# AI, Ethics and Women in Employment: *The Impact upon Existing Biases*

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**ABSTRACT**

*Artificial Intelligence is vastly changing our lives and environment with unprecedented speed (BBC, 2018; Elliott, 2019; Roser, 2022). The traditional workplace landscape is also being driven and shaped by this technology, with a focus on tools promising efficiency and objectivity (O'Connor and Liu, 2024; Feeney and Fusi, 2021). This study examines the connection between AI, discrimination against women, and, more importantly, the inequalities they face in the working environment shaped by this phenomenon. The dissertation also aims to understand the ethical implications of AI and how historical and systemic biases in data and algorithms can perpetuate discrimination against women. A narrative literature review was conducted using secondary sources as a critical reflection of the current state of AI and its impact on women in employment. The findings revealed AI's ability to present both challenges and opportunities. While historical biases in datasets and algorithms pose risks of reproducing workplace inequalities, the inclusion of women in AI development and policymaking is crucial to overcoming gender discrimination. The study highlights that a dual approach, considering both ethical and real-life experiences, is necessary to address the impact of AI, alongside the implementation of strategies to raise awareness of AI's bias and upskill women in its design. At the same time, government bodies and policymakers must work in collaboration to establish a connection between gender-related matters and actively integrate AI ethics into present policy.*

**ACRONYM**

| | |
|---|---|
| AI | Artificial Intelligence |
| UNESCO | United Nations Educational, Scientific and Cultural Organisation |
| EIGE | European Institute for Gender Equality |
| ICT | Information and Communication Technology |
| STEM | Science, Technology, Engineering and Mathematics |
| IT | Information Technology |

## 1. INTRODUCTION

In today's rapidly growing digital ecosystem, AI is undoubtedly one of the most impactful technologies of our era (BBC, 2018; Elliott, 2019; Roser, 2022). Developed with the intention of mimicking human intelligence, this technology is capable of problem-solving, understanding human language, and decision-making, all based on large datasets and algorithm development (Minsky, 1968; Hernandez-Orallo, 2017; Lu, 2019). Furthermore, AI is shaping our lives in a new way of thinking and acting, and its impact is now also changing the workplace (O'Connor and Liu, 2024; Feeney and Fusi, 2021). Promising productivity and efficiency, this technology can significantly contribute to economic growth and development for many businesses (Dwivedi *et al*., 2021). However, the foundational development of AI has been found to lack female representation, leaving a significant gap that is directly related to algorithms and historical data causing bias and discrimination against women in employment.

In the context of this study, to fully understand the impact upon existing biases, it is key to define the term bias, which often conveys prejudice and exclusion towards or against an individual or group, underpinned by notions of unfairness, bias, and distortion (Gardenier and Resnik, 2002, p. 65–74; Foka *et al*., 2025). Additionally, bias is recognised in various data collection and analysis methods, potentially leading to inaccurate assumptions (Foka *et al*., 2025; Gardenier and Resnik 2002, p. 65–74). Regarding this research, the term 'bias' will refer to existing prejudices against women, particularly in the workplace, as well as the bias originating from AI as a historical and evolving technology.

Similarly, a key aspect of understanding AI's impact on existing biases concerning women in employment is to consider the meaning of AI's ethical landscape within the context of this research. Ethics can be defined as the philosophical meaning of right and wrong, focusing on human behaviour, rights, justice and societal well-being (Dewey and Tufts, 2019). The purpose of ethics is to examine human behaviour through two key approaches: agent-centred ethics (virtue ethics) in the context of an individual's morals and motives, and action-centred ethics (act-based ethics) related to the inherent morals within the actions (Zagzebski, 2010; Bambauer, 2013; Hursthouse and Pettigrove, 2018; Zhou and Chen, 2023). In the context of AI, Hoven and van den Hoven and Lokhorst (2002, pp. 376-386) introduce the concept of an explicit ethical agent, enabling AI machines to make sound ethical decisions and reasoning through deontic logic, epistemic logic, and action logic. Additionally, Moor (2006) and Floridi (2023) argue that the precision with which AI can make ethical decisions is significantly limited due to its complex nature and ethical complexity. Highlighting these complexities, it is crucial to understand how ethical frameworks and human behaviour can impact the evolution of AI, ensuring an active focus on eliminating bias, particularly in relation to gender equality.

In this study, the researcher hypothesises that addressing the bias in AI requires a paradoxical approach. Firstly, employers must increase their awareness of historical biases and actively include women in the development of AI through initiatives such as upskilling programs. Secondly, the UK government must update ethical frameworks to integrate AI ethics. If achieved, this will ensure that polices protecting underrepresented groups are able to align and strengthen the integration of AI systems, reducing the impact of bias against women.

The researcher will first examine the historical evolution of AI, while highlighting the challenges and possibilities it presents in relation to women in employment. Secondly, the study will investigate the ethical implications of AI technologies to gain a deeper understanding of their implications and connections to bias and discrimination affecting women in employment. Thirdly, the research will critically explore the persistent inequality faced by women in the workplace and how this is impacted by the arising AI presence within workplace tools and systems. Throughout this study, the researcher will aim to draw conclusions and make relevant recommendations, which will be synthesised in the concluding chapter. The researcher emphasises the importance and urgency of this research, as AI technology is drastically transforming the working environment at an unpredictable pace (O'Connor and Liu, 2024; Feeney and Fusi, 2021). Understanding the implications for women, particularly in the context of their working environment, is crucial to addressing gender inequality and ensuring a sustainable and inclusive approach to integrating AI (Collett *et al*., 2022; Campbell, 2025).

This study was conducted in response to the researcher's observation of the rapid development and increased use of AI in the workplace, particularly the integration of tools such as Microsoft Copilot and specialised AI software that are being promoted and implemented across all levels of the company (BBC, 2018; Elliott, 2019; Roser, 2022). Therefore, building a better understanding of how this phenomenon can positively impact and disadvantage women is of crucial importance to ensure responsible use of the technology. Additionally, the researchers' professional interest and passion for advancing the field of gender equality are built upon their experiences as Diversity, Equity, and Inclusion professionals across different male-dominated

industries, such as maritime, energy, biotechnology, and science, which has been particularly beneficial in further understanding, raising their awareness and contributing to their professional expertise. This study will benefit women in the long term by highlighting the challenges and opportunities arising from AI and providing solutions that address the identified inequalities. In the context of their workplace experiences, however, with immediate effect, government bodies and employers can utilise the findings to make a real impact in the lived experiences of women in employment, such as by ensuring their active participation in AI development and design, embedding bias-awareness initiatives, and redefining ethical policy frameworks to protect women and underrepresented groups (Collett *et al*., 2022; Behavioural Research UK, 2024; Krupiy, 2024; Campbell, 2025).

# 2. LITERATURE REVIEW

## 2.1 Introduction

> *'Our systems will only work for everyone if they are designed with multiple voices in the room, every step of the way. Humans have a propensity for designing for the familiar. To change this default, we have to challenge our own assumptions and continue to learn from a diversity of perspectives.' (Tulsee Doshi, 2020).*

Offering both a pool of prospects and significant challenges for women in the workplace, from hiring algorithms to upskilling and development, AI's impact on gender equality in the working environment is becoming a critical concern (Collett *et al*., 2022; Woźniak-Jęchorek *et al*., 2023; Bao *et al*., 2024). With a promise of offering objectivity and inclusivity, AI's system integration into employees' lifecycle risks increasing existing and historical gender biases that discriminate against women in the workplace (Collett *et al*., 2022; Woźniak-Jęchorek *et al*., 2023; Bao *et. al*., 2024).

To understand the impact of AI on women in employment in the UK, this dissertation will systematically examine and critique existing literature on the workplace experiences of women, whilst also providing an understanding of how this evolving phenomenon interrelates with historical and persistent gender inequalities. The review provides a historical overview of AI, highlighting the lack of gender diversity in AI development and evolution, which has resulted in the present embedded biases within AI platforms (Russell and Norvig, 2016; Jiang *et al*., 2022). Furthermore, this literature review provides an analysis of AI's challenges and possibilities, along with an overview of its ethical landscape, through the perspective of workplace inequalities faced by women and UK policy evaluations to offer a comprehensive understanding of how AI influences women's working experiences.

Upon further research, it was highlighted that the definitions of the AI framework by Russell and Norvig (2016, pp. 1-5) provided a sound theoretical approach in relation to understanding the four key approaches to AI (thinking/acting humanly and rationally), however, additional research from (Award *et al*., 2018; Huang *et al*., 2019; Vetro *et al*., 2019; Goldsmith *et al*., 2020; Marwala, 2021; Pelau, *et al*., 2021; Felin and Holweg, 2024) emphasised the need for this framework to be developed and include thinking and acting ethically as an essential fifth and sixth dimensions. These additions are also grounded in feminist care ethics (Noddings, 1984, 2015; Held, 2005). In this chapter, the researcher combines these theories into a new framework and conceptualises them into a model. The decision to do this was made so that greater analysis can take place in the discussions and themes chapter, where this enhanced framework is applied.

Furthermore, the criticality of this examination is highlighted by the rapid integration of AI, especially in the UK workplace. One challenge surrounding hiring algorithms is exemplified by Amazon's tool, which directly discriminated against female candidates (Weismann, 2018; Dastin, 2022). It is more important than ever to highlight these cases, which pose a risk of deepening workplace discrimination without appropriate intervention. AI also puts women at risk of losing their jobs, with research indicating that 70% of female employees are in roles at high risk of job automation (Office for National Statistics, 2019; Rodríguez-Bustelo *et al*., 2020). This adds an additional hurdle, faced by women in employment, alongside the existing underrepresentation in leadership positions and the effects of the 'glass ceiling' phenomenon.

This literature review also examines the UK's policy landscape in relation to AI, uncovering the concerning disconnect between gender equality and AI ethics and governance. While the government has made significant efforts to draw attention to AI's development and published guidance on AI's ethics, the research highlights a significant gap between gender equality policies, which pose risks of worsening inequalities in support and focus on women in employment.

### 2.2 Artificial Intelligence – A Historical Perspective

Building on over 65 years of research (Russell and Norvig, 2016; Jiang *et al*., 2022), the term Artificial Intelligence (AI) was first coined by John McCarthy in 1956, who is also referred to as the "father of AI" (Rajaraman, 2014; Russell and Norvig, 2016; Becker, 2019; Jiang *et al*., 2022). In his study, McCarthy (1956, cited in Rajaraman, 2014; Russell and Norvig, 2016) demonstrated the link between learning and intelligence, suggesting that precisely defining both could enable machines to simulate these processes. Minsky (1968) and Hernandez-Orallo (2017) emphasise that the principle of AI lies at the connection of computer knowledge and engineering, which is responsible for developing algorithms and systems that perform tasks mimicking human intelligence. As discussed by Lu (2019), examples of these tasks include recognising learning, problem-solving, decision-making based on data, and understanding human language.

