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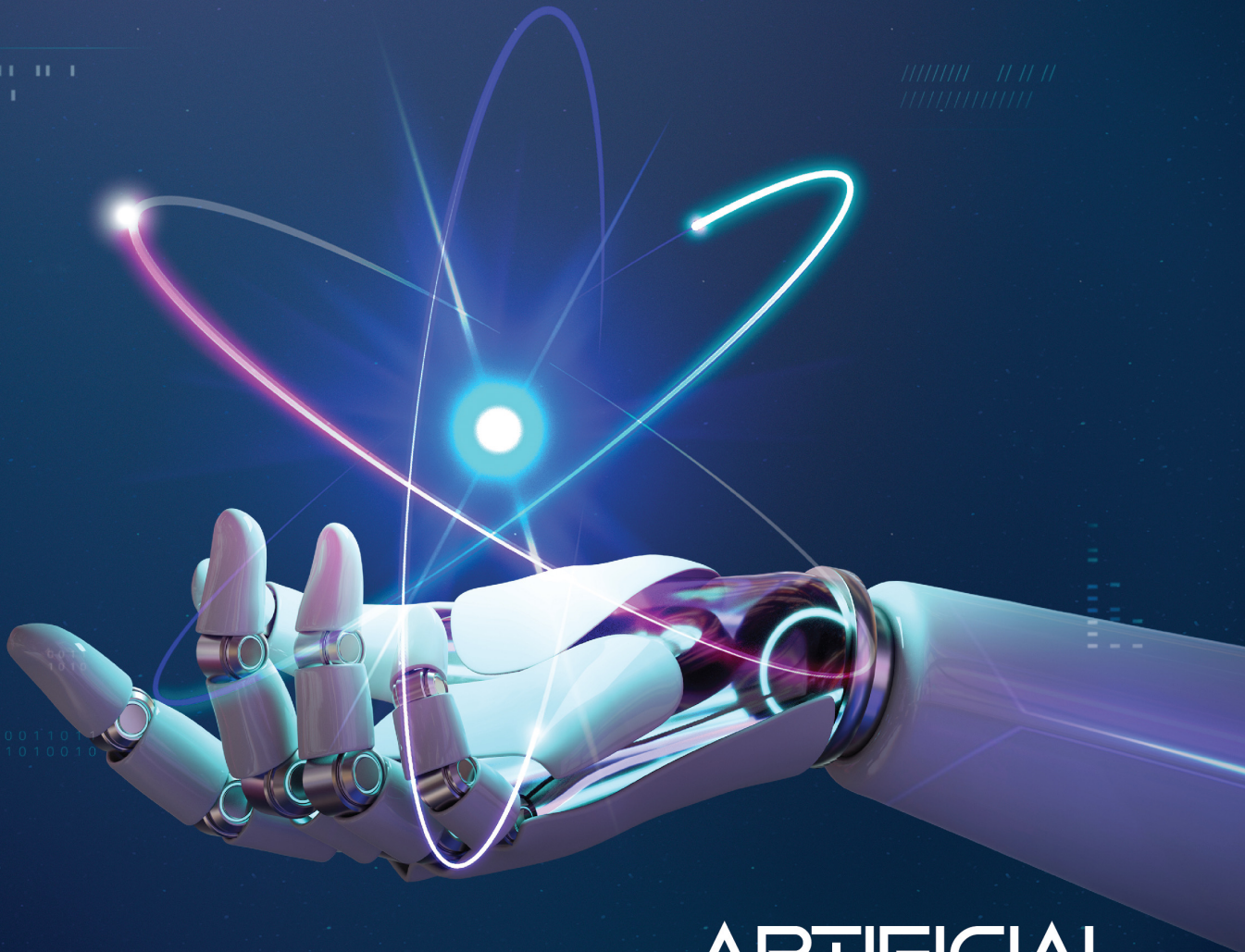
ARTIFICIAL INTELLIGENCE (AI):
Embracing the Future

RISE

ADMINISTRATION

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ABOUT THE MAGAZINE

RISE Magazine is published by Office of the Deputy Vice-Chancellor (Research and Innovation) with aims to highlight a research and innovation on multidisciplinary expert of fields in UiTM. It serves as a platform for researcher to showcase their high quality and impactful findings, activities and innovative solution through publication. Contribution of these ideas come from academicians, researchers, graduates and universities professionals who will enhance the visibility of research and stride to elevate Universiti Teknologi MARA to global standards. This is an effort to promote research as a culture that is accepted by all expertise.

