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Digitalisation Impact on Indonesia Labour Market: SWOT-TOWS Analysis with Islamic Economic Principles

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Abstract

This study examines the impact of digitalisation on the Indonesian labour market using a SWOT-TOWS analysis framework and alignment with Islamic economic principles. The study aims to identify the strengths, weaknesses, opportunities, and threats of digitalisation for the labour market, as well as to formulate strategies and recommendations based on the SWOT-TOWS matrix. The study also explores whether the results of the SWOT-TOWS analysis can be aligned with Islamic economic principles, which emphasise social justice, equality, and welfare. The study uses a qualitative method with a critical literature review approach to collect and analyse data from various sources. The study finds that digitalisation has both positive and negative implications for the labour market, such as increased efficiency, innovation, and access to information, as well as job displacement, skill shortages, and inequality. The study also suggests some possible ways for academics, it improves understanding and directs future study. For industry, it enhances workforce management and ethical business practices. Policymakers may use it to assist in developing regulations for social security, job creation, and workforce development that are in line with Islamic principles. The study concludes that digitalisation can be a catalyst for economic development and social welfare if it is guided by Islamic values and principles.

Keywords: Digitalisation, labour, SWOT-TOWS, Islamic economic

1. Introduction

Modern technology is leading us into a digital age, where processes are becoming faster and more efficient. Everything is becoming connected digitally, and this trend is impacting Indonesia. The way people live, work, and interact is changing due to the ongoing digital revolution worldwide. Digitalisation, powered by automation and artificial intelligence, is transforming the job market, reshaping various industries and requiring new skills from the workforce. This shift has raised concerns about the future of employment.

These technological advancements are not only affecting how we work but also how we relate to one another in all aspects of social life, including security, social interactions, economics, law, and politics. Many jobs, especially in sectors like manufacturing, retail, and transportation, have been automated due to digitalisation. In which according to Arsyad et al. (2023) stated that it important to take into account the possible drawbacks of technology, such as the displacement of jobs due to automation or robots.

This rapid technological progress influences the industry's capacity to employ workers, contributing to rising unemployment. By 2025, a new generation of smart machines will likely replace over 85 million workers as they take over more and more job responsibilities; additionally, 43% of firms claim that they plan to reduce staff because of the adoption of new technology (Salam & Suadamara, 2021).

Many fear that further technological advancement might worsen unemployment rates. Consequently, there have been job losses and a change in the types of skills demanded in the workforce. Indonesia is predicted to lose 23 million jobs by 2030 but acquire 27 to 46 million new ones, mostly in the manufacturing, retail,

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construction, and health sectors, with 10 million of those positions being completely new job kinds (Rahmatutik & Laksmono, 2023). To support this study, according to Das et al. (2019) explains that jobs will change significantly as machines progressively complement human labour, affecting more occupations than job losses, this led for workers' skills and occupations must evolve to keep up with increasingly advancing machines. Digitalisation has also created new employment opportunities in sectors such as software development, digital marketing, and data analysis.

Therefore, Indonesia must adapt to global technological changes. The government is pushing for digital advancements in various areas, but this shift poses challenges for the country's workforce. In 2022, Indonesia's labour force participation rate increased to 69.06% from 68.08% in 2021, involving around 144 million people (Statista Research Department, 2023). This workforce includes individuals aged 15 and above, encompassing both employed and unemployed individuals actively seeking jobs (Trading Economics, n.d.). The growth in the labour force presents a challenge: how to integrate technology and automation without leaving behind skilled workers. Technology's impact on emerging nations like Indonesia raises concerns about labour productivity, job transitions, creation and destruction, education inadequacy, and macroeconomic effects. These issues affect the labour market, wages, social inequality, and the nature of employment (Wijayanti & Turgel, 2021). The digital era demands new skills, making it crucial to invest in education and training. Workers need to adapt to the digital economy's demands, as those with necessary skills will be in demand, while others might struggle to find employment, leading to increased inequality. This situation necessitates a shift in mindset among both employees and employers, emphasising the urgency of supporting education and training programmes.

The rise in inequality and unemployment due to digitalisation affects employment rates both positively and negatively. Islamic economics stresses social justice, equality, and investment in ventures creating jobs. Yet, it's uncertain how Islamic economic principles can address the transformed labour market brought on by digitalisation. To tackle this, conducting a SWOT analysis and using the TOWS matrix is essential. By reducing risks and using opportunities, particularly related to digitalisation's impact on the labour market, Indonesia can assess and enhance its strategy. The results can help determine if the strategy aligns with Islamic economic principles or not. Since several studies have investigated how digitalisation affects the labour market in Indonesia. Few of these studies, nonetheless, specifically take Islamic economic principles into account. By adding knowledge from Islamic economics to labour market research, this study seeks to close that gap.

The main objective of this study is to investigate the impact of digitalisation towards labour market in Indonesia using SWOT analysis. To formulate effective strategies for the Indonesian labour market by integrating SWOT analysis results into the TOWS matrix approach. To evaluate the alignment of the outcomes derived from the SWOT-TOWS analysis with the principles of Islamic economics principles, concerning the impact of digitalisation on Indonesia's labour market.

The study concentrates on Indonesia's overall labour market. The methodology employs qualitative research, utilising a critical review of literature approach that incorporates journal articles, websites, and books, focusing on digitalisation and its impact on the labour market. As a result, public opinions are not included in this study. Additionally, there is a scarcity of available data specifically linking digitalisation's impact on Indonesia's labour market with Islamic economic principles, posing a challenge in drawing comprehensive conclusions in this regard.

This research aims to explore the effects of digitalisation on Indonesia's labour market. The findings from this study can benefit both academic scholars and practitioners. By using SWOT-TOWS analysis in conjunction with Islamic economic principles, this research intends to shed light on digitalisation's impact on unemployment, changes in work roles, the need for new skills, and working conditions in Indonesia. The study also seeks to offer suggestions and recommendations for addressing these challenges. The research findings can provide valuable insights for policymakers and the government, prompting awareness of these issues and leading to the development of policies and laws that enhance Indonesia's labour market, ensuring its efficiency, effectiveness, and respect for human rights.