According to Zhuang *et al*. (2017), from the 1940s to the 1970s, AI research mainly focused on classic reasoning methods based on logical approaches. Following the 1970s, the AI field expanded into specialised areas, including natural language administering, computer visualisation, and machine learning (Zhuang *et al*., 2017).

Furthermore, as discussed by Zhuang *et al*. (2017) deep learning has become the main driving force behind modern AI developments in recent years.

Despite the initial research and innovation of early developers such as McCarthy (1956), the AI landscape has been found to lack gender diversity, significantly impacting the design and application of this phenomenon (Adam, 1998; Nesta, 2019; Maliki and Naji, 2024). Adam's (1998) research focuses on gendered models of knowledge represented within AI systems, highlighting that the predominantly male perspectives of early AI innovators shaped the field. The lack of female representation resulted in environments being illustrated as intelligent, reinforcing a gender bias that has had long-lasting effects on AI development (Adam, 1998). Moreover, Orlikowski (1992) argues that technologies represent the historical context of their development, reflecting the specific knowledge, sources, and social dimensions of their time. Moreover, the duality of technology as both a structural and social concept means it inherently carries the unconscious biases of its inventors, while simultaneously adopting new functionality and potential biases through extensive implementation (Orlikowski, 1992; O'Connor and Liu, 2024). Additionally, the lack of gender diversity within STEM disciplines, specifically in technology and innovation, has been a persistent challenge over the last few decades, leading to a significant decrease in female students enrolling in STEM courses during the past twenty years (Botella *et al*. 2019; Sarabi and Smith, 2023). However, it is unclear whether female enrolment was greater in the early, foundational years of AI, specifically the 1950s, 1960s, and 1970s. Historical research reveals the presence of women in early programming, with a significant increase in male representation in the technology field during the 1960s and 1970s (Tassabehji *et al*., 2020; Misa, 2021). The absence of female representation

in STEM, further persistent in the AI labour force and research, as highlighted by Botella *et al*. (2019) and Nesta (2019), emphasises the potential challenges and possibilities of AI and their future impact on women in employment.

### 2.3 Artificial Intelligence: Challenges and Possibilities

Fast forward to today's increased advancement of AI, which has demonstrated tremendous potential, particularly in sectors such as Healthcare, Transportation, Engineering, Government, and Telecommunications (Elliott, 2019; Rashid and Kausik, 2024). However, the lack of gender diversity and historically inherited bias in AI's data remains a persistent challenge in this field (Feng and Shah, 2022; Gorska and Jemielniak, 2023). Governments and businesses are also rapidly developing and using technologies such as AI; however, advancing policy addressing potential challenges and opportunities concerning gender remains a neglected topic (O'Connor and Liu, 2024; Feeney and Fusi, 2021). In addition, Shoham *et al*. (2018) and Tolan *et al*. (2021) argue that the advanced development of AI will harm and disrupt the current labour market and society. Simultaneously, Fetzer (1990, pp. 1-5) and Abbass (2021) emphasise the challenge of defining AI due to its complex nature and the diverse contexts in which it is applied. Fetzer (1990, pp. 1-5) explains that the term "artificial" in "artificial intelligence" suggests its origin as a creation of social design as opposed to an organic process. Building on this idea, Lloyd (2019, pp. 5-9) argues that artificially intelligent entities, such as machines, differ from those with natural intelligence, like humans, due to their inability to possess genuine intelligence. Therefore, they acquire intelligence through intentional creation, design, or manufacture (Lloyd, 2019, pp. 5-9). In this context, Sanders and Wood (pp. 63, 2020) emphasise that data is the foundation of AI and machine learning, and without such

data sets, the power of AI remains limited. Sanders and Wood (pp. 63, 2020) make an analogy between Maslow's Hierarchy of Human Needs (cited in Block, 2011) and the data needs of AI, highlighting that the foundational layers of AI systems rely on reliable data quality and robust infrastructure, which in turn enable more advanced activities such as data engineering, modelling, and AI optimisation (Rogati, 2017; Sanders and Wood, 2020).

Russell and Norvig (2016) highlight the shift in concern, which is not directly related to the algorithms but focuses on the large data sets. Equally, Sanders and Wood (pp. 78, 2020) argue that AI requires substantial data to match human intelligence, which remains a key limitation of its capabilities. In contrast, the research of Terra *et al*. (2023) explains the process of deep learning, in which AI can process data that simulates the capabilities of a human brain. It uses neural networks, which utilise raw data as input and assess it through layers of perception to provide specific information (Terra *et al*., 2023). Subsequently, the fast growth of AI and the need for large data sets pose both significant opportunities and challenges for society, an observation emphasised by Rakowski and Kowalikova (2024), who further highlight the associated social risks, including bias, social injustices, privacy concerns, and ethical dilemmas. Sanders and Wood (pp. 172, 2020) highlight the biases rooted in algorithms and the data used in AI. Their research exemplifies the inevitable challenge of built-in bias in machine learning from compromised historical data (Sanders and Wood, pp. 172, 2020).

As described by Kaplan and Haenlein (2020, pp. 37-50), Fahse *et al*. (2021) and Jackson (2021), systems are prone to exclusion, inequality and bias, especially against

women, due to the history of inaccuracy in algorithms, being over- or underrepresented by specific data, or the human bias shown by engineers involved in these tasks. In addition, Fahse *et al*. (2021) and Foka *et al*. (2025) discuss the data-to-algorithm bias, which refers to the biases present during the data selection processes in AI, typically recognised as four main types: representation bias, measurement bias, aggregation bias, and sampling bias. As previously highlighted by Jackson (2021) and Fahse *et al*. (2021), representation bias is recognised when certain groups are over- or underrepresented in the dataset. An example is the use of fewer images of women than men in a gender-related task (Fahse *et al*, 2021; Foka *et al*., 2025). Measurement bias is associated with inaccurate or faulty collection, use, and measurement of the aim and training structures for the details needed to train a model (Fahse *et al*., 2021; van Giffen *et al*., 2022; Mehrabi *et al*., 2021). Sampling bias is related to representation bias, and it arises when the training dataset is generated by using a systematic selection of the primary population, leading to underrepresentation (Mehrabi *et al*., 2021; Foka *et al*., 2025). Moreover, aggregation bias refers to the incorrect assumption made about an individual due to an increased focus on the entire population rather than on the subgroup (Mehrabi *et al*., 2021; Foka *et al*., 2025).

Wooldridge (2021, pp. 237-263) discusses the possibility of global-scale challenges and the potential abuse of technologies such as AI. In particular, he highlights the challenges posed by AI to employment, human rights, biases, and diversity, emphasising the need for consideration by management to prevent the deepening of inequalities and discrimination.

Dwivedi *et al*. (2021) argue that advancing AI and machine learning will create more opportunities for innovation and transform known manual tasks. In addition,

Khmarska *et al.* (cited in Tatomyr and Kvasnii, 2021) argue that using AI has supported many organisations in obtaining additional capital and achieving their business goals. Mikalef and Gupta (2021) also discuss the weight many organisations place on AI as their new top priority. Moreover, the extensive integration of AI in recruitment processes has accelerated significantly, with organisations rapidly adopting these technologies to enhance their hiring effectiveness (von Krogh, 2018; Nguyen and Malik, 2022). As discussed by Heilmann (2018), AI-driven recruitment tools and software have grown in popularity, with many recruitment professionals adopting different software for candidate evaluation and selection. In addition, Bai *et al*. (2022) and Avery *et al*. (2024) highlight how using AI in recruitment processes can positively impact gender biases and offer fair practices and assessments within the recruitment and selection process. Furthermore, Avery *et al*. (2024) emphasise the potential for removing barriers for women during the recruitment process and enhancing career advancement where AI is present. However, Cirillo *et al*. (2022), Hall and Ellis (2023) and Luthra *et al*. (2025) argue that algorithmic bias in AI continues to exist through training data that inherently reflects historical discrimination, particularly regarding protected variables such as gender. Indirect discrimination displays when seemingly neutral decisions continue to discriminate against underrepresented groups through proxy variables, as evidenced in Amazon's recruitment algorithm, which unconsciously discriminated against women despite their efforts to hide their gender during the recruitment process. (Cirillo *et al*., 2022; Dastin, 2022; Luthra *et al*., 2025). Moreover, the historical gender bias in recruitment originates from multiple sources, including training data quality, feature selection, and proxy features, while the social dimensions predominantly arise from homogeneous development teams (Cirillo *et al*., 2022; Hall and Ellis, 2023; Luthra *et al*., 2025).

According to Collett *et al*. (2022), the UNESCO report, the responsible use of information-intensive AI can streamline and personalise job search services, while potentially reducing discrimination and biases. With a more sensitive algorithm design that aligns candidate skills with job requirements, AI could enhance labour market inclusion for vulnerable groups (Urquidi and Ortega, 2020). Nevertheless, Dwivedi *et al*. (2021) suggest that the rapid development and introduction of AI could have a substantial economic impact on organisations and their structures. Gupta and Kumari (2017) also highlight the legal implications of AI and the issue of copyrights. Moreover, Sun and Medaglia (2019) discuss the lack of trust and formality when addressing AI's specific challenges. Another apparent challenge, as mentioned by Punia (2023), is the underrepresentation of women in the progress of AI. In support, Badarevski's (2023) research addresses the importance of gender equality in the development of AI. It highlights the absence of women in STEM, underscoring the underrepresentation of women in AI's development. According to Guevara-Gomez *et al*. (2021), if these challenges remain unresolved, the development of AI will heighten injustice and inequality, as well as increase discrimination against groups already marginalised due to factors such as gender, race and religion. Therefore, governments and institutions need to recognise these issues and take steps toward addressing them (Guevara-Gomez *et al*., 2021). Moreover, Guevara-Gomez *et al*. (2021) recognise that acknowledging this will drive the need for meaningful policy creation, ensuring an equitable and inclusive framework. Furthermore, government officials must establish comprehensive policies, regulations, and ethical and legal frameworks to prevent the mismanagement of AI (Gupta and Kumari, 2017; Duan *et al*., 2019; Dwivedi *et al*., 2021).