ABOUT UiTM

Universiti Teknologi MARA (UiTM) is a public university based primarily in Shah Alam, Malaysia. It has grown into the largest institution of higher education in Malaysia as measured by physical infrastructure, faculty and staff, and student enrollment. UiTM is the largest public university in Malaysia with numerous campuses throughout all 13 states in Malaysia. There is a mixture of research, coursework and programmes offered to the students. The Office of the Deputy Vice-Chancellor (Research and Innovation) also known as PTNCPI *(Pejabat Timbalan Naib Canselor (Penyelidikan dan Inovasi))* serves as a *Pusat Tanggungjawab* (PTJ) for navigating the research and innovation agenda of the university to achieve UiTM's goals.The PTNCPI office strives to mobilize faculty and campuses, fostering collaboration among researchers, with the aim of transforming the University into a Globally Renowned University by 2025

THE IMPACT OF ARTIFICIAL INTELLIGENCE

in the
Digital
Society

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Artificial intelligence ("AI") is the simulation of human intelligence processes by machines that can perform and think like human beings. The goals of artificial intelligence include computer-enhanced learning, reasoning, and perception. AI is being used today across different industries from medical, business and healthcare industries as AI gives computers or machines the capacity to learn, reason and apply logic.

With the introduction of AI the "Transformation Nasional 2050", Malaysia has proven its preparedness to embrace the diffusion of advanced technological developments. The transformative impact of AI on our society in many aspects such as economic, legal, and regulatory implications need to be discussed and addressed. Thus, this article will highlight some insights on the impacts of AI in the society. Correspondingly, this article also will highlight several ethical issues concerning AI.

As we live in a digital world where everything can be realized at our fingertips, AI has increasingly become a significant part of our daily life. To name a few - social media, entertainment, digital assistant, the banking industry, e-commerce, navigational sites, and smart homes benefits from the use of AI technology. Despite of great advantages that AI could bring into our daily lives, the focus tend to be on how AI technology can facilitate healthy lifestyles and scientific writing. Current trends allow the chatbot system to promote a healthy lifestyle to individuals (Fadhil & Gabrielli, 2017). The AI-Chatbot differs from the normal chatbot system where the latter only allows the system to access information and give feedback to the users based on the request. However, the AI-Chatbot system can offer extended benefits. According to Fadhil & Gabrielli (2017), the system has the ability of accessing information and providing recommendations such as food suggestions and shopping lists based on the data gathered

from the users. The data is more personalized to specific individuals. Virtual and human coaching are integrated to assist individuals making changes to adopt healthy lifestyle.

With the assistance of AI innovation, numerous AI tools could be utilised to facilitate scientific writing. English has become a universal language, which at times poses difficulties to non-native speakers. The tools can be separated according to categories such as writing assistance, translation, and content generation. Chen (2023) highlighted some AI tools based on a number of categories: (i) for writing assistance, they are Grammarly, Quillbot, DeepL Write, Ludwig, Trinka and Microsoft Editor (ii) for translation, they are DeepL Translator, Google Translate, Baidu Translate, Bing Translator, Youdao Translate and Reverse Translation, and (iii) for content generation - ChatGPT, Copy.ai, Texta, Writier, Writerly and ChatSonic. Writing assistance tools could assist in terms of the basic features like grammar, punctuation and spelling checking to the more advanced features like synonym searches, proposing word choices, and paraphrasing to change the tone and style of the writing. For the content generation tool, ChatGPT is a new prominent tool that could generate different versions of text in a matter of seconds based on user's input.

