Automation of Business Processes

Name

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**Introduction**

The industrial revolution, over the past centuries, transformed the way of working. Disrupting technologies required the workforce to adapt to a new working environment as a consequence of the revolution. The next revolution taking place is robotic, characterized by the convergence of breakthrough innovations such as robotics and the Internet of Things as well as artificial intelligence. Automation of business processes enhances organizational efficiency by eliminating redundant procedures and processes and decreasing levels of effort. The robotic transformational phase faces a wide range of controversies as a result of debates among academics, economists, and journalists about the impacts of automation on income distribution, employment, and growth. Proponents of automation argue that the process creates new and more challenging jobs while destroying others. The proponents believe that automation essentially impacts the workforce positively. Opponents of automation, on the other hand, argue that automation threatens jobs and affects the human ability to think. This essay discusses the role of automation in small and large-scale businesses to improve efficiency.

**Automation in Business**

Individuals interchangeably use terms like machine learning, artificial intelligence, and robots, mistakenly, when discussing automation. Automation refers to a set of innovations that promote the operation of systems and machines without significant intervention by humans and achieve superior performance to manual operation. The automation technology assists individuals with limited guidance in the delivery of goods and services, maintenance, production, or autonomously maintain, produces and delivers the products and services. Automation encompasses a wide range of applications, from physical robots programmed to perform manual duties, such as moving objects from one point to another, to software applications. Software applications mostly used in automation include cloud-based computer software to perform complex cognitive tasks, such as translate sentences into various languages, recognizing and analyzing images and processing files.

Automation of processes, for instance, by robots, provides a virtual workforce to automatize error-prone, repetitive, and manual tasks. However, efficient automation of processes requires sufficient knowledge about the potential for automation. Organizations must go for automation in the current world to achieve a competitive advantage (Gajmal & Bhatwadekar, 2014). The automation process demands huge capital investments to replace manual material handlings and conventional machines. Large scale organizations that lack huge production opts automation at various levels and affords to go for huge capital investments. Medium and small-scale businesses, on the other hand, mostly fail to go for automation because of the huge capital investment.

Automation of business processes, especially using robots, uses software robots in replicating human tasks. Virtual robots work to mimic actions performed by humans in the graphical user interface of an application and automate their execution after recording a process workflow (Geyer-Klingeberg et al., 2018). Automation of back-office work and many knowledge-related tasks, previously conducted by human workers, is enabled by multiple robots forming a virtual workforce. The automation technology integrates virtual robots in repeat tasks and existing software, often across a wide range of systems. Simple rules and business logic drives the configuration of virtual robots. The technology fulfills instantly scalable process steps independent of time to enable robots to handle volume increases and achieve relevant cost savings (Geyer-Klingeberg et al., 2018). Automation of business processes using robots guarantees consistency and accuracy of activities and ensures effective performance of tasks.

**Automation in Various Business Sectors**

A closer analysis of automation technology in a wide range of economic sectors indicates applications in various areas such as agriculture, mining, textiles, warehousing and manufacturing, healthcare, and financial services, among others. Automation technologies enhance organizational productivity, promotes service, and improves user experience (Gaus & Hoxtell, 2019). However, the technologies likely disrupt the labor market and change the workforce demand in different sectors. The most automated nations in the world include Japan, Singapore, South Korea, and Sweden. The new average of the international robot density in the manufacturing industries was 74 robots per 10,000 employees, as of 2018 (Gaus & Hoxtell, 2019). The average robot density was 63 units in Asia, 84 in the US, and 99 in Europe.

Figure 1: A graph representing the top ten automated nations in the manufacturing industry.

**Primary Sector Automation**

Application of automation technology in the primary sector of the economy centers on raw material extraction, through activities such as fishing, mining, and agriculture. A wide range of automated solutions already exists in the primary sector, especially in mining, gas, and oil exploration, where robotic technologies increasingly replace traditional machine operators. Market projectors for automation technologies in mining predict a continuous application of robotic automation. According to Gaus and Hoxtell (2019), the prospects of lower costs, safety, and increased productivity may propel the growth of the mining automation market by more than 50% in the coming years, to reach $3.29 billion by 2023. The mining industry’s strongest safety regulations, overall employee costs, relatively high wages, and potential production disruptions from labor disputes provide incentives to relying less on human labor and automating tasks.