The UK Government has shown significant interest in AI and the benefits it could unlock for the economy (Starmer, 2025), and it aspires to be the top place in the world in leading, testing and using AI technology (Department for Science, Innovation and Technology, 2023). A new 'National AI Strategy' was published in September 2021, whose primary purposes are to: 'invest and plan for the long-term needs of the AI ecosystem', 'support the transition to an AI-enabled economy', and 'ensure the UK gets the national and international governance of AI technologies right' (UK Government, 2021). However, Drake *et al.* (2021) argue that although the strategy focuses on objectives such as 'will be best achieved through broad public trust and support', it must address the public's lack of trust. According to Edelman (2024, 2025), the UK population has a limited understanding of AI, and this phenomenon is increasing rapidly. Furthermore, Edelman's (2024, 2025) research shows that only 44% of individuals in the UK believe in AI and the digital industry. This is the lowest percentage, deteriorating more quickly than any other economy worldwide, with a 16% decline since 2019 (Edelman, 2024, 205). Furthermore, Drake *et al*. (2021) emphasise that although UK policymakers have acknowledged the importance of involving the public in creating and implementing clear rules and regulations, they have yet to translate this recognition into practical action. Establishing the 10-year UK National AI Strategy (UK Government, 2021) is an opportunity and a step in the right path from a policy and regulatory perspective (Kazim, *et al*., 2021). In addition, Kazim *et al.* (2021) discuss the primary takeaway of the strategy, which is that innovation is a top data priority in the UK. Moreover, Latham and Watkins's report (2022) provides a comprehensive overview of the UK's strategy, and its core aims:

1. ‘’Invest and plan for the long-term needs of the AI ecosystem.’’
2. ‘’Establish a pro-innovation regulatory framework to ensure safe and responsible AI development.’’
3. ‘’Ensure that AI benefits the whole of society by enhancing skills, education, and infrastructure.’’
4. ‘’Support the transition to an AI-enabled economy, ensuring AI benefits all sectors and regions in the UK.’’
5. ‘’Ensure the UK gets national and international governance of AI technologies right, encouraging innovation and investment while protecting the public and the UK’s fundamental values.’’

The Latham and Watkins report (2022) suggests that the UK government’s overall approach will likely continue to adapt its strategy and regulation, refine current legal and regulatory frameworks, and introduce broader, cross-industry measures where suitable. In addition, the UK National AI Strategy (UK Government, 2025) also addresses the challenges and possibilities of this technology, and pledges to ensure diversity within the development and integration of AI, by listing three main reasons such as moral, economic and social (UK Government, 2021). Biases in algorithms and data sets are also recognised by the government and within the strategy, with their clear intention to take action to mitigate the data quality and underrepresentation in AI technologies (UK Government, 2021). However, the mentioning of bias, governance and ethical implications lacks detail, and it is high-level, not specifically addressing challenges faced by women or underrepresented groups. To support the strategy and deliver on their commitment, the government has published pioneering standard for algorithmic transparency, currently available to government departments and public sector bodies (UK Government, 2021). The standard recognises the importance of algorithmic transparency in building ethical AI policies globally (UK Government, 2021). However, no apparent action or action plan is established to tackle bias specifically and bias in algorithms and overall lack of female representation within the sector. In addition, Ramos (2022), Giest and Samuels (2023), Ulnicane and Aden

(2023), and Kim (2024) highlight how the biases in AI predominantly affect women and underrepresented groups, therefore the integration of feminist and intersectional theories in policies and strategies offers a more inclusive way to govern AI in the future. Moreover, The AI Standards Hub (2024) notes that the Government published its first AI Action Plan in July 2022, showcasing how it executes its strategy. The Action Plan provides a snapshot of their progress since the publication of their first strategy in 2021 (The AI Standards Hub, 2024). As reported by the AI Standards Hub (2024), the action plan consists of the following:

- Advancing its articulated vision and strategic objectives to reinforce the UK's leadership in AI.
- Establishing a robust empirical foundation to enable more effective monitoring and evaluation of progress.
- Ensuring the UK's framework remains adaptable and responsive to emerging and impactful AI developments.

The Government plans to update this plan annually to showcase its consistent progress (The AI Standards Hub, 2024). However, the researcher's investigation reveals that the government's commitment still needs to be fulfilled, and the additional resources still require publication. Reinforcing the value of developing public trust, Drake *et al*. (2021) emphasise the importance of accountability and promoting dialogue, a point also highlighted by the UK Government (2021).

The UK Government (2025) has released its 'AI Opportunity Action Plan: Government Response', promising to build a sufficient, secure and sustainable infrastructure in the UK. The Action Plan provides recommendations in various categories, including data assets, training and retaining talent, ensuring the safe and trusted adoption and development of AI, addressing the needs of both public and private sectors, and promoting the overall advancement of AI (UK Government,

2025). However, after examining the action plan, it appears that there is an apparent absence of recommendations on advancing ethical policies and regulations to address biases and injustices arising from AI. This raises clear ethical issues for AI and has implications for practice.

The research will focus on the ethical implications of AI and explore these in more detail in the next section of the literature review.

### 2.4 Ethics of Artificial Intelligence: Implications for Practice

AI is significantly changing our world and society; while there are many benefits, this phenomenon can also have long-lasting, damaging implications (Borenstein and Howard, 2021). Despite this, we also observe a rise in ethical challenges such as bias and discrimination, data governance, privacy concerns, ownership, and fairness (Zhou and Chen, 2023). Globally, governments, industries, academia, in both the public and private sectors, have united on the idea of AI ethics, which has become their way of describing the governance and disposition of AI (Browne *et al*., 2024). The study of Jobin *et al*. (2019) identified 84 international ethical frameworks, with 11 having consistent themes. This research section will focus on the second prominent theme as part of the identified ethical frameworks, 'justice, fairness and equity', which Jobin *et al*. (2019) and Browne *et al*. (2024) highlight as preventing and mitigating biases and discrimination in AI. In addition, Schabasser (2024) suggests that AI can reproduce discrimination, and more specifically, biases against women. As AI continues to evolve and its behaviour becomes increasingly difficult to explain or analyse, ethical considerations are more critical than ever to ensure responsible development and deployment that protect humanity in the future (European Parliament, 2020; Zhou and Chen, 2023). In addition, Bossman (2016) identifies the top nine ethical challenges

surrounding AI, such as job loss, discrimination, security, threat to humankind, biased machines, lack of individuality, robot rights, artificial limitations (AI can be deceived to see things that are not there and therefore produce the wrong information), and malicious requests (AI can perform tasks and wishes with unpredicted circumstances). Beyond that, research shows that consumers are more likely to trust an organisation where the ethics of AI are present and considered throughout the company's lifecycle and in society (Capgemini, 2019). Establishing the appropriate ethical guidelines and principles to support the development, regulation, and design of AI is crucial, ensuring the maximisation of its benefits and respect for society and individuals (Zhou and Chen, 2023). Additionally, it is essential to understand the meaning of ethics, as described by Dewey and Tufts (2019), as the philosophical aspect responsible for protecting and advocating for right and wrong, particularly concerning human rights, justice, and the well-being of humanity. Questioning society's morals, the concept of ethics focuses on human behaviour, and there are two key theoretical views: agent-centred ethics (virtue ethics) and action-centred ethics (act-based ethics) (Foreman, 2014; Hursthouse and Pettigrove, 2018; Zhou and Chen, 2023). DePaul and Zagzebski, (2003), Zagzebski (2010) and Besser-Jones and Slote (2015) discuss the agent-centred approach and the various moral concepts in the character and motives of moral agents. Besser-Jones and Slote (2015) defines right and wrong in terms of whether an agent's motivations are good or bad, extending this motivational principle to laws and rational norms. In addition, DePaul and Zagzebski, (2003) and Zagzebski (2010) defines a wrong act as one a virtuous individual would not perform and would feel guilty about. Zagzebski (2010) applies this focus on the agent's motivations and dispositions to explain duties, good and bad intentions, and moral obligations. In contrast, Leist (2000) and Bambauer (2013) describe the action-centred

approach as primarily conflicting with any form of consequentialism. Additionally, Leist (2000) argues that an action's moral value involves the action's fundamental worth and the value of the agent performing it. Furthermore, Leist's theory favours the action value due to its importance compared to indifference (Leist, 2000; Bambauer, 2013). Nevertheless, Leist's theory recognises that values are not external entities existing outside the agent (Leist, 2000; Bambauer, 2013). Instead, they are created by rational agents, highlighting the agent as the contributor and the originator of all value. In the context of AI, van den Hoven and Lokhorst (2002, pp. 376-386) discuss the concept of an explicit ethical agent, which contains three components of advanced reasoning: deontic logic for accounts of authorisation and obligation, epistemic logic for principles and awareness, and action logic for accounts of action. Working together, these logics suggest that a machine can make precise ethical decisions and judgments (van den Hoven and Lokhorst, 2002, pp. 376-386). Nevertheless, Moor (2006) and Floridi (2023) argue that the ethics of AI is a question that may remain unresolved due to its complex nature and the limited understanding in broader society. However, Moor (2006) also emphasises the importance of explicit ethical agents and suggests that future research should focus on developing such agents to enable machines to prevent unethical conditions. In addition, Scheutz (2017) discusses Moor's study and the significance of ethical agents, alongside the idea that cognitive systems should have a moral, legal, and ethical framework built into them. This will allow for an innovative and peaceful relationship between humanity and AI (Moor, 2006; Scheutz, 2017). However, Scheutz (2017), Beranger (2021) and Camilleri (2024) also stress that the accountability of such efforts lies with society, and the absence of ethical competence in AI will have negative consequences on humanity.

According to Russell and Norvig (2016, pp. 1-5), AI encompasses four key approaches, which are divided into two dimensions: thinking versus acting and human versus rational. However, while investigating this framework, the researcher identified a potential gap not addressed in Russell and Norvig's theory. This gap could significantly contribute to future AI research and ensure ethical implications are considered. To support future studies, the researcher has evaluated Russell and Norvig's (2016, pp. 1-5) theory and summarised the framework below (Table 1), adding ethical thinking and acting as the fifth and sixth key approaches. Research has demonstrated that the six key principles are interconnected in ensuring that ethical AI is fully considered, with each dimension relying on each. Additionally, these terms are linked with feminist care ethics (Noddings, 1984, 2015; Held, 2005; Beasley and Papadelos, 2024), emphasising the ethical reflection in connection to real-life circumstances. This addition demonstrates how AI can influence caring relationships and subsequently impact underrepresented communities, particularly women who face discrimination in the workplace. Furthermore, this addition aims to foster a deeper understanding of AI and promote greater accountability by compiling the research of Noddings (1984, 2015); Held (2005); Award *et al.* (2018), Huang *et al*. (2019), Vetro, *et al*. (2019), Mittelstadt (2019), Goldsmith *et al*. (2020), Morley *et al*. (2020), Marwala (2021), Pelau *et al*. (2021); Beasley and Papadelos (2024) and Felin and Holweg (2024).

