

The Impact of Skill Mismatch on Unemployment in The Artificial Intelligence (AI) Era: A Systematic Literature Review from an Islamic Economic Perspective

Sherly Sumaiyah^{1*}, Rozalinda², Testru Hendra³

Universitas Islam Negeri Imam Bonjol Padang, Indonesia^{1,2,3}

*Corresponding Author: sherly.sumaiyah@uinib.ac.id

ARTICLE INFO

Received: 04 July 2026

Revised: 26 September 2026

Accepted: 27 September 2026

Keywords: Artificial Intelligence; Maqasid al-Shariah; Skill Mismatch; Unemployment; Upskilling and Reskilling

ABSTRACT

Advances in Artificial Intelligence (AI) have transformed workforce skill requirements and may widen the gap between worker competencies and industry needs (skill mismatch). Research integrating the causes, impacts, and mitigation strategies of skill mismatch with an Islamic economic perspective in the AI context remains limited. This study aims to synthesize the causal factors of skill mismatch, its impact on unemployment, and mitigation strategies from an Islamic economic perspective. A Systematic Literature Review was conducted following the PRISMA 2020 guidelines, using Scopus data via Publish or Perish for 2020–2026. Of 108 articles identified, 15 met the inclusion criteria. Three main themes emerged: the gap between education and industry needs; skills gaps driven by rapid technological change and low digital literacy; and limited upskilling, reskilling, and labor market information. These conditions contribute to rising structural unemployment, expanding informal employment, and declining productivity. The novelty of this study lies in integrating skill mismatch, AI transformation, and Islamic economics within a single analytical framework. From the maqasid al-shariah perspective, continuous competency development supports hifz al-mal and human resource quality. The findings highlight the need for adaptive education and labor policies and stronger upskilling and reskilling efforts to build an adaptive, competitive workforce.

DOI: <https://doi.org/10.24036/ecogen.v9.i3.112>



This is an open access article distributed under the Creative Commons 4.0 Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. ©2026 by author.

INTRODUCTION

The development of Artificial Intelligence (AI) and digital transformation has brought significant changes to the structure of jobs and the skill requirements of the workforce (Krishna et al., 2024). The International Monetary Fund (IMF) estimates that nearly 40% of jobs globally are at risk of being replaced by AI, while the World Economic Forum (WEF) reports that 86% of employers expect AI and information processing technologies to transform their businesses by 2030 (Choiri, 2025). These changes are also beginning to be felt in Indonesia. The International Labor Organization (ILO) estimates that by 2026, 21.7% of jobs in Indonesia will have more than a minimal level of exposure to Generative AI, indicating that technological transformation has the potential to affect millions of workers (Satyadhar Joshi, 2025). Although AI can boost productivity and create new job opportunities, the rapidly evolving skill requirements may create a gap between workers' competencies and industry demands (Gmyrek et al., 2025). This situation has the potential to exacerbate the skills mismatch and make it difficult for some workers to adapt to changes in the labor market.

The phenomenon of changes in the job market due to AI is related to the emergence of skills mismatch, a condition where the skills possessed by workers do not match the needs of the workplace (Narsaria, 2025). In this context, many higher education graduates have academic degrees but do not yet possess the competencies truly needed by industry. Research conducted by (Mgaiwa, 2021) on graduate employability shows that the education system still faces challenges in producing graduates who are adaptive to changes in the job market. The world of education tends to emphasize theoretical aspects over the development of practical and digital skills needed by companies. As a result, many workers experience difficulty finding jobs relevant to their fields of study (Borner et al., 2018). This condition shows that unemployment is not always caused by a lack of jobs, but also by a mismatch between the competencies of job seekers and the ever-evolving needs of industry in the digital era.

The changes in workforce skill requirements are becoming increasingly evident as the use of automation, digitization, and artificial intelligence (AI) in economic activities grows. Advances in AI are not only replacing some routine jobs but also transforming the types of tasks and competencies that companies require. This situation can lead to a skills mismatch when workers' skills do not align with job demands that increasingly require data analysis, digital literacy, the use of AI, and critical and adaptive thinking skills (Sledziewska, 2025). This mismatch can reduce productivity and employment opportunities, particularly for low-skilled workers who face limitations in adapting to technological changes. The research of (Ramaswamy, 2018) explains that adaptability is a key factor in maintaining a worker's position in the labor market. Thus, AI contributes

to unemployment through changes in job structures and a widening gap between the workforce's skills and industry needs.

The problem of skill mismatch and unemployment due to technological developments is also evident in the employment situation in Indonesia (Yhudin et al., 2025). Data from the Central Statistics Agency (BPS) shows that Indonesia's Open Unemployment Rate (TPT) reached 4.68 percent in February 2026. Furthermore, the number of unemployed in Indonesia remains in the millions, primarily among high school and college graduates. This situation indicates that increasing education levels have not fully guaranteed the absorption of the workforce into the workforce (Azzahra et al., 2024). Many companies complain about the low preparedness of graduates to meet the needs of digital-based industries. On the other hand, some job seekers also experience difficulties keeping up with technological developments due to limited access to training and skills development. This situation demonstrates that employment challenges in Indonesia are not only related to the number of jobs, but also the quality and suitability of workforce competencies to the needs of the modern job market.