The paper is organised as follows: Section 2, the definition, rules and regulations towards labour market, impact of digitalisation on the labour market and the influence of Islamic economic principles on digitalisation in the labour market are thoroughly reviewed. In Section 3, the study's methodology is detailed. Section 4 presents the findings and discusses them in relation to the research questions and objectives. Finally, the study concludes with Section 5, summarising key points and offering suggestions for future research.

2. Literature Review

2.1 Definition of Digitalisation

Digitalisation refers to the socio-technical conditions underlying the adoption and utilisation of digital technology, including its influence on society, organisations, and individuals (Frenzel et al., 2021). Similarly, according to Parviainen et al. (2017) the term "digitalisation" or "digital transformation" describes the changes that are that occur using digital technology in every sector of human society. To support the study in relation to labour market, according to Vasilescu et al. (2020) explains that digital technologies transform economic processes by improving production flexibility, improving information availability, providing demand-side economies of scale through network effects, and giving zero marginal costs due to the non-rival and continually expandable nature of digital goods. This requires skill development and careful job design are required for the interaction between human workers and machines, which means that developing the right balance between automation and human expertise is important for an easy transition. this study will provide practical recommendations for improving Indonesia's labour market adaptability in the context of digitalisation.

2.2 Rules and regulations towards labour market

Indonesia's active labour market policies, such as vocational training, job search aid, entrepreneurial support, and labour inspection, have not been as effective as they should be, to improve, certain actions must be implemented to strengthen the Labour Market Information System (Rahmatutik & Laksmono, 2023). To support this study, further regulations have been proven to be ineffective, as stated by Ramadhan et al. (2021) that the Manpower Act provides detailed regulations for labour' entitlements, justice, and legal protection, however its implementation is insufficient, while labour complete their responsibilities to get benefits and protection, the government should put their rights and wellbeing first, making sure that appropriate laws are properly enforced. From this perspective, the previous study concentrated on current labour market rules and regulations, but their effectiveness fell short of expectations. However, it did not thoroughly examine the impact of digitalization on the labor market, particularly concerning specific rules and regulations as there are not much of study focusing in this area. The purpose of this study is to close this gap and help decision-makers recognise important challenges. Using SWOT-TOWS analysis, to provide practical suggestions for improving policy.

2.3 Background of Theory

Walwei (2016) find that Digitalization improves labour productivity and technological equipment, which promotes economic growth. Innovations in processes and products may result from it, bringing new goods to market. Lower pricing may result from this improved productivity, enhancing innovators' competitiveness and weakening rivals' market positions. This technical advancement can increase production with more input or decrease output with less input. Whereas, according to Pirosçă et al. (2021) stated that while new technologies bring new employment prospects, digitalization may result in improved labour productivity and increased products and services, but it also increases the possibility of technological unemployment and lower salaries. This shows that due to greater productivity and automation, technological developments might cause loss of jobs in some industries, but they can also open up new job possibilities in developing industries. Making sure that the workforce has the skills needed to move into these new professions is the problem, in which this involves in need for education and retraining programmes. Therefore, this study is to investigate how digitalisation serves as a major explanatory component to understand its consequences on the labour market. By looking at how labour factors, job prospects, and job opportunities are affected by digitalisation

2.4 Previous Studies

2.4.1 Digitalisation on labour market

Gayatri et al. (2022) highlighted that Indonesia is a growing nation with enormous online economic potential. The country's digital economy is expected to have the greatest GMV value in Southeast Asia by 2030, with a value of USD 146 billion by 2025 and USD 330 billion by 2030. The government has suggested a national acceleration programme for digital transformation, which focuses on the following five priorities: Building digital and internet infrastructure is the first step. Building a digital transformation roadmap for strategic industries like public services, social services, education, health, business, and broadcasting is the second. Building a national data centre is the third step. Building digitally skilled human resources is the fourth step.

Building digital regulations and funding schemes is the fifth step.

While Vasilescu et al. (2020) emphasised the pervasive influence of digitalisation across all sectors of society. Technological advancements continue to bolster each other, significantly impacting the job market and people's lives. This technological revolution is reshaping various industries, leading to changes in the occupational landscape. The trend suggests a growing disparity, with high-skill, high-paying jobs on the rise, while low- and medium-paying occupations face increasing challenges and fall further behind.

Similarly, Mönnig et al. (2019) stated that the salary and employment growth of medium-skilled people perform behind that of low- and high-skilled people as non-routine jobs are increasingly replaced by robots. The pay gap will expand as a result of digital transformation, which will particularly discriminate against workers with less education and income. Due to this, middle-class demand declines as a result of digital transformation, while higher and lower income groups gain disproportionately. This led to wage disparity issues rising.

Hence, this study can be supported by Sinha et al. (2023) mentioned that labour is decreased by the growth in productivity and efficiency brought about by digitalization, while the demand for advanced products and services is increased by the advancement of efficient technology and resulting decrease in costs and prices. Due to this, there will be a greater need for highly skilled labour. This implies that while the demand for low-skilled labour may decline as a result of digitalization, the demand for complex goods and services as well as high-skilled labour may rise. This change reflects the opportunities and problems that come with going digital. As it shows how that people and communities adjust to these changes, for instance by receiving education and training, so they can take advantage of the opportunities that digitalization brings.

Moreover, the impact of digitalisation on Indonesia's labour market can be significant, and it has a greater impact on lowering labour productivity there, where the digital infrastructure, adoption of technology, skills mismatch, consumer behaviour, and economic inequality are some of the difficulties Indonesia's digital economy has in achieving sustainable growth (Wijayanti & Turgel, 2021).

However, according to Abbas & Rahmawati (2020), with the total support of President Jokowi, Indonesia is right now concentrating on using the increasingly quick-moving technology advancements, notably in the usage of the digital economy. Although, because there are new problems relating to unclear regulations controlling the internet economy, Indonesia is still seen as not being ready to face it. The advancement of digital technology may also have unintended consequences for the Indonesian economy. Labor-intensive sectors have dominated Indonesian industry.

Hence, this seems that different studies gave similar opinion towards the digitalisation on the labour market itself where the impact of digitalisation can heavily bring impact, especially in terms of the low skilled and high skilled labour, it brings an effect towards the amount of wage that they received although there may be benefits that digitalisation brought to the society. Thus, this study would like to address the SWOT-TOWS analysis that could help in identifying its strength, weakness, opportunities, and threats that are being impacted by the digitalisation towards the labour market in Indonesia.