*Table 1: Framework for Introducing Ethical Thinking and Acting*

| **Thinking Humanly** | **Thinking Rationally** |
|---|---|
| *This approach seeks to reproduce the human cognitive process in machines, focusing on simulating how humans think and reason (Bellman, 1978; Haugeland, 1985; Russell and Norvig, 2016, p. 3).*<br>*AI competes with, or even outperforms, humans in various cognitive challenges that involve intelligent thinking and reasoning (Felin and Holweg, 2024).* | *This approach emphasises logical thinking, focusing on formal models of rational thought and calculations that follow these models (Charniak and McDermott, 1985; Winston, 1992; Russell and Norvig, 2016, p. 4).*<br>*Machines capable of rationalisation, such as AI, can undertake tasks that humans cannot (Marwala, 2021). Making logical choices involves using information to reach rational decisions (Marwala, 2021).* |
| **Acting Humanly** | **Acting Rationally** |
| *This approach aims to create machines that demonstrate human-like behaviour, specifically in functions considered intelligent when performed by humans (Kurzweil, 1990; Rich and Knight, 1991; Russell and Norvig, 2016, p. 2).*<br>*From a management standpoint, intelligent agents or machines are more cost-effective and operative than human workers (Huang et al., 2019; Pelau, et al., 2021).*<br>*As advanced forms of AI emerge, their efficiency is likely to increase (Huang et al., 2019; Pelau, et al., 2021).* | *This approach focuses on creating systems that act in a way that maximises goal achievement based on rationality principles (Nilsson, 1998; Poole et al., 1998; Russell and Norvig, 2016, p. 4).*<br>*As studies by Vetro, Martin and Beretta (2019 show, if an agent's actions are required to maximise a performance measure consistently, it is evident that the success and efficiency of those actions rely heavily on the type of knowledge that the agent possesses. Each action stems from a particular perspective of the world, the rules of that world being actual, which are integrated into algorithms that process data, along with a specific belief about what the world could become according to that reasoning (Vetro, Martin and Beretta, 2019).* |
| **Thinking Ethically** | **Acting Ethically** |
| *This approach allows AI software and users to assess and reflect on moral and ethical challenges, navigating competing values and principles in decision-making (Award et al., 2018). Additionally, it supports relational and ethical reasoning that concentrates on caring contexts and marginalised groups in decision-making (Noddings, 1984, 2015; Held, 2005; Beasley and Papadelos, 2024). According to Goldsmith et al. (2020), ethical reasoning has two components: ethical description and experienced ethical responsibility, with a complicated relationship between the two. Additionally, Goldsmith et al. (2020) propose that both abilities should be assessed and evaluated. Furthermore, they advocate for the joint measurement of these skills to avoid oversimplifying the complexities of human experience, emphasising that fostering and integrating these two abilities is a vital objective of AI's ethics education (Goldsmith et al., 2020).* | *This approach focuses on AI software and users who think ethically and showcase behaviour that complies with ethical norms and principles in real-world scenarios (Morley et al., 2020). Additionally, it also emphasises care ethical reasoning, leading to actions that benefit caring relationships and aim to support marginalised groups, in real-world situations (Noddings, 1984, 2015; Held, 2005; Beasley and Papadelos, 2024).*<br>*According to Mittelstadt's (2019) study, the absence of a trust-based relationship in AI implies that users cannot rely on designers to prioritise their welfare when applying ethical guidelines. Although the potential for reputational damage may motivate companies to consider ethical issues, these risks only hold importance if they remain in public awareness (Mittelstadt, 2019).* |

(*Adapted from* Russell & Norvig, 2016; Noddings (1984, 2015); Held (2005); Award *et al*., 2018; Huang *et al*., 2019; Vetro *et al*., 2019; Mittelstadt, 2019; Goldsmith *et al*., 2020; Morley *et al*., 2020; Marwala, 2021; Pelau, *et al*., 2021; Beasley and Papadelos, 2024; Felin and Holweg, 2024).

### 2.5 Inequality of Women in the Workplace

The dynamics of the workplace are experiencing significant changes due to the increased presence of AI, which may either exacerbate existing gender inequalities or help prevent them (Collett *et al*., 2022; Woźniak-Jęchorek *et al*., 2023; Bao *et al.*, 2024). Society is also facing an ongoing struggle for women's rights before we can confidently declare that gender equality exists in our systems and daily life (Gomis *et al*., 2023; Moscatelli *et al*., 2025).

In this study, gender inequality is defined as the unequal treatment and unfair access to opportunities that women face in society compared to men, specifically in their working environment (Silva and Klasen, 2021; Safaei-Mehr and Heidarian Baei, 2024). Furthermore, the researcher will not only focus on gender inequality within the workplace but also on the existing discrimination women face within their working environment, as well as how AI is challenging or deepening existing workplace inequalities (Wajcman *et al*., 2020; Collett *et al*., 2022).

The UN Secretary-General, Antonio Guterres (2018), confirmed that attaining gender equality persists as an incomplete concept in today's world. Furthermore, as emphasised by Wajcman *et al*. (2020) and Collett *et al*. (2022), a prevalent digital gender gap exists; despite efforts aimed at policy and research, the full potential of digitalisation has yet to be equally distributed in favour of women. As women are often underrepresented in STEM fields, which are integral to the progress and incorporation of AI, policy and representation are crucial to change the narrative and dismantle some of the barriers faced by women when entering this field of work (Valls and Gibert, 2022). Furthermore, Valls and Gibert (2022) reinforce this by

discussing how the present absence of women in STEM and, more specifically, in the AI field has produced the existing gender inequality and contributed to the male bias in this field, which is responsible for the future development and design of intelligent systems.

As emphasised by the European Institute for Gender Equality (EIGE, 2023), gender inequality is predominantly prevalent in the workplace. Despite numerous efforts to address this challenge, it is increasingly gaining attention in the social domain, with women facing difficulties such as inequality at work, including discrimination, harassment, work-life balance issues, and unfair remuneration (Wang *et al*., 2025; Paspuel *et al*., 2025). Globally, women continue to face challenges in advancing up the career ladder compared to men (Moscatelli *et al*., 2025; EIGE, 2023; Moscatelli *et al*., 2020). Stamarski and Hing (2015) describe the workplace as 'inhospitable' for women based on the many layers of discrimination they face. The gender pay gap, the underrepresentation of women in leadership positions, and the challenges they face in advancing their careers are some of the many examples we observe in the workplace (Stamarski and Hing, 2015; Safaei-Mehr and Heidarian Baei, 2024; Robinson, 2025). The underrepresentation of women in leadership is still a persistent challenge in both the public and private sectors (Lucifora and Vigani, 2022). Although statistics show that 43% of women in the UK are now part of executive boards across FTSE 350, which is a record high compared to previous years, the government has acknowledged that more needs to be done in order to increase female representation and tackle discrimination (UK Government, 2025).

In 2019, the UK government released a policy paper titled "Gender Equality at Every Stage: A Roadmap for Change" (UK Government, 2019). The paper outlined eight key challenges related to gender inequality that the government has promised to address, including the gender pay gap and negative actions towards gender (UK Government, 2019). Those eight challenges are:

- *Limiting attitudes to gender can hold women and men back across their lives*
- *Women tend to work in lower-paid sectors and occupations, and are less likely to progress*
- *The working age benefits system has not always tackled the disadvantages that women and those with caring responsibilities face*
- *Women take more time out of the labour market to care for children*
- *Women are providing more informal care and unpaid work for others*
- *Some women face barriers returning to or entering the labour market*
- *Women are more likely to face financial instability later in life, due to decisions taken throughout working life*
- *We need to ensure that we sustain strong foundations for the future*

(UK Government, 2019)

The statements above are supported by consistent statistics that directly link the workplace as a primary factor and contributor to the inequality faced by women (Kalev and Deutsch, 2018; UK Government, 2019). For example, out of 1.7 million people in the UK facing financial hardship during retirement, 70% are women (Office for National Statistics, 2019; UK Government, 2019). 20% of mothers have shared experiences of workplace harassment and negative comments related to flexible working and pregnancy (Office for National Statistics, 2019; UK Government, 2019). Furthermore, the government acknowledges that women face unique challenges related directly to pay and progression, with 50% of female employees more likely to be underpaid in comparison to men, and 20% more likely to remain in low-paid jobs for longer than ten years (Office for National Statistics, 2019; UK Government,

2019). Moreover, Collett *et al*.'s (2022) research showcases the digital gender gap by revealing the percentage of women in ICT (information and communication technology); in the UK, 19% of women are part of the UK tech landscape; in Europe, the percentage is even lower, with 17% of women comprising the technology sector. UK Research and Innovation (2019) has reported that less than 18% of the UK tech sector is represented by females, acknowledging that the industry is facing an overall decline globally in women entering the digital workforce. Despite the many campaigns and efforts in the UK (such as the Women in IT event or Little Miss Geek campaign), the IT sector remains underrepresented, and there is no clear trend of improvement in the near future (Jurado *et al*, 2024). In addition, the increasing presence of AI in recruitment brings both a glimpse of hope and a greater challenge for the future of women in the working environment (Collett *et al*., 2022; Woźniak-Jęchorek *et al*., 2023).

Tabassam *et al*. (2022) emphasise the ethical challenges present in recruitment where AI is taking an active role. One of the main implications is bias, especially discrimination against women, due to the potentially biased data fed into the AI software and systems (Barocas and Selbst, 2016; Tabassam *et al*., 2022). Moreover, the future of the existing job market is unclear due to potential job automation, which will lead to roles no longer existing in the presence of AI (Frenette and Frank, 2020; PwC, 2021). This will inevitably impact women, due to their dense presence in occupations that are at risk of automation, such as Human Resources, Customer Service, Administration or Retail (Frenette and Frank, 2020; Engana-delSol *et al*., 2022).