From an Islamic economic perspective, work is not only seen as an economic activity to earn income, but also as part of worship and an effort to achieve well-being (*falah*) (Dewi Samad & Sugeng, 2022). Islam strongly emphasizes the importance of productivity, professionalism, and the development of human resource quality. Unemployment is seen as a social problem that can lead to poverty, economic inequality, and a weakening of social welfare. Therefore, Islamic economics encourages the creation of an educational and economic system capable of improving the skills of the workforce to be more productive and independent (Yolanda Kirana Sari et al., 2024). The principles of justice (*al-'adl*) and welfare (*maslahah*) are essential foundations for creating an equitable distribution of job opportunities. In the context of the AI era, the Islamic economic perspective is relevant because it emphasizes not only economic efficiency but also the balance between technological development and the protection of human welfare so that digital transformation does not widen social disparities in society.

Although extensive research has examined skill mismatch, unemployment, and the development of AI, the existing literature remains fragmented across these dimensions. Research by (Florez, 2024), (Habiyaremye, 2022), (Said, 2021) primarily examine how skill mismatch affects unemployment and labor market dynamics, but do not explicitly consider the accelerating influence of AI on the evolution of skill requirements. Conversely, (Kholifah, 2025), (Sledziowska, 2025), and (Omri, 2025) highlight how digital transformation and AI reshape workforce skill demands, yet their analyses do not sufficiently explain how the resulting skill mismatch may translate into unemployment. Meanwhile, (Morsy, 2020), dan (Adely, 2021), and (Rageth, 2020) emphasize the alignment between education and industry needs as a strategy to reduce

kill gaps, but do not integrate AI driven changes in labor demand into this relationship. Thus, three unresolved gaps can be identified: (1) the lack of an integrated explanation linking AI development, skill mismatch, and unemployment; (2) the limited attention to the mechanisms through which AI induced changes in skill demand contribute to structural unemployment; and (3) the dominance of conventional economic perspectives, with limited incorporation of Islamic economic principles concerning human capital development, employment, and social justice.

Addressing these gaps, the present study contributes theoretically by developing an integrated perspective that connects AI development, skill mismatch, and unemployment within an Islamic economic framework. Practically, the study provides implications for designing education, upskilling and reskilling policies that are responsive to technological change while remaining consistent with Islamic principles of decent work, human development, and economic justice. The novelty of this study therefore lies not merely in examining the three variables simultaneously, but in integrating their causal relationship and interpreting its implications through the principles of Islamic economics.

Furthermore, there are few studies that synthesize recent research findings to explain how Islamic economic values, such as *maqasid al-shariah* and Islamic human capital, can serve as a conceptual framework for responding to employment challenges in the AI era. Therefore, this study aims to analyze various publications on the impact of skill mismatch on unemployment in the AI era and its relevance from an Islamic economic perspective. This research is expected to provide theoretical contributions to the development of Islamic economic literature and practical contributions to the formulation of employment and education policies that are more adaptive to digital transformation.

METHOD

This study is a qualitative study using the Systematic Literature Review (SLR) method that aims to identify, analyze, and synthesize various research results related to the impact of skill mismatch on unemployment in the AI era from an Islamic economic perspective. This study uses a qualitative descriptive approach with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines. The data sources used are secondary data obtained from scientific articles indexed in the Scopus database using the Publish or Perish (PoP) application. The literature search was conducted using the keywords “skill mismatch” AND (“unemployment” OR “labor market”) AND “artificial intelligence” AND “Islamic economics” with a publication range of 2020–2026. Furthermore, the articles obtained were selected based on inclusion and exclusion criteria through the stages of identification, screening, eligibility, and

inclusion according to the PRISMA 2020 guidelines. After going through the selection process, 15 articles were obtained that met the criteria and were analyzed to answer research questions regarding the relationship between skill mismatch, unemployment, AI development, and Islamic economic perspectives.

Procedure

Identification

The initial stage involved identifying relevant keywords, synonyms, and concepts based on previous research on skills mismatch, unemployment, Artificial Intelligence (AI), the job market, and Islamic economics. A search of references published between 2020 and 2026 in the Scopus database yielded 108 articles during the identification stage.

Tabel 1. Database Keywords

Database	Keywords
Scopus	"skill mismatch" AND ("unemployment OR "labour market") AND "artificial intelligence" AND "Islamic economics"

Source: Author

Screening Stage

The next step was to remove duplicate previous research articles. This step was done to avoid duplication and then filter out eligible articles. There were 32 papers included in the conference proceedings, review articles, books, and book chapters categories, and 8 duplicate articles. Thus, the total number of eligible articles was 68.

ligibility Stage

The final step is to identify appropriate references by comprehensively reviewing relevant literature to ensure that the articles meet the criteria and are suitable for use as sources. The titles, abstracts, and content of these articles are evaluated by reviewing previous research studies. Afterward, it is determined whether these previous studies relate to skills mismatch, unemployment, Artificial Intelligence (AI), and the labor market in Islamic economics. This step aims to answer the research questions.

