IAIC Transactions on Sustainable Digital Innovation (ITSDI)
Vol. 4 No. 2 April 2023

p-ISSN: 2686-6285
e-ISSN: 2715-0461

Analysis of Public Administration Challenges in the Development of Artificial Intelligence Industry 4.0

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Author Notification
21 March 2023
Final Revised
27 March 2023
Published
29 March 2023

To cite this document:
Febiandini, V., Sony, M. S. (2023). Analysis of Public Administration Challenges in the Development of Artificial Intelligence Industry 4.0. IAIC Transactions on Sustainable Digital Innovation (ITSDI), 4(2), 155-159. Retrieved from http://aptikom-journal.id/index.php/itsdi/article/view/586

Abstract

Technology is causing social and economic upheaval that is overturning the social order. Governments around the world have a lot of potential as a result of the widespread use of artificial intelligence (AI) in government. There are some difficulties in using AI in government. Meanwhile, the use of AI in government can increase public trust in it. The purpose of this article is to assess the level of AI preparedness in the Indonesian government, focusing on its application to public administration and e-government services. Conclusion The level of AI readiness in Indonesia is still low. In ASEAN, the use of AI is ranked fifth. Indonesia is ranked 57th out of 195 countries in the world. Novelty in this research is how BOT can survive amid the rapid development of Artificial Intelligence.

Keywords: Artificial Intelligence, Public Administration, Industry 4.0

1. Introduction

A wave of technology that tore through the fabric of society caused a social and economic transformation in the decades leading up to the 21st century. Robots, machine learning, and artificial intelligence (AI) are currently taking over jobs. It will be extremely difficult for public administrators to react quickly and mitigate the negative effects of these extensive changes.

The far reaching utilization of Man-made reasoning (man-made intelligence) in government is setting off numerous open doors for state run administrations all over the planet. Customary types of administration conveyance, policymaking, and authorization can change quickly with the presentation of computer based intelligence advances in government rehearses and the public area environment. For instance, governments can utilize AI technologies to enhance the quality of public services, build trust among citizens, and boost service delivery efficiency and effectiveness. Governments can also use AI to simulate complex systems and make more accurate forecasts, allowing for experimentation with various policy options.

AI implementation in government is challenging. The application of artificial intelligence (AI) in governance has the potential to reduce the public's trust in the institution and the judgments it makes. A violation of citizens' privacy or an inappropriate application of AI to public governance may be to blame for this deterioration. The lack of transparency in the system creates extra difficulties when AI is utilized in government decision-making, including ambiguous roles and accountability. Because failures resulting from the employment of AI in government could have serious negative repercussions on society as a whole, this reality increases the stakes for governments.

2. Research Method

2.1 Literature Review

A. Wave of Technology

In the 1960s, minicomputers, personal computers (PCs), and networks marked the beginning of the technology wave. The rise of the internet in the 1990s marked the beginning of the next era, which was marked by the internet of things (IoT), the internet of commerce, the internet of people (social media), and the internet of documents. There are three fundamental technology drivers that drive all of these innovations: connectivity, storage, and computing that save money.

Every physical object that can be outfitted with sensors and makes use of electrical power and connectivity will be connected to the internet thanks to the Internet of Things (IoT) wave. Chairs, doorbells, garage doors, and thermostats are all networked. Networked toothbrushes that can monitor dental hygiene practices and internet-connected refrigerators that can be viewed by shoppers are two examples of IoT. These things seem to be talking to us.

Minicomputers, personal computers (PCs), and networks launched the technology boom in the 1960s. A new era, characterized by the internet of things (IoT), the internet of commerce, the internet of people (social media), and the internet of documents, began with the emergence of the internet in the 1990s. All of these breakthroughs are propelled by three essential technological forces: cost-effective computation, storage, and communication.

The Internet of Things (IoT) wave will enable internet connectivity for every physical thing that may be equipped with sensors and utilizes electricity and connectivity. Thermostats, chairs, doorbells, and garage doors are all connected to the internet. IoT examples include internet-connected refrigerators that can be viewed by shoppers and networked toothbrushes that can track dental hygiene routines. These objects appear to be speaking to us.