Building on the above, the numerous challenges faced by female employees when attempting to advance their careers in the workplace are often described as the 'glass ceiling' (Taparia and Lenka, 2022; Zhang and Basha, 2023). The concept of glass ceiling dates back to 1984, when it was first mentioned in an interview setting by Gay Bryant with a magazine called Adweek as discussed by Carli and Eagly (2016), Taparia and Lenka (2022) and Zhang and Basha, (2023), they also suggest that the term gained more attention after it was released in an publication in The Wall Street Journal by Hymowitz and Schellhardt (1986), describing it as an invisible block, preventing women to progress their career further in the corporate environment. Furthermore, in 1991, a Federal Glass Ceiling Commission was established, defining the phenomenon in 1995 as the invisible and unattainable barrier that women and minorities face when trying to progress their careers, despite their education or aspirations (Taparia and Lenka, 2022). Consequently, Cotter *et al*. (2001) established four criteria to distinguish whether inequality falls under the glass ceiling. The criteria are as follows:

1. *Education and experience should not be considered when connecting inequality and defining it as a glass ceiling.*
2. *Higher levels of inequality should be considered at more senior positions during the career lifecycle.*
3. *Discrimination should be recognised as women attempt to advance to higher positions.*
4. *The overall inequality is expected to become more pronounced later in the career cycle.*

In contrast to the above, Wirth (2001), Taparia and Lenka (2022) and Zhang and Basha (2023) emphasise a different side of the glass ceiling, which is related to the direct impact organisations and behaviours have on women's career progression. Dambrin and Lambert (2008) and Zhang and Basha (2023) further explain this by redefining the glass ceiling concept, connecting organisational and behavioural biases,

and how these directly impact women's career decisions by intentionally excluding themselves from climbing the corporate ladder early in their careers. Moreover, these individual factors and decisions are also closely related to education, which is one of the most significant factors influencing women's career progression and contributing to the widening of the gender education gap (Lathabhavan and Balasubramanian, 2017; Taparia and Lenka, 2022). According to Taparia and Lenka (2022) and the World Economic Forum (2025), the educational gap is particularly pronounced in STEM disciplines, with women comprising 3%, 5%, and 8% of students entering the digital space, engineering, or mathematics. Moreover, Engana-delSol *et al*. (2022) discuss the pronounced presence of men in occupations such as technology, engineering, management, and communication, which positions women at higher risk of job loss due to AI automation. In addition, Ulnicane (2024) emphasises that not all women are equally impacted. The importance of intersectionality of gender related to race, class, disability, and other social factors can further perpetuate the impact of AI on specific groups (Ulnicane, 2024).

In the following section of the literature review, the researcher will critically examine how AI is impacting the working environment for women, considering its positive influence and present inequalities. This review will also explore the topic of intersectionality.

### 2.6 Inequality of Women in the Workplace: The Impact of AI

The workplace remains a challenging environment for women due to numerous factors that hinder their career progression and development (Heilman *et al*., 2024). Facing discrimination, such as the lack of career progression, bias during the

recruitment stage and in evaluation reviews, unequal salary remuneration, and overall challenge to climb up the career ladder, female professionals encounter many hurdles in order to succeed in the professional environment (Klein *et al*., 2021; Galos and Coppock, 2023 and Heilman, *et al*., 2024). Additionally, with the rise and domination of technologies, such as AI, it is crucial to understand the impact it has on women's future career advancement (Barqawi and Al-Rashdan, 2025). Despite AI's transformational promise for women in the workplace, research indicates that discrimination remains persistent and is often rooted in historical biases (Barqawi and Al-Rashdan, 2025).

The following discussion in the literature review will examine how discrimination appears in women's work experiences and how AI worsens these challenges. The use of this technology will be analysed to foster a deeper insight of real-life examples of positive changes and the ongoing challenges faced by women in the workplace.

AI-powered algorithmic decision-making tools are gaining popularity in recruitment, with many companies in both the public and private sectors relying on these tools to select and hire successful candidates (Horodyski, 2023; O'Brien, 2024). As described by Zuiderveen Borgesius (2018), an algorithm is seen as a computer program, a formalised description or procedure, and a decision referring to the outcome or finding of this procedure. The algorithmic decision-making tools are the preferred option due to their ability to reduce manual administrative labour and screen CVs or provide pre-employment screening in seconds, compared to hours if a person were to complete this task (O'Brien, 2024). Researchers are exploring their ability to enhance productivity and facilitate better data-driven outcomes in the workplace, where time

and efficiency are paramount (Zuiderveen Borgesius, 2018; Horodyski, 2023; O'Brien, 2024). However, there is also a significant question mark regarding the reliability of these tools and their potential to lead to discrimination (Zuiderveen Borgesius, 2018; Horodyski, 2023; O'Brien, 2024). Since AI has been described as a 'black box' (Zuiderveen Borgesius, 2018; Sanders and Wood, 2020), researchers emphasise its inability to explain itself and the decisions it has made. Furthermore, even those who are training AI software often struggle to explain how AI algorithms arrive at a specific conclusion (Zuiderveen Borgesius, 2018; Sanders and Wood, 2020). Furthermore, recent case highlights the potential of gender bias when it comes to algorithmic decisions (BBC, 2019; Telford, 2019). In 2019, Apple's credit card presented different credit limits to men and women, sparking an investigation by the New York Department of Financial Services, which exposed a gender-biased algorithm and its capacity to discriminate against women (BBC, 2019; Telford, 2019).

In addition, the process of hiring employees can lead to discrimination based on the limitations of AI tools, which rely on historical data and may still contain bias (Zuiderveen Borgesius, 2018; Arase, 2025; Oluwaniyi, 2025). This discrimination is particularly impacting women in the hiring process (Zuiderveen Borgesius, 2018; Lütz, 2022; Adams-Prassl *et al*., 2023). A real-life example is Amazon's recent decision to disable its AI tool, which had directly discriminated against female candidates (Weismann, 2018; Zuiderveen Borgesius, 2018; Dastin, 2022). Their AI tool was positioned in favour of male candidates, excluding resumes with the word 'women' and discriminating against candidates from popular female-education institutions (BBC, 2018; Dastin, 2022). This highlights the need for a care ethics approach (Table 1, p. 22), which would ensure women receive support and

understanding in their workplace experiences, whilst the focus remains on AI and its effect on caring relationships and inclusion (Noddings, 1984, 2015; Held, 2005; Beasley and Papadelos, 2024).

Despite this, research reveals that AI hiring tools could benefit and streamline the recruitment process by removing historical biases (Kassir *et al*., 2022). Furthermore, Drage and Mackereth (2022) discuss how AI-powered recruitment tools can be 'objective' in their assessment criteria, with many companies offering bias-free services and time efficiency. AI hiring company Retorio (2025), for example, claims to offer unbiased services that are unaware of age, gender and skin colour (Drage and Mackereth, 2022; Retorio, 2025). Moreover, they also suggest that their services can help mitigate biases in people managers (Drage and Mackereth, 2022; Retorio, 2025). In addition, Jasanoff and Kim (2009) and Drage and Mackereth (2022) emphasise how many AI hiring companies offer services that remove race and gender from the equation, selecting the best possible candidates with no existing bias. Therefore, these tools suggest a hiring approach that focuses on the concept of meritocracy, with candidates being selected based on their skills and experience (Jasanoff and Kim, 2009; Drage and Mackereth, 2022).

However, Todorov (2017) and Drage and Mackereth (2022) argue that while AI hiring tools aim to eliminate gender and race biases to treat all candidates equally, they often disregard a crucial point. Historically, the typical candidate has been a white male. Furthermore, many professions are at danger of automation due to AI and digitalisation, particularly in sectors and occupations held by women (Au-Yong-Oliveira *et al*. 2019; Rodríguez-Bustelo *et al*., 2020 and Thakkar *et al*., 2020). As

highlighted by Rodríguez-Bustelo *et al*. (2020), men are conditioned to possess the skills of the future, especially in the IT sector. Women are completing tasks that do not require analytical or information-processing skills (Brussevich *et al*. 2019). The analysis by the Office for National Statistics (2019) in England, which draws on insights from the PIAAC survey and a yearly population survey, highlights professions at greater and lower threat of automation. Their study reveals that 70% of women are in jobs vulnerable to automation, yet they represent only 43% of professions with a low risk of automation (Office for National Statistics, 2019; Rodríguez-Bustelo *et al*., 2020). Moreover, the analysis of the UK employment market and the UK labour force survey indicates that the representation of women at increased risk of automation is double that of men (9% of female employees compared to 4% of male employees), with female workers holding 64% of the occupations at greater risk of automation (Arntz *et al.*, 2016; Institute for Public Policy Research, 2019; Rodríguez-Bustelo *et al*., 2020). The Office for National Statistics (2023) recognises the need for updated research around automation and its impact on the UK labour market since their last article in 2017 and 2019; however, this research is yet to be published, and it is currently not available on their website.

The increased utilisation of AI in the workplace has influenced many businesses to invest in employees' development and agility, primarily through learning and digital advancement in order to meet the demands of the future (World Bank, 2023; Riaz, 2025). According to the World Economic Forum (2025), 39% of key skills will transform by 2030, highlighting the need for adequate learning and training solutions (Goel *et al.*, 2023; Riaz, 2025). AI-powered training systems are now the key device in closing the skills gap, providing timely and tailored training and labour force

resilience (Morandini *et al.,* 2023; Christensen *et al*., 2024; Riaz, 2025). However, UNESCO (2023), Binny *et al*. (2025), and Riaz (2025) argue that despite its capabilities, AI learning interventions have the potential to increase risks and concerns related to fairness, equal access, and long-lasting inclusion. In addition, Collett *et al*. (2022), Binny *et al*. (2025) and Riaz (2025) highlight how these concerns are more likely to affect women among other groups. In contrast, Barqawi and Al-Rashdan (2025) highlight the positive side of AI and how it could favour the overall inclusion of women in the workplace through AI-powered learning platforms that can offer tailored, personalised training and upskilling plans, while automation can allow women to focus on strategy, creative skills, and leadership-centred roles.

According to the SkillSoft Women in Tech Report (2024), 86% of women would like to gain new skills in tech; however, only 39% are reporting active support from their employers (Barqawi and Al-Rashdan, 2025). Consequently, the absence of prospects for women in this field poses a risk of underrepresentation in AI governance and future development (Abuwatfa *et al*., 2021; Campbell, 2025; and Barqawi and Al-Rashdan, 2025). Furthermore, Collett *et al*. (2022) emphasise the overall lack of access to technology and the required skills to utilise it that women face in comparison to men. Additionally, upskilling will be critical for women's adaptation in the future, especially to face the demand for AI skills and accept and lead possible opportunities in this field as they arise (Collett *et al*., 2022). As a result, an integral part of women's upskilling and integration within the AI sector will be the collaboration and action of governments and policymakers, highlighting and addressing gender skills gaps in their overall approach and real-life circumstances (OECD, 2018a; Collett *et al*., 2022; Campbell, 2025).

In the UK, the House of Commons' Science and Technology Committee issued a detailed report on AI in 2016, tasking the government to scrutinise any ethical, legal, and societal aspects of AI (Cath *et al*., 2018; House of Commons, 2025). In addition to examining the moral implications of AI, the government was also advised to collaborate with experts and stakeholders by establishing a 'Standing Commission on Artificial Intelligence' (Cath *et al*., 2018; House of Commons, 2025) at the Alan Turing Institute. The partnership with the Alan Turing Institute has led to the establishment of the UK's guidance, titled 'Understanding Artificial Intelligence Ethics and Safety', which is part of a broader collection on how to utilise AI in the public sector (UK Government, 2019). The guidance is intended for those responsible for designing the invention and distribution of any AI project, including data scientists, data technologists, domain specialists, and others (UK Government, 2019). Additionally, the guidance proposes that ethical considerations will arise at every stage of an AI project (UK Government, 2019). Therefore, active cooperation from all team members is required to navigate them. (UK Government, 2019).