Tabel 2. Database

Database	Number of Articles
Scopus	108

Source: Author

Table 3. Data Exclusion Criteria (Non-Articles and Duplicates)

Exclusion Criteria	Excluded notes
Duplicate Data	8
Conference proceedings, review articles, books, and book chapters.	32

Source: Author

Table 4. Exclusion Criteria (Focus of Study)

Exclusion Criteria	Excluded notes
Full texts that do not focus on the impact of skill mismatch on unemployment in the era of AI from an Islamic economic perspective	53

Source: Author

After going through the entire selection process, 15 articles met the criteria and were selected for further analysis. This step simplifies the research procedure; the steps involved are explained in the research procedure to answer the research questions outlined in Figure 1.

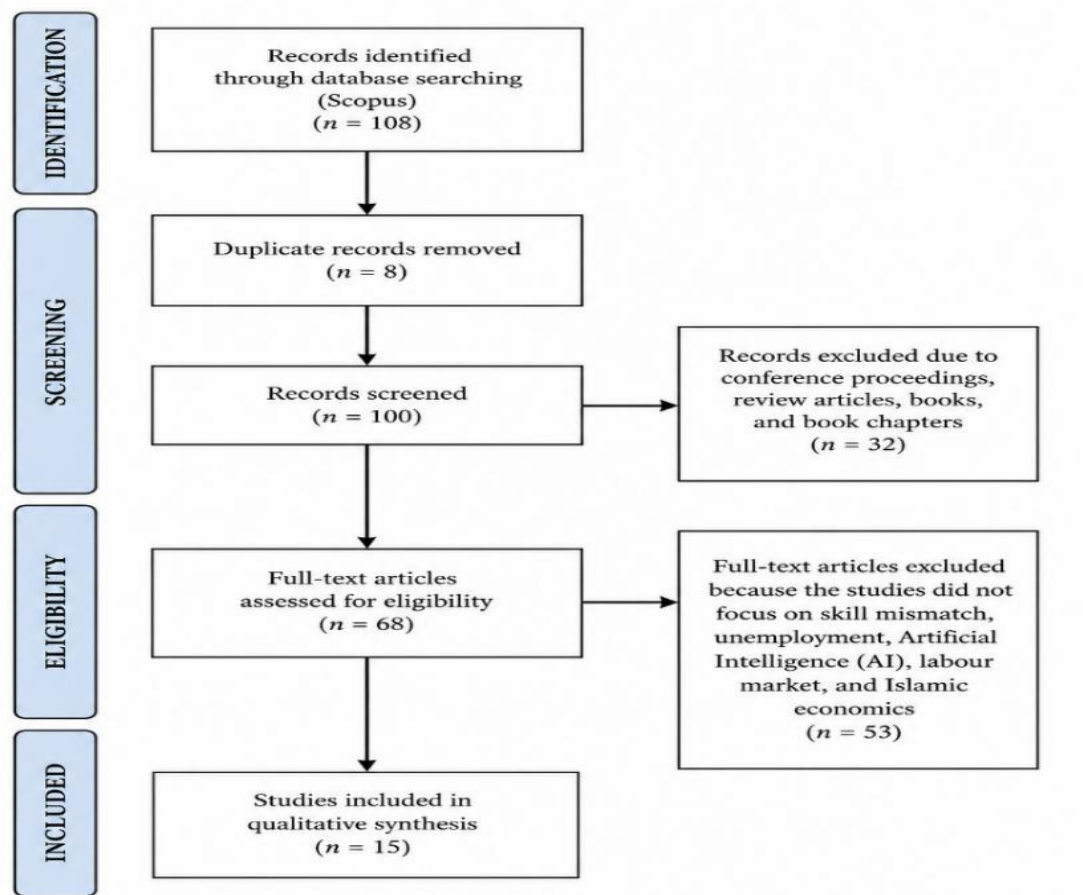


Figure 1. PRISMA Analysis Framework

Source: Author's Interpretation

Based on the selection results using the PRISMA 2020 method, 15 articles were obtained that met the inclusion criteria and were relevant to the themes of skill mismatch, unemployment, Artificial Intelligence (AI), and the Islamic economic perspective. The analyzed literature came from various countries such as Indonesia, South Africa, Tanzania, Malaysia, South Korea, China, India, and several European countries. Most of the studies discussed changes in skills needs due to digitalization and AI, their impact on employment, and strategies for increasing workforce employability. The synthesis results show that the development of AI has significantly changed the structure of the labor market. The demand for digital skills, data analysis, AI literacy, problem-solving, and adaptive skills has increased drastically. However, education and training systems in many countries have not been able to keep up with these changes, creating a gap between the skills possessed by the workforce and the skills required by industry. This condition then gives rise to the phenomenon of skill mismatch and contributes to increasing structural unemployment

RESULT AND DISCUSSION

RESULTS

This research is structured based on four research questions (RQ) which are used to identify research gaps and synthesize findings from the articles analyzed.

Table 5. Research Question :

No	Code	Question
1.	RQ1	What factors contribute to skills mismatch in the job market?
2.	RQ2	How does skill mismatch impact unemployment in the AI era?
3.	RQ3	What strategies can be used to reduce skill mismatch and unemployment?
4.	RQ4	How does an Islamic economic perspective view the phenomenon of skill mismatch and unemployment in the AI era?

