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Navigating the Artificial Intelligence Revolution in Employment – A Systematic Literature Review

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Abstract

A worldwide fear of AI impacting the job has grappled one and all alike. This has attracted the attention of industry as well as academia. Although it is accepted that the effects of artificial intelligence on employment are varied, but not much is known about the precise positive and negative aspects of this revolution. To have a better understanding of the issues surrounding a systematic literature review has been undertaken in this research study. The research published between the year 2005 to 2024 are covered in the literature review, which was gathered from Google Scholar. The main findings of the paper evaluate earlier studies and contributions regarding artificial intelligence's (AI) effects on employment while highlighting new developments in the field. It highlights the main challenges to AI's expansion into the market and looks into possible advancements in the field going forward.

Keywords: *Artificial Intelligence, AI, employment, barriers, and Impact on employment.*

Introduction

The impact of artificial intelligence (AI) on employment has been a subject of growing academic inquiry, with researchers exploring its implications across industries, job structures, and economic trends. This literature review synthesizes existing research to understand how AI is reshaping the employment landscape, leading to job polarization, automation, augmentation of human labor, and shifts in workforce skills. Petropoulos (2018) highlights that AI driven technological advancements have led to job polarization, characterized by an increasing demand for both high skilled and low skilled jobs, while routine cognitive and manual jobs decline. This shift significantly impacts middle tier occupations, leading to structural employment changes. Similarly, Martens and Tolan (2018) suggest that while historical evidence indicates technology has had a net positive effect on employment, concerns persist that AI might fundamentally alter this trend by reducing the labor share of total income.

Tschang and Almirall (2021) provide a nuanced perspective, arguing that AI driven automation does not necessarily lead to mass unemployment but instead favors non routine skills, shifting employment structures towards more knowledge intensive roles. Graglia and Von Huelsen (2020)

position AI within the "sixth wave of innovation," emphasizing its rapid propagation and potential to replace human labor at an unprecedented scale. AI's influence varies across industries, as evidenced by Batiz Lazo, Efthymiou, and Davies (2022), who examine AI adoption in banking and accounting. They conclude that AI enhances efficiency, reduces errors, and increases competitiveness in these sectors. This aligns with Abuselidze and Mamaladze (2021), who highlight AI's role in automating repetitive tasks, thereby reducing the need for human intervention in monotonous roles while creating opportunities for higher-skilled workers.

In the service industry, Flavián and Casaló (2021) explore how AI is revolutionizing automated interactions, with increasing attention from both academics and practitioners. AI-driven services leverage Industry 4.0 technologies to streamline processes and improve efficiency. Lee and Park (2019) discuss AI's role in smart systems, factory automation, and knowledge-based workforces, showcasing its transformative impact on urban living and the gig economy. Shaukat et al. (2020) studies the accelerating adoption of robotics in various sectors, with one robot potentially replacing up to 70 human workers. They predict that by 2025, robots will be hired for approximately 3.5 million jobs, leading to declining employment opportunities in certain sectors, particularly low-skilled labor. However, they also emphasize the importance of investing in AI and robotics education to bridge the skills gap between humans and machines.

Park and Park (2020) had contextualized AI within the broader technological ecosystem, identifying IoT, 5G, and blockchain as complementary technologies driving the Fourth Industrial Revolution. These technologies collectively reshape employment by introducing new skills requirements and modifying traditional labor structures. Beyond employment, AI's broader societal impact is explored by Turyasingura et al. (2024) also, who highlight AI applications in environmental management, healthcare, and urban planning. Their findings stress the need for collaborative efforts between governments, industries, and academia to maximize AI's benefits while mitigating potential risks.

AI's transformative potential also raises concerns about labor displacement and economic inequality. While Li and Zheng (2018) had argued that AI enhances industry competitiveness and efficiency, Javed and Kabir Brishti (2020) warn that it also creates challenges in adapting to an evolving business landscape. As such complexity of AI's impact on employment, necessitating proactive policies to balance technological progress with workforce stability. The review indicates the necessity of adopting a holistic perspective in understanding AI's impact on employment.

Given the complexity and breadth of the topic, a systematic literature review is essential to compile findings comprehensively, identify overarching patterns, and provide a structured synthesis of existing research. Such an approach would facilitate deeper insights into workforce transformations, skill shifts, and policy implications, enabling a more informed response to AI-driven changes. The literature on AI and employment presents a complex and evolving picture. While AI-driven automation displaces routine jobs, it simultaneously creates opportunities for knowledge-intensive roles, particularly those requiring non-routine cognitive skills. The polarization of job markets, increasing reliance on robotics, and sector-specific AI applications highlight the need for continuous workforce adaptation. Policymakers and organizations must proactively address skill gaps, invest in education, and implement strategies that foster human AI collaboration to navigate the AI revolution in employment effectively.