AI technology brings impact in the field of education as it ought to be incorporated in the educational sector to benefit all learners. They are not limited to students, but also instructors and institutions. In the education sector, technologies that are related with the teaching and learning environment are machine learning, learning analytic and data mining (L. Chen et al., 2020). First, machine learning is a knowledge discovery process where meaningful patterns and structured knowledge are generated based on the sampling data. Machine learning could assist high school students to make selection of universities for their tertiary education based on their preferences. Second, learning analytics focuses on data based on the characteristics of students and knowledge objects. The aim is to adjust educational methods to the needs and abilities of students. Finally, data mining enables generation of systematic and automated responses to students. This technology is used for pattern discovery and predictive modeling in extracting hidden knowledge. By having data mining, the benefits goes to both the instructors and the students. For the instructors, it can assist curriculum development and teaching method. As for the students, it allows them to personalize their own learning environment where the learning pace and learning method could be adjusted accordingly.
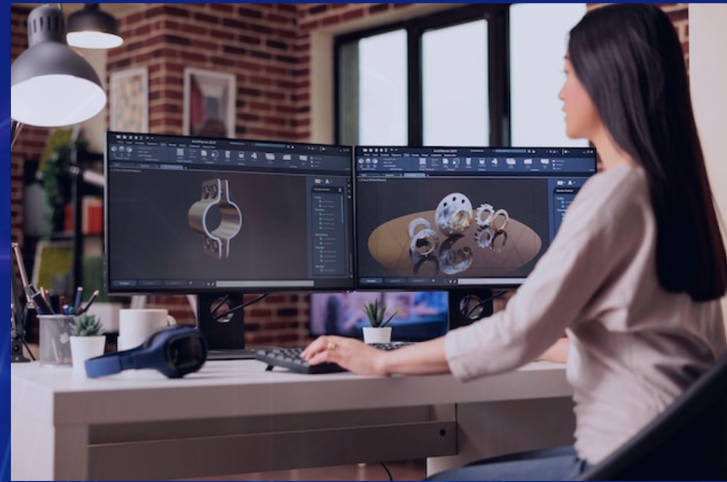
Furthermore, based on a study by Zafari et al. (2022), one of the systems that embedded the technology of AI is the Intelligent Tutoring System (ITS) which was developed especially for students. The learning environment is more fun and accustomed depending on the student's ability. Moreover, the system is capable of teaching students without the need for human intervention. AI technology can also be integrated with other technologies such as Virtual Reality, 3D Games, and Simulation. AI improves learning experiences when these technologies are being used together. Meanwhile, for instructors and institutions, AI enables them to monitor students' learning in real-time and assist the latter when necessary.

Besides, AI has increased the effectiveness of administrative duties including assessing the performance of the students and giving feedback on assignments via websites or computer programs (Zafari et al., 2022). Programs such as Grammarly and TurnItIn aid instructors in other administrative tasks such as checking for plagiarism, rating, grading, and giving feedback to the students for improvement. With AI, instructors could focus on teaching and to supply content materials to the students (L. Chen et al., 2020). Hence, AI could assist students, instructors and institutions in teaching and learning environment as well as in administrative tasks. In overall, the efficiency and the effectiveness of AI in educational sector would give positive impacts to the nation.

In terms of the impacts of AI on the digital economy, the Internet is known as the greatest disruptor in history. The Internet modified the way businesses serve their customers. Nowadays, customers engaged in online purchasing at the time and place of their convenience. The COVID-19 pandemic has accelerated the growth of online shopping among consumers across the world. According to the Department of Statistics Malaysia, the e-commerce income soared 17.1% year-on-year in the third quarter of 2021. Businesses are actively seeking for ways to improve their customers' online shopping experience in order to maximize their profit. The adoption of AI has become a game-changer for e-commerce as it helps transformed the way businesses operate and it enabled customers to shop online. For customers, one of the most significant advantages is the ability to personalize their shopping experience. AI performs an intelligent algorithm to analyse customer data including their purchase history, search queries and browsing behaviour to provide personalized recommendations, promotions and search results. This could help to improve customers' satisfaction which in return could help businesses to retain its customers and increase their profitability.