Source: Author's Analysis

Based on the Research Question Table above, skill mismatch and unemployment are two interrelated phenomena in the dynamics of the modern labor market. According to Human Capital theory, unemployment can occur when an individual's educational investment does not produce competencies that align with labor market needs. This situation is further complicated in the AI era because changing skills requirements are occurring faster than the education system's ability to adapt.

RQ1. What factors contribute to skills mismatch in the job market?

The study results show that skill mismatch occurs when the skills possessed by the workforce do not match the skills required by the job market. Based on the articles analyzed, several main factors contribute to skill mismatch. The first factor is a mismatch between the education system and industry needs. Research by (Habiwaremye, 2022), (Morsy, 2020), and (Adely, 2021) found that educational curricula often fail to keep pace with the evolving needs of the workforce. As a result, graduates possess adequate academic knowledge but lack the practical skills required by employers. Consequently, they face difficulties in securing employment, even with a high level of education.

The second factor is rapid technological change. (Kholifah, 2025) and (Sledziowska, 2025) explain that digitalization and automation have significantly changed the job structure. Many conventional jobs are starting to be replaced by digital technology and AI, while the workforce lacks the new skills to match these changes. This situation creates a gap between available competencies and industry needs. The third factor is the lack of training and lifelong skills development (lifelong learning). (Hwang, 2024) shows that workers who do not undergo continuous training tend to experience a decline in competency relevance. In the AI era, required skills are constantly evolving, so current skills can become obsolete in a relatively short time.

The fourth factor is weak labor market information. (Morsy, 2020) found that many job seekers lack adequate information about the skills currently in demand in the industry. As a result, individuals choose fields of education or training that do not align with available job opportunities. Thus, the SLR results indicate that the main causes of skill mismatch include an incongruent education system, accelerated technological development, low participation in ongoing training, and limited labor market information.

RQ2. How does skill mismatch impact unemployment in the AI era?

Based on article analysis, skill mismatch has a significant impact on increasing unemployment, particularly structural unemployment. (Florez, 2024) found that workers experiencing mismatch have a higher probability of unemployment than workers whose competencies match job requirements. The development of AI reinforces this impact. AI not only replaces routine jobs but also creates a need for new skills such as data analytics, machine learning, digital literacy, and problem-solving. (Omri, 2025) shows that labor groups unable to adapt to technological change are at higher risk of losing their jobs. In addition to increasing unemployment, skill mismatch also has an impact on the increase in informal employment. . (Florez, 2024) shows that many workers who cannot enter the formal sector end up working in the informal sector with lower productivity and income. This phenomenon shows that skill mismatch affects not only job opportunities but also job quality.

Findings (Sun, 2023) show that skill mismatch leads to decreased labor productivity and overall economic efficiency. When companies cannot find workers with the appropriate competencies, production processes become less than optimal. Conversely, workers with overskilled or underskilled skills are also unable to maximize their potential. In the context of AI, the impact of skill mismatch is increasingly complex because technological change is occurring faster than the ability of educational and training institutions to produce a workforce that meets industry needs. Therefore, AI can widen the skills gap if not balanced with adaptive human resource development policies.

RQ3. What strategies can be used to reduce skill mismatch and unemployment?

Studies show that various countries have implemented several strategies to reduce skills mismatch and unemployment. The first strategy involves reforming educational curricula to better align with industry needs. (Rageth, 2020) emphasizes the importance of integration between educational institutions and the business world in curriculum development. This approach enables graduates to acquire competencies relevant to the job market. Second, strengthening vocational education and training. (Hwang, 2024) found that vocational training programs designed based on industry needs significantly increased participants' employment opportunities. Vocational education is a crucial instrument in preparing a ready-to-use workforce. Third, developing digital and AI skills. (Kholifah, 2025) explains that mastery of digital skills is a key requirement in the modern job market. Skills such as digital technology utilization, data analysis, digital communication, and adaptability to AI need to be part of the education and training system.

The fourth strategy is implementing the concept of lifelong learning. (Sledziewska, 2025) shows that workers who actively participate in training and skills development have better adaptability to technological change. Therefore, lifelong learning is a crucial strategy for maintaining the relevance of workforce competencies. Fifth, strengthening the labor market information system. The government and educational institutions need to provide accurate information on job trends and the skills needed by industry so that people can make more informed educational and career decisions. Overall, the most effective strategy for reducing skills mismatch is synergy between education, training, industry, and government in creating a skills development ecosystem that is adaptive to technological change.

RQ4. How does an Islamic economic perspective view the phenomenon of skill mismatch and unemployment in the AI era?

From an Islamic economic perspective, work is a productive activity with both economic and religious dimensions. Islam encourages every individual to develop their abilities and skills to benefit themselves and society. Therefore, the phenomenon of skill mismatch can be viewed as a form of inefficiency in human resource utilization that has

the potential to hinder the achievement of public welfare. The concept of human capital in Islamic economics aligns with the importance of skills development and education. Islam places knowledge as one of the main foundations of economic development. When education fails to produce competencies that meet the needs of society and the labor market, an imbalance occurs that can reduce productivity and well-being.