Despite the development of guidance and frameworks during this period, the 2024-2025 'Governance of Artificial Intelligence (AI): Government Response' report published by the House of Commons (2025) shows that many of the key challenges identified in 2016 and discussed by Cath *et al*. (2018), especially concerning bias and transparency, remain unresolved. Furthermore, as emphasised by Punia (2023), Roche *et al*. (2023) and Anwar (2024), the presence of women in AI, especially in the context of policy development and ethical considerations, is crucial to ensure inclusive and sustainable AI integration, which instils trust and positive change within society. In addition, Edelman (2020, 2021) and Drake *et al*. (2021) have discussed the

lack of trust in AI in UK society, urging the government to include the public in decision-making and policymaking. Therefore, as a result of this research, it is recommended to make the guidance more inclusive and targeted to a broader society, specifically women, in the context of this study. This will be further discussed in the conclusion and recommendation section.

Examining the UK's guidance further, Leslie (2019) details the direction in his research, with its core comprising an ethical framework that includes SUM Values (Respect, Connect, Care, Protect), FAST Track Principles (Fairness, Accountability, Sustainability, Transparency), and the PBG Framework (Process-Based Governance Framework) promising to assist in the stewardship of responsible AI innovation practices. However, upon research, it is clear that limited resources are available to assess the impact and effectiveness of the government's guidance. Besides, Parkhurst (2017) emphasises the importance of evidence in public policymaking, recommending that a thorough and more extensive use of evidence could eliminate unnecessary negative consequences and help achieve fair social policy objectives. Additionally, Lord Holmes introduced the 'Artificial Intelligence (Regulation) Bill (House of Lords, 2025) in March 2025, currently at the second reading stage, which also requires engagement and consultation with the public on AI opportunities and risks (House of Lords, 2025). Further examination of the UK's 'Understanding Artificial Intelligence: Ethics and Safety' (UK Government, 2019) guidance and the UK's 'AI Regulation: A Pro-innovation Approach' (UK Government, 2023) policy Paper on AI regulation underscores the importance of accountability and governance in both publications (UK Government, 2023). In addition, integrating women into future

policy development is crucial for achieving inclusive and ethical AI development and regulation (Punia 2023; Roche *et al*., 2023; Anwar, 2024).

Beyond that, the UK Equality Act (2010) protects characteristics such as sex against direct and indirect discrimination. However, Krupiy (2024) argues that the government needs to address and update the Equality Act (2010) to better reflect current times and consider the impact of AI seriously. After carefully examining the Equality Act (2010), the researcher found that it currently does not address the potential biases that could arise from AI, such as bias in recruitment and upskilling, and algorithmic bias, as discussed in previous sections (Krupiy, 2024). As a result, the Equality Act (2010) may pose a challenge, as it cannot directly address bias originating from AI systems or platforms, which could consequently expose women to further risks (Krupiy, 2024). In addition, the absence of intersectionality in the Equality Act (2010) presents itself as a 'blind spot' as emphasised by Shahin (2020) and Behavioural Research UK (2024). AI systems lack the capability to recognise multiple levels of identity, including gender, race, social status, and disability, which could lead to unintentional bias being reinforced against individuals with intersectional identities (Bauer and Lizotte, 2021; López Belloso, 2022; Mickel, 2023; Ulnicane, 2024). Crenshaw (2019), who coined the term intersectionality, highlights how individuals, in this context, women, could experience discrimination due to the intersection of more than a single characteristic such as gender, r social class and disability (Runyan, 2018). In addition, this phenomenon is currently absent in the Equality Act (2010), which encourages further research into the legislation, AI's impact on women's experiences, discrimination and government action to update and

include AI bias in the legislation (Shahin, 2020; Collett *et al*., 2022; Drake *et al*., 2022; Campbell, 2025).

Examining the UK's AI ethical policies and strategies, the policy paper titled "Gender Equality at Every Stage: A Roadmap for Change (UK Government, 2019) and the Equality Act (2010), the researcher identified a notable policy disconnect, highlighting the silos in which these policies currently exist. This has the potential to create a gap, leaving AI's gender bias unaddressed or accounted for. A potential risk that Auld *et al*. (2022) and Qiang and Jing (2024) research advocates for harmonising and collaborating between sectors and government institutions to enhance current and future effectiveness in AI governance and ethics and ensure broader inclusion. This point will be further discussed in the discussion chapter.

### 2.7 Conclusion

The review of the literature has highlighted AI's presence and development in our world and daily life, promising an ethical future but failing to provide objectivity due to its historically inherited biases in algorithms and large data sets, as well as a lack of gender diversity during the development and implementation stages (Adam, 1998; Nesta, 2019; Hall and Ellis, 2023; Maliki and Naji, 2024; Luthra *et al*., 2025).

Ethics in AI, a growing challenge that cannot keep pace with the rapid development of the technology, poses significant risks, including the risk of discrimination, transparency issues, and safety concerns, calling for an urgent response (Borenstein and Howard, 2021; Zhou and Chen, 2023). Whilst policymakers and the UK government have considered the ethical challenges of AI, it is still unclear how women and gender-specific discrimination have been addressed or included in the

development of such policies and regulations (Parkhurst, 2017; Cath *et al*., 201; UK Government, 2023). The literature review revealed a disconnect between the UK's AI ethics guidance, titled 'Understanding Artificial Intelligence Ethics and Safety' (UK Government, 2019) and the policy paper titled "Gender Equality at Every Stage: A Roadmap for Change" (UK Government, 2019), followed by the apparent absence of AI's impact and intersectionality context in the Equality Act (2010).

In addition, the increased presence of AI in the workplace is posing both barriers and potential opportunities for women and their future development (Woźniak-Jęchorek *et al*., 2023; Bao *et al*., 2024). The research uncovered a low female representation of 19% in ICT roles in the UK (Collett *et al*., 2022). The bias in recruitment, exemplified by the Amazon algorithm, directly discriminated against female candidates, as highlighted by Dastin (2022). Moreover, the risk of job automation driven by AI is particularly concerning for women, with 70% falling into the high-risk category (Office for National Statistics, 2019; Rodríguez-Bustelo *et al*., 2020).

The evidence of the recurring challenges above highlights a fundamental systemic link, emphasising the importance of AI ethics and the direct impact their absence can have on gender equality. With AI directly affecting women's experiences at work, its apparent bias could create a long-lasting effect that may either challenge existing inequalities or reinforce them.

By thoroughly examining AI's impact on women in employment in the UK and its ethical challenges, this literature review addresses existing gaps by understanding the implications women face at work and emphasising the importance of appropriate policies that reflect AI's context and foster inclusive, evidence-based ethical frameworks.

The established gap by the researcher in Russell and Norvig's (2016, pp. 1-5) theory, and the proposed addition of thinking and acting ethically linked with a feminist caring approach and the conceptualised Model 1, can significantly improve future research and ensure that ethical implications are taken into account, especially concerning women in employment and the challenges they face based on AI's rapid development (Noddings, 1984, 2015; Held, 2005; Award *et al.*, 2018; Huang *et al*., 2019; Vetro *et al*., 2019; Mittelstadt, 2019; Goldsmith *et al*., 2020; Morley *et al*., 2020; Marwala, 2021; Pelau, *et al*., 2021; Beasley and Papadelos, 2024 and Felin and Holweg, 2024).

In summary, addressing AI discrimination in women's experiences at work highlights broader concerns about fairness and the future of gender equality, as well as the potential impact of this phenomenon on our society and economic growth. The absence of fair and inclusive development and ethical considerations poses a risk of AI continuing to deepen the inequality faced by working women in the UK, while neglecting the potential for the many opportunities of innovation and transformation it could bring as a competitive advantage to the UK's ambitious AI vision.

This highlights the main themes of the literature review, including the embedded historical bias in AI platforms and algorithms, the active and consistent approach to including women in AI development, the need to address AI tools, particularly in hiring, and ensure appropriate and thorough policy review and ethical considerations, which are often overlooked. These recurring examples will be discussed in more detail in the discussion, including the emerging themes from this literature review.

# 3. DISCUSSION OF RESULTS

## 3.1 Introduction

The presence of AI in the workplace highlights the challenges women face, particularly when trying to navigate existing forms of discrimination (Silva and Klasen, 2021; Safaei-Mehr and Heidarian Baei, 2024). The research in the literature review highlights the potential opportunities that arise from integrating AI within workplace dynamics (Barqawi and Al-Rashdan, 2025). However, upon closer examination, it appears to be a complex reality, offering efficiency and inclusivity on one hand, but ultimately, the evidence suggests that the technology is deeply rooted in historical biases and discrimination, which could potentially create new and heightened forms of workplace inequality for women in employment (Adam, 1998; Nesta, 2019; Cirillo *et al*., 2022; Hall and Ellis, 2023; Maliki and Naji, 2024; Luthra *et al*., 2025).

This topic is of critical importance in balancing the rapid progress of AI and ensuring it is considered and integrated within efforts to promote gender equality. To understand how this phenomenon challenges existing biases or intensifies them, this dissertation provides a thorough review of the historical background of AI, its limitations and possibilities, the ethical context, and the interconnected relationships between AI and the workplace within a UK context. In this chapter, the researcher will apply the enhanced Russell and Norvig (2016, pp. 1-5) AI framework and model developed in the literature review of this dissertation, which incorporates thinking and acting ethically as essential dimensions of understanding and developing AI in the context of feminist care ethics. The discussion chapter will explore the main emerging themes of this dissertation: the impact of historical biases, the ethical implications,

and the policy disconnect, which simultaneously affect the experiences of women in the workplace.

### 3.2 How the Challenges and Possibilities Women in Employment Face Are Impacted by Existing Historical Biases in AI's Evolution:

The challenges and possibilities faced by women in today's working environment are deeply rooted in the historical development of AI (Adam, 1998; Nesta, 2019; Cirillo *et al*., 2022; Hall and Ellis, 2023; Maliki and Naji, 2024; Luthra *et al*., 2025). The literature highlights a lack of female voices in a predominantly male-dominated environment, which contributed to the foundation blocks of AI being built, leading to a crucial limitation that cannot be resolved without addressing it through a more comprehensive lens (Orlikowski, 1992; Adams, 1998; O'Connor and Liu, 2024). As demonstrated by the research, the lack of female representation during the development and building stages of AI has embedded gender assumptions within AI's application and design, which significantly impact and underscore the experiences of women in the modern workplace (Cirillo *et al*., 2022; Hall and Ellis, 2023; Luthra *et al*., 2025). The reproduction of these biases through modern tools, such as recruitment and workforce upskilling platforms, underscores the inherent bias in algorithms, which remains a challenge that disadvantages women in the workplace (Fahse *et al*., 2021; Luthra *et al*., 2025).