Research Problem Statement

The effects of artificial intelligence on employment are varied, but not much is known about the precise positive and negative aspects of this revolution. We categorize the effects of AI on employment into different groups. Statistics from the 2023 Microsoft Word Index Annual Report show that 82% of executives want their staff to be prepared and possess artificial intelligence skills. To map out the current trends, obstacles, and effects of artificial intelligence in the workplace, a systematic literature review is still required. This paper examines at AI's effects on employment, both positive and negative.

Research methodology

In order to explore the topic " Navigating the Artificial Intelligence Revolution in Employment – A Systematic Literature Review," the study employed a systematic literature review approach, concentrating on current trends, significant barriers and impact of Artificial Intelligence. The research published between the year 2005 to 2024 are covered in the systematic literature review, which was gathered from Google Scholar. Keywords like " Artificial Intelligence," "AI," "trends," "opportunities," "employment," "barriers," and " Artificial Intelligence and impact on employment" are examples of search terms. Full papers and studies written in English were the main requirements for inclusion. Conference proceedings, research papers with just abstracts available, and articles written in languages other than English were excluded based on the exclusion criteria.

For the purpose of the study PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework was used. As such the research was conducted in four key steps. In the identification phase, a broad search for relevant research papers was carried out using the selected keywords. This led to the generation of an initial pool of studies. In the screening phase, duplicate records were removed, and the remaining articles were screened based on their titles and abstracts for relevance to AI and employment. Non-relevant studies were excluded. During the eligibility phase, the full texts of the shortlisted articles were reviewed thoroughly to ensure they met the inclusion criteria. Only studies written in English, those published within the defined timeframe, and those addressing the impact of AI on employment were retained. Articles such as conference proceedings, papers with only abstracts available, and publications in languages other than English were excluded. Finally, in the inclusion phase, a set of studies was finalized for in-depth analysis, focusing specifically on contributions that offered meaningful insights into AI's influence on employment dynamics.

Findings and discussions

The main findings of the paper critically evaluate earlier studies and contributions regarding artificial intelligence's (AI) effects on employment while highlighting new developments in the field. It highlights the main challenges to AI's expansion into the market and looks into possible advancements in the field going forward. The study also looks at how AI has changed over time and how new trends are influencing the workforce. The study sheds light on the socioeconomic effects of technical breakthroughs by highlighting the differences in AI adoption across jurisdictions and industries. Last but not least, it highlights the necessity of a well-rounded strategy that addresses worker issues and encourages creativity.

Word Cloud Analysis

A word cloud analysis is undertaken of keywords used in the research studies under considerations. This analysis helps in understanding the main topics of interest amongst the researchers and helps in identifying key issues and the gaps which has been omitted. The analysis is presented in the figure (Figure 1) below:

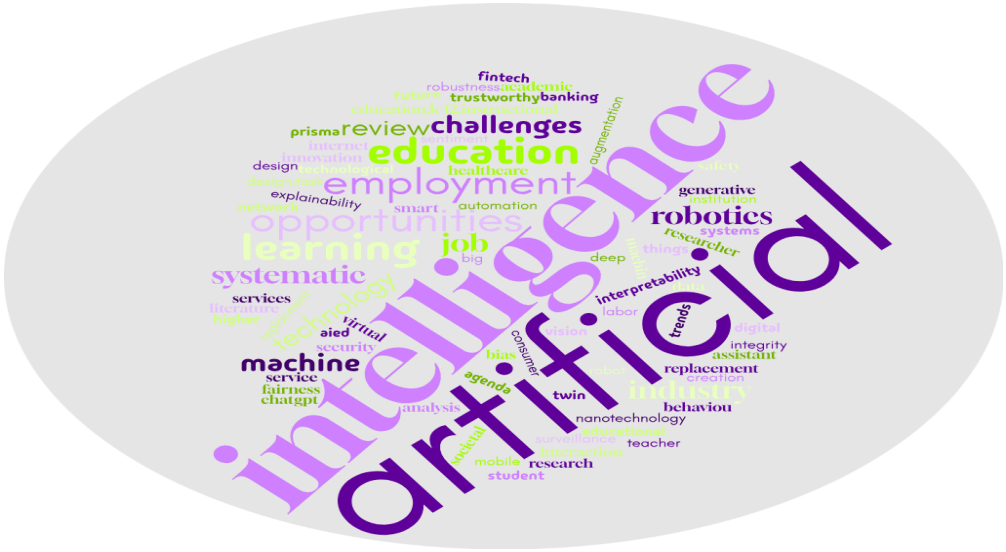

Figure 1 Word Cloud Analysis
Source: Made for the purpose of the study

The keyword analysis in the figure above reveals that Artificial Intelligence (AI) is a transformative force shaping various domains, including technology, education, employment, and finance. AI emerges as a central theme, highlighting its growing significance in modern industries. Its integration with emerging technologies is evident through keywords such as *Machine Learning, Deep Learning, Internet of Things (IoT), Industry 4.0, Robotics, 5G, Digital Twin, Big Data,* and *Technological Innovation*. These terms indicate AI's role in enhancing automation, decision making, and efficiency across industries such as healthcare, manufacturing, and smart services.

AI's influence extends beyond industry and employment into education and research. The presence of keywords such as *AI in Education (AIED), Higher Education, Instructional Design, PRISMA, Systematic Review, Academic Integrity, Teacher, Student,* and *Education Institution* demonstrates AI's role in personalized learning, instructional design, and academic research. AI powered tools are being increasingly used to enhance learning experiences, support educators, and ensure academic integrity in higher education.

Ethical considerations surrounding AI development are also a key focus. The keywords *AI Safety, Robustness, Trustworthy AI, Fairness and Bias, Explainability,* and *Interpretability* highlight concerns about AI's transparency, reliability, and fairness. As AI systems become more integrated

into decision making processes, ensuring ethical AI practices and minimizing biases remain crucial challenges.

In the financial sector and smart systems, AI plays a vital role in enhancing customer experiences, risk management, and automation, as indicated by keywords such as *Banking, Fintech, Virtual Assistant,* and *Consumer Behavior*. AI driven innovations in financial services, including chatbots, predictive analytics, and fraud detection, are revolutionizing the industry and optimizing business processes. The presence of *Smart Systems and Services* suggests the continued evolution of AI powered solutions in improving efficiency and decision making.

Looking ahead, the keywords *Societal Trends, Challenges, Opportunities,* and *Agenda for Future Research* emphasize the need for ongoing exploration of AI's broader impact. Researchers and policymakers are actively examining AI's societal implications, ethical dilemmas, and future developments to ensure responsible and sustainable implementation. AI's rapid advancement presents both opportunities and challenges, requiring a balanced approach that fosters innovation while addressing ethical and workforce related concerns.

4.2 Thematic Analysis of Artificial Intelligence's Impact on Employment and Society

The study also undertakes a thematic analysis of the titles of research studies included in the analysis. This helps in clustering of the major themes and their key findings. The thematic analysis undertaking led to the compilation of research studies under 8 key themes. The themes and their key findings are given below:

Table 1: Thematic Analysis of Artificial Intelligence's Impact on Employment and Society

Theme	Key Findings	Source(s)
1. AI and Employment	AI is transforming the workforce through automation, augmentation, and job replacement. While AI creates new employment opportunities, it also displaces workers in routine jobs. The banking and accounting sectors are particularly affected.	Petropoulos (2018); Batiz Lazo et al. (2022); Shaukat et al. (2020); Martens & Tolan (2018); Abuselidze & Mamaladze (2021)
2. AI in Smart Systems and Services	AI driven smart systems enhance efficiency in industries such as finance, healthcare, and security surveillance. However, their adoption presents challenges related to reliability, ethics, and integration.	Lee & Park (2019); Flavián & Casaló (2021)
3. AI and Industry 4.0	AI, along with IoT, 5G, and digital twins, is driving the next industrial revolution,	Park & Park (2020); Rathore et al. (2021)

	improving automation and decision making but also posing workforce adaptation challenges.	
4. AI in Education	AI is reshaping education through adaptive learning, instructional design, and generative AI applications in higher education. It also raises concerns about academic integrity and ethical use.	Khawrin & Nderego (2023); Batista et al. (2024); Li et al. (2024)
5. Ethical and Safety Considerations in AI	AI fairness, bias, explainability, and robustness are critical concerns. The development of trustworthy AI is essential for widespread adoption.	Salhab et al. (2024)
6. AI and Societal Trends	AI influences societal trends, raising concerns about inequality, economic growth, and technological dependence. The debate continues on whether AI's benefits outweigh its risks.	Turyasingura et al. (2024); Graglia & Von Huelsen (2020)
7. AI in Banking and Fintech	AI driven innovations in banking and financial services improve customer experience, risk assessment, and fraud detection, but ethical concerns remain.	Ghandour (2021)
8. AI and Automation	AI driven automation is augmenting human capabilities rather than solely replacing jobs, leading to shifts in job roles and skill demands.	Tschang & Almirall (2021); Subhikshan (2023)