From a sharia maqashid perspective, skill mismatch and unemployment can hinder the achievement of the goals of preserving wealth (hifz al-mal) and maintaining reason (hifz al-'aql). Unemployment causes a reduction in people's income, while the low quality of skills hinders the development of human intellectual capacity. Therefore, efforts to increase skills and create jobs are part of the realization of social benefits. Apart from that, the concept of al-kasb (productive work) also emphasizes the importance of working according to your competencies. In the context of AI, Islam does not reject technological developments as long as the technology is used to improve human welfare and does not cause injustice. Therefore, digital transformation needs to be balanced with investment in education, training and skills development so that the benefits of AI can be felt evenly.

It can be concluded that, from an Islamic economic perspective, reducing skills mismatch and unemployment is not only an economic goal but also part of efforts to achieve justice, prosperity, and social well-being. Therefore, education policies, job training, and digital skills development need to be prioritized in addressing changes in the job market caused by the development of AI.

The study results indicate that the skills mismatch is caused by a mismatch between education and industry needs, accelerated technological development, a lack of ongoing training, and weak job market information. These conditions have resulted in increased structural unemployment, informal employment, and decreased labor productivity. To address these issues, educational reform, strengthening vocational education, developing digital skills, implementing lifelong learning, and increasing collaboration between the government, the education sector, and industry are needed. From an Islamic economic perspective, skills development and job creation are part of the effort to realize the maqasid sharia, particularly in maintaining economic prosperity and improving the quality of human resources in the AI era.

Scopus Indexed Research Topics

Research on skill mismatch and unemployment in the era of AI from an Islamic economic perspective has yielded various relevant findings. The analysis of articles that met the PRISMA selection criteria is as follows:

Table 6. Research Topics Indexed by Scopus

No	Author & Year		Research Methodology	Key Findings / Topics
1	Florez,	L.A.	<i>Empirical Analysis</i>	Skill mismatch increases unemployment, informal employment, and labor mobility.
2	Habiyaremye, A.		<i>Qualitative Study</i>	Skills gap is a major cause of youth unemployment.
3	Said, R.	(2021)	<i>Econometric Analysis</i>	Measuring unemployment due to a mismatch between skills and labor market needs.
4	Shi, L.P.	(2022)	<i>Quantitative Study</i>	Skill mismatch hinders the recruitment process and labor market efficiency.
5	Morsy, H.	(2020)	<i>Survey Analysis</i>	Identifying the causal and ongoing factors of skills and education mismatch.
6	Adely,	F.I.J.	<i>Literature Review</i>	Low quality of education increases the risk of unemployment through skill mismatch.
7	Ur-Rehman, A.		<i>Panel Data Analysis</i>	Skill mismatch reduces the contribution of human capital to economic growth.
8	Stankovic,	J.J.	<i>Case Study</i>	Skills mismatch affects employment opportunities in the local labor market..
9	Sun, T.	(2023)	<i>DSGE Model</i>	Skill mismatch reduces productivity and economic efficiency.
10	Abbritti,	M.	<i>Macroeconomic Model</i>	Workforce skills influence productivity and labor market dynamics.
11	Hwang, I.	(2024)	<i>Quantitative Evaluation</i>	Vocational training improves the match of skills and job opportunities.
12	Rageth, L.	(2020)	<i>Regional Analysis</i>	The alignment of the education system and industry needs can reduce skill mismatch.
13	Kholifah,	N.	<i>Mixed Method</i>	Digital skills are becoming a key competency for increasing employability in the AI era.

14	Sledziewska, K. (2025)	<i>Survey Analysis</i>	Digital automation is driving the need for reskilling and upskilling of the workforce.
15	Omri, A. (2025)	<i>Literature Review</i>	AI impacts unemployment rates and demands increased workforce skills.

Source: Author’s Analysis

Table 6 above summarizes a study regarding skill mismatch, unemployment, and changes in the job market due to developments in digital technology which have become interesting issues in recent years. Most research shows that the mismatch between the skills possessed by the workforce and the skills required by the industrial world is one of the main causes of high unemployment, especially structural unemployment. This finding can be seen in research (Florez, 2024), (Habiyaemye, 2022), (Said, 2021) and (Morsy, 2020) which consistently find that the misalignment between the education system and the needs of the job market makes it difficult for job seekers to obtain jobs that match their competencies. In addition, several studies highlight that the skill mismatch problem does not only originate from the workers' side, but is also influenced by changes in company needs and technological developments. (Shi, 2022) found that companies often experience difficulty in obtaining workers with appropriate skills, thus causing inefficiencies in the recruitment process.

This finding is reinforced by (Sun, 2023), who showed that skill mismatch impacts overall productivity and economic efficiency. Thus, skill mismatch is not only a problem for individual job seekers but also a challenge for companies and the national economy. From the perspective of education and human resource development, research by (Adely, 2021), (Hwang, 2024), and (Rageth, 2020) shows that the quality of education and training plays a crucial role in reducing the skills gap. Curricula that do not align with industry needs and weak links between educational institutions and the workforce are factors that increase the risk of skill mismatch. Therefore, strengthening vocational education, job training, and skills enhancement programs is a strategy widely recommended in various studies to reduce unemployment.

