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INTELLIGENT AUTOMATION - USES, BENEFITS, AND IMPACT

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ABSTRACT

Digital Transformation has necessitated massive transition in operating regimes of businesses resulting in the adoption of upcoming technologies to extract optimum productivity. Intelligent automation, a combination of artificial intelligence and Robotic Process Automation is not just capable of automating repetitive, structured processes but also process unstructured data and provide with accurate predictions based on the analysis.

However, not much exploration is conducted in the domain of intelligent automation and its contribution to the various sectors such as banking, insurance, healthcare, etc.

Hence the objective of this study is to explore and understand the uses and benefits and impact of intelligent automation across different industries.

A case study approach has been adopted for this research wherein firstly various use cases of intelligent automation are studied and then we outlined how intelligent automation can help in smooth operations reducing human intervention and improving accuracy in business forecasts for future applications

1. Introduction

With the emergence of technological advancements, the organizations need to understand their business objective and customer requirements for their survival in the market. Today, when the competition around is so intense, it is necessary for organizations to be technologically upgraded, to meet the

demands of the clients and enhance profits. Daily, enterprises in various sectors such as banking, insurance, customer care, healthcare, supply chain, etc. need to deal with heaps of tasks that are time-consuming and are repetitive in nature. This not only increases cost and time consumed in performing these structured processes but also, such tasks are prone to multiple human errors.

Robotic Process Automation, which has been highly implemented by the organizations, can perform tasks which are rule-based and have a definite workflow. As per a market research report by Grand View Research (2020) [1], the robotic process automation market size had a worth of USD 1.1 billion in 2019 globally and is expected to witness a CAGR of 33.6% from 2020 to 2027. At present, organizations are keen to automate their monotonous tasks and free up their employees for more value-added tasks. According to Gartner (2018) [2], 85% of large and very large organizations will implement some form of automation in their business operations, by the end of 2022.

The World Economic Forum (2019) [3] states that by 2025, 463 exabytes of data will be created by the world daily. However, RPA is capable of processing only saturated data. As mentioned in the article by Devin Pickell (2018) [4], more than 80% of the entire data generated today is unstructured and this number is assumed to grow with the rise in the significance of IoT. Intelligent automation, with its advanced abilities of automation and deep learning can automate the entire operations and process both structured and unstructured data. According to an article by James Lawson (2020) [5], intelligent automation can reduce human intervention and delivers refined analysis to make complex decisions faster. Advanced automation delivered through conversational AI platforms such as chatbots and intelligent virtual assistants are capable of predictive analytics that helps in forecasting of customer behavior and service requests based on their past records [6]. According to Business Insider Intelligence (2020) [7], AI powered chatbots by 2023 can enable healthcare, banking, and retail sectors to make a saving of \$11 billion yearly.

Objective of research: However, there are a few studies on how intelligent automation is helping different organizations to improve their business processes. Therefore, to bridge this gap in academic literature, this study focuses on the uses and benefits of intelligent automation in various industries and the challenges faced by it.

2. Literature Review

2.1) Definition of Intelligent automation

According to a report by Deloitte [8], intelligent automation is defined as the integration of robotic process automation and artificial intelligence that is capable of streamlining business processes and establishes end to end automation. It states that intelligent automation can perform regular to advanced functions to achieve significant rise in efficiency and productivity. The paper by Beerbaum et al, (2020) [9] states that intelligent automation is AI powered robotic process automation wherein artificial intelligence techniques and analytics are utilized to further improve the efficiency of RPA –driven solutions. It also says that various buzz words in the recent time such as

cognitive RPA, smart process automation and intelligent automation has the same meaning that is an enhanced experience of RPA. The paper by Coito et al., (2019) [10] says that intelligent automation that is an amalgamation of robotics and predictive analytics is the need of the hour to face the increasing challenges of data exploration and management which can no longer be efficiently handled by traditional automation. It proposes a framework to deal with data exploration and support unfolding of a Middleware for Intelligent Automation.

2.2 Intelligent automation in healthcare

Healthcare is a domain that is being significantly supported by intelligent automation. The paper by Davenport et al., (2019) [11], states that AI powered robots that have enhanced intelligence due to embedded AI technologies can help to perform common surgical processes. It also mentions that surgical robots were approved by USA in 2000 which supports the surgeons with simple procedures such as creating precise incisions and stitching of wounds, etc. although major decisions are made by the doctors. The paper by Jain et al., (2018) [12], says that software robots are playing a critical role in the healthcare sector by automating the increasing paper-intensive tasks that are seen to be increasing with the rise in the number of patients. It states that these software bots help in enhancing operational efficiencies in the medical units and in securing medical insurance, streamlining follow ups, patient enrolment, patient scheduling, billing, etc.