Source: made for the purpose of the study

The table above (table 1) presents a thematic analysis of AI's influence across various domains, highlighting key trends, opportunities, and challenges. AI is significantly transforming employment, with automation reshaping industries like banking, finance, and manufacturing. While AI driven smart systems and Industry 4.0 technologies enhance efficiency, they also create concerns regarding workforce displacement and adaptability. In education, AI fosters personalized learning and instructional design but raises ethical concerns related to academic integrity. The growing focus on AI safety, fairness, and bias highlights the need for responsible development and governance. AI's role in banking and fintech improves operational efficiency but presents ethical challenges. Overall, AI is a powerful force driving societal and economic change, requiring careful management to balance innovation with ethical and employment concerns.

AI's Impact Across Various Domains

The next step in the research included the analysis of AI's impact as analysed in different areas. The analysis let to the emergence of 7 major areas were the impact of Ai has been researched upon. These areas are given below in Table 2.

Table 2: AI's Impact Across Various Domains

Trend Area	Key Findings	Source(s)
1. AI and Employment	AI has mixed impacts on employment, leading to new job creation. The effect varies across industries, with some sectors benefiting from AI augmentation rather than replacement.	Petropoulos (2018); Martens & Tolan (2018); Batiz Lazo et al. (2022); Abuselidze & Mamaladze (2021); Graglia & Von Huelsen (2020); Tschang & Almirall (2021)
2. AI in Services & Business	AI is transforming service industries, focusing on automation, customer service, and operational efficiency. Companies are integrating AI with IoT and blockchain for enhanced automation.	Flavián & Casaló (2021); Tschang & Almirall (2021)
3. AI and Digital Twinning	AI, machine learning, and big data are playing a crucial role in digital twinning, enhancing simulations and predictive modeling.	Rathore et al. (2021)
4. AI in Higher Education	AI-driven tools, including ChatGPT, are improving student learning, research productivity, and administrative efficiency. AI applications include personalized learning, automation of tasks, and advanced analytics.	Khawrin & Nderego (2023); Batista et al. (2024)
5. AI in Banking & Finance	AI is increasingly used in banking for fraud detection, risk management, and process automation, although challenges remain in data security and regulatory compliance.	Ghandour (2021)
6. AI in K 12 Education	AI is being integrated into K 12 education, focusing on learning task design, challenges in adoption, and potential benefits for personalized education.	Li et al. (2024)
7. AI and Safety	Concerns about AI safety, ethical considerations, and regulatory frameworks are growing, leading to systematic reviews of challenges and future directions.	Salhab et al. (2024)

Source: made for the purpose of the study

The table above (table 2) indicates several key trends regarding AI adoption across multiple domains, including employment, education, business, and technology. In the context of employment, AI has both positive and negative implications. While automation has the potential to replace certain jobs, it also creates new employment opportunities, particularly in AI driven industries (Petropoulos, 2018; Martens & Tolan, 2018). The impact varies across sectors, with some industries benefiting from AI augmentation rather than direct replacement (Batiz Lazo et al., 2022; Abuselidze & Mamaladze, 2021)., AI adoption is increasing in Africa, where government policies, research institutions, and public private partnerships are fostering growth in AI related innovations (Turyasingura et al., 2024).

In business and service industries, AI is transforming operational processes, customer service, and decision making through automation and data driven insights. Companies are integrating AI with emerging technologies such as IoT and blockchain to enhance efficiency (Flavián & Casaló, 2021; Tschang & Almirall, 2021). Similarly, AI plays a significant role in digital twinning by improving simulations and predictive modeling through machine learning and big data applications (Rathore et al., 2021). In the banking and finance sector, AI is being utilized for fraud detection, risk management, and process automation, though concerns around data security and regulatory compliance remain a challenge (Ghandour, 2021).