2.4.2 Islamic economic principles on digitalisation towards labour market

Islam places a strong emphasis on the role of commerce in providing for basic needs. Every person is said to consider the world as a place of worship where they should practise righteousness and labour to conduct their lives in accordance with religious teachings, bringing benefits and pleasure to themselves throughout their lifetime (Aristoni, et al., 2021). Rosadi (2007) highlights the clear issue of labour challenges, suggesting that understanding the primary causes is crucial for addressing these challenges within an Islamic framework.

In Indonesia, where the majority of the population is Muslim, various issues, including a large labour force with limited job opportunities, poor labour quality, uneven distribution of work, low earnings, difficulty in accessing job information, outsourcing, and unemployment, persist (Rosyada et al., 2018). Kusumaningtyas et al. (2022) affirm that Islam plays a central role in addressing economic challenges. The Islamic economic system encourages Muslims to focus on facilities and infrastructure that promote economic prosperity, with Allah guiding people's participation in the economy through both direct and indirect means.

This dynamic economic system in Islam ensures fair distribution of wealth, granting each individual the opportunity for a good life and honour in both this world and the hereafter through its actions and rituals.

3. Methodology

In this study, qualitative research will be conducted using secondary data. The approach involves a critical review of literature, where existing research findings are explored, assessed, and summarised. This method helps in creating a current evidence summary supported by reliable data (Khan et al., 2003). The data sources include journal articles, government documents, websites, and books, focusing on digitalisation and the labour market. Through this information, a SWOT-TOWS analysis will be performed. This analytical approach is essential for addressing the research question and achieving the study's goals. The SWOT analysis methodically assesses internal and external aspects, scanning both supply (internal) and demand (external) sides and TOWS matrix integrates internal strengths and weaknesses with external opportunities and threats to generate successful plans (Ravanavar & Charantimath, 2012). It ensures that existing studies are pertinent to the topic, enabling a more profound research output.

4. Results and analysis

4.1 The SWOT analysis on the impact of digitalisation towards labour market in Indonesia

SWOT analysis is used to draw conclusions about the impact of digitalisation towards Indonesia's labour market in terms of its internal and external environments. This is used to investigate the primary themes by organising the available information on the strengths and weaknesses, as well as potential possibilities and threats from the external environment.

4.1.1 Strengths

4.1.1.1. (S1) Technological advancements and increased efficiency

First of all, the technological advancements that are currently spreading all spheres of society are extremely beneficial. The amount of imported machines used to support human labour can make things of comparable quality than those made manually by people. Production is also more productive when machines are used (Sumanto et al., 2020). This leads to increased efficiency is one of the key advantages of digitalisation for the job market. Rezqianita (2020) agrees, pointing out that Industry 4.0 technology increases productivity and efficiency by eliminating errors, lead time, cycle time, downtime, and improving data transparency. Which led to the fact that with the use of the digitalisation process, many operations may be automated, which eliminates the need for physical labour. The time and money needed for various operations may be decreased by using technology, which can produce quicker and more accurate outcomes.

Moreover, these are reflected in shifts in work techniques from face-to-face meetings to ICT-based meetings, shifts to more flexible, efficient, and speedier work hours; and shifts to settings that may be selected anywhere or in a single site with multiple activities (Rachmawati et al., 2021). The labour market can experience better easier access and being able to work anywhere.

4.1.1.2. (S2) Better access to information on job seeking

Secondly, having more information available may also make it easier for those seeking employment to identify positions that fit their qualifications and skill set. For instance, using technology for hiring may speed up the hiring process and lower the time and expense needed to identify qualified individuals. Based on Xiang et al. (2023) mentioned that the data from Indonesian organisations is consistent, since the introduction of artificial intelligence-based systems and digital technology has altered the HR process, including recruiting and selection. The influence of digital technology has been shown to be favourable in terms of assisting firms in speeding up the HRM process by lowering costs and time, as well as hiring potentially talented people from across the world. As a result of the utilisation of digital systems, job searchers no longer need to physically travel to view recruitment advertisements.

4.1.1.3. (S3) Improve on accessing to information and communication

The digital economy has an opportunity to expand and offer a fair playing field for everybody. Also, the digital economy encourages accessibility by allowing people to obtain services without having to meet in person. This leads to the labour market's communication is also improved by digitalisation. Employers can communicate with their staff more effectively by using digital platforms, which eliminates the need for in-person meetings. Workers may also be able to provide employees with feedback through enhanced communication, which will result in better work.

4.1.1.4. (S4) More innovation: new goods and services

The labour market experiences more innovation because of digitalisation. Utilising digital platforms, workers may produce new goods and services, increasing competitiveness. This improved innovation may lead to increased economic growth, along with the formation of new industries and enterprises. The entrepreneurs that support the formation of new business ventures and digital start-ups have access to unprecedented prospects because of digitalisation. The use of digital platforms by MSMEs in Indonesia has increased significantly. It is estimated that there are already 10.25 million MSMEs actors connected to digital platforms, with 16 percent, or around 10.25, tied to the digital ecosystem. Following the digitalisation of MSMEs, Indonesia's digital economy will be the largest in Southeast Asia by 2025.

As a result, digital MSMEs must increasingly address production quality, production capacity, and digital literacy for firms operating in the digital domain to compete and develop. Which indeed shows how much of an impact that is being caused by digitalisation as it brings jobs and improvement towards the economy. Thus, the public's innovation for micro and small businesses has to be supported by the government in order to enhance product quality, scale up operations, and create new market networks. Additionally, it consists of technological advances and certifications for micro and small businesses in order to provide legal protection and foster economic collaboration (Muftiadi, n.d.).

4.1.2 Weaknesses

4.1.2.1. (W1) New jobs and job displacement: shortage of skills

Both new jobs and job displacement have been brought about by the digitalisation of the labour market. Technology has resulted in the loss of certain employment, but it has also led to the creation of new ones in sectors like software development, data analysis, and digital marketing. There is a shortage of skills that must be changed since the new jobs demand different talents than the ones that they have. However, based on Gayatri et al. (2022) mentioned that the shortage of graduates in STEM (Science, Technology, Engineering and Math) or other related fields alone is not the cause of the absence of a digitally proficient workforce. On the other hand, the disparity also exists when considering the number of graduates perhaps exceeding the number of available jobs. In comparison to other countries, Indonesia has a very low STEM graduation rate, with just 0.8 STEM graduates per 100 graduates.