B. Increasing Income Gap

Technology disruptions lead to the creation of new riches. This has led to income inequality and the growing middle class phenomena. An indication of the size of this new wealth emergence can be seen in the market capitalizations of technology or technology-based companies that have gone public in the last 35 years, which range from $15 trillion to $20 trillion. The worth of all the gold in the world is $8 trillion; the size of the US economy is roughly $20 trillion. Only six companies—Amazon, Apple, Facebook, Google, Microsoft, and Netflix—have a market valuation of more than $3.5 trillion. Seven of the top ten wealthiest men in the US made their fortunes in the computer or information sector. The combined wealth of these men exceeds $500 billion, which is equal to the size of the Swedish economy.

C. Future of Work

The most recent wave of artificial intelligence and machine learning is affecting a wide range of occupations. As many as 47% of all jobs in the United States are affected, according to estimates. Examples of machine learning applications include speech and translation, handwriting recognition, computer vision, facial recognition, and others.

AI and machine learning will take over tasks like washing cars, making meals, and picking fruits and vegetables. Additionally, sports reporters, financial advisors, and finance positions have begun to be filled by AI. It has also been demonstrated that machine learning systems can interpret images from pathology and radiology.

Additionally, there is a significant disruption brought about by autonomous vehicles. The transportation sector accounts for 7% of the economy in the US. As their primary occupation, drivers employ between four and five million people. This category also includes truck, taxi, and bus drivers. Truck driving, freight forwarding, and tractor driving are the most common occupations in 29 of the 50 states in the United States.

D. Will a future full of unemployment happen?

New positions like application engineers, virtual entertainment and computerized advertisers, Client Experience (UX) creators, high-level assembling subject matter experts, hereditary educators, and robot administrators have risen dramatically in the last ten years. Additionally, the numbers are significant. It is estimated that between 8 and 10 million app developers work worldwide. Over the next two decades, the most challenges in the workplace will be faced by those who have not improved their skills to deal with this new world order.

E. Electronic Government Services and Current Challenges

Machine learning-based speech recognition systems have a 95 percent accuracy rate, which is comparable to that of humans. Typists typically type 40 words per minute; On the other hand, humans speak between 110 and 150 words per minute. In the workplace, voice recognition systems will replace typing.

In the middle of the 1990s, the government started moving services to the internet. In this day and age of smartphones, services are now transferred to mobile platforms via apps. The majority of traffic to the internet comes from mobile devices. Nonetheless, the public authority's portable application change is as yet noticeably flawed. Only a small number of trained professionals are qualified to handle this at the moment. The government lacks the right tools.

F. Social Safety Net, Employment and Economic Journey

As a result of the disturbance, the public authority needs to prepare for the problem of joblessness. The issue of unemployment and AI can be viewed as a problem of income distribution from one point of view. In a rational society, it makes perfect sense for AI machines and robots to perform all of the routine and repetitive tasks. If the gross domestic product rises and the population stays roughly the same, it only takes political will to distribute income in a more egalitarian manner. The reduction of the working week is an additional solution to this problem. Prior to the Industrial Revolution, workweeks typically lasted between 70 and 80 hours. In any case, the working week at Henry Portage's time was 40 hours long. It will be fascinating to see if capital owners actually want to change how pay is distributed.

3. Result and Discussion

There are several solutions for the Public Administration sector to thrive and survive in this era of rapid Artificial Intelligence.

3.1 Revenue Shortfall

The declining revenues that the public sector in the United States receives annually from fuel taxes, fees for public transportation, tolls, vehicle sales taxes, municipal parking, and registration and license fees will likely necessitate compensating measures. However, autonomous vehicles, for instance, may reduce all of these revenues in areas where there is less need for parking.

A robot tax was proposed to make up for the shortfall caused by robots doing jobs. Although it was ultimately rejected, the European Union also considered legislation to tax robots to fund worker retraining. The robot named Sophia received citizenship from the Saudi Arabian government in October 2018, making it the first robot to do so. A robot is obligated to pay taxes if it can become a citizen.

