

AUTOMATION OF HEALTHCARE APPLICATIONS BY INCORPORATION OF IT

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ABSTRACT

The use of modern technologies in the public, business and healthcare sectors will be examined in this work. The styles of typical behavior of the various life segments indicated above tend to change as a result of recent technology breakthroughs which also negatively impact how these segments function. The technology provides mysterious ways in the realm of automation and shines light on particular sectors that call for acceptable and excellent services. By doing this, the effectiveness of the entire system that is put in place is improved in terms of credibility and accountability. A variety of documentations that are empirically applied in the field of IT are investigated to look into how the automation of the application areas is influenced by IT regarding the equation of responsibility. The investigation goes from the most basic types of transactions which entail lesser levels of automation to highly automated systems which include, among other things, technology that analyze biometric fingerprints. In the example, the accountable potential of IT automation is discussed for the various applications with the goal of examining the advantages of application automation while removing the potentials that are unaccountable and impede the functionality that may result from the use of the systems applications on the various fields. The necessity of striking a balance between the advantages of automated IT applications and the full automation process including any system that would tend to make applications less efficient or raise questions about accountability is emphasized frequently throughout this work.

Key words: Information Technology (IT), Automation, Accountability, Public sector, Private sector, Healthcare sector

INTRODUCTION

The structural systems for processing information, storing the data and modifying the data contained in the storage devices are at the core of the healthcare, private and public sectors' operations. The operation of the applications depends heavily on the processing of data. Why ICTs are said to "deliver efficient, effective, transparent and accountable outcomes to the applied sectors" is crucial to understand [19]. The use of technology enhances service delivery, eradicates corruption and ensures the highest level of accuracy. The use of technological progress within the sectors has the potential to significantly impact the effectiveness and technical advantages of their activities. By doing this, the problems that are frequently seen in accountability-related topics will be fixed. In order to provide a reflection of the IT interaction with the sectors' accountability, the paper will look at how IT automation has been implemented in the healthcare, private and public sectors of life. The report will evaluate the problematic areas in the automation industry specifically without discounting the field's positive and potential benefits [12]. Additionally, it will show how traditional behavioral models in the many industries will change as a result of sophisticated technology which will have a significant impact on the arrangements that are very accountable [10]. It gives the IT team a chance to look at the IT infrastructure from a business perspective. The research will show how the technologies move their attention away from accountability and toward their responsibility for offering improved functionality while still accomplishing the specified aim [8]. If changes are made to the areas that need to be automated, the automation of the IT sectors will be considerably improved in the future. The research also focuses on the overall framework's developmental contribution that programmers may take into account while automating the IT-related healthcare, private and public sectors.

LITERATURE REVIEW

In many areas of life, technological use has recently increased. Therefore, it is evident that technology has altered how the public, private and healthcare sectors execute and function. Both the public and private sectors have adopted smart technology to develop their systems [4]. The usage of intelligent technologies has also become commonplace in HR and security. By altering how services are delivered and industry processes are carried out, smart technology completely affects the healthcare sector. IT automation increases efficiency and productivity. People can use applications using technology to complete various chores like hotel booking, utility payments and other things which tends to make life easier. As an illustration, people

utilize cellphones as technical devices in every industry. As a result, by consuming less time and energy, the automation of these areas is replacing outdated ways of living [11].

Automation in the application for the healthcare sector in IT

The automation of the management system which is a part of the developing and sophisticated IT infrastructure for healthcare has decreased the resources that may have otherwise been wasted and increased ROI. The support that technology provides to professionals and patients is something that the healthcare organizations rely on more. Automation of the IT infrastructure will lead to the development of a worthwhile plan for minimizing time waste and enhancing performance. The IT infrastructure system can automate tasks like network monitoring and data recovery [23]. For the systems to operate at their best without the aid of technology, both of them are regarded as extremely intensive data. Significant advantages of automation include time savings and the creation of insights that might improve the efficiency of the IT infrastructure [3]. Automation provides resources that are both observable and manageable.