The table also highlights AI's growing presence in education. AI driven tools, including ChatGPT, are increasingly used in higher education to enhance learning outcomes, improve research productivity, and automate administrative functions (Khawrin & Nderego, 2023; Batista et al., 2024). , AI is being incorporated into K 12 education, where it is used for learning task design, personalized learning, and classroom engagement, though challenges in adoption persist (Li et al., 2024). Furthermore, as AI continues to advance, concerns regarding AI safety, ethical considerations, and regulatory frameworks are gaining attention, leading to systematic reviews of risks and future challenges (Salhab et al., 2024).

The table further indicates that AI is shaping the future of work, with automation driving shifts in job roles and skill requirements. AI driven technologies are leading to hybrid work environments and the emergence of new career paths requiring AI related expertise (Park & Park, 2020; Shaukat et al., 2020). The demand for AI skilled professionals is rising, emphasizing the need for continuous upskilling and workforce reskilling (Graglia & Von Huelsen, 2020). Overall, AI is

having a transformative impact across multiple domains, necessitating regulatory oversight, strategic workforce planning, and innovation driven adoption strategies.

Challenges in Navigating the Artificial Intelligence Revolution in Employment

An analysis was also undertaken to analyze the challenges in navigating the artificial intelligence revolution in employment. The challenges have been compiles into six major categories. These categories are:

Table: 3 Challenges in Navigating the Artificial Intelligence Revolution in Employment

Theme	Challenges	Source
1. Job Displacement and Workforce Transformation	AI driven automation threatens job security, with estimates of human jobs at risk ranging from 47% to 9%.	Martens & Tolan (2018)
	The integration of AI and robotics in employment sectors reshapes traditional job roles.	Shaukat et al. (2020)
	AI applications in accounting still involve labor intensive processes despite advancements.	Batiz Lazo, Efthymiou, & Davies (2022)
	AI based automation in retail focuses on automating repetitive processes, leading to reduced human involvement.	Graglia & Von Huelsen (2020)
2. Skills Gap and Workforce Adaptation	Employees need to upskill continuously to stay relevant in AI driven workplaces.	Petropoulos (2018)
	AI integration in education faces challenges such as inadequate government expenditure and fragile technological infrastructure.	Khawrin & Nderego (2023)
	Teachers and students struggle with understanding deep AI concepts due to hardware and learning task design issues.	Li, Fengchao, & Zhang (2024)
3. Ethical and Societal Implications	AI based systems face challenges in mitigating bias and ensuring fairness in decision making.	Salhab et al. (2024)
	Protecting consumer data in AI powered services remains a key concern.	Flavián & Casaló (2021)
	The loss of emotional intelligence in AI driven banking interactions affects customer experiences.	Ghandour (2021)
4. AI Reliability and Trust	AI systems struggle with transparency, explainability, and defense against adversarial attacks.	Salhab et al. (2024)
	Replicating human reasoning and causal decision making in AI remains a significant challenge.	Tschang & Almirall (2021)

	AI software for environmental management faces data scarcity, particularly in developing regions.	Turyasingura et al. (2024)
5. Security and Privacy Risks	AI driven surveillance raises concerns regarding secure authentication and privacy.	Lee & Park (2019)
	AI services require robust data security frameworks to prevent breaches.	Abuselidze & Mamaladze (2021)
	AI adoption in banking introduces risks related to user acceptance and data privacy.	Ghandour (2021)
6. Integration Challenges in Various Sectors	AI and IoT generate vast amounts of data, but managing this information effectively is difficult.	Rathore et al. (2021)
	AI powered academic tools pose risks related to plagiarism and academic integrity.	Batista, Mesquita, & Carnaz (2024)
	AI adoption in smart systems faces obstacles such as repeat identification across multiple cameras and multi factor security concerns.	Lee & Park (2019)

Source: made for the purpose of the study

The challenges of AI in employment span multiple dimensions, impacting job security, skill requirements, ethics, security, and industry integration as shown in table above (Table 3). Job movement remains a major concern as AI automation reshapes traditional roles, requiring workers to continuously upskill. Ethical challenges such as AI bias, transparency, and privacy risks raise concerns about fairness and trust. Security issues, including data protection and AI driven surveillance, highlight the need for stringent regulations. , AI's integration across sectors faces hurdles in data management, system reliability, and academic integrity. Addressing these challenges requires a balanced approach that fosters innovation while ensuring workforce adaptability, ethical AI use, and robust security frameworks.

Positive Impact of AI on Employment: Thematic Analysis

Although challenges have been analysed by various authors. The systematic literature review also highlighted the positive impact of AI on employment as unearthed by the authors. These positive aspects are grouped below in table 4.