3.2 Security Protection for Consumers

There is a widespread belief that AI will be impartial. In any case, many artificial intelligence motors actually reflect the predispositions of their creators or social tendencies embedded in the

data used to build the machines. AI learns from data. Because of its biases, our data will only institutionalize those tendencies. For instance, in the course of training, we might instruct an AI system by showing it images of roofers, a profession in which 98% of workers are men. If a probabilistic model is used, the system will behave very erratically and assume that all roofers are men. For speech-language pathologists, 98% of whom are women, the situation is similar. Similar biases can be seen in the majority of historical data on gender, ethnicity, and other demographics. In depictions of human activities like cooking and sports, orientation predisposition is also unsurprising. For instance, while shooting is associated with men, pictures of washing and shopping are associated with women. The way that Policy management can get by with legitimate division is one benefit.

3.3 User Privacy is Maintained

Each e-service provider derives value from the information it gathers from user interactions or transactions. Resources are required to deliver the services offered by businesses like Facebook, Google, and Twitter. The majority of their business strategy consists of direct advertising and the gathering and use of personal and transactional data for marketing purposes. With the use of this data, artificial intelligence, and man-made intelligence, it is possible to create person profiles for display.

As a result, individual privacy is jeopardized. Better plans must be made for the management and security of personal data. Data is an asset because of its market worth. Data differs from tangible assets. Any number of copies are theirs to possess. Over the next ten years, there will be discussion about who owns this data, our individual rights to it, and our fundamental connection to data in a linked, networked society.

3.4 Conditions in Indonesia and Solutions to Public Administration Challenges

Most of the information systems developed by the government in Indonesia do not pay attention to interoperability aspects. The majority of Information Systems developed by government agencies can only provide benefits locally, especially for the work unit that has the budget to develop the Information System. As a result, the basic information in an Information System (e.g. population information, student data) is often redundant to other Information Systems and is not synchronized. Another result is the difficulty of exchanging data, which must go through a long and time-consuming process of copying and adjusting data. This makes government information systems in Indonesia like islands of scattered information systems that are not integrated.

A survey conducted by the United Nations on the EGDI (E-Government Development Index) ranking in 2018 noted that Indonesia was ranked 107 out of 193 countries in the world. Indonesia ranks 7th in ASEAN after Vietnam. Indonesia's ranking is still far below other ASEAN countries such as Singapore (7th EDGI), Malaysia (48th EDGI), Brunei Darussalam (59th EDGI), Thailand (73rd EDGI), Philippines (75th EDGI), and Vietnam (88th EDGI).

When e-government is implemented, it is believed that not all regions of Indonesia are competitive to the same degree. The UN survey reveals that many Indonesian regions have not yet fully implemented the e-government principles, despite the excellent implementations of e-government in many villages, districts, and cities. Restricted guidelines as a legitimate system, an absence of designing specialists, and an absence of specialized mastery are the deterrents to e-government execution.

The World Bank estimates that a country's financial development may be supported by an increase of 10% in fast web networks of about 1.38 percent. As of January 2019, 56% of Indonesians had internet connectivity. According to this, 56% of Indonesia's population is currently online. Despite an increase of 13% from the previous year, Indonesia still has the lowest internet penetration rate among the countries of Southeast Asia. According to We Are Social, 84% of Singaporeans, 80% of Malaysians, 82% of Thais, and 66% of Vietnamese utilized the internet at the same period.

4. Conclusion

The results of the aforementioned study show that the public sector must overcome a number of challenges in order to advance the artificial intelligence (AI) sector in Industry 4.0. This report finds a variety of barriers, such as worries about job losses as a result of the adoption of AI technology, a shortage of personnel with AI expertise, and misunderstandings around data privacy and security.

The study concludes that efforts to increase the availability of human resources with AI knowledge and skills through education and training as well as collaboration between the public and private sectors in the development of suitable regulations and policies to support the development of the AI industry are necessary to overcome these challenges. In order to mitigate the bad impacts and maximize the positive effects on society as a whole, it is also crucial to take into account the social and economic implications of adopting AI technology.

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