Why automation is required in healthcare

The transition to digital has become commonplace in the healthcare industry. The goal of automating the technology is to enhance and increase the patient's experience with the services provided by the provider organization [16]. Since science has evolved due to automation, healthcare quality has improved. Therefore, it is obvious that automation is a component that is essential to providing better healthcare services [13]. Numerous other aspects have also been surpassed by automation, such as the ability to retain past health records and provide electronic health histories. It can be shared in many settings enhancing both the patient's and the hospital's ability to provide services [5]. The automation case can be divided between the innovative and practical IT professionals who work daily with the tools for IT infrastructure and directly and the business executives whose job is to save money and time by reducing the expenses of the service delivery to the patients [1]. When technological infrastructure is thought of as evolving, it signifies that the network needs to be improved regularly. Small healthcare systems may not be able to afford to hire the necessary developers as their employees, so they end up buying the programs from suppliers who provide superior automation solutions [19]. In order to make the best judgments when upgrading legacy systems, one option is to integrate automation into the IT architecture. By asking the IT team for explanations, systems can also be replaced swiftly and autonomously

including the replacement of a network management system [2]. By offering insight into system requirements and subsequently identifying what needs to be updated to improve the IT infrastructure, the data gathered by automated network management can provide insightful guidance [11]. As a result, it offers the IT personnel more time to expand the network and concentrate on duties that are more important, such as using cutting-edge and digital tools to enhance the clinical and patient experience. The cost of procedures is now decreasing as technology advances. Today's automation allows for advanced telemedicine. Telemedicine is the use of technology to deliver healthcare services to people in remote locations [18]. Due to recent advances in technology, the idea has quickly acquired traction. The health sector has stated that it will reduce costs and boost efficiency which are the main priorities for the sector's finances [19]. Automation has therefore emerged as a tactic that is critical for raising performance. This is the reason why telemedicine has been able to establish itself as a viable alternative to the practice of drudged hospitalization and the creation of tools that will ensure the highest possible level of telehealth [8].

Automation in the application for the private sector in it

Automation services are currently being used by the private sector in their organizations which helps them reduce operational costs, improve service offerings, speed up work and reduce the amount of manual labor required throughout the entire process. Most governments have taken a note of how businesses are automating their processes and the benefits it provides to the firm as a result [4]. Embracing the lean process design which places an emphasis on reducing waste and maximizing value is a trend among some private businesses. They use robots and machine learning which stimulates new activities to adopt automation [6]. Many of them required manual handling which required labor. Order-based procurement and purchase processes are now fully automated, operating around-the-clock and reducing the cost of the manual method three-fold [10]. About one-fourth of all jobs in the public sector are now in the private sector where the focus has shifted to administrative tasks. This shows that governments can increase productivity in the area by increasing efficiency [17]. Automation creates a process that is precise, consistent, scalable and traceable. The government may benefit from a more open and enhanced means of providing services to its inhabitants as well as from the availability of consistent data that makes it possible to analyze tasks related to crime prevention [14]. Additionally, automation can increase employee satisfaction on some manual and repetitive tasks which are thought to be the least enjoyable jobs.

Automation in the application for the public sector in IT

More than 70% of the tasks in the financial, human resources and procurement sectors are automated. As a result, there is the possibility for long-term savings. It implies that at least 40% of the costs associated with after-accounting setup and continuing software costs are saved [9]. Automation in this industry has already begun to yield notable advantages that may be demonstrated. It enables governments to provide their residents with high-quality services while spending less on operations. Similar to the private sector, the public sector has adopted technology and undergone a digital revolution that has reduced costs associated with manual labor and improved results [5]. Automation, in particular, can assist governments in enhancing their productivity and scale which would enhance the pleasure of their inhabitants. In comparison to its potential, the public sector's adoption of automation is thought to be in its infancy [14]. This implies that in order to fully realize the potential of automation, large expenditures, enough time and a strong management-focused approach are all necessary. There are three additional categories for automation. The first category is the physical one which includes the drivelines used by cars, drones and assembly lines. The second category is digital which includes software and the complete automation process [1]. The final kind is an amalgam of the digital and physical divisions. In tasks that are relatively highly organized and predictable contexts, such as the robotics in automobile factories and the process of scraping and collecting data on the internet, the automation of the first wave has produced tremendous productivity that is useful for many years. The robotic automation process has the potential to assist the public sector most immediately [6]. Robotic process automation (RPA) uses tools that human workers utilize to manage jobs. Robots learn by observing humans execute tasks, yet they also make mistakes when attempting to work independently [12]. Robots can execute conversations with customers when coupled with natural language processors, so they get better with each engagement. To deal with the public sector's digitization, some essential concepts must be set in place, but this cannot simply be translated into reality. According to the policy, if the requirements for meeting the changing user needs are to be met, it is necessary to rethink and re-engineer the government's services starting at the lowest levels and working up [1]. The issue is that everyone wants to learn from others and no one wants to be the first to put the techniques into practice. It is because the public sector is regarded as preventing numerous hazards. After all, when risks are taken, human lives are involved [12]. Therefore, it entails providing for the weak and victims who might be connected to the digitalization process.

