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# Information Technology Revolution: Its Impact on the World of Work in the Digital Era

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**A R T I C L E I N F O**

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**ABSTRACT**

This study aims to identify and analyze how the process of the information technology revolution increases company productivity, as well as how the government acts to reduce unemployment caused by the replacement of human tasks by information technology in several industrial companies in Indonesia. The research method uses a qualitative descriptive approach with purposive sampling for data collection, and data is gathered through documentation study. Based on the research findings, it can be concluded that several ways businesses become more productive due to the IT revolution, including process automation, efficient collaboration and communication, data and big data management, improved operational efficiency, and customer service digitization. It can also be concluded that the preventive measures taken by the government to reduce the impact of information technology on increasing unemployment include enhancing education and training in information technology skills, developing the digital economy and creating job opportunities, providing technological infrastructure to train potential human resources in regions, as well as setting regulations and policies to adjust the labor market.



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## 1. INTRODUCTION

The Information technology refers to a set of tools used to store and disseminate information that is beneficial to society in creating messages used for decision-making in the community ( Haleem, Abid, Javaid & Singh, 2024). Information technology (IT) encompasses various infrastructures, methods, and tools for managing, storing, processing, and sharing data. IT can assist in decision-making processes concerning operational activities required to analyze and interpret the available and obtained information by (Jones, Charles H., 2024).

Information technology enables the storage of digital data on local devices or in the cloud. Raw data can be transformed into useful information when making decisions. IT facilitates the categorization and organization of data to make it easier to use and accessible. To support strategic decisions, technologies such as Big Data Analytics and Business Intelligence (BI) help in identifying trends and patterns (Guan, Chong, 2024).

Before making important assessments, scenarios can be simulated using IT. Many repetitive operations, such as data processing, payroll, and inventory management, can be automated. Tasks can be completed faster and with less risk of error when automated (Ancheta, Kenneth, et al, 2024). Through the internet, IT enables access to information sources worldwide at any time. IT allows the storage of many archives for future use. Technologies like firewalls, antivirus software, and encryption protect data from threats such as malware and hacking (Sanchez-Pinto, L. Nelson, 2024).

Through platforms like websites or applications, IT enables companies to conduct business online. IT streamlines all aspects of company operations, including customer relations and inventory. IT can align tasks and functions from manual-based information systems, whose information may not be relevant for decision-making (Xia, Lei et al., 2020). IT enables simulations and experiments with lower risks. IT is used to improve public services, such as online tax payments, administrative registration, and more. The risks associated with information technology only affect the users of the technology, where users sometimes struggle to use IT as a decision-making tool (Natu & Aparicio, 2022).

Furthermore, the user's capacity level becomes an obstacle to the effectiveness of IT use, where the better the user's capacity and capabilities, the more ineffective IT becomes in decision-making, as decisions tend to be invalid due to poorly recorded and ineffective data (Capatina, Alexandru; Bleoju, Gianita; Matos, Florinda; Vairinhos, 2024).

With the changing times, information technology can transform into a more practical and user-friendly technology. Along with this transformation, online and digital information technology has emerged. Online IT can be found in platforms like Zoom and Google, where all information appears and is easily accessible to users because it is highly relevant (Bist, Namrata, 2024). There is also digital IT, such as YouTube, Netflix, and Spotify, where these three technologies deliver messages in a digital format that are filtered and useful to the public, enhancing their understanding of the information being presented, making it relevant to current conditions (Hadjadji et al., 2024).

As the digital technology revolution increases, it can be used for carrying out tasks due to the automation inherent in information technology. This can render existing human resources unnecessary for certain jobs, as they have been replaced by AI-based digital technology, impacting companies, especially manufacturing companies. As a result, 32,193 business units must inevitably undergo a digital transformation.

This research aims to identify and analyze how the process of the information technology revolution increases company productivity and how the government acts to reduce unemployment caused by the replacement of human tasks by information technology in several industrial companies in Indonesia.(Shu et al., 2020).

## 2. RESEARCH METHOD

This research uses a qualitative descriptive method, where according to (Tao, Zhibin, and Chao. 2024), qualitative descriptive analysis is a research method that aims to understand the process of describing data through qualitative data analysis. The population in this study is 32,193 manufacturing businesses in Indonesia, and the sampling method used is purposive sampling. According to (Tao, Zhibin, and Chao. 2024), purposive sampling is a sampling method that has specific criteria for each sample. The specific criteria for the sample data taken in this study are manufacturing companies that implement digitalization in their production information systems among the 32,193 manufacturing businesses in Indonesia. The data collection technique used is literature study.

## 3. RESULTS AND DISCUSSIONS

### 3.1 The Positive Effects of Information Technology on Company Productivity

The Information Technology (IT) revolution has undeniably transformed how businesses operate, leading to significant improvements in productivity across various sectors. As outlined, process automation is one of the most notable advancements. Automation tools have reduced the burden of repetitive tasks and allowed companies to direct their human resources toward more strategic and creative endeavors. Tasks that once required manual intervention, such as payroll processing and inventory management, can now be completed with precision and efficiency, enabling businesses to save time and reduce human errors.