A decline in the total number of employees required due to machine replacement, a rise in workers' mental stress levels as individuals with poor talents are no longer required, and a large disparity in the proportion of people employed in the informal labour market, digitalisation therefore creates a security concern for these unprotected informal labourers. According to this study, the existence of e-commerce enables shrinking of the workforce. There will be problems if the person could not handle learning new skills or being unable to get job opportunities it will cause them to face mental health issues. Especially, older women and women with less education were prone to experience mental health issues (other research have suggested that persons with more education are more likely to experience these diseases), additionally, poor coping mechanisms and a lack of social or family assistance might deteriorate mental health (Miranti et al., 2022).

4.1.2.2. (W2) Mismatch of work and advantages towards the high skilled employees

The mismatch between the requirements of the workforce and the qualities of job seekers leads to contributing to unemployment. Technological advancement has recently resulted in capital-intensive processes where it uses less labour to be involved (Susanto, 2021). Because the newest machines replace labour, this strategy has a short-term negative impact on employment. In which these results on the new machines often demand more money and use less labour. Workers with the necessary knowledge and skills are needed for capital-intensive technologies. Therefore, only highly skilled employees are eligible for employment chances. The new machines that replace labour which leads to increasing unemployment.

Jamil (2022) explains that the income growth in the digital economy favours high-skilled employees over low-skilled workers. The current position remains generally untouched in the digital era because of the industry's lack of opportunity for newcomers. The participants can adapt to the progress of digitalisation as the income stays concentrated in the same hands. The effects of digitalisation on wages have been conflicting. While some employees in the digital economy have received pay rises, others have witnessed constant or even declining pay. As a result, there have become worries about economic disparity

and the requirement for legislation to address the problem.

4.1.2.3. (W3) Digital-skilled workforce gap

Moreover, there is a "digital-skilled workforce gap" when a sector cannot employ all the graduates who have certain digital abilities. This can be brought on by a lack of competent employees in a firm or a lack of employees with the necessary skills for a particular activity or function that is needed in a company, which is known as a skill deficiency or skill mismatch, this shortcoming eventually can affect how well the business performs (Gayatri et al., 2022).

Since, due to technology advancements, there is a rising need for highly skilled, educated, and creative people in new, top-level jobs. The change in employee skill is due to the need for individuals who can handle difficult problems and come up with fresh solutions in order for businesses to survive over the long term (Wijayanti & Turgel, 2021). The skills needed in the job market have changed as a result of the economy's digitalisation. Skills in analysing the data, computer programming, and digital advertising have all grown more crucial as well as having a strong grasp of digital literacy.

4.1.2.4. (W4) High unemployment

Furthermore, there is still an increase of high unemployment due to digitalisation. This can lead to poverty, violence, and other sociopolitical issues are also getting worse because of high unemployment, both directly and indirectly, labour issues become extremely significant and complex and those job seekers who had recently graduated, but it also happened to older employees who lost their positions as a result of the closure of their offices and factories. Numerous kids who started hanging out on the streets are signs of societal issues. They turn into sellers, thieves, and buskers. They are the generation that was denied the chance to receive a quality education and training (Sumanto et al., 2020). This is due to a lack of employees with the requisite abilities to fill open positions, there is a skills gap because of the need for these abilities. This leads to the requirement for some traditional skills, including physical labour and office work, has also decreased because of the use of digital technology. Concerns about the future of work and the demand for workers to adjust to shifting skill requirements have resulted from this.

4.1.3 Opportunities

4.1.3.1. (O1) Increased digital education

Firstly, due to the rise of digitalisation it has given opportunities for the people to learn and to have digital skills to survive in this era. The Ministry of Communications and Informatics in partnership with Siberkreasi and Katadata, Indonesia's digital literacy score was 3.47 on a scale of 1 to 4. It means that the Indonesian people's digital literacy level is below average as a result, the Ministry of Communications and Informatics, in collaboration with Siberkreasi, Facebook, WhatsApp, and ICT Watch, will continue the digital literacy roadshow programme in 2021.

This activity is intended to result in further collaboration between various parties and cross-stakeholders in the future to promote public awareness and digital skills through various innovative efforts. This will create a betterment for the citizens as they are given a chance to learn it. This can help in improving the digital literacy of Indonesia in which this will help the people to be able to adapt to the technology advancement that is happening in the society.

According to Marsela & Limbongan (2021), higher education is associated with greater technological adaptability among workers. Higher education in Indonesia is a level of instruction following secondary education that consists of diploma, bachelor, master's, and specialised postgraduate programmes, as well as doctorate programmes offered by higher education institutions, which are governed by Act No. 20 of 2003, Article 19, Paragraph 1. Since it will improve their capacity to learn new information, develop new skills, and engage in ongoing learning, better educated people can adapt to the digital transition more easily.

4.1.3.2. (O2) Increased job opportunities

Similarly, Suharso Monoarfa, Indonesia's Minister of National Development Planning and Head of the National Planning and Development Agency (Bappenas), claims that digital technology has the potential to generate 20–45 million new employment in Indonesia. Speaking at the Statistical Society Forum,

Monoarfa noted that Indonesia had undergone digitalisation, which is expected to result in the creation of new job categories to fill 20–45 million openings (Aisyah, 2022). For instance, the growth of the freelance economy has given rise to new categories of employment, such freelance and immediate labour. Standard methods of employment have been questioned by these new types of labour, as have the rights and safeguards offered to workers.

4.1.3.3. (O3) Increased in the E-commerce enterprises

Many Indonesian digital platforms that are growing provide various technologies that enable various activities from online transportation, travel, to e-commerce enterprises, the digital economy in Indonesia has also been encouraged. Digital platforms enable Indonesian creative products to compete on a national and worldwide scale. The usage of digital platforms is regarded as critical for business actors to continue innovating and developing.