Amazon's recruitment tool is an alarming example, and its algorithm demonstrates this challenge, highlighting that even well-intentioned AI tools and platforms designed to increase inclusivity and objectivity can unconsciously discriminate against women (Zuiderveen Borgesius, 2018). Despite the company's best efforts to

build a gender-neutral tool, the historical data sets and their training, extracted from male-dominated visions and experiences, led to an outcome that favoured and associated success with male-dominated career skills, actively discriminating against women (Dastin, 2022). The built-in AI algorithm directly excluded resumes containing the word 'women' or graduates from popular female colleges, emphasising the ability of proxy variables to install bias and directly discriminate against female candidates (Zuiderveen Borgesius, 2018; Dastin, 2022). This highlights a recurring pattern, exposing the inability of AI systems and platforms to offer real-life objectivity, and connects to Fahse *et al.*'s (2021) research, which emphasises that algorithms and data are often inaccurate and contain biases against women. Moreover, the four types of data-driven algorithm bias: representation, measurement, aggregation, and sampling bias, portray an endless circle by which women face persistent discrimination in the workplace (Fahse *et al*., 2021; Foka *et al*., 2025).

As highlighted in the literature, AI's lack of objectivity remains a persistent challenge, particularly when it is offered as a tool that mediates real-life biases (Hall and Ellis, 2023). The research of Bai *et al.* (2022) and Drage and Mackereth (2022) suggests that tools used for recruitment and driven by AI can significantly improve candidate experiences and provide assessments free of bias, therefore increasing the pool of opportunities for women and their development. In addition, Retorio's (2025) hiring tool promises a bias-free, 'unaware of gender, age, or ethnicity' intervention, claiming that the absence of special characteristics can ensure objectivity and fairness (Drage and Mackereth, 2022; Retorio, 2025). However, the extended literature contradicts this statement, highlighting how, in an effort to simplify and help, this method poses a higher risk of exclusion. As Hall and Ellis's (2023) research stresses, the goal of

neutrality is often predetermined by the social decisions embedded in the way the algorithms were designed in the first place. Therefore, the simple absence of gender in this context does not necessarily address the impact and layers of historically biased data that have been ingrained in algorithms; instead, it widens the gap, allowing gender discrimination to affect women and deepen social inequalities (Todorov, 2017). Whilst the literature findings declare AI as a means and route to meritocracy (Jasanoff and Kim, 2009; Drage and Mackereth, 2022), further analysis emphasises that merit has historically been associated with male career experiences, and it is not yet clear whether merit can improve equality for women, moreover studies show that it has the potential to increase gender inequality at work (Todorov, 2017; Harding, 2019, pp. 248-260; Mun and Kodama, 2022). Therefore, to conclude the findings in correlation to this objective, it is clear that historical biases in AI systems and algorithms have a profound effect on women's careers. The research and findings indicate an urgent need to include women in the development of AI, ensuring an inclusive and fair experience on future AI platforms and systems, and preventing such historical challenges from repeating themselves. A broad awareness is necessary to address the foundational biases within AI and move towards a gender-inclusive approach. In the next section, the researcher will dissect the findings in relation to the ethics of AI and its implications for practice.

### 3.3 The Growth of AI's Ethical Implications and How Bias Is Shaping Women's Experiences:

The literature indicates that there is a growing concern about the ethical challenges surrounding AI, especially in relation to the experiences of women (Schabasser, 2024). Although the research recognises the many benefits of AI as progressive

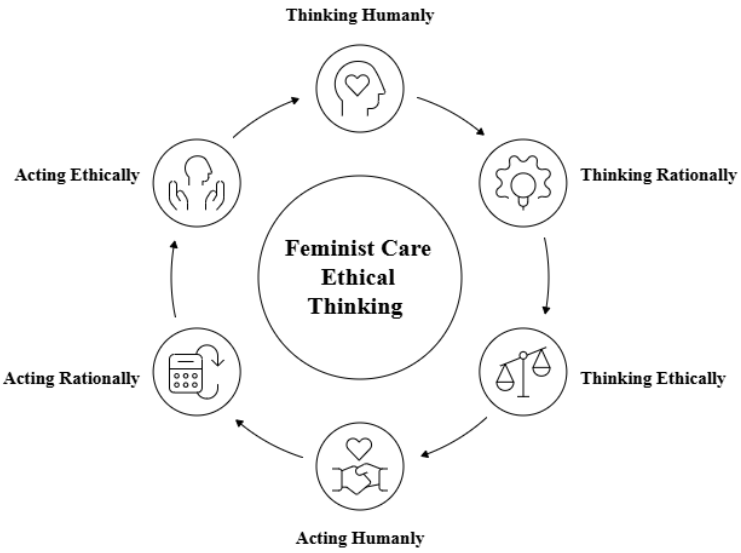
technology, it also highlights the ethical implications, such as discrimination, bias and fairness, particularly concerning and affecting women (Borenstein and Howard, 2021; Zhou and Chen, 2023; Shabasser, 2024). With AI's behaviour becoming increasingly unpredictable, many industries and governments worldwide have put the ethics of AI in the spotlight, with numerous policies and governance strategies being implemented. An example is the UK National AI Strategy (UK Government, 2021), which recognises the importance of ethics and transparency; however, the lack of emphasis on 'justice, fairness and equity', which is a framework established to mitigate and prevent discrimination in AI, poses further risks of reproducing inequality for women and widening the gap between policy and practice (Jobin *et al.,* 2019; European Parliament*,* 2020; Browne *et al.,* 2024; Law *et al*., 2025).

As discussed in the ethics section of the literature review, Russell and Norvig (2016, pp. 1-5) created a table which encompasses the theoretical discourse surrounding the historical understanding of AI. However, the outcome of the literature review identified that Russell and Norvig's (2016, pp. 1-5) approach failed to highlight the importance of the ethical component in the context of AI. While it is clear that thinking and acting humanely and thinking and acting rationally are key pillars of understanding AI, as proven by Bellman (1978), Haugeland (1985), Charniak and McDermott (1985), Kurzweil (1990), Rich and Knight (1991), Winston (1992), Nilsson (1998) and Poole *et al*. (1998). Consequently, Award *et al.*, (2018), Huang *et al*. (2019), Vetro *et al*. (2019), Mittelstadt (2019), Goldsmith *et al*. (2020), Morley *et al*. (2020), Marwala (2021), and Pelau *et al*. (2021) stress that to fully understand the implications and bias of AI, a further ethical component needs to be considered, such as acting and thinking ethically. To reinforce the findings from the literature and

establish a focus on the real-life experiences of women, the research brings in a feminist care ethics dimension. This ethical context enables the recognition and consideration of bias in women's dealings with AI, and it also underscores the critical need to consider women's lived experiences from an ethical perspective. In response to this and in accordance with the research of Noddings (1984, 2015), Held (2005), Award *et al*. (2018), Huang *et al*. (2019), Vetro *et al.* (2019), Mittelstadt, (2019), Goldsmith *et al*. (2020), Morley *et al*. (2020), Marwala (2021), Pelau *et al*. (2021), Beasley and Papadelos (2024), and Felin and Holweg (2024), the researcher has further enhanced Table 1 and the findings of Russel and Norvig (2016) to establish a connection between the theory and women's lived experiences by constructing an interconnected model, which could be seen on the following page. This model exemplifies the need to integrate feminist care ethics into the centre of AI ethics, raising awareness and critically evaluating the bias and its ongoing impact on women.

*Model 1: Cycle of Ethical Thinking and Acting*, based on the research presented *in Table 1.*

**Cycle of Ethical Thinking and Acting**




(Hall, 2025; *Adapted from* Russell and Norvig, 2016).

The current state of ethics, as discussed in the literature, focuses on human behaviour, highlighting two key theoretical ideas: agent-centred versus action-centred ethics (Foreman, 2014; Hursthouse and Pettigrove, 2018; Zhou and Chen, 2023). However, the lack of focus on AI and its algorithmic decisions highlights a potential gap in only recognising human behaviour as a key ethical contributor. The research of Dewey and Tufts (2019) defines ethics as the human and moral element forming an ethical action and decision; nevertheless, the suggestion that AI can logically make ethical and moral judgements has crucial complications due to its complex nature and lack of societal awareness (Moor, 2006; Floridi, 2023). Therefore, in response to the literature and this objective, it is clear that further research is needed and an important context to redefine the definition of AI ethics and include an ethical framework,

incorporating the suggestions in Table 1 and Model 1, more importantly, the feminist care ethics and ensuring a level of accountability, fairness and intersectionality (Moor, 2006; Scheutz, 2017; Hagendorff, 2020; Giovanola and Tiribelli, 2023; Sargiotis, 2024). This will actively help address the discrimination faced by women in the workplace and prevent further challenges in the employment context. The researcher will address the policy divide and the impact of AI on women in employment in the next section.

### 3.4 The Emergence of Policy Disconnect and the Persistence of Inequality for Women in AI-Driven Workplaces:

Workplace discrimination, challenges to advancing in the career ladder, and the invisible glass ceiling are persistent issues for women in the workplace, as noted in the literature (Moscatelli *et al*., 2020; EIGE, 2023; Bao *et al*., 2024; Moscatelli *et al*., 2025). AI introduces an additional layer of complexity to the UK workplace, highlighting how historical gender biases persist and must now interact with the historical biases inherent in this emerging technology. As some of the literature suggests, AI is seen as a tool promising career advancement, appropriate upskilling and fair hiring and evaluation processes; however, the reality in practice is substantially complex, highlighting the many contradictions of the technology when it comes to achieving meaningful gender equality (Bai *et al*., 2022; Cirillo *et al*., 2022; Drage and Mackereth, 2022; Kassir *et al*., 2022; Hall and Ellis, 2023; Avery *et al*., 2024; Luthra *et al*., 2025).

