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Applications Management Using AI Automation

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Abstract

This is a research article on applications management using AI automation. The research found out that AI automation has greatly revolutionized different industries and sectors. It has had both negative and positive impacts in different areas of society. For example, the research found that the implementation of AI automation in some industries led to the creation of various jobs that relate to computing. However, it also led to the loss of different jobs, especially manual jobs that could be automated. This paper comprises the introduction, literature review, a discussion of how the research is going to help America, and a conclusion.

Keywords: Artificial Intelligence, Automation, Applications

1. Introduction

In most cases, people confuse Artificial intelligence (AI) and automation. Also, in most cases, people use AI and automation interchangeably. However, it is necessary to note these two terms denote strongly different ideas. According to Holzinger et al. (2019), AI denotes how computers and other computing devices, such as smartphones can use a huge volume of data for purposes of imitating human intelligence reasoning. Also, AI enables the systems to learn like their human beings counterparts, interpret and also recommend what to do next (Lu et al., 2018). Studies show that AI has the capability to understand marketing KPIs can apply diverse algorithms that act in concert for purposes of finding signals within the noise of data. Also, AI can help in finding solutions to problems that human beings would not be capable of. As per Brynjolfsson & McAfee (2017), the majority of AI today works in an assistive manner; they do so in order to provide the next best action recommendation to human beings.

On the other hand, automation entails the technique or method of making apparatus, processes, and systems to operate (Acemoglu & Restrepo, 2018). It aims at creating and applying technology for purposes of monitoring and controlling the efficient production and delivery of both products and services. Automation entails replacing human workers with electronic and mechanical devices.

The combination of the two terms results in AI automation. When the robotics process is amalgamated with different elements of AI, such as machine learning, the outcome is referred to as intelligent process automation (IPA). It should be noted that an IPA is extremely powerful because since it allows people to reap both the advantages and benefits of automation and AI (Zhang, 2019). Therefore, organizations that implement the IPA tool are likely to benefit from increased speed, time-savings, the potential to scale, and efficiency; these are all benefits of automation. Similarly, such organizations are likely to benefit from great insights, high processing power, and a high level of flexibility.

Important to note is that most of the marketers that adopt or use IPA are likely to augment their capabilities. Also, such marketers are able to off-load repetitive campaign management activities to the machine. This is entirely distinct from the pure robotic automaton. For marketers, the use of IPA results in faster and highly personalized execution as well as processes (Shani, 2020; Berruti et al., 2017). Also, it results in greater use

and exactness in data. Similarly, it results in the improvement of the entire overall customer experience. For these reasons, organizations should consider the implementation of AI automation (Shani, 2020; Moiseeva et al., 2020). This paper is a research article on applications management using AI automation.

2. Literature Review

Because of the benefits associated with the use of AI automation, several scholars have developed an enormous interest in this topic. Several scholars have authored several articles, books, and journals on this research topic. They aim at sharing knowledge regarding the benefits that AI automation offers to organizations. They are determined to enlighten entrepreneurs and organizations regarding the various benefits of AI automation and the significant changes AI automation can bring to organizations. This part of the research article provides a review of the literature that has been written on the topic of AI automation.

One of the scholars who have shown immense interest in this area is Matt Kay. In his article, he focused on the road to automated applications management. According to Kay (2021), efficient management of an organization's overall application portfolio plays a great role in the success of any business. However, regardless of this reality, it is not a particularly fashionable activity within the field of IT. In the IT sector, this application portfolio is typically linked to high cost, human error, manual processes as well as highly ineffective resource allocation (Kay, 2021). Basically, it is a perfect candidate for automation. Kay further argues that automated application management, supported by AI as well as machine learning, can greatly save an organization more than 40 percent and in more than 3 to 5 years mainly by reducing IT labor costs as well as enhancing efficiency and productivity (Kay, 2021). Kay further shows that automation is significantly transforming IT services (Kay, 2021).