Furthermore, the analysis also shows that the development of AI and automation has significantly changed the structure of the labor market. Research (Kholifah, 2025) confirms that digital skills and employability skills are key competencies that workers must possess in the era of digital transformation. Meanwhile, (Sledziewska, 2025) found that workers need to continuously upskill and reskill to adapt to technological changes. (Omri, 2025) even shows that AI can increase the risk of unemployment for groups of workers unable to adapt to changing skills needs. These findings indicate that the

development of AI does not directly cause unemployment, but rather increases the likelihood of skill mismatches that ultimately lead to unemployment.

From a macroeconomic perspective, research by (Ur-Rehman, 2021) and (Abbritti, 2024) shows that skill mismatch can hinder labor productivity, reduce the effectiveness of human capital, and slow economic growth. This condition leads to suboptimal allocation of human resources, thus reducing a country's ability to improve competitiveness and social welfare. Therefore, addressing skill mismatch is not only crucial for individuals and companies but also a crucial part of national economic development.

From an Islamic economic perspective, these findings can be linked to human capital, productive work, and the maqasid of sharia. Islam encourages every individual to possess competence and work productively to benefit themselves and society. Skill mismatch can be viewed as a form of inefficiency in human resource utilization that hinders the achievement of social welfare (maslahah) and well-being. Therefore, improving education quality, developing skills aligned with job market needs, and providing equitable employment opportunities are efforts aligned with Islamic economics' goals of achieving social welfare and justice.

Overall, the analysis shows that skills mismatch is a major contributing factor to unemployment in the AI era. The development of AI and digitalization is accelerating changes in workforce skills requirements, increasing the risk of skills mismatch. Therefore, synergy between the government, educational institutions, industry, and the community is needed to create an adaptive and sustainable skills development system to reduce unemployment and improve social welfare in accordance with Islamic economic principles.

Table 7. Analysis of Factors Based on Previous Research

No	Author	Factor
1	Educational Mismatch	Adely (2021); Morsy (2020); Rageth (2020); Said (2021)
2	Skills Gap	Habiyaremye (2022); Florez (2024); Shi (2022)
3	Technology Development and AI Adoption	Kholifah (2025); Sledziewska (2025); Omri (2025)
4	Low Digital Skills	Kholifah (2025); Omri (2025)
5	Lack of Training, Upskilling, and Reskilling	Hwang (2024); Sledziewska (2025)
6	Labor Market Information Asymmetry	Shi (2022); Stankovic (2021)
7	Human Capital Inefficiency	Ur-Rehman (2021); Abbritti (2024)
8	Changes in the Structure of the Labor Market	Florez (2024); Sun (2023); Abbritti (2024)

Source: Author

Table 7 summarizes the results of a literature synthesis on the most dominant factors causing skill mismatch: educational mismatch and skills gap. Four studies show that the education system often fails to produce graduates with competencies that align with industry needs. As a result, many job seekers have adequate education but lack the skills companies require. This situation results in high unemployment, especially among young people and recent graduates. Another factor is technological change and the adoption of artificial intelligence (AI). Several recent studies have shown that digitalization and automation have significantly changed the characteristics of jobs. Previously required traditional skills are being replaced by the need for digital skills, data analysis, problem-solving, and the ability to adapt to new technologies. When the workforce is unable to keep up with these changes, the risk of skill mismatch and unemployment increases.

DISCUSSION

The research findings indicate that skill mismatch is a multidimensional phenomenon influenced by changes in workforce skill needs, technological developments, and the education system's unpreparedness to respond to job market transformation. The most dominant contributing factor is the mismatch between the competencies produced by educational institutions and the skills required by industry. This finding aligns with research by (Morsy, 2020), (Adely, 2021), and (Rageth, 2020) which shows that the education system often fails to produce graduates with competencies that meet the needs of the workforce. As a result, many graduates experience difficulty finding employment despite having a relatively high level of education. This situation demonstrates that increasing access to education will not necessarily reduce unemployment if it is not accompanied by an increase in the relevance of the competencies produced by educational institutions.

In addition to educational factors, the development of AI and digitalization has been shown to accelerate changes in the structure of the labor market. These findings indicate that AI increases demand for technology-based skills such as digital literacy, data analytics, machine learning, artificial intelligence literacy, and problem-solving skills. These results align with research (Kholifah, 2025), which found that digital skills are the main determinant of employability in the era of digital transformation. These findings are also supported by (Sledziewska, 2025), who explains that digital automation encourages workers to continuously upskill and reskill to remain relevant in the job market. Thus, technological change does not directly cause unemployment, but rather widens the skills gap between industry needs and workforce competencies.

