be used for personalise sales conversation, For example a life insurance company named lapetus made headlines by offering life insurance premium to customers with the help of selfies. They have a face recognition technology that will analyse the face and accordingly decide whether the person is a smoker or an alcoholic and then decide the premium accordingly.

Financial Markets

        Capital markets is the place where major chunk of investments takes place in any economy. It is this market where any country will like to put their best foot forward in case of technology. The main reason being this is the place where the maximum of foreign investments flows and the it is one of the key indicator for growth of the economy. There are three major advantages of Robotic automation they are streamlined cost, enhanced control and data analytics without affecting the quality of the services. In fact the cost can be reduced to around 50-70% in case of bulk trades. Robotics will ensure smooth customer on boarding facilities as majority of the data will be collected by IOT which will ensure thatthere is minimal repetition of questions which will ensure that the customers are not irritated. It will also ensure that the customer service is improved with fast and prompt service. Investment banking as an industry is always been in pressure due to regulatory supervision, liquidity and capital requirements. The ROE return on equity has also dropped over the period of time. With the help robots the investment pattern of the customers can be analysed and then the suitable trades can be suggested. They can be used for the customer KYC formalities. This will ensure that more and more customersare encouraged to participate in the markets.

        Algorithmic trading is a method of executing a large order (too large to fill all at once) using automated pre-programmed trading instructions. The price and volume will be set automatically. They are developed so that the traders do not need to constantly keep track about the markets. These popular algos work on certain percentages like if the stock or index hits a certain level then the trades start getting executed. On **April 3rd 2008**, Securities & Exchange Board of India (SEBI), started allowing Direct Market Access facility which allows buying or selling of orders by institutional clients without manual intervention by brokers. Direct Market Access (DMA) enables clients to access the exchange trading system through brokers' infrastructure but

without manual intervention. Algorithmic trading is not an attempt to make profit but in turn to reduce the risk of investment and minimise the loses. Many of these trades fall into high value trade and high volume trade.It is widely used by Investment banking, pension funds, mutual funds and hedge funds. Timely access to market intelligence and swift trade execution has always been the key to wealth creation in capital markets. Today, traders rely not only on high-speed information networks for timely access to news and market data, but also on algorithms to swiftly generate and execute trading decisions. Hence, algo-traders are increasingly looking at artificial intelligence solutions to build more dynamic models that can adapt to change markets. In addition to market data, these smart systems can utilise alternative data such as news, weather updates, satellite images, videos and geo-sensor data to predict market trends. Moreover, equipped with deep learning, reinforcement learning and genetic algorithms, these systems continue to learn and get better with time. With several amendments over the years, India provides a good opportunity for HFT traders due to a number of factors such as co-location facilities and sophisticated technology at both the major exchanges; a smart order routing system; and stock exchanges that are well-established and liquid.Given the rapidly growing trend and demand of HFT and Algorithmic Trading in developing economies & emerging markets, there have been efforts by various exchanges to educate their members and develop the skill sets required for this technology driven field.

III. Conclusion

Time is money people value time more than anything so with the advent of robots in the financial sector it will ensure better quality of services at minimal time with minimum wastage of resources. It is likely that the use of RPA and AI will be on an uptrend and people will try to implement in many other aspects of the financial sector. I would like to give an example of Amazon Go store that is been opened in Seattle a city in Washington D.C the main attracting concept in this store is that while we enter the store we need to open the application. Later on whatever we buy there are cameras everywhere that scans the barcode and the amount to be paid is directly deducted from the amazon go account. When we are at the checkout counter we need to tap our mobile and the amount will be deducted from our account. There is no need for the customers to stand in the long queues for billing such kind of innovative technology if introduced in the finance domain then there would be smooth flow of transactions. According to current research it is shown that AI is unable to surpass the human behaviour and thinking. However, steady gradual improvements in AI could reach a point where AI exceeds current expectations.It is difficult to determine where this technology might create new jobs in the future, yet easier to see which tasks AI might take from humans. It's likely that any routine, repetitive task will be automated. It's likely that we will adapt to technological changes by inventing entirely new types of work, and by taking advantage of our uniquely human capabilities. So we can conclude our topic by saying that robots is a boon in this sector it all depends how we look upon it and how we react to the changing environment and upgrade ourselves.

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