James Manyika and Kevin Sneider are other scholars who have written extensively on AI automation. In their article, they have shown how the future of work is going to be changed through AI automation. According to Manyika and Sneider (2018), as machines progressively complement human labor in working environments, people and organizations will need to adjust in order to reap the benefits of AI automation. They further argue that Automation and AI are significantly transforming enterprises and they are likely to contribute to economic growth and development. These two technologies will achieve this by the contributions they have had and they have on productivity. In addition, as per Manyika and Sneider (2018), AI automation will help in addressing the issue of "moonshot" societal challenges in diverse areas, including health and climate change. Besides, these scholars agree that AI automation will significantly alter the nature of work as well as the workplace itself. Also, with the application of AI automation, machines will be in a position to carry out numerous that are currently being undertaken by human beings. Moreover, with the implementation of AI in organizations, machines will most likely be able to perform that for a very long time go beyond what people can do. For this reason, some of the occupations are expected to shrink. Also, other different types of works are expected to grow. However, the reality is that most of the work will undergo a significant change.

As per Manyika and Sneider (2018), even though people think that there will be enough jobs or work to go around, the truth is that, with the implementation of AI automation in organizations, society will have to grapple with substantial workforce dislocations and transitions. Similarly, workers will be required to acquire new skills. Also, they will be needed to adapt to the increasingly able machines beside them in the work environment. To survive in the new environment that will be led by machines, workers will have to move from the jobs that are declining due to automation. Instead, they will be required to acquire new skills and start working in areas that provide new occupations.

Also, the authors have shown ten ways by which AI automation is going to change work. First, they argue that the implementation of AI automation in the workplace is going to create new opportunities not only for businesses but also for the economy and society. They opine that AI automation technologies are already creating and generating values in diverse products and services. For this reason, several firms across different sectors are already using them in an array of processes for purposes of personalizing product recommendations, finding anomalies in production as well as in identifying fraudulent transactions. Another way through which AI automation will affect the workplace is that some occupations and jobs will decline significantly. Also, automation will result in the creation of different jobs. Similarly, this automation will result in changes in some jobs. Studies show that more jobs will be changed as machines supplement human labor in the workplace.

Manyika and Sneider (2018) have provided several ten actions that should be undertaken in order to reduce or eliminate the dangers associated with the implementation of AI in the workplace. The activities that need to be taken will include ensuring robust economic as well as productivity growth, fostering business dynamism, the need to evolve education systems and learning for a changing workplace, and investing in human capital. Other actions include enhancing labor-market dynamism, redesigning work, rethinking incomes, investing in drivers of demand for work, and embracing AI and automation safely (Manyika & Sneider, 2018).

Anurag Banerjee has also shown immense interest in the topic of AI automation. In his article published in 2018, he discusses the application and benefits of AI automation. According to Banerjee (2020), AI has become the slogan of the contemporary business community. He argues that with AI automation, firms not only reduce the human effort required in carrying out various tasks but it also helps in removing the need for intervention altogether. As per Banerjee, AI in automation can help in a broad range of functions. These include drones and self-driving cars. He also discusses five different ways through which businesses can benefit from AI automation.

One of the ways by which businesses can benefit from AI automation includes fraud prevention. With AI automation, it is possible to link a theft directly to the face of an individual. With AI automation, a camera could be attached to the POS system for purposes of recording all the transactions and consequently link them directly to the image along with comprehensive details in the system. With this technology in place, people who use fake currency or commit credit card fraud can easily be identified. What's more, intelligent systems can also prevent different forms of cyber-attacks. They achieve this by identifying abnormal behavior or by analyzing requests from the user. In this situation, the system automatically stops taking requests and sends or conveys an alert to the system administrator.