The scope of automation in healthcare

There is limitless potential for IT automation in the healthcare, business and public sectors. It starts with the simplest single actions and discrete sequences and progresses to the deployment of autonomous IT that can watch over user behaviors and particular events to participate in the actions that the user requires [9]. Since the application of artificial intelligence to computerized systems, automated systems now frequently complete every duty [6]. Indeed, they can perform better than humans in practically any area that can be imagined and put into practice. Additionally, automation can be expanded to include jobs in information technology management that appear to be beyond the reach of humans [19]. The industry is currently evolving for the better, and the better and more sophisticated automated technologies have taken on a whole new appearance. For instance, the United States now employs one of the most expensive healthcare systems in the world. People in the country now believe that the policies are great because of the automation as a result of the technology improvement in every sphere of life. In other words, people also think that when the systems in the sectors cost more, they will have a better life. Contrarily, the healthcare system has not, as of yet, embraced the process of automation in the sectors of computer production and automotive systems, thus this has not been the case. Due to innovations and consumer needs for a connected and engaging experience, industries are moving forward at an accelerated rate. Automation has caused improvements that have made some types of life more easily available and effective, making them substantially less expensive [2]. The most cutting-edge technology, the fastest internet and priceless instruments have recently been integrated into and employed in hospitals and other private and public facilities.).

DISCUSSION

The products of automation have primarily been used in the automobile industry where they are integrated into the machining and improving press operating processes. They have also been used in the healthcare, private and public sectors of IT. The majority of businesses in the private sector employ equipment and motor components to shape their products into the desired shapes [6]. In many instances, a number of activities are combined to carry out a particular task and provide the intended automated result. An automated transfer line is thought to be the most cost-effective form of production when the technology sector generates a large number of products [15]. In the private sector, press working entails the creation of pieces from a metal sheet. Machines are deployed in succession during the procedure [12]. Today, a wide range of sectors have adopted the use of computers to manage intricate IT procedures. Automation is

regarded as a technique that reduces the need for labor. It means that the technology used only needs a little help from people [6]. When used in the healthcare, public and private sectors of life, automation covers a wide range of topics. It also regulates the degree of complexity of the impacted areas ranging from simpler controls like the on-off mode to more complicated multivariable system algorithms. The controller can compare the values measured on a particular process to a predetermined target quantity in the simple form of automation control. Additionally, the procedure processes any resulting error signals to change the task's input [3]. In this way, the process is able to continue unaffected by outside influences. Work mentioned in reference numbered [19] states that automation in these spheres of life has been accomplished in a variety of ways including mechanical in the private sector, electronic and electrical devices in the healthcare industry and hydraulic in the public sphere which occasionally coordinate to increase the effectiveness of IT. One of the numerous reasons for the rise of nationalists and protectionists in many other nations has been the loss of jobs and the decline in mobility brought on by technology. It is because it has reduced the need for human intervention in the control and management of expansive and numerous institutions, such as the healthcare system [17]. Accordingly, it appears that the automation of technology in these industries creates more promising and dynamic regions when they depend on technology to provide the required results and finish processes in a desired manner [11]. The responsibility attribution becomes more challenging as human input declines since social interventions no longer serve as the decision-making points [2]. When IT is automated, dysfunctions are also removed from the systems, boosting the accountability and efficiency of the arrangements.

CONCLUSION

We need to develop our theoretical understanding of how the implementations of IT automation interact with the arrangements that are responsible in the industries if we are to understand the automation of IT in the healthcare, private and public sectors. The first step in conceptualizing potential outcomes that may be unfavorable and connected with IT in the sectors is to understand the framework of a proposed IT automation in the industries. Examining further instances of automation in the public, commercial and healthcare sectors helps to improve the foundation for comprehending the responsibility and efficiency of automation. Information flow and automated process improvements lead to efficiency that is highly desired and transparency that should balance out the dysfunctions of automation. The implementation of automation in the public, private and healthcare sectors of life necessitates various types of accountable mechanisms as the paper has demonstrated. These mechanisms must be based on an evaluation that is carefully done on the effects that will arise when the technology is

implemented in a particular context. The process is based on a key question that is asked about the degree of responsible arrangements for implementation and the activities that should be held accountable in the automation. According to the examples given in the article, numerous services are needed in the various industries to improve an accountable process. The promise of an expanding, intelligent technology is always in opposition to the worries expressed about the pervasive development in IT automation in the healthcare, public and private sectors. They are able to operate in the areas without constantly needing a human to oversee the activities. It demonstrates the alluring aspect that IT automation on computer-controlled systems performs progressively difficult and dangerous duties and necessitates careful monitoring with time.