From an Islamic economic perspective, the phenomenon of skills mismatch and unemployment is not only seen as an economic problem, but also as a human development issue. The principle of *al-'adl* (justice) demands equal access to education and training, while the concept of *maqasid al-shariah* emphasizes the importance of human resource development to achieve prosperity (*falah*). These findings indicate that Islamic economics offers a more comprehensive approach than conventional approaches, focusing not only on labor market efficiency but also on aspects of social justice and sustainable human development. Overall, recent research trends indicate a shift in focus from conventional discussions of unemployment to the issue of skills mismatch as a consequence of digital transformation and AI. However, most research still focuses on technical and economic aspects. Studies integrating the phenomenon of skills mismatch with an Islamic economic perspective are still very limited. Therefore, this study fills this gap by offering a synthesis that connects human capital theory, AI developments, and Islamic economic values to explain and formulate solutions to unemployment in the digital era.

CONCLUSIONS

This study concludes that skill mismatch is a critical factor contributing to the increasing risk of unemployment in the Artificial Intelligence (AI) era. Based on a synthesis of 15 Scopus-indexed articles, the dominant causes of skill mismatch include the gap between graduate competencies and industry requirements, rapid technological development, limited digital skills, insufficient upskilling and reskilling opportunities, and weak labor market information systems. The findings indicate that AI driven technological transformation not only changes the composition of labor demand but also increases the risk of structural unemployment among workers who are unable to adapt to changing skill requirements.

This study advances the existing literature by bringing together the discussion of AI-driven skill mismatch, unemployment, and Islamic economics within a single analytical framework. Previous studies have largely examined skill mismatch from technological, educational, and labor market perspectives, while its implications from an Islamic economic perspective remain relatively underexplored. This review contributes by positioning human resource development as an important instrument for addressing labor market disruption while linking it to the principles of *maqasid al-shariah*, particularly the achievement of *falah*, *al-'adl*, and *maslahah*. From this perspective, improving employability and adaptability through education, training, and lifelong learning is not merely an economic strategy but also an effort to promote human welfare and social justice in the digital era.

The findings also have practical implications for policymakers, educational institutions, and industry stakeholders. For policymakers, the results highlight the need to formulate adaptive labor market policies, strengthen digital and vocational training systems, expand reskilling and upskilling programs, and improve labor market information to reduce competency gaps. Educational institutions should periodically align curricula with emerging industry requirements, strengthen digital and employability skills, and integrate lifelong learning approaches into education and training programs. Meanwhile, industry stakeholders need to strengthen collaboration with educational institutions through industry-based training, internships, competency mapping, and continuous employee development. Such collaboration can improve labor absorption and enhance workers' adaptability to AI driven changes.

From the perspective of Islamic economics, these efforts can be further strengthened through Islamic human capital development and Islamic social finance instruments, including zakat, productive waqf, and Sharia-based empowerment programs. These instruments have the potential to support access to education, vocational training, digital skills development, and entrepreneurship for vulnerable groups affected by technological transformation. Therefore, addressing skill mismatch should be viewed not only as a strategy for reducing unemployment but also as part of sustainable human development that promotes economic resilience, social justice, and inclusive welfare.

Future research should move beyond conceptual and literature-based analysis toward empirical investigation of the relationship between AI-driven skill mismatch and unemployment across specific industrial sectors. Further studies should incorporate variables such as digital skills, employability skills, reskilling, upskilling, technological readiness, and human capital quality. In addition, empirical research is needed to examine how *maqasid al-shariah*, Islamic human capital, zakat, productive waqf, and other Sharia-based empowerment mechanisms can contribute to reducing skill mismatch and improving labor market resilience. Such research is expected to provide a more comprehensive evidence base for developing adaptive and sustainable policies to address labor market challenges arising from AI and technological transformation.

AUTHOR CONTRIBUTION

All authors contributed to the creation of this article according to their respective duties.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

SIMILARITY STATEMENT

The authors confirm that this manuscript is an original work and has been subjected to institutional plagiarism screening using Turnitin, ensuring it meets the required similarity threshold.

REFERENCES

- Abbritti, M. (2024). Labour market skills, endogenous productivity and business cycles. *European Economic Review*, 170. <https://doi.org/10.1016/j.eurocorev.2024.104873>
- Adely, F. I. J. (2021). Poor education, unemployment and the promise of skills: The hegemony of the “skills mismatch” discourse. *International Journal of Educational Development*, 82. <https://doi.org/10.1016/j.ijedudev.2021.102381>
- Azzahra, A., Savandha, S. D., Bharoto, R. M. H., & Kevin, N. H. (2024). The Impact of High Job Qualification Standards on Unemployment Rates Among Fresh Graduates in Indonesia. *Journal Transnational Universal Studies*, 02(4), 244–255. <https://doi.org/10.58631/jtus.v2i4.109>
- Borner, K., Scrivner, O., Gallant, M., Ma, S., Liu, X., Chewning, K., Wu, L., & Evans, J. A. (2018). Skill discrepancies between research, education, and jobs reveal the critical need to supply soft skills for the data economy. *Proceedings of the National Academy of Sciences of the United States of America*, 115(50), 12630–12637. <https://doi.org/10.1073/pnas.1804247115>
- Choiri, A. (2025). The role of artificial intelligence in economic development. *Driving Socio-Economic Growth With AI and Blockchain*, 1(1), 339–364. <https://doi.org/10.4018/979-8-3693-8664-4.ch015>
- Dewi Samad, T. F., & Sugeng, A. (2022). The Role of the Islamic Economic System in Achieving Fallah. *Adzkiya: Jurnal Hukum Dan Ekonomi Syariah*, 10(02), 175. <https://doi.org/10.32332/adzkiya.v10i02.5295>
- Florez, L. A. (2024). The impact of skill mismatch on unemployment, informality, and labour turnover. *Economic and Labour Relations Review*, 35(4), 980–999. <https://doi.org/10.1017/elr.2024.48>
- Gmyrek, P., Berg, J., & Bescond, D. (2025). Generative AI and Jobs: An Analysis of Potential Effects on Global Employment. In *Gospodarka Narodowa* (Vol. 323, Issue 3). <https://doi.org/10.33119/gn/203716>
- Habiyaremye, A. (2022). Bridging the labour market skills gap to tackle youth unemployment in South Africa. *Economic and Labour Relations Review*, 33(4), 786–805. <https://doi.org/10.1177/10353046221138400>
- Hwang, I. (2024). Analysis of the matching effectiveness of vocational training for the unemployed: Evidence from the Republic of Korea. *International Labour Review*, 163(4), 631–651. <https://doi.org/10.1111/ilr.12442>