Productivity in the agriculture sector increases as a result of numerous technological advancements that decrease the need for human labor, such as drones for crop monitoring, vegetable and fruit packing systems, and autonomous and driverless tractors. The sector contains disruptive technologies such as the combination of sensors and pattern recognition tools that can detect irrigation and soil-specific needs, animal health, and weeds, with self-learning autonomous robots that perform manual tasks such as harvesting of crops (Gaus & Hoxtell, 2019). The systems minimize human supervision by autonomously analyzing situations and reacting to their unique circumstances. The agricultural sector contains compelling automating incentives, especially in efficiency gains from reduced labor costs and materials and increased crop yields.

**Secondary Sector Automation**

The secondary sector, mostly known as the blue-collar industry, processes raw materials into more refined products. The sector includes construction and manufacturing. The electronics and automobile industries heavily embrace automated solutions, but the use of robots and automated machinery in other sector progresses slowly (Gaus & Hoxtell, 2019). The major automation development in the secondary sector is the utilization of small robots that interact safely with people. The design of the collaborative robots enables them to work directly with humans, and their integration increases in the work domains, formally exclusive to people, such as in materials non-routine handling. The collaborative robots receive simplified and smaller size “training” coupled with advancement in machine learning, sensor technology, and greater movement capabilities to closely work in the production process alongside humans.

The revolution of automation in manufacturing hinges on predictive and sensors maintenance. The robots detect and address potential malfunctions in advance to increase productivity and decrease robot downtime (Gaus & Hoxtell, 2019). The automation technology fits machines with sensors to gather real-time data on their status and compare them with the information collected from similar machines operating in other locations.

**Tertiary Sector Automation**

The tertiary sector encompasses industries such as financial services, education, logistics, research and development, retail, and healthcare. The tertiary sector in most high-income and developed nations employ the majority of workers. The automation revolution in the tertiary sector of the economy uses physical robots as well as software that enable a wide range of activities such as robotic customer service and process automation (Gaus & Hoxtell, 2019). Automation transforms the tertiary sector significantly, as indicated by the retail and consumer packaged goods industry. A wide range of manufactured products in shelves await purchase through online shopping or in physical stores. Most firms increasingly introduce automated systems for automated cashier systems, self-checkout, inventory checking, and stockpiling goods. A wide range of large-scale retailers, such as Tesco and Walmart currently experiment with the fully automated cashier and payment systems and self-checkout systems to automate the payment process.

A substantial automation level also exists in the logistics and transportation sector. The key developments in the sector include autonomous vehicles that operate in both structured and unstructured environments, optimization of logistic processes, and automated surveillance. Autonomous vehicles have a limited liability of goods transportation, increasing their attraction in the logistics sector. The advantage promotes increased automation in ports and warehousing operations (Gaus & Hoxtell, 2019). Moreover, vehicle manufacturers such as Tesla and BMW, and technology firms such a Uber, Baidu, Apple, and Alibaba engage in fierce competition over their position in the future in the autonomous vehicle market.

**The Automation Debate**

Commentators and scholars from various expertise, ideological positions, and field, over the last several years, have suggested on automation technologies and their potentials to increase unemployment. The opponents of automation believe that innovation promotes technological displacement that leads to technological unemployment and economic inequality that undermine social stability (Knowles & Jack, 2017). Proponents of automation, on the other hand, think that automation continuation creates opportunities to think of new ways to organize society beyond the wages workforce and focus on developing a political program that transcends challenges that plague capitalism.