The adoption of AI in e-commerce can help business organizations to improve their customer service by providing 24/7 support service through chatbots and virtual assistant that quickly and efficiently respond to customer inquiries. This reduces workload for customer service representatives and improve customer satisfaction. Additionally, AI's adoption in e-commerce improves the ability of fraud detection and prevention. AI will analyse patterns in customer behavior and able to trace potential deceitful activities such as fake reviews or suspicious transactions and prevent them before they cause any harm. AI could help businesses to optimize their supply chain management to forecast demand. Similarly, the inventory levels would benefit from analysis data through multiple sources. This could help businesses to reduce operational cost, improve its efficiency and increase their profitability.

Customer also gain the significant advantage of AI in e-commerce. The application of voice search, AI recommendation, image searching and recognition, augmented and virtual reality could improve customers' experience. In today's modern era, voice assistant has increasingly become popular due to its convenience. The adoption of AI enables customer to place their order using their voice and this help to reduce time spent to add items on online cart thus making the online shopping more convenience. Furthermore, AI utilized customer's online

customers' experience, enhance operation and increase profitability. As technology continues to evolve, it is foreseeable that AI will pioneer even more significant roles in the future.

The emergence of AI in healthcare industry has risen in recent years and revolutionize the diagnosis, treatment and diseases prevention. AI in healthcare generally refers to the use of machine to review, analyse, interpret and suggest solutions to complex medical problems based on medical data that were provided in an automated manner (Chan, 2021). There are various applications of AI in the field of healthcare such as medical imaging, drug development, predictive analytics, personalized medicine, telemedicine and health monitoring. The first empirical advantage of AI is better outcomes of patient's health conditions, through medical imaging. The analysis of medical images such as X-rays, CT scans and MRIs help medical practitioners to detect abnormalities and diagnose diseases more accurately and in a speedier manner.

In terms of drugs development, AI has the capability of analysing huge amounts of data to identify potential drug candidate and predict their effectiveness on patients leading to more effective treatments. Furthermore, AI could analyse patient's data such as medical history and test result to predict the likelihood of the patient developing certain diseases. This can ultimately help doctors to identify

 shopping history and online search results to recommend similar items that could potentially match their needs. That is the reason why online users would often see similar items from hundreds of different retailers when browsing for an item for purchase. This gives greater opportunities to make a wise decision and reduce the browsing time. Isn't that astonishing?

Another great advantage of AI in e-commerce is image searching and recognition. Sometimes, users might experience having a picture of an item they intend to purchase but do not have relevant details such as the brand or producer. This issue is manageable by AI through the image search option where customer would only be required to copy and paste the image on the search bar to get result. The AI will work to identify similar images on the internet and specific e-commerce website to the photo that user have searched for. Therefore, user can avoid the hassles of conducting keyword searches. Finally, the application of virtual reality (VR AI) feature can help customer to have seamless shopping experience through "the product's illusion" as if they are purchasing the products from physical store. This feature permit customer to search for a product - for instance clothes or shoes. The product can then be customized to the preferred size and color, and the product could be ascertained in terms of how well it would fit the user's physique. For this reason, AI has become a vital tool for e-commerce businesses to improve

high-risk patients and intervene with early prevention or suitable treatment to reduce its severity. In addition, patient's data analysis provides personalized treatment plans based on individual characteristics such as genetic makeup and lifestyle factors. Another significant advantage of AI adoption in healthcare is the telemedicine. The telemedicine can improve access to healthcare and reduce patient's cost and travelling time to medical facilities. This is because the diagnosing and monitoring can be conducted remotely by the medical professionals. On top of that, adoption of AI can improve health monitoring through wearable devices. Patients on wearable device are more accessible to vital sign and other health data. This would provide real-time insights into patient's health and could alert the doctors to potential health issues. This has the opportunity of helping to provide better preventive solutions to patient's health issues. In a nutshell, AI adoption in healthcare has great potential to improve patient outcomes, speed up diagnosis and treatment, and reduce healthcare cost.