The good influence of digital platforms on entrepreneurship may be seen in the promotion of innovation, the creation of job possibilities, and the increase of productivity both socially and economically. This can include the Data analysts, software consultants, digital marketers, influencers, and other new positions at the top of the scale. At the bottom of the scale are Gojek, Uber, Grab drivers and services, as well as becoming a YouTuber (Wijayanti & Turgel, 2021).

4.1.4 Threats

4.1.4.1. (T1) Displacement of employees: automation and other types of digitalisation

First of all, the industrial revolution process might become a danger in Indonesia, with robots taking over occupations and completely using the digitalisation process until 2030. Indonesia has a vast labour force, but it additionally has a high unemployment rate. Understanding the technology world has transformed into a necessity to prepare for it, and practically all current occupations are either negatively or positively affected (Jihan, 2023). On the one hand, more employment opportunities have resulted from the growth of new jobs in the digital economy. On the other side, job losses have occurred in several industries as a result of the displacement of employees brought on by automation and other types of digitalisation.

4.1.4.2. (T2) Absence of social protection, job stability and access to chances for training and growth and uncertainty on job opportunities

In Indonesia, new types of labour have also emerged as a result of economic digitalisation. The growth of freelance work, platform employment, and other non-standard labour has given employees new options, but it has also presented them with new difficulties. The absence of social protection, job stability, and access to chances for training and growth are some of the difficulties encountered by Indonesian employees. To support the development of the digital economy while also protecting employees and ensuring their access to social security, policymakers must strike a balance (Asian Development Bank, 2019).

Thus, the creation of skilled positions does not ensure that all employees will be productive and uphold their legal obligations. This claim is reinforced by BPS, which claims that losing a job encourages employees to work frugally by engaging in various types of unsuitable employment. According to the ILO's definition of "decent work," "improper work" is work that does not ensure the equality, freedom, security, and dignity of its employees as people. This leads to the fact that even if the labour were trained for a skilled labour position, there seems to be no guarantee that they have a sense of job security which will lead to a high unemployment rate as they will still not be given any job opportunity. The digital economy is thought to have a detrimental influence on bad working conditions.

4.1.4.3. (T3) Not paying taxes: rely on informal jobs

Secondly, this could be due to the rise of e-commerce and people started to do entrepreneurship which can cause a threat to the Indonesia economy as they are doing it independently, without paying the tax or those informal workers that do not pay taxes to the government. Indonesians rely on informal jobs to sustain themselves and their family rather than seeking out official employment. Hence, informal employees are those who earn money that is accountable to income tax but do not pay taxes to the government, in the end, the government's options for promoting growth are limited (Abbas & Rahmawati, 2020). This can be

seen that Indonesia experiences tax loss due to the growth of e-commerce and can lead to negative impact towards the development and economy of the country.

4.1.4.4. (T4) Less job opportunities: digital system and population

Workers who will lose their employment owing to digital systems need to be transferred to duties that are not at risk of being automated, such as occupations that need high tech and social intelligence, by the time technology advances and automation becomes more practical to replace human labour (Samboteng, 2020). The use of digital technology has also changed many of the current employment. Examples of regular jobs that have been replaced by automation include data input and assembly line labour. This has given rise to worries about the necessity for further education and training as well as the potential for job displacement.

According to Gayatri et al. (2022) it shows that even though there are graduates with an automotive degree, who totalled 246,091 and 373,444 graduates, respectively, the vocational graduates with a computer and informatics major are the second largest unemployed category, the shortage of graduates in STEM (Science, Technology, Engineering and Math) or other related fields alone is not the cause of the absence of a digitally proficient workforce. On the other hand, the gap might also exist when there are more graduates than there are open positions. However, it is typical for most of the graduates' competence to fail to meet the standard that is required by the sector. This shows that even though they have the skills, there are less job opportunities for them, and this could be due to an increase in the population of Indonesia, which needed for people to have skills that could be distinct from others so they could get the job.

Table 1: The SWOT analysis results on the impact of digitalisation towards labour market in Indonesia

Internal	**4.1.1 Strengths**	**4.1.2 Weaknesses**
	(S1): Technological advancements and increased efficiency. **(S2):** Better access to information on job seeking. **(S3):** Improve on accessing to information and communication. **(S4):** More innovation**:** new goods and services	**(W1):** New jobs and job displacement: Shortage of skills **(W2):** Mismatch of work and advantages towards the high skilled employees **(W3):** Digital-skilled workforce gap **(W4):** High unemployment
External	**4.1.3 Opportunities**	**4.1.3 Threats**
	(O1): Increase digital education. **(O2):** Increase job opportunities. **(O3):** Increase in the E-commerce enterprises.	**(T1):** Displacement of employees brought on by automation and other types of digitalisation. **(T2):** Absence of social protection, job stability, and access to chances for training and growth and uncertainty on job opportunities **(T3):** Not paying taxes: rely on informal jobs. **(T4):** Lose employment: digital system and population.

4.2 TOWS Matrix

The TOWS matrix gives a way to create strategies that properly pair elements related to internal strengths (or weaknesses) with elements related to opportunities (or dangers) from external factors (Ravanavar & Charantimath, 2012). In which this means that in TOWS matrix matches the S and W with the O and T, revealing the Strength-Opportunities (SO), Weaknesses-Opportunities (WO), Strength-Threats (ST), and Weaknesses (WT) strategies.

Based on Maity et al. (2023), there are four types of TOWS strategies whereby SO strategy is by using internal strength to take advantage of external opportunities, WO strategy it seeks to fill internal gaps by seizing the possibilities from external opportunities, ST strategies it makes use of the strength to cut off or lessen the impact from the external threats and lastly, WT tactics use defensive techniques to reduce internal faults and avoid external threats.