Secondly, as per Banerjee (2020), AI automation can also help in brand management. It is necessary to note that automation makes the task of brand management easier. In most cases, marketers struggle to comprehend the opinion of clients regarding their brand. However, with automation, marketers can seamlessly automate the analysis of the content throughout the internet regularly and identify critical issues. A good example of automation, in reality, is Watson Analytics for Social Media. With this tool, the user can easily understand whether the clients are satisfied with the product or whether they are dissatisfied. By mining this information, the organization can easily determine the areas that it needs to improve and areas that can retain the status quo.

Kokina Julia and Thomas Davenport also talk about this topic. They also discuss the application of AI in Automation. According to Kokina & Davenport (2017), AI automation can be a game-changer in customer service. They argue that Chatbots have become important as far as customer service is concerned. It started with Apple's Siri. However, over the past few years, Chatbots have now an important element for brands, especially those with an online presence. The Chatbots have the capability of user inputs and responding to the queries raised by the people. They can be used for automating sales, marketing messages, and customer service. Also, because bots can be deployed on already famous platforms, such as Facebook Messenger, it creates friction because of the download process as is the case with Apps. Also, these bots are game-changer because in most cases, they feel much like human beings. For this reason, they can reduce the costs associated with employing reception and other customer help desks.

Das et al. (2015) hold that the implementation of AI automation will help in software testing as well as development. He argues that automation in the process of software testing is an increasingly growing field. With a wide range of software and application testing in place, it can be argued that the entire process of software testing is almost entirely automated in the future. Examples of renowned intelligent software testing tools include ReTest, SauceLabs, and Applitools, among others. With the invention of these tools, software developers can now focus on the main coding and leave the worry of removing and fixing bugs on the intelligent systems. Also, even though software development automation has not yet been realized, it is necessary to note that there are existing tools that can help in relieving software developers from menial tasks. A good example of these tools is the Amazon Glue. The Amazon Glue is an entirely managed ETL engine that is capable of handling the exhausting working of typing the ETL script.

Abduljabbar et al. (2019) have also written an article to show how AI automation can help in HR management. According to Abduljabbar et al. (2019), in most cases, recruiters struggle while sorting a large number of applications while trying to determine the most deserving candidate. Also, they struggle a lot while managing old data. However, this can greatly change with the employment of AI automation. Abduljabbar et al. (2019) argue that, with automation, this work carried by recruiters can be automated on a large scale. Actually, currently, HR as well as recruiting managers already receive the majority of the resumes via an automated applicant tracking system. Such solutions upload the work application constituents to their database after the users apply for a role. Consequently, HR and recruiting professionals then receive information in the form of packets, which can be organized and then managed through diverse options. This helps in reducing the efforts required for sorting out different applications.

Davenport & Kalakota (2019) have also written the impact that AI automation is likely to have in different fields. In their work, they have focused on the role that AI automation will play in streamlining the healthcare sector. Also, they have highlighted various benefits associated with the use of AI automation in healthcare. They have also heightened the several reasons why any organization should choose intelligent automation. One of the reasons they highlight is reduced cost. According to Davenport & Kalakota (2019), the overall cost of training human beings on tasks of routine nature is of recurring nature. The employer will need to deal with employee turnover, allow a lot of time for skill development, and incur a lot of vocational costs. However, this is different from machines. Unlike human beings, once a certain machine is trained, it only improves over time. Also, with machines, there is no cost incurred for repeat training.

The second advantage that is provided by the use of AI automation is improved efficiency. Regardless of how efficient an individual is, he or she will always make mistakes. Some of the mistakes made by human beings while carrying out the tasks can have a catastrophic impact on the business. Also, such mistakes can lead to financial losses and the shifting of loyalty by the clients (Cockburn, Henderson & Stern, 2018). Therefore, even though mistakes are unavoidable in various instances, some losses can even bring down the entire organization. However, machines are totally different from human beings as far as making mistakes is concerned. According to Cockburn, Henderson & Stern (2018), automation solutions are much more foolproof. Also, they leave little or no errors. Also, with time, machines learn from the outputs. This results in the improvement of its efficiency. Thus, it can be argued that unlike human beings that have issues as far as efficiency is concerned, machines are entirely mistake-proof.