Table 4: Positive Impact of AI on Employment: Thematic Analysis

Theme	Key Insights
Job Creation & Industry Growth	AI drives demand for labor in industries that arise due to technological progress (Keynes, 1937).
	The introduction of automobiles reduced horse related jobs but created new industries (Petropoulos, 2018).
	AI has led to a surge in business focused applications like process optimization and decision making (Turyasingura et al., 2024).
Automation & Productivity	AI replaces human labor in routine tasks but not in non routine, complex tasks (Levy & Murnane, 2003).
	AI powered automation improves efficiency, particularly in high labor cost countries (Abuselidze & Mamaladze, 2021).
	Automation reduces wages but increases productivity (Martens & Tolan, 2018).
Workplace Transformation & Skill Augmentation	AI complements human work, requiring workers to upgrade their skills (Tschang & Almirall, 2021).
	Information technology enables skilled professionals to be more creative and productive (Nedelkoska & Quintini, 2018).
	AI enhances human productivity in non routine tasks (Daugherty & Wilson, 2018).
Reduction of Tedious & Hazardous Work	AI reduces the burden of labor intensive and repetitive tasks (Shaukat et al., 2020).
	AI powered machines can operate 24/7 and perform dangerous tasks (Shaukat et al., 2020).
Economic & Societal Advancements	AI drives economic and environmental efficiencies for a healthier planet (Turyasingura et al., 2024).
	AI applications improve healthcare, transportation, and education (Graglia & Von Huelsen, 2020).
	AI supports sustainable growth and operational efficiency in banking and financial sectors (Ghandour, 2021).
Impact on Education & Learning	AI enhances student support, teaching efficiency, and research productivity (Batista et al., 2024).
	AI improves instructional design in K 12 education (Li et al., 2024).
AI's Role in Service Sectors	AI in banking has transformed tax return services and financial processes (Batiz Lazo et al., 2022).
	Digital twins (DTs) in healthcare enable remote surgery and medical innovations (Rathore et al., 2021).
AI Safety & Risk Management	Robust AI systems enhance security and prevent adversarial attacks (Salhab et al., 2024).

Source: made for the purpose of the study

AI fosters job creation by increasing demand for labor in industries that arise due to technological progress (Keynes, 1937). While certain jobs decline, new industries emerge, similar to how automobiles replaced horse related jobs but led to new economic sectors (Petropoulos, 2018). AI applications in business problem solving, such as process optimization and decision making, contribute to economic expansion (Turyasingura et al., 2024).

AI driven automation replaces human labor in routine tasks but does not eliminate the need for human workers in non-routine, complex tasks (Levy & Murnane, 2003). It enhances efficiency, particularly in high labor cost regions, by reducing workforce costs and optimizing production (Abuselidze & Mamaladze, 2021). While automation may lead to lower wages, it boosts overall productivity (Martens & Tolan, 2018).

Rather than fully replacing human workers, AI augments their capabilities, requiring them to upgrade skills to align with emerging work environments (Tschang & Almirall, 2021). Advanced information technology helps skilled professionals enhance creativity and efficiency (Nedelkoska & Quintini, 2018). In non-routine tasks, AI serves as a productivity enhancing tool rather than a substitute (Daugherty & Wilson, 2018).

AI reduces the burden of labor intensive and monotonous tasks, allowing workers to focus on more strategic roles (Shaukat et al., 2020). AI powered machines can operate continuously and perform dangerous tasks, increasing workplace safety (Shaukat et al., 2020).

AI contributes to economic and environmental efficiencies, leading to a healthier and more sustainable planet (Turyasingura et al., 2024). It enhances healthcare, transportation, and education systems, improving overall quality of life (Graglia & Von Huelsen, 2020). AI driven financial applications optimize banking and operational efficiency (Ghandour, 2021).

AI enhances education by providing student support, improving teaching efficiency, and boosting research productivity (Batista et al., 2024). In K 12 education, AI driven instructional design fosters student engagement and deeper learning (Li et al., 2024).

In banking, AI powered automation has transformed financial services, including online tax return filing and digital financial management (Batiz Lazo et al., 2022). In healthcare, AI applications such as digital twins (DTs) improve remote surgical procedures and medical innovations (Rathore et al., 2021). AI systems enhance security by preventing adversarial attacks and system failures, ensuring the safety and reliability of automated processes (Salhab et al., 2024).