Table 2: TOWS matrix

TOWS Matrix	**External Opportunities**	**External Threats**
Internal Strengths	Strength Opportunities (SO)	Strength-Threats (ST)
Internal Weaknesses (W)	Weakness-Opportunities (WO)	Weakness Threats (WT)

Source: Maity et al. (2023)

In relation to TOWS matrix applying to the SWOT analysis results on the Impact of Digitalisation towards Labour Market in Indonesia is that:

Table 3: SWOT-TOWS matrix

	Internal strength (S) **S1:** Technological advancements and increase efficiency. **S2:** Better access to information on job seeking. **S3:** Improve on accessing to information and communication. **S4:** More innovation: new goods and services	**Internal Weakness (W)** **W1:** New jobs and job displacement: Shortage of skills **W2:** Mismatch of work and advantages towards the high skilled employees **W3:** Digital-skilled workforce gap W4: High unemployment
External Opportunities **O1:** Increase digital education. **O2:** Increase job opportunities. **O3:** Increase in the E-commerce enterprises.	**SO Strategies** **S1,O1,O2** Utilise and optimise the technology so this improves its efficiency to benefit from greater opportunities for employment and online businesses. **S2, S3, O1, O2** Improving utilisation of information and communication, assuring fair opportunity for digital skills training, and fostering digital literacy, boosting communication and information accessibility in job opportunities **S3, S4, O3** Maximising the use of technology in both marketing and manufacturing processes helps in boosting business income in which this will help in improving economic growth of the country. **S4, O3** Optimising and enhancing on the standard of the service in which this could help in fulfilling the needs of society and raise the service standards	**WO Strategies** **W1, W2,W3, O1, O3** Providing workers with digital education and training, businesses can address the skills gap and the mismatch between their capabilities and available job opportunities. **W4, O2** By focusing on adaptable reskilling and upskilling, which would reduce inequality and improve social stability
External Threats **T1:** Displacement of employees brought on by automation and other types of digitalisation. **T2:** Absence of social protection, job stability,	**ST Strategies** **S1, T1** Using advances in technology and improved productivity to lessen the risks of job displacement brought on by automation as well as other kinds of digitalisation.	**WT Strategies** **W1, W3, W4, T1, T2, T4** By offering enough and accessible compensation for unemployment, enacting employment protection laws, and implementing labour market

and access to chances for training and growth and uncertainty on job opportunities **T3:** Not paying taxes: rely on informal jobs. **T4:** Lose employment: digital system and population.	**S2, S3, T2** utilising technological developments to reduce the number of jobs lost and the number of people jobless **S4, T3, T4** Employing in enhancing on the skills development and training that might aid in facing new technologies	initiatives that assist people in adjusting to job loss and obtaining new employment. **W1, W4, T1, T3,T4** By increase in digital entrepreneurship as they could not find any jobs, this will increase on the e-commerce, helping to reduce the level of unemployment as they could hire workers with their money income. **W4, T2, T4** Government to offer employees protection and assist them with the latest technology and developments.

4.2.1. Strengths-Opportunities Strategies

Indonesia could make use of its own technological advancement as they utilise and optimise the technology, so this improves its efficiency to benefit from greater opportunities for employment and online businesses. Take use of advances in technology could help in to boosting the production and efficiency in the digital economy. By offering frequent training and programme opportunities. In which Indonesia could create national certification programme based on digital education so that ICT industry could have a clear criterion on creating human resources for current and future employees to improve their digital skills as this could help in preparing for the future workers for industrial employment. From this, technology can assist in improving performance and ensuring that the labour market produces the most efficient and effective goods and services possible, since the digital economy in Indonesia is anticipated to create 3.7 million new employments by 2025 (Muftiadi, n.d.). As it has been demonstrated that digital technology plays a crucial role in delivering products and services in an approach that is practical, efficient, quicker, cheaper, and labour-intensive. Take use of advances in technology could help in to boosting the production and efficiency in the digital economy.

Moreover, more employers are looking for workers with intermediate or advanced digital capabilities than those with merely basic ones. As a result, by ensuring that businesses can offer digital education, so to improve people's digital literacy while also ensuring that those who lack the necessary skills may acquire them. With maximising the use of Technology in both marketing and manufacturing processes helps in boosting business income in which this will help in improving economic growth of the country. This could be done by providing alternative educational models, such as in promoting digital literacy and education within the workforce through improving utilisation of information and communication, assuring fair opportunity for digital skills training, and fostering digital literacy, boosting communication and information accessibility in job opportunities can help in aiding in increasing digital education to support on the labour market.

Furthermore, in order to create more innovation it is by increasing, utilising and improving on the e-commerce enterprises during this digitalisation era, as with their growth it can help in optimising and enhancing on the standard of the service in which this could help in fulfilling the needs of society and raise the service standards, which led for the e-commerce has significant potential to support economic growth for the country. Thus, the government should create and support a platform for new innovations for the products and services as this might help in maintaining competitiveness between the e-commerce enterprises and making sure that it is accessible and mobile friendly to be used for a wide range of users.

Especially it is a platform that is needed for the MSME's to be able to grow and in fact MSMEs (Micro, Small, and Medium-Sized Enterprises) are essential for a country's economic development. One of the expressions of the Indonesian people's economy that needs to grow is MSMEs. It is projected that this sector of the economy will contribute to a rise in income which will help individuals to satisfy their basic necessities

since it will provide job possibilities that are capable of accommodating a large workforce (Achmad, 2023). This will help in reducing the unemployment in Indonesia.

4.2.2 Weaknesses-Opportunities Strategies

Due to the significant changes in the workplace have been brought about by the introduction of technology and digitalisation. Although these developments have enhanced production and efficiency, they have additionally created questions about job security because some positions may possibly be automated or eliminated. Thus, by providing workers with digital education and training, businesses can address the skills gap and the mismatch between their capabilities and available job opportunities. Since there are still a lot of people lacking in certain skills, which contributed to the lack of a skilled workforce in the digital age, we can achieve this by expanding digital educational programmes, which may eventually lead to job opportunities for those who already have the necessary skills.

Moreover, workers may provide their workers with the modern skills which are needed in the digital age by offering training programmes. This might include both hard skills like problem-solving and adaptation in addition to soft skills like programming or data analysis. Hence, people would be fully prepared to engage in economic development by focusing on adaptable reskilling and upskilling, which would reduce inequality and improve social stability. Based on Li (2022) stated that to prepared for the future workforce will continually upskill and reskill as they develop in their careers and find jobs in order to improve their work abilities. Workers that are upskilled acquire new abilities to support their present responsibilities. Retraining, on the opposite hand, requires for employees to acquire the information and skills necessary to fill completely new or different tasks.

Furthermore, there is still a need for increased participation from other stakeholders, more investment in digital infrastructure, regulations to protect small and local businesses, an improvement in digital literacy, and a decrease in the digital divide between urban and rural areas (Anshari & Almunawar, 2021). In which with fulfilling this will ensure on having a balanced and fair distribution of income with every demographic group.