2.3 In Intelligent automation in banking and financial institutions

As per reports the largest revenue share for 2019 was dominated by BFSI segment [1]. The BFSI segment has to deal with ever-increasing volumes of data, transactions, and compliance procedures. The paper by Ray (2019) [13], based on use cases discusses the need of intelligent automation in capital market operations and the benefits incurred through automation and pattern analysis. It states that intelligent automation can help in providing a smooth operating experience especially in handling the mid and back office procedures and to maintain compliance controls in the capital market. The paper by Agarwal et al., (2017) [14], states that cognitive robots can help in decision making, customer service and in ensuring compliance in the banking and financial sector. It states that such AI-powered intelligent bots are also capable of fraud detection and in providing financial advices to avoid debts and other related issues.

2.4 In Intelligent automation in customer service

Today, it is observed that customers demand for a quick, 24*7 service which is preferably customized. Intelligent automation with its advanced abilities of artificial intelligence, Robotic Process Automation, machine learning and natural language processing is seen to be playing an important role in customer service. The paper by Adam et al., (2020) [15], says that AI powered chatbots that are capable of smartly interacting with clients with the help of natural

language processing provides an enhanced customer experience. It also states that these chatbots helps in providing round the clock, instant response and service to customers and also deliver personalized experience to the clients. The paper by Tussyadiah (2020) [16], states that intelligent automation has an increasing scope in travel and tourism with the growing need to ensure customer satisfaction. It states that AI powered autonomous vehicles and service robots can support the clients in booking, handling pre-arrival instances, searching of information along with providing a customized experience through predictive analysis.

3. Research Method

For this research, a case study approach has been adopted, wherein various use cases of intelligent automation and its benefits to different sectors have been analyzed and discussed. The data for this study has been extracted through various online databases, whitepapers, articles, and reports. The collected literature has been then thoroughly analysed for relevance to the topic.

The research questions that have been addressed through this study are as follows:

1. Does intelligent automation play an important role in improving the operating efficiency and service delivery of various industries?
2. Are there specific use cases of intelligent automation being implemented by companies in different sectors to enhance efficiency and productivity?

4. Intelligent Automation In Various Sectors: Use Cases

4.1. Use Cases in Healthcare and Pharmaceuticals:

4.1.1 AMN Healthcare head quartered in San Diego; California is the leader in US healthcare staffing. It has offices set up across USA that deals with providing of freelance medical staff for vacancies in the domain of healthcare with primary focus on travel nursing. It delivers efficient recruitment procedures for medical workers thus helping healthcare providers to enhance patient outcomes [17].

Challenge faced

Managing and coordinating work schedules for thousands of medical staff are a time-consuming and critical task which requires sheer focus. Moreover, ensuring payment of these thousands of medical workers that is based on timecards provided by the hospitals requires intensive data processing. AMN Healthcare realized they had to process around 4000 of these timecards weekly, which required around 8000 hours annually. The traditional systems managing these processes seemed to be no longer efficient and also resulted in missing of around 200 timecards annually [17].

Impact/Benefits accrued

With the implementation of intelligent automation solutions, AMN Healthcare observed 68% reduction in time consumed for processing timecards. Also, man

hours required for this task reduced to 2600 hours from 8000 hours. They created an application where the medical staff can upload their timecards and implemented intelligent software bots for efficient and quick processing. The risk of missing timecards, payments and data duplication is almost eliminated now [17].

4.1.2 East Suffolk and North Essex Foundation Trust

Formed in the year 2018 with the merger of Colchester Hospital University Foundation Trust and the Ipswich Hospital NHS Trust, East Suffolk and North Essex Foundation Trust is known as ESNEFT. Providing healthcare services and community health services, ESNEFT is one of the major trusts in the UK [18].

Challenge faced

Within the year 2017-2018, ESNEFT missed around 8million hospital; appointments that does not include cancelled appointments. Missed patient appointments were the major issue faced such that patient appointment worth £1 billion wan missed annually. There was no proper track and recording of cancelled appointments [18].

Impact/Benefits accrued

Intelligent automation solutions helped ESNEFT to save 1365 appointments to be missed only within 8 weeks of implementation that was worth £216,960. So, it is estimated to save around £2.1 million annually by avoiding missed appointments. Digital workers are now systematically informed about appointment cancellations which can then be reallocated to new patients. Moreover, freeing up medical staff from the front desk service can enable them to be engaged in patient care service and other such value-added jobs [18].

4.1.3 Pfizer

Pfizer is one of the leading pharmaceutical company in the world, head quartered at New York, USA. It has a wide range of products aiming to deliver a healthier lifestyle [19].

Challenge faced

Pfizer felt the need to extract and manage organizational data from required sources and automate monotonous business and IT operations to improve productivity. They wanted to enhance compliance and increase application availability through user access automation and 24*7 monitoring. Additionally, there was a need to automate communication between stake holders and generation of ad-hoc reports [19].