**Automation Proponents**

The debate concerning the detrimental impacts of automation for society and the future workforce exhibits clear divisions. On the side of proponents, the “techno-optimists” supports automation in business processes and point out its advances and long-term benefits (Gaus & Hoxtell, 2019). The proponents believe in the automation’s potential to produce new services and bring to an end unpleasant jobs, especially the deemed dull, dangerous, and dirty jobs while introducing new types of work and professions.

In the proponents’ perspectives, the various historical innovations such as looms, windmills, automated teller machines, and cars led to a demise of industries and jobs but also created new services, industries, and products. For instance, automobile invention essentially replaced animal and human-powered transportation and created an automotive industry that currently employs more than nine million individuals directly, and more than 50 million indirectly (Gaus & Hoxtell, 2019). The agricultural sector increases its productivity continually despite the rapid industrialization and mechanization cutting down farm labor, and new economic activities absorb the affected. Moreover, the invention of personal computers ended typists’ careers, but opened vast new opportunities for work and helped create a wide range of jobs in the service industry.

Proponents of automation agree that new technology might promote individuals to lose a job, and necessarily not find employment again. However, automation has an overall net positive effect on the labor market. For instance, evidence from Germany and the United States indicates that the feared unemployment as a result of technological innovation never occurred on a broad level (Gaus & Hoxtell, 2019). Automation of business processes, both in the small and large-scale firms typically substitute for labor but also complements it by raising outputs that, in ways, create higher demands for labor and interacts with labor supply adjustments. Some proponents of automation argue that massive growth in automation in recent years reduces unemployment rates in industrialized nations. For instance, the most automated countries in the world, such as Germany, the US, and Japan, currently indicate 4.9%, 3.7%, and 2.3%, respectively (Gaus & Hoxtell, 2019). Therefore, automation will bring more benefits than harm in the coming years.

**Automation Opponents**

The opponents or techno-skeptics of automation in business processes view the technological revolution and unprecedented transformation as risks that promote the creation of social disruptions, greater wealthy inequalities, and massive unemployment rates. The opponents believe in the automation’s potential to bring “technological unemployment” that would make people work unnecessarily. As a result, lack of social protection will make society to fail (Gaus & Hoxtell, 2019). The skeptics argue that technological advancement can displace a wide range of jobs because of the susceptibility of activities such as manual and cognitive tasks to automation. The opponents fear the automation technology’s potential to cut across sectors and occupations. Moreover, the innovations accelerate at rates that exceed the human’s potential to adapt to a job or occupation loss. The technological advancement across sectors continues at an ever-increasing rate that can constantly push the boundaries of automatable tasks further out.

**Drivers of Automation**

Technological advancements enable a wide range of automation in various sectors. Several factors, such as social, availability and quality of infrastructure, regulatory landscape, and the actual viability of utilizing automation technology, work alongside technological advancement to drive success in automating business processes (Gaus & Hoxtell, 2019). The rate at which different societies embrace automation depends on social factors, such as educational policies, demography, and social attitudes towards technology. Regulatory landscape, especially government decisions considerably promotes automation technologies’ uptake in a country or within specific sectors. The availability of capital for deployment of new technologies, research, and development, as well as reliable infrastructure, influence the ability of a business to automate tasks. Economic viability, on the other hand, determines whether businesses invest in automation technology, while policymakers set regulatory and political landscape.

**Conclusion**

Increased automation of work in small and large-scale organizations transform many industrialized economies. Automation has profound direct and indirect impacts on emerging economies, industrial societies, and developing nations, and will only expand over time. Predictions vary widely among researchers, commentators, and individuals on what automation of business practices will eventually mean for the future. Some experts predict greater efficiency and productivity from automation of business processes while freeing humans from unpopular and unsafe tasks. Other experts think that automation will promote greater wealth inequality, widespread unemployment, and social unrest. This essay supports that automation of business operations improves workforce efficiency. Automation increases the workforce’s productivity by decreasing its efforts through standardization and centralization. Social, and availability and quality of infrastructure, regulatory landscape, and the actual viability of utilizing automation technology factors influence success in any automation process.

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