4.2.3 Strengths-Threats Strategies

Using advances in technology and improved productivity to lessen the risks of job displacement brought on by automation as well as other kinds of digitalisation. Even though automation and technology can result in some job displacement, they likewise open up more possibilities and areas, perhaps resulting in positive growth in employment over the long run. This might help Indonesia increase its output or job productivity. Ensuring that employees have the knowledge and training they need to adjust with these developments is important, so that utilising technological developments to reduce the number of jobs lost and the number of people jobless as a result of the growth of technology and automation.

Moreover, it is crucial that the government offer this developing group of employees suitable and long-lasting social protection, not only for the sake of those who work themselves but also to protect and promote the effectiveness of the labour market through equal competition (Schulte & Howard, 2019). Thus, with continuous improvement in learning and skill development may be supported by technology as well, this may help the people to stay current in the labour market that is changing quickly due to digitalisation.

This could also be done by employing in enhancing on the skills development and training that might aid in facing new technologies, in which opportunities in this development are available towards all demographic groups. The government must enact labour laws that could potentially help citizens in adapting to and reflecting the developments in the nature of work brought about by digitalisation. These laws should protect workers' rights and ensure that they get fair treatment at work and social security.

4.2.4 Weaknesses-Threats Strategies

Almost all significant economic sectors have been affected by digitalisation, which has also altered the job market's composition. Digitalisation has changed the way individuals conduct their jobs and how work is conceptualised, although there is a lack of digitally trained people and an increasing number of skill mismatches, labour markets need individuals with better digital abilities (Charles et al., 2022). In which workers may avoid job losses brought on by technology and digitalisation by enhancing workers' capabilities and abilities.

This can be accomplished by offering enough and accessible compensation for unemployment, enacting employment protection laws, and implementing labour market initiatives that assist people in adjusting to job loss and obtaining new employment (Menéndez-Espina et al., 2019). In which people may avoid the lack of social protection, job stability, and accessibility to possibilities for growth and training is by giving the workers enough direction. Promote social interaction and both employer and worker involvement in the development and enforcement of social protection policies and programmes. This can serve to increase the trustworthiness and value of social protection while also ensuring that it responds to the evolving demands and preferences of both employees and employers.

Hence, to guarantee that highly trained people who already possess digital skills receive fair treatment and equal rights given to traditional workers, the government must offer employees protection and assist them with the latest technology and developments in order to ensure that they would not fall behind as it is necessary to improve the digital skills of workers.

By increase in digital entrepreneurship as they could not find any jobs, this will increase on the e-commerce, although with this platform sellers are not paying tax but with their diversifying, promoting, and producing more goods and services with added value, businesses and organisations may help in preventing job losses brought on by digital systems and expanding populations. As they make money from the sales of their products or services, businesses may use that money to hire unemployed individuals, so this led in helping to reduce the level of unemployment.

4.3 The results from the SWOT-TOWS analysis on the Impact of Digitalisation towards Labour Market Align with Islamic Economic Principles

The definition of Islamic economics is the study and implementation of Shari'ah laws and regulations that forbid injustice in the acquisition and use of material resources in order to provide people happiness and make it possible for them to fulfil their social and religious duties to Allah (Arif, 1985). This shows that Islamic economic principles' goal is to satisfy people and provide them with the ability to fulfil their duties to society and Allah s.w.t.

In which the results coming from the SWOT-TOWS analysis, there are some advantages and disadvantages that are affected due to digitalisation. This section will focus on two parts: the first part will be based on the strength, opportunities, weaknesses and threats to see whether it is aligned with the Islamic Economic principles. For the section of 4.3 it will focus on the TOWS matrix. As a result of all of this, it can be aligned with the Islamic economic principles.

4.3.1 Strength and opportunities

Islamic economic principles aim for economic and social equality, communal harmony, fair wealth distribution, and personal freedom (Imamuddin & Arain, 2016). These principles, rooted in the Qur'an and Sunnah, align with digitalisation, offering increased job opportunities, particularly through the growth of e-commerce ventures, enabling unemployed individuals to find work.Technological advancements enhance society's effectiveness and efficiency. Islamic economic principles, specifically the concept of At-Taysir (ease), emphasise simplifying regulations to facilitate their implementation (Nurhadi, 2021). This approach recognises human nature, ensuring that individuals can carry out tasks without excessive burdens, fostering independence.

Individuals are encouraged to act charitably and to the best of their abilities, as stated in Surah al Isra verse 84. Islamic obligation involves wholehearted adherence to Allah SWT's directives. Islamic economics strives for both material and spiritual gain, focusing on socio-economic justice, business operations, and social welfare. Entrepreneurship in e-commerce must adhere to Islamic law, the Qur'an, and Hadith. Fundamental business ethics, including honesty, reliability, sincerity, and morality, are vital. These ethics guide entrepreneurs, ensuring their actions align with Allah's guidance and enabling them to assist those without employment opportunities.

4.3.2 Weaknesses and Threats

The SWOT analysis reveals challenges regarding the alignment of Islamic economic principles. Workers face displacement due to technology, necessitating new skills for employment. Digital skills command higher wages, creating disparities in the workforce. Challenges include a large labour force with limited

opportunities, uneven work distribution, low earnings due to skill gaps, digital literacy issues, and unemployment. Lack of social protection and job stability prompts individuals to turn to entrepreneurship, leading to a rise in informal jobs.

Addressing wage concerns, Azid et al. (2013) advocate applying Islamic teachings from the Qur'an and Hadith. Employers and employees should view each other as brothers, fostering fair and respectful interactions. Employers must offer just wages, recognising the value of labour in their output. Injustice can lead to unrest and strikes, emphasising the importance of fairness in labour relations.

Regarding government interventions, a Muslim's life goal is falah, achieved through responsible resource management as Allah's earthly representative (Arif, 1985). Success lies in balancing personal needs with community welfare, following Allah's teachings. Managing resources with moderation and benefiting society aligns with the path set by Allah s.w.t.'s teachings.