Joe Colantonio, the founder of TestGuild has also written on the use of AI automation. He discusses ways of using AI in test automation. One of such ways according to Colantonio is by doing visual, automated validation UI testing. As per Colantonio, visual testing is a quality assurance activity whose purpose is verifying that UI seems or appears correctly for the intended users. However, the majority of people confuse this with conventional, functional testing methods and tools that were designed for purposes of helping people test an application's functionality through the UI. With the visual testing method, people want to ensure that the User interface itself looks perfect to the users and every UI component appears in the right shape, color, size, and position. Also, the developers ensure that the UI does not overlap or hide any other UI elements. He notes that the majority of these tests are quite challenging to automate. For this reason, they end up becoming manual tests. As a result, this makes them a good fit for AI testing. According to Colantonio, by using machine learning (ML) based visual validation methods and tools; developers can establish differences that human testers are highly likely to miss (Colantonio, 2021). This has greatly changed the manner in which most developers do automation testing. With ML, developers can create a simple ML test that automatically detects the entire visual bugs within the software (Colantonio, 2021). This is important since it helps in validating the application's visual correctness without the developer having to obliquely assert what it will check.

The second way through which developers use AI in their test automation is through the use of Testing APIs. The lack of a user interface to automate is another change that affects how developers do automation (Colantonio, 2021). Also, the majority of contemporary testing is not front-end-focused; instead, it is back-end-related. According to Colantonio (2021), the majority of recent work on testing relies largely on API test automation for purposes of helping ML testing efforts. With this testing, the majority of work is focused on ML algorithms. This implies that the programming that one has to do when using the API test automation is a lot different. Also, with this approach, developers do a lot of analytics within their test scripts. Also, they have to do a lot of API calls.

Raghav Bharadwaj has also authored an article on AI automation. In the article, he discusses the different ways in which AI can be used in building automation. The article is an outcome of detailed research that was done on the different areas in construction where AI can be employed. Bharadwaj researched different areas in the building automation sector where AI comes into play. The research aimed at answering three core questions, which included;

- i. The different types of AI applications that are presently in use in building automation
- ii. The different results that AI has driven in building automation
- iii. The various common trends among the diverse innovation efforts and the impact such trends could have in the future of building automation

The results of the study established two areas where AI automation has shown a lot of impacts. The two areas are facility management and energy use analytics. The article also covers the various forms that are offering software across facility management and energy use analytics.

Regarding facility management, several companies are currently offering software for use in facility management. Some of these companies include PointGrab and IBM. To start with, PointGrab provides a platform that includes CogniPoint cloud management software and an image sensing hardware device. The company opines that these two tools can assist managers in building maintenance to reduce operational costs majorly by using AI to optimize and automate facility management (Bharadwaj, 2019). As per the company, users can integrate CogniPoint solution into any existing building automation systems. In addition, the Cognipoint sensor is deployed in particular rooms within the building for purposes of tracking the number of occupants. Besides, the sensor can be attached to the building's LAN, WiFi, or Power over Ethernet (POE) connections. This technology is highly advanced considering that each of the sensors is capable of covering in excess of 520 sq. ft. or 48 square meters (Bharadwaj, 2019). It should be noted that the sensor uses computer vision for purposes of analyzing the amount of people occupying a room and their position in the room and transmit this information instantaneously to the CogniPoint Management System. This information is very important for facility managers because it can be used to determine whether the amenities provided in each of the rooms are sufficient. Also, it can be used for optimizing the use of meeting rooms and workstations. After collecting the information, the system offers the necessary signals to the current building automation software in order to control an office space's working conditions. Also, with this information, the working conditions in an office, including lighting, heating, and air conditioning can be known and regulated using the already installed conditioning systems.