Furthermore, IT facilitates seamless communication and collaboration, which is especially beneficial in the era of remote work. With video conferencing, instant messaging, and project management tools, companies are no longer constrained by geographic boundaries. Teams working across different locations can collaborate in real-time, share critical data, and make decisions more swiftly, thus improving overall organizational responsiveness.

Another critical benefit is the ability to manage and analyze vast amounts of data. The advent of Big Data technologies has empowered businesses to better understand customer preferences, market trends, and internal processes. This data-driven approach allows for smarter decision-

making, better forecasting, and personalized marketing, ultimately enhancing customer satisfaction and boosting productivity.

Moreover, advancements such as machine learning and the Internet of Things (IoT) contribute to operational efficiency. IoT, for instance, enables real-time monitoring of equipment, which reduces maintenance downtime and optimizes resource allocation. Similarly, machine learning algorithms can predict customer demand and automate routine operations, improving supply chain efficiency and resource management.

Lastly, digitalization in customer service, through tools like chatbots and AI-driven platforms, has revolutionized how businesses engage with consumers. By providing 24/7 support and addressing customer inquiries promptly, companies not only enhance customer satisfaction but also free up human resources for more complex tasks. This results in improved customer loyalty and a positive reputation, further driving business growth (Khan, et al., 2024).

### *3.2 Challenges Posed by the IT Revolution and Government Actions to Mitigate Unemployment*

While the IT revolution offers immense potential, it also poses challenges, particularly in the form of unemployment caused by automation and the obsolescence of traditional jobs. As companies increasingly adopt automated solutions, many roles that were once manual are becoming redundant. For example, tasks performed by administrative assistants or customer service representatives are being replaced by AI-powered systems. This shift creates a gap in the labor market, as workers with outdated skills find themselves unemployable in the new digital economy.

The government plays a critical role in mitigating the adverse effects of this disruption. One of the most effective solutions is enhancing education and skill development programs. By focusing on digital literacy and IT-related skills, the government can ensure that workers are equipped to thrive in a technology-driven job market. Collaborations with tech companies to offer specialized training programs can help workers transition into new roles, particularly in areas such as cybersecurity, software development, and data analysis.

In addition, fostering the growth of the digital economy can create new job opportunities. The rise of tech startups, e-commerce platforms, and digital marketing agencies provides avenues for employment. By supporting the development of these industries through tax incentives and grants, governments can help cultivate a thriving digital ecosystem that generates jobs and drives innovation. Establishing innovation hubs and digital incubators also encourages entrepreneurship, helping individuals launch their own businesses and create job opportunities for others.

Another essential step is ensuring equal access to technology infrastructure. Access to high-speed internet and digital tools is often uneven, with rural and underserved areas facing significant barriers. By investing in technology infrastructure, the government can bridge this digital divide, empowering more individuals to participate in the digital economy. Digital training centers in remote locations can also equip people with the skills they need to succeed in the digital world, ensuring that no one is left behind in the transition.

Finally, the government must introduce policies to protect workers displaced by automation. These policies should focus on retraining programs, unemployment benefits, and support for workers transitioning into new roles. By providing these safety nets, the government can reduce the social and economic impacts of job displacement, fostering a more inclusive and resilient economy.

The IT revolution has significantly enhanced productivity in businesses across various industries. Automation, efficient communication, data-driven decision-making, and digital customer service have all contributed to increased operational efficiency and profitability. However, the rise of automation and digitalization also presents challenges, particularly in terms of unemployment and skill gaps. The government plays a crucial role in addressing these challenges by investing in education, promoting the digital economy, expanding technology infrastructure, and implementing labor policies that protect displaced workers. Through these efforts, it is possible to harness the benefits of the IT revolution while ensuring a smooth and inclusive transition into the digital economy.

### *3.3 Discussion*

Based on the research findings, it can be concluded that there are several ways in which businesses become more productive due to the IT revolution, such as process automation, efficient collaboration and communication, data management and big data, operational efficiency improvements, and customer service digitalization. This is in line with the research by Bist, Namrata (2024), which states that the utilization of technology has a positive impact, enabling businesses to transform and increase productivity.

Additionally, based on the research findings, it can be concluded that the preventive measures taken by the government to mitigate the impact of information technology on rising unemployment include enhancing education and skill training in information technology, developing the digital economy and creating job opportunities, providing technology infrastructure to train potential human resources in regional areas, and establishing regulations and labor market adjustment policies. This aligns with the research by Hadjadji, Narimane, Toulan, and Dorra (2024), which indicates that the tangible impact of information technology is the increase in unemployment, which can be addressed through improved understanding of digital technology usage and the establishment of appropriate regulations to avoid negatively affecting the existing human resources.

## 4. CONCLUSION

Based on the research findings, it can be concluded that several ways in which businesses become more productive due to the IT revolution include process automation, efficient collaboration and communication, data management and big data, operational efficiency improvements, and customer service digitalization. Furthermore, it can be concluded that the preventive measures taken by the government to reduce the impact of information technology on rising unemployment include enhancing education and skill training in information technology, developing the digital economy and creating job opportunities, providing technology infrastructure to train potential human resources in regional areas, and establishing regulations and labor market adjustment policies.

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