Negative Impact of Artificial Intelligence (AI) on Employment and Society

The negative impact of IA has also been studied through the systematic literature review. These negative impacts as identified and comprehended by various authors from the compiled resources are give below in table 5.

Table 5: Negative Impact of Artificial Intelligence (AI) on Employment and Society

The table below categorizes and presents the negative impacts of AI based on various scholarly sources. It highlights the key concerns associated with AI adoption, particularly in employment, wages, privacy, and trust.

Theme	Negative Impact	Source (In text Citation)
1. Employment Displacement	AI and automation displace workers from previously performed tasks, reducing employment opportunities.	(Keynes, 1937; Petropoulos, 2018; Abuselidze & Mamaladze, 2021)
2. Wages and Labor Market	The introduction of robots reduces employment to population ratio and wages.	(Acemoglu & Restrepo, 2018; Batiz Lazo et al., 2022)
3. Unemployment Increase	AI and robotics are expected to increase unemployment and require workers to upskill.	(Shaukat et al., 2020)
4. Automation in Jobs	In India's top IT service companies, job growth has declined by 40%, and automation threatens 69% of jobs.	(Singh, 2017; Graglia & Von Huelsen, 2020)
5. Sector Specific Impact	AI threatens employment in banking, accounting, and healthcare (e.g., nursing and laboratory professions).	(Vogler Ludwig, Düll & Kriechel, 2016; Batiz Lazo et al., 2022; Graglia & Von Huelsen, 2020)
6. Decoupling of Wages & Productivity	AI leads to a declining share of labor in national income and a decoupling of wages from productivity.	(Martens & Tolan, 2018)
7. Privacy & Ethical Concerns	AI raises privacy violation concerns and reduces human emotional interaction.	(Ghandour, 2021)
8. AI in Higher Education	AI could negatively impact academic labor by making scholars less inquisitive and reflexive.	(Batista et al., 2024)
9. Data & Infrastructure Gaps	Developing regions face AI challenges due to data scarcity, outdated regulations, and inadequate infrastructure.	(Turyasingura et al., 2024)
10. Trust & Reputation Risks	AI can lead to trust depletion, negative word of mouth, and co destruction in services.	(Flavián & Casaló, 2021)

11. AI Safety Concerns	Challenges include bias, adversarial attacks, robustness, and balancing interpretability with performance.	(Salhab et al., 2024)

Source: made for the purpose of the study

Artificial Intelligence is rapidly transforming industries, but its implications are not entirely positive. One of the most pressing concerns is employment displacement, where automation replaces human labor, reducing job opportunities, particularly in routine and repetitive tasks (Keynes, 1937; Petropoulos, 2018)., research indicates that automation leads to lower employment to population ratios and declining wages (Acemoglu & Restrepo, 2018).

The increasing adoption of AI driven systems is also linked to rising unemployment, particularly in sectors like IT, banking, accounting, and healthcare, where automation is rapidly replacing human roles (Singh, 2017; Graglia & Von Huelsen, 2020). This job loss has a cascading effect on national income, as automation decouples wages from productivity, thereby reducing labor's share in economic growth (Martens & Tolan, 2018).

Beyond employment, AI introduces significant privacy and ethical concerns, especially in sensitive areas like banking and education (Ghandour, 2021). AI powered tools may compromise personal data security, while in higher education, they risk making scholars less inquisitive and reflective in their work (Batista et al., 2024)., AI driven services may lead to customer distrust and negative word of mouth due to poor personalization or automated decision-making errors (Flavián & Casaló, 2021).

Furthermore, developing countries face additional challenges in AI adoption due to data scarcity, inadequate infrastructure, and outdated regulations (Turyasingura et al., 2024). Lastly, AI safety remains a major concern, with ongoing debates about bias, adversarial attacks, and balancing performance with ethical considerations (Salhab et al., 2024).

As such while AI offers substantial benefits, its negative impacts—particularly on employment, wages, privacy, and trust—must be carefully managed through policy interventions, workforce upskilling, and ethical AI governance.

Key Findings and Future Scope Categorized by Themes

Further analysis was undertaken to examine the future scope or areas where further studies can be undertaken. These future scopes were based on the key findings on the research studies under review. They are summarized below.