Impact/Benefits accrued

Implementation of intelligent automation solutions has enabled Pfizer to automate more than 17 business processes which accounts for one third of total

volume of operations and also 10% improvement in response productivity. It has also established 100% Food and Drug Administration (FDA) compliance for automated tickets and 22% improvement in productivity associated with critical operations requirement. This technology implementation has also helped Pfizer to also establish 10% reduction in total cost of ownership [19].

4.2. Use Case in Banking

4.2.1 A leading banking company of Switzerland, Raiffeisen Bank is the third largest banking group of Switzerland with 861 offices across Switzerland. Head quartered at Vienna, Austria, Raiffeisen is a leader in retail banking sector with 3.8 million people relying on it for financial advices, business policies and services throughout Switzerland [20].

Challenge faced

Enormous amount of paper intensive transactions creates approximately 20 million paper receipts annually which used to be extremely time-consuming, consumes heaps of resources and very much prone to human error. Also, Raiffeisen wanted to change into standard processes at an early stage to free up staff to engage into more value-added tasks [20].

Impact/Benefits accrued

The implementation of intelligent automation solutions manages the post processing of paper-based transactions and also handles the scanning and verification of millions of financial transaction documents. It also helps Raiffeisen in complete recording of electronic credit notes that enables strict verification and authentication of transaction procedures. A safe security system has been designed for the bank to ensure continuity of payment processing even in case of emergency [20].

4.3. Use Case in Banking

4.3.1 Founded in 1968, TransUnion is a leader in providing global risks and information solutions to organizations. Head quartered at Chicago, USA, this agency dealing with consumer credit reporting with customers that includes over 65000 businesses. It helps clients in fraud detection, managing debt portfolio, authentication of client identities, collection of debt and safeguards client from identity theft [21].

Challenge faced

TransUnion has a very big customer base to be managed such that there are around 55 new corporate subscribers every day. TransUnion believes customer satisfaction is the epitome of any business strategy and without advanced automation skills 24*7 quick response to customers was very difficult to manage. Moreover, handling heaps of data and records of clients and transaction was very cumbersome and subjected to multiple errors, leading to delay in procedures [21].

Impact/Benefits accrued

Digital workers that are AI powered bots are now implemented to establish end to end automation of data handling procedures such that 70% of the focused transactions have been automated by the team within 6 months of going live. This technological upgrade also helps in managing data transfer between different departments such as finance, CRM and so on. These bots also help in updating rules and regulation across all systems and provides round the clock service. Also, TransUnion is now able to cut cost in hiring of new employees for handling the ever-increasing volumes of transactions without any reduction in quality of service [21].

5. Future Applications

The market today demands for a quick, round the clock and error-free service with strategies that are able to deliver cognition similar to human brain and technological advancement is primarily responsible for this. Advanced technologies like intelligent automation have transformed the traditional operating regimes of organizations into more smart and productive form. Earlier reaping the benefits of regular automation, companies now are in search of more efficient systems which along with eliminating monotonous tasks can also help in decision making and analysing data with a combination of automation with artificial intelligence and data analytics [22].

Data has become the most valuable asset for any organization such that upcoming business strategies highly depend on it. The volumes of both structured and unstructured data are expected to generate in the coming years with the rise in IoT applications. This data needs to be treated carefully to optimize benefits and increase profits which highly demands for intelligent automation abilities. Additionally, customer experience has become utmost essential for organization with the rise in intense competition and which will continue to increase in the coming years. With abilities of machine learning and natural language processing, intelligent automation will be able to deliver automatic and quick resolution of increasing customer queries and deliver instant service. Customer care has seen a rise in demand in the last few years and advanced automation can help in improving customer satisfaction.

The market trends are seen to be dynamic over the years. There is an increase in demand for personalized experience to customers in the recent time. Intelligent automation with its predictive analytics abilities can enable trend forecast which can help organizations to come up with revolutionary ideas and strategic plans. Technologies like automation, artificial intelligence, machine learning has highly influenced the business paradigm over the last few years and intelligent automation is a revolutionized form of such technologies that can break through the barriers of traditional automation.

6. Conclusion

Automation as a technology has evolved over the years and intelligent automation with a combination of advanced abilities is the need of the hour. The need for smooth and quick error free service has created a high demand for

such analytical abilities that can also automate processes. Intelligent automation has been readily implemented across various industries. The objective of this study was to understand and analyze the use and impact of intelligent automation in different sectors.

From the various studies we can conclude that the transition from traditional automation to intelligent automation has been significantly beneficial and impactful for different sectors for automating rule-based tasks and analyzing data and trends. This has helped in reducing manual errors, time consumption and increasing efficiency and productivity of business processes.

However, with multiple benefits, intelligent automation has brought along with it the fear of job loss among people soon. It is believed that although there may be loss of jobs mundane in nature in some sectors, there will be a massive rise in job opportunities which requires creativity and analytical abilities. Future research can be proposed as to what new employment opportunities does advanced automation bring along and also what major challenges are required to be faced along the journey of deployment and use of intelligent automation in companies

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