In spite of the advances made by the AI, there have been multiple observations that the use of AI would lead to bad outcomes. According to the prominent American technology site Gizmodo, 144 people died in surgery utilizing robotic assisted doctors between 2000 and 2013 (Condliffe, 2015 in Hu et al., 2021). Statistically, between 2014 and 2017, Amazon's AI-based recruiting tool favored

hiring males, raising concerns about the fairness of AI (Dastin, 2018 in Hu et al., 2021). Tay.ai, an artificial intelligence chatbot created by Microsoft, was pulled down because of her racist and sexist comments only a few short hours after she joined Twitter. In a more serious scenario, criminals have begun to use AI technology to bring harm to other people or society. For example, scammers impersonated the voice of a chief executive by calling the victim and demanding a false payment of 243,000 dollars (Huang, Zhang, Mao, & Yao, 2022).

Data security and privacy are central concerns in the development and application of artificial intelligence technology (Huang et al., 2022). The effectiveness of current AI is highly dependent on training data. Training an AI model, especially a deep learning model, typically requires an enormous amount of data, which likely contains personal and confidential information.

In the context of AI and data science, users often don't know that AI is behind an application that they use (e.g., a phone app) and because data given in one context and domain are often used by another party in another context and domain without their consent . Misuse and malicious use of data including personal information leakage or data tampering are major ethical concerns that affect everyone, at personal, institutional, and national levels.

In the case of accountability, who should be held responsible when an AI system or agent fails to complete a task, resulting in negative outcomes? Programming codes, input data, improper operation, and other variables can all contribute to an unpleasant outcome. This results in the phenomenon known as "the problem of many hands". Consequently, accountability is an ethical issue that encompasses the human variables engaged in the design, implementation, deployment, and use of artificial intelligence (Huang et al., 2022).

To accept the reality of advancements in technology, we may become completely reliant on AIs if we have handed an enormous number of activities to them, such as operating automobiles and coordinating communications and financial systems. Metaphorically, if our highly efficient and centrally planned self-driving transportation system 'crash' possibly due to a software error or malicious hacking, it could result in many literal problems in the real world (Green, 2018).

Rapid expansion in the use of AI also induced accelerated unemployment. Given the increasing share of labor in the world and the rise in unemployment due to automation,

researchers (Gries & Naudé, 2021) indicate a growing concern that AI technology will lead to mass unemployment. According to WEF report (2019), automation will displace approximately 20% of the world's labor force (male and female) (Goyal & Aneja, 2020). Many people will lose their jobs as AI replaces humans in a variety of occupations ranging from driving to medical diagnosis to education. This loss will be devastating to those who find meaning in their lives through their employment (Green, 2018).

Innovations in AI also has caused the rise of income inequality between nations. Income inequality is not directly influenced by technology, but rather by the combination of technological advancements and worker positions . The relationship between AI and income distribution has always been regarded as negative . Due to automation, the number of low-skilled and middle-skilled jobs are decreasing, the unemployment rate is rising, and the income disparity between middle-skilled and high-skilled workers is widening (Goyal & Aneja, 2020). It's clear that some jobs are being replaced by automation – manual manufacturing work, retail cashiers, and bank clerks, for example, have seen machines taking over much of their work, even before the application of AI is common.

In the future, for AI to reach its full potentials, it must be both ethical and explainable . The smart society need to trust the AI systems and work to align them with our values and norms. Though it is proven that AI has becoming the driving force for the economy development, addressing potential risks such as privacy concerns, security issue and human labor is necessary. Above all, it is undeniable that AI can re-shape the organisational culture and business operations in the future. Hence, it is crucial for institutions and business organisations to perform adequate research before the adoption of AI. In a nutshell, Artificial intelligence is a reality of the world and will transform the society to be a smart society.