- Kholifah, N. (2025). Unlocking workforce readiness through digital employability skills in vocational education Graduates: A PLS-SEM analysis based on human capital Theory. *Social Sciences and Humanities Open*, 11. <https://doi.org/10.1016/j.ssaho.2025.101625>
- Krishna, K., Brahmaji, P., Software, S., & Llc, S. (2024). Artificial Intelligence and Employment Transformation : A Multi- Sector Analysis of Workforce Disruption and Adaptation. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology*, 10(6), 202–209. <https://doi.org/10.32628/CSEIT24106170>
- Mgaiwa, S. J. (2021). Fostering Graduate Employability: Rethinking Tanzania's University Practices. *Sage Open*, 11(2). <https://doi.org/10.1177/21582440211006709>
- Morsy, H. (2020). 'Mind the mismatch?' Incidence, drivers, and persistence of African youths' skill and educational mismatches. *African Development Review*, 32. <https://doi.org/10.1111/1467-8268.12478>
- Narsaria, R. (2025). Impact of automation on job market dynamics : Skill mismatch and unemployment. *International Journal of Financial Management and Economics*, 8(2), 167–170. <https://doi.org/10.33545/26179210.2025.v8.i2.573>
- Omri, A. (2025). Exploring the impact of AI on unemployment for people with disabilities: do educational attainment and governance matter? *Frontiers in Public Health*, 13. <https://doi.org/10.3389/fpubh.2025.1559101>
- Rageth, L. (2020). The linkage between the education and employment systems: ideal types of vocational education and training programs. *Journal of Education Policy*, 35(4), 503–528. <https://doi.org/10.1080/02680939.2019.1605541>
- Ramaswamy, K. V. (2018). International Review of Business and Economics Technological Change , Automation and Employment : A Short Review of Theory and Evidence Technological Change , Automation and Employment : A Short Review of Theory. *International Review of Business and Economics*, 2(2). <https://doi.org/10.56902/IRBE.2018.2.2.1>
- Said, R. (2021). Measuring mismatch unemployment in the Malaysia labour market. *International Journal of Economic Policy in Emerging Economies*, 14(3), 227–247. <https://doi.org/10.1504/ijepee.2021.114955>
- Satyadhar Joshi. (2025). Generative AI: Mitigating Workforce and Economic Disruptions While Strategizing Policy Responses for Governments and Companies. *International Journal of Advanced Research in Science, Communication and Technology*, 480–486. <https://doi.org/10.48175/ijarsct-23260>
- Shi, L. P. (2022). Demand-side consequences of unemployment and horizontal skill mismatches across national contexts: An employer-based factorial survey experiment. *Social Science Research*, 104.

<https://doi.org/10.1016/j.ssresearch.2021.102668>

- Sledziewska, K. (2025). Adapting to digital transformation: Determinants of training motivation in response to digital automation among workers in six EU countries. *Oeconomia Copernicana*, 16(2), 523–555. <https://doi.org/10.24136/oc.3531>
- Sun, T. (2023). The economic and social effects of skill mismatch in China: A DSGE model with skill and firm heterogeneity. *Economic Modelling*, 125. <https://doi.org/10.1016/j.econmod.2023.106345>
- Ur-Rehman, A. (2021). Human capital-growth nexus: The role of skill mismatch. *Intellectual Economics*, 15(1), 15–30. <https://doi.org/10.13165/IE-21-15-1-02>
- Yhudin, A., Ardhana, A., Nurfitriah, H., & Syazeedah, U. (2025). Analisis Ketidaksesuaian antara Pendidikan dengan Kebutuhan Dunia Kerja di Indonesia. *Jurnal Ilmiah Ekonomi Dan Bisnis*, 3(4), 1020–1026. <https://doi.org/10.57141/kompeten.v3i4.156>
- Yolanda Kirana Sari, Agung Rizkiyan, & Apriza Apriza. (2024). Pengangguran dalam Perspektif Islam. *Ekonomi Keuangan Syariah Dan Akuntansi Pajak*, 1(3), 90–100. <https://doi.org/10.61132/eksap.v1i3.185>