Table 6: Key Findings and Future Scope Categorized by Themes

Theme	Key Findings	Future Scope
1. Job Polarisation & Workforce Transformation	• Demand rises for high skilled and low skilled jobs, while middle skilled routine jobs decline (Petropoulos, 2018).	• Study policy responses to job polarisation.
	• AI replaces routine work but augments non routine jobs (Tschang & Almirall, 2021).	• Develop workforce reskilling strategies.
	• AI reshapes job roles, creating opportunities but also displacing traditional roles (Subhikshan, 2023).	• Analyze balance between job creation and job loss.
2. AI & Industry 4.0 Technologies	• AI drives automation in industries, enhances efficiency, and reduces errors (Batiz Lazo et al., 2022).	• Explore scalability and integration challenges in AI driven industries.
	• AI plays a key role in smart systems, knowledge-based work, and automation (Lee & Park, 2019).	• Develop frameworks for AI adoption in finance and industry.
	• AI adoption in banking improves decision making and security (Ghandour, 2021).	• Address regulatory and ethical concerns in AI enabled automation.
	• Digital twinning is a major AI integrated industrial trend (Rathore et al., 2021).	
3. AI & Education	• AI enhances learning processes but requires ethical considerations (Khawrin & Nderego, 2023).	• Develop AI integrated curricula for balanced learning.
	• Generative AI is transforming higher education through new pedagogical strategies (Batista et al., 2024).	• Address ethical concerns in AI driven education.
	• K 12 AI education is expanding but faces resource constraints (Li et al., 2024).	• Improve resource availability for AI education.
4. AI in Socio Economic Development	• AI supports environmental sustainability, healthcare, and urban planning (Turyasingura et al., 2024).	• Foster interdisciplinary collaboration to leverage AI for sustainability.
	• AI contributes to personalized services and digital inclusion but raises privacy concerns (Ghandour, 2021).	• Enhance AI driven governance and social policies.
	• AI helps manage digital evidence, machine vision, and hierarchical processing (Park & Park, 2020).	• Develop privacy frameworks to mitigate ethical risks.
	• AI driven service automation is a growing trend (Flavián & Casaló, 2021).	• Optimize AI human interaction in services.

5. AI & Automation in Services	• AI enhances efficiency in repetitive tasks, reducing manual labor (Abuselidze & Mamaladze, 2021).	• Explore innovative frameworks for automated customer engagement.
6. AI & Economic Impact	• AI driven innovations enhance economic competitiveness (Abuselidze & Mamaladze, 2021).	• Study long term economic impact of AI adoption.
	• AI supports task-based employment models (Martens & Tolan, 2018).	• Develop policies for balancing productivity gains and income distribution.
	• AI and big data integration shape industrial trends (Rathore et al., 2021).	
7. AI Ethics, Trust, & Safety	• Safe and trustworthy AI requires better data management, model verification, and ethical alignment (Salhab et al., 2024).	• Strengthen AI safety frameworks.
	• The convergence of digital and AI driven innovations alters society work interactions (Graglia & Von Huelsen, 2020).	• Align AI autonomy with human values.
		• Develop policies for ethical AI deployment.

Source: made for the purpose of the study

The table categorizes key findings and future research directions related to AI across multiple themes. **Job polarization and workforce transformation** highlight how AI reshapes job roles, increasing demand for high and low skilled jobs while reducing middle skilled routine work. Future research should focus on policy responses, workforce reskilling strategies, and balancing job creation with displacement. **AI and Industry 4.0 technologies** emphasize automation, smart systems, and improved decision making, particularly in finance and manufacturing. Challenges such as scalability, ethical concerns, and regulatory frameworks need further exploration.

In **AI and education**, findings suggest AI is revolutionizing learning processes in higher education and K 12, though ethical concerns and resource constraints persist. Future research should address curriculum integration, ethical AI use in classrooms, and resource allocation. Similarly, **AI in socio economic development** plays a crucial role in environmental sustainability, digital inclusion, and governance, yet privacy and ethical risks require frameworks to ensure responsible AI deployment. **AI and automation in services** show significant potential for improving efficiency, reducing manual tasks, and streamlining service delivery. Research should optimize AI human interactions and develop innovative customer engagement frameworks. **AI's economic impact** is seen in increased productivity and competitiveness, particularly through AI driven innovations and big

data integration. However, future studies should assess long term economic effects and develop policies to balance productivity gains and income distribution.

Finally, **AI ethics, trust, and safety** emerge as critical concerns, emphasizing the need for robust safety frameworks, ethical AI deployment, and aligning AI autonomy with human values. As AI continues to integrate into various domains, interdisciplinary research should focus on ensuring AI remains beneficial, fair, and transparent in all aspects of society.

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