Regarding energy use analytics, several companies offer technologies that can help in energy use analytics. A good example of such companies is Verdigris. This company offers various technologies, including an IoT Energy Meter and analytics platform. As per the company, these two technologies can help facility management services companies to volume of reducing energy spend using data analytics and sensors. The company claims that users can deploy the IoT Energy Meter hardware device at different locations, but mainly at electrical circuit panels. After installation, the meter collects the data regarding electricity usage over 4G/LTE or Wi-Fi to the cloud. The company's software then consumes the data and establishes the hidden problems or anomalies from the quality of power data in order to alert users regarding when the usage of energy is different from the anticipated levels. After this information has been collected and conveyed, the authorized parties can fix the anomalies and consequently ensure no energy is wasted. Verdigris has helped several companies with this technology. For example, the company claims to have helped Grand Hyatt San Francisco (GHSF). As per Verdigris, it helped GHSF to dynamically manage their energy demand. With the help of Verdigris, GHSF was able to install four systems in their hotel with great success. With the installation, the company was able to save on labor costs since the energy system did not need to have an individual on standby to monitor energy level usage and rectify the anomaly (Bharadwaj, 2019). With the installation, GHSF identified savings opportunities of about \$2,100 every month because the new systems helped the company to avoid avoided maintenance energy usage and equipment malfunction (Bharadwaj, 2019). Other clients that have benefited from Verdigris 'systems include Meridien, W Hotels, and InterContinental Hotels Group.

The Kodiak Rating Community has also written on the Applications Management Using AI Automation. In its article, the Kodiak Rating Community has provided the various applications of AI in the supply chain. According to Kodiak Rating Community (2017), one of the ways in which AI automation can be applied in supply chain management (SCM) is with Chatbots for operational procurement. The organization opines that the streamlining procurement-related activities through the automation, as well as the Chatbot capability's augmentation, calls for access to highly vigorous as well as intelligent data sets, whereby the 'procuebot' would be in a position to access as an edge of reference. As for daily SCM tasks, it should be noted that Chatbots could be utilized in different ways. Some of these ways include speaking to suppliers in the course of trivial conversations, setting as well as sending actions to the suppliers concerning compliance materials and governance. On the same note, the Chatbots are used in the placing of purchasing requests and researching as well as answering internal questions concerning supplier set and procurement functionalities. Besides, they are used for receiving, filing and documentation of payments, order requests, and invoices.

Another way through which AI automation helps in SCM is the use of machine learning (ML) for Supply Chain Planning (SCP). SCP is an indispensable activity in SCM strategy. On the way note, having highly intelligent work tools for the building of concrete plans is indispensable in today's commercial world. Having this in mind, it is clear that ML, when applied within SCP can be of great help in forecasting inventory, demand, and supply. When applied successfully through SCM work tools, machine learning can greatly revolutionize the optimization and the agility of supply chain decision-making. In addition, in using ML technology, the SCM professionals who are responsible for SCP would assist in giving the best conceivable scenarios based upon highly intelligent algorithms as well as machine-to-machine (MtM) analysis of immense data sets. Such level and kind of capability could help in optimizing goods delivery while at the same time balancing supply and demand. Also, this would not need human analysis, but instead action setting, particularly for parameters of success.

Another area within the supply chain that can benefit from AI automation is warehouse management. It is necessary to note that the success of SCP is significantly dependent on the proper warehouse as well as effective inventory-based management. Notwithstanding the demand forecasting, it is important to understand that supply flaws could be a disaster for any consumer-based retailer or organization. Any of such issues can be solved using ML. This is because ML offers an endless loop of forecasting; this bears a continually self-refining output. This form of ability could help in reshaping warehouse management as people know it today.

On the same note, Ai automation can enhance the supply chain by introducing autonomous vehicles to help in logistics and shipping. According to (Kodiak Rating Community (2021), intelligence, especially in shipping and logistics has now become a center stage form of focus in SCM recently. Faster as well as more precise shipping is important because it helps in reducing transportation expenses and lead times. Also, it adds constituents of environmentally responsive operations. Also, it reduces labor costs and widens and broadens the existing gap between different competitors (Kodiak Rating Community, 2021). Considering these facts, if autonomous automobiles were developed to the potential that has been hypothesized by different tech gurus and business analysts, the effect or the impact on optimization of logistics is likely to be astronomical.