4.4 TOWS matrix with Islamic economic principles

4.4.1 Strength-Opportunity strategies:

Indonesia stands to benefit significantly from enhanced digital education, increased job opportunities, and the growth of e-commerce ventures. These advancements align with fundamental principles such as *tawhid* (oneness and sovereignty of God), *khalifah* (vicegerent), *ihsan*, and *maslahah* (society's welfare and benefit). These principles highlight Allah's s.w.t. power and wisdom in creating the universe and empowering humans. Emphasising economic improvement and societal welfare underscores the responsible stewardship of Earth's resources, showcasing Indonesia's commitment to these principles.

4.4.2 Strengths-Threats strategies:

To address job losses due to automation and digitalisation, Indonesia can leverage its improved access to job information and enhanced communication. This approach aligns with the *adl* and *maslahah* principles, which safeguard society's welfare by reducing vulnerability, instability, reliance, and corruption. These principles also ensure fairness and equity in the treatment of employees, regardless of their skill level. Even workers lacking digital skills should be treated justly, acknowledging their rights. This approach promotes social stability and fairness in the face of technological changes.

4.4.3 Weaknesses-Opportunities strategies:

By embracing advancements in digital education, job markets, and e-commerce, Indonesia can address challenges tied to new jobs, job displacement, skill shortages, mismatched work, digital skills gaps, high unemployment, and disparities favouring highly skilled employees. This aligns with the principles of *maslahah* and *ihsan*, supporting charitable initiatives, social responsibility, people's development, job creation, and social services. Upholding people's rights and striving for the fulfillment of *Maqasid Al-Shariah* aims to establish a fair and just society, emphasising the importance of equity in Indonesia's socio-economic landscape.

4.4.4 Weaknesses-Threats strategies:

To mitigate the risks of employee displacement due to automation and digitalisation and to address the lack of social protection, Indonesia could reduce high unemployment, job displacement, skill shortages, work mismatches, and the digital skills gap. This approach aligns with the *adl* and *maslahah* principles, preventing inequality in opportunity and financial distribution among different societal groups. Implementing programmes to counter the effects of digitalisation on workers can enhance societal welfare. By ensuring job stability and offering opportunities for training and skill development, Indonesia can empower its workforce to adapt and thrive in the digital era.

5. Conclusion and Recommendation

In summary, digitalisation has significantly affected Indonesia's job market. While it has created opportunities, challenges remain. Technological progress through digitalisation boosts the economy by enhancing productivity. However, this shift poses a threat to job markets in emerging nations, seen through SWOT-TOWS analysis. The consequence is job displacement, requiring skilled workers. Thus, these nations must invest in education to meet new demands.

This paper examined the impact of digitalisation on the Indonesian labour market using a SWOT-TOWS analysis framework and Islamic economic principles. The paper identified the strengths, weaknesses, opportunities, and threats of digitalisation for the labour market, as well as to formulate strategies and align them with Islamic values. The paper used a qualitative method based on a critical literature review approach.

The paper finds that digitalisation has brought both benefits and challenges for the Indonesian labour market. Some of the benefits include technological advancements, increased efficiency, better access to information, more innovation, new job opportunities, and e-commerce enterprises. Some of the challenges include job displacement, skill shortage, mismatch of work, wage inequality, high unemployment, lack of social protection, and job stability.

The SWOT-TOWS analysis revealed four types of strategies that could be implemented to address the impact of digitalisation on the labour market: SO strategies that utilise the strengths and opportunities, WO strategies that overcome the weaknesses and exploit the opportunities, ST strategies that leverage the strengths and avoid the threats, and WT strategies that minimise the weaknesses and reduce the threats.

The paper also finds that the Islamic economic principles that could be aligned with the SWOT-TOWS analysis are *tawhid* (oneness and sovereignty of God), *adl* (justice), *maslahah* (public interest), *ihsan* (benevolence), *at-taysir* (ease), and *Maqasid Al-Shariah* (objectives of Islamic law). These principles could guide the formulation and implementation of the strategies to ensure that they are in accordance with the Islamic values of social justice, equality, welfare, and human dignity.

In terms of Islamic economic principles, digitalisation offers benefits like job opportunities and skill enhancement, promoting fairness and justice. However, challenges such as job insecurity and wage disparities persist, contradicting fairness. To align with Islamic principles, Indonesia must focus on social justice and citizens' protection, ensuring equal opportunities and individual satisfaction, as an obligation of an Islamic state.

Indonesia can harness the advantages of digitalisation and pave the way for a better future by investing in digital skills training. The government and industry sectors should fund these initiatives. This can be achieved through free or affordable training programmes, collaborating with academic institutions for digital courses, and encouraging businesses to train their staff.

Additionally, promoting entrepreneurship is crucial. Small businesses can easily expand through e-commerce and digital marketing. To support entrepreneurs, the public and private sectors can provide funding, tax incentives, and mentorship programmes. By fostering entrepreneurship, Indonesia can enhance economic growth and create new job opportunities.

Moreover, bridging the digital gap is crucial. Despite the advantages of digital technology, it has created disparities between those with access and those without. Rural areas, in particular, face limited internet access. To address this issue, both the public and commercial sectors need to invest in making digital technology accessible in rural regions. This can be achieved through initiatives such as expanding internet infrastructure, offering subsidies for electronic devices, and providing training courses to help rural communities acquire digital skills.

The paper contributes to the literature on digitalisation and labour market by providing a comprehensive and critical analysis using a SWOT-TOWS framework and an Islamic perspective. The paper also provides practical implications for academics, industry, government and policymakers to cope with the challenges and opportunities of digitalisation in a way that is consistent with Islamic teachings. In terms for academics, this study helps to improve knowledge of labour markets, digitalisation, and Islamic economics while providing context for Indonesia and recommendations that will guide future research and policy. Whereas, in terms for industry, this will help to improve workforce management, job search strategies, and skill development. It can also help employees adjust to changes in the market and help employers improve their business strategies in accordance with ethical Islamic principles. Lastly, for government and policymakers to assist in guiding to make rules and regulations that focused on morally appropriate strategies for social security, job creation, and workforce development that comply to Islamic economic principles.

The paper suggests some limitations and recommendations for future research, such as conducting empirical studies to test the validity of the SWOT-TOWS analysis results, exploring other dimensions of digitalisation such as its impact on environment and culture, and comparing the Indonesian case with other countries.

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