REFERENCES

- [1]. Abu-Shanab, E., & Estatiya, F. (2017, May). Utilizing Cloud Computing in public sector cases from the world. In 2017 International Conference on Applied System Innovation (ICASI) (pp. 1702-1705). IEEE.
- [2]. Acemoglu, D., & Restrepo, P. (2018). Artificial intelligence, automation and work (No. w24196). National Bureau of Economic Research.
<https://www.nber.org/papers/w24196.pdf>
- [3]. Arntz, M., Gregory, T., & Zierahn, U. (2017). Revisiting the risk of automation. *Economics Letters*, 159, 157- 160.
<https://www.skynettoday.com/assets/img/editorials/ai-automation-job-loss/Revisiting%20the%20Risk%20of%20Automation.pdf>
- [4]. Bermejo, J., Chibani, A., Gonçalves, P., Li, H., Jordan, S. R., Olivares, A., ... & Sanz, R. (2018). Collaboratively working towards ontology-based standards for robotics and automation. In 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (pp. 79- 79). IEEE.
- [5]. Eubanks, V. (2018). *Automating inequality: How high-tech tools profile, police, and punish the poor*. St. Martin's Press.
- [6]. Fernandez, D., & Aman, A. (2018). Impacts of robotic process automation on global accounting services. *Asian Journal of Accounting and Governance*, 9, 123-132. <http://ejournal.ukm.my/ajac/article/download/25271/8771>
- [7]. Furman, J. (2018). Should we be reassured if automation in the future looks like automation in the past? *The Economics of Artificial Intelligence: Information technology, information systems and public sector accountability*. In *Information Technology in Context: Studies from the Perspective of Developing Countries* (pp. 201-219). Routledge.

- [8]. Isa, E., & Sklavos, N. (2017). Smart Home Automation: GSM Security System Design & Implementation. *Journal of Engineering Science Technology Review*, 10(3).
- [9]. Kurfess, T. R. (Ed.). (2018). *Robotics and automation handbook*. CRC press. http://thuvienso.bvu.edu.vn/bitstream/TV_DHBRVT/19121/1/Robotics-and-automation-handbook-P1.pdf
- [10]. Lazarus, J., Shaheen, S., Young, S. E., Fagnant, D., Voegelé, T., Baumgardner, W & Lott, J. S. (2018). Shared automated mobility and public transport. In *Road Vehicle Automation 4* (pp. 141-161). Springer, Cham. <https://escholarship.org/content/qt6589k2h1/qt6589k2h1.pdf>
- [11] Li, X., Li, D., Wan, J., Vasilakos, A. V., Lai, C. F., & Wang, S. (2017). A review of industrial wireless networks in the context of Industry 4.0. *Wireless networks*, 23(1), 23-41.
- [12] Milakis, D., Van Arem, B., & Van Wee, B. (2017). Policy and society related implications of automated driving: A review of literature and directions for future research. *Journal of Intelligent Transportation Systems*, 21(4), 324-348. <https://www.tandfonline.com/doi/full/10.1080/15472450.2017.1291351>
- [13]. Mohammad, Sikender Mohsienuddin, *Cloud Computing in IT and How It's Going to Help United States Specifically* (October 4, 2019). *International Journal of Computer Trends and Technology (IJCTT) – Volume 67 Issue 10 - October 2019*. Available at SSRN: <https://ssrn.com/abstract=3629018>
- [14]. Nedelkoska, L., & Quintini, G. (2018). *Automation, skills use and training*.
- [15]. Northcote-Green, J., & Wilson, R. G. (2017). *Control and automation of electrical power distribution systems* (Vol. 28). CRC press.
- [16]. Parasuraman, R., & Mouloua, M. (Eds.). (2018). *Automation and human performance: Theory and applications*. Routledge.
- [17]. Salomons, A. (2018). Is automation labor- displacing? Productivity, growth, employment, and the labor share (No. w24871). National Bureau of Economic Research. <https://www.nber.org/papers/w24871.pdf>
- [18]. Scheepers, R., Lacity, M. C., & Willcocks, L. P. (2018). Cognitive Automation as Part of Deakin University's Digital Strategy. *MIS Quarterly Executive*, 17(2).
- [19]. Tabor, D. P., Roch, L. M., Saikin, S. K., Kreisbeck, C., Sheberla, D., Montoya, J. H & Amador-Bedolla, C. (2018). Accelerating the discovery of materials for clean energy in the era of smart automation. *Nature Reviews Materials*, 3(5), 5-20. <https://www.osti.gov/pages/servlets/purl/1461992>