3. How my Research is going to help America

This research will have enormous benefits to America. To start with, the research will enable U.S businesses to benefit from AI automation in their supply chain. The Automation of AI will have immense benefits to the U.S supply chain. To start with, the automation of AI in the U.S supply chain will bring about warehouse efficiency. It should be noted that a high warehouse is a very important part of the country's and an organization's supply chain. Automation of the supply chain by the use of AI can assist in ensuring timely retrieval of items from the warehouse. Also, it can ensure a significantly smooth journey to the customers (Ngai, 2014). What is more, AI systems can also help in solving numerous warehouse issues, more accurately and accurately compared to human beings. Moreover, the implementation of AI in the supply chain and automation of the same would help in simplifying procedures and in speeding up work. Likewise, together with the saving of valuable time, AI-driven automation efforts can considerably condense the need for, as well as the cost of warehouse staff (Ngai, 2014). This will enable American-based organizations to save on labor costs.

Also, AI automation in the American supply chain will bring about on-time delivery. According to Tjahjono et al. (2017), AI automated systems can help in reducing over-dependency on human efforts or manual efforts. As a result, this would result in making the whole process faster, smarter and safer. Also, this would help in facilitating timely delivery to all the clients according to the commitment. What is more, highly automated systems can help in accelerating conventional warehouse procedures (Tjahjono et al., 2017). This is important since it would help in removing various operational bottlenecks alongside the value chain with negligible effort to realize delivery targets.

Also, AI automation in the U.S supply chain will bring about accurate inventory management (AIM). It should be noted that AIM can ensure the right flow of item both in and out of the warehouse. Normally, there are several inventory-connected variables such as order processing, picking as well as packing; this could become extremely time-consuming with a huge tendency for error (Vasant, 2014). Besides, AIM could help in preventing issues such as overstocking, insufficient stock, and unanticipated stock-outs. With the capability to handle a huge volume of data, AI-driven tools can be effective in inventory management. Such intelligent systems can effectively analyze as well as understand extremely large datasets quickly. In doing this, they provide timely guidance on both forecasting supply and demand. Such advanced AI systems with significantly intelligent algorithms can also help in predicting and discovering new consumer habits as well as seasonal demand (Gunasekaran, Dubey & Singh, 2016). Such important applications of AI help businesses in anticipating future client demand trends while at the same time minimizing the costs associated with overstocking undesirable inventory.

4. Conclusion

The importance of AI automation cannot be understated. It has greatly revolutionized different sectors across the world. Also, it has affected different industries and sectors in different ways. It has influenced different sectors in both positive and negative ways. However, because of its capability to change the ways in which different things are done in society, AI automation cannot be ignored or rubbished. The workplace is one of the areas that have experienced monumental impact following the implementation of AI automation. For example, AI automation has resulted in the creation of different forms of jobs. Also, it has resulted in some jobs becoming irreverent. Most jobs in different industries have been mechanized or automated. This has resulted in millions of people losing their jobs. Also, jobs that could not be mechanized have continued to realize significant growth and have become attractive to different quotas. Also, various jobs have been created that required deep computing skills. Thus, for people to become attracted to the new jobs created by AI automation, they have been forced to go back to school and acquire new skills.

A supply chain is another sector that has greatly been influenced by AI automation. With AI automation, various activities in the supply chain have been mechanized or automated. This has helped to reduce human-related errors that are linked with carrying of various supply chain activities manually. Other sectors have been influenced in the same manner. There are several features of AI that have made it a game-changer in different sectors. These include the ability to store and process big data, the ability to eliminate both dull and boring tasks, data ingestion, imitation human cognition, and facial recognition and Chatbots.

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