As emphasised in the literature, job automation is another concerning AI outcome that offers promising efficiency and growth; however, it may have negative implications

due to its impact on specific functions and occupations, which are predominantly held by women (Au-Yong-Oliveira *et al*., 2019; Frenette and Frank, 2020; Engana-delSol *et al*., 2022). In the UK, statistics show that 70% of women occupy roles at high risk of automation (Office for National Statistics, 2019; Rodríguez-Bustelo *et al*., 2020). The Office for National Statistics (2023) also recognises the urgency of further research in this area to gain a deeper understanding of the labour landscape. This limitation also correlates with the challenge of upskilling. The literature highlights the vast interest women express in AI upskilling; however, the lack of support from employers and a policy perspective emphasises the potential risks of a future lack of representation in the governance of AI (Abuwatfa *et al*., 2021; SkillSoft, 2024; Barqawi and Al-Rashdan, 2025; Campbell, 2025). Additionally, this point demonstrates the policy gap and disconnect; while the UK government's strategies and efforts emphasise growth and innovation, they systematically fail to recognise the importance of advancing gender-specific skills (Collett *et. al*., 2022; Campbell, 2025). The critical need for a collaborative policy and governance approach will address the current AI-driven discrimination against women in the workplace.

Building on the previous point about the importance of collaboration in relation to policy and governance, a concerning pattern is emerging from the literature: a disconnect between gender equality strategies and the integration of AI into existing policies and governance structures. Whilst the UK policy paper titled "Gender Equality at Every Stage: A Roadmap for Change" (UK Government, 2019) addresses eight critical challenges faced by women related to gender inequality, the policy fails to address or incorporate AI as a concept, particularly the discrimination which could arise from algorithmic bias and historically biased data (UK Government, 2019).

Furthermore, strategies and policies such as the National AI Strategy (UK Government 2021), the 'Understanding Artificial Intelligence: Ethics and Safety' (UK Government, 2019) guidance and the 'Artificial Intelligence (Regulation) Bill' (House of Lords, 2025) focus on ethics, transparency and overall growth and innovation of AI; however, they systematically exclude any gender related context, such as automation or bias. In addition, as highlighted in the literature review, the Equality Act (2010) also fails to adequately recognise AI's potential for discrimination (Krupiy, 2024). It lacks an intersectional lens, which creates a gap and an opportunity for bias and inequality to continue as obstacles for working women (Shahin, 2020; Behavioural Research UK, 2024). The research and findings indicate an urgent need to address the identified patterns in this research. The siloed approach in policy and governance prevents the establishment of a truly inclusive and accountable framework for AI. Therefore, it is crucial to establish harmony between policymakers responsible for gender equality and government bodies accountable for the fair and ethical development of AI (Punia, 2023; Roche *et al*., 2023; Anwar, 2024).

### 3.5 Conclusion

Built with good intentions, AI has the potential to revolutionise the working environment for women; however, the overall findings suggest that whilst on paper this is possible, in practice, AI poses many risks, and it is clear from the literature that instead of advancing gender equality, it is contributing to the overall persistent discrimination against women in the workplace (Dwivedi *et al*., 2021; Feng and Shah, 2022; Gorska and Jemielniak, 2023).

To fully understand its implications and ensure an inclusive future and prosperity for this group, the governance and policy bodies of AI highlight the critical need for the UK government to consider policy harmonisation and collaboration between gender-related initiatives and AI integration into existing policies aimed at protecting underrepresented groups (Punia, 2023; Roche *et al*., 2023; Anwar, 2024). Alongside the UK government, these bodies need to work in sync while also addressing the urgent need to raise adequate awareness around the pre-existing biases in historical data sets and algorithms, which continue to influence career outcomes for women (Hall and Ellis, 2023; Punia, 2023; Roche *et al*., 2023). It is clear that a technological approach alone is insufficient, and real-life experiences and gender considerations must be embedded into AI ethical frameworks to ensure a transparent and non-discriminatory experience for women in employment. Furthermore, female voices need to be included in the development of these policies to ensure fair representation and prevent past mistakes, while also contributing to a more inclusive and sustainable advancement and integration of AI (Punia, 2023; Roche *et al*., 2023; Anwar, 2024).

## 4. CONCLUSION AND RECOMMENDATIONS

AI is critically transforming women's careers, and whilst it promises many benefits to their development, as showcased by this research, the implications are far greater (Collett *et al*., 2022; Bao *et al*., 2024). This research aimed to explore the ways in which AI's development in the workplace can positively influence or hinder women's experiences at work in the UK landscape. By analysing and critiquing existing peer-reviewed literature, the researcher examined the historical biases existing in AI, its ethical challenges and complexities and the impact on women's careers. The research has clearly stated that women continue to face layers of persistent discrimination at work, from the invisible glass ceiling to underrepresentation in leadership positions, and AI has the potential to reinforce rather than eliminate these inequalities (Lucifora and Vigani, 2022; Taparia and Lenka, 2022; EIGE, 2023; Moscatelli *et al*., 2025).

Firstly, the male-dominated evolution of AI has created a foundational bias that is inherited in algorithms and datasets, which were historically built on the ideology of male intelligence (Orlikowski, 1992; Adams, 1998; O'Connor and Liu, 2024). The homogeneous environment, where AI was left to develop, has long been a space without female voices and expertise, leading to the present software's continuous impact on women and reinforcement of historical discrimination (Orlikowski, 1992; Adams, 1998; O'Connor and Liu, 2024). The Amazon recruitment tool directly discriminated against female candidates, highlighting the inherited historical bias within algorithms and their inability to be objective (Zuiderveen Borgesius 2018; Dastin, 2022). Furthermore, Retorio (2025) exemplified how, in an effort to create an unbiased tool by removing characteristics such as gender and race, it created more complexity by leaving a potential gap that could exclude women due to the

historically ingrained biases unaddressed in the algorithms (Drage and Mackereth, 2022; Hall and Ellis, 2023; Retorio, 2025). Meritocracy in AI remains complex and highlights predominantly male experiences. Merit is not yet fully recognised as a way to achieve gender equality; instead, research emphasises how it could further deepen inequality for women in the workplace (Todorov, 2017; Harding, 2019, pp. 248-260; Mun and Kodama, 2022).

Secondly, ethical concerns continue to be a priority for many government bodies and employers, who have placed an active focus on this topic. As a result, a series of strategies and frameworks have been introduced, such as the UK's National AI Strategy (UK Government, 2021), which focuses on transparency and ethics. However, upon closer examination of the details, the lack of gender-specific interventions and recognition underscores the importance and requirement of an active focus on equity and fairness as a framework for recognising and mitigating potential biases and risks of further discrimination against women (Punia, 2023; Roche *et al*., 2023; Anwar, 2024).

Historical ethical frameworks need to be redefined, as evident in the findings. Russell and Norvig's (2016, pp. 1-5) AI framework was built to highlight AI's way of thinking and acting; however, the researcher recognised a significant gap, emphasising and further developing their framework to include and consider ethical thinking and acting. Feminist care ethics was introduced to ensure that women's real-life experiences are recognised, particularly in how bias and discrimination influence and shape their career journeys. (Moor, 2006; Scheutz, 2017; Hagendorff, 2020; Giovanola and Tiribelli, 2023; Sargiotis, 2024).

Lastly, job automation is predominantly impacting women, with 70% of roles in the UK being at risk of automation, mainly held by women (Office for National Statistics, 2019; Rodríguez-Bustelo *et al*., 2020). While many women show interest in upskilling, it is undermined by the lack of sufficient employer support, which can result in the continued exclusion of this group in the AI field (Abuwatfa *et al*., 2021; SkillSoft, 2024; Barqawi and Al-Rashdan, 2025; Campbell, 2025). Present UK policies, such as the 'Gender Equality at Every Stage: Roadmap for Change' (UK Government, 2019) and the Equality Act (2010), have not adequately considered or incorporated the impact of AI, resulting in siloed approaches that deepen the challenges faced by women (Shahin, 2020; Behavioural Research UK, 2024; Krupiy, 2024).

In summary, this study highlighted the impact AI has on the working lives of women in the UK and how this technology can support women's development or hinder their progress. Historical biases are playing a key role in the way today's systems are operating and reinforcing existing discrimination against women. Ethical frameworks remain incomplete without a feminist context, and policymakers must integrate AI into existing and future policy. Overall awareness, inclusive development and timely policy updates are crucial. Therefore, to address those challenges, the researcher proposes the following five recommendations to address AI's impact on the lives of working women:

***Recommendation 1:*** *Government bodies and organisations must ensure women's active participation in the development and design of AI platforms and software, to allow for an equitable and unbiased approach.*

***Recommendation 2:*** *Mandatory bias-awareness systems and training should be in place during the development and testing of any new AI software, particularly for platforms used in the workplace.*

***Recommendation 3:*** *Governments and employers must redefine the existing AI ethical framework and the meaning of ethics in relation to AI, explicitly integrating feminist care ethics to ensure a focus on the real-life experiences faced by women in the workplace.*

***Recommendation 4:*** *UK Government to introduce a funded UK-wide AI Upskilling Programme for Women*

***Recommendation 5:*** *UK Government to integrate AI's impact into existing policy protecting underrepresented groups and to ensure gender equality contexts are incorporated within wider policies and strategies.*

The literature emphasises that the historical biases present in AI algorithms and datasets continue to disadvantage women in the workplace, and women's presence in policy development is needed to address gender discrimination and raise awareness of AI's discrimination, with strategies in place to upskill women and consider ethical and real-life experiences to address AI's impact. Furthermore, due to the public and government discourse surrounding AI's rapid advancement, it is key to consider that at the time of writing this dissertation, only current secondary research and relevant theoretical findings were taken into consideration. However, as stated, since completing this dissertation, the new 'Tech Prosperity Deal' has been signed between the US and UK governments, focusing on technological advancement, with AI at the centre of this agreement (Department for Science, Innovation and Technology, 2025). Therefore, this has raised an urgent need for an ongoing review and empirical research to take place to ensure a timely and evidence-based response to AI's rapid development and potential negative impact on women in employment is addressed.

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# 6. APPENDICES

## 6.1 Appendix 1: Ethics Form

### APPLICATION FOR ETHICAL APPROVAL

| |
|---|
| **RESEARCH STUDENTS**<br>This form is to be completed by the student within **SIX** months for full-time students and **TWELVE** months for part time students, after the commencement of the research degree or following progression to Part Two of your course.<br><br>Once complete, submit this form via the ***MyTSD Doctoral College Portal*** at (https://mytsd.uwtsd.ac.uk).<br><br>This document is also available in Welsh. |
| **RESEARCH STAFF ONLY**<br>All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk , with the title 'Ethical Approval' followed by your name. |
| **STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES**<br>should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader. |

**In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.**

The University follows the OECD Frascati manual definition of **research activity**: "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications". As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the "principal researcher".

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

**Please read the notes for guidance before completing ALL sections of the form.**

**This form must be completed and approved prior to undertaking any research activity.** Please see Checklist for details of process for different categories of application.

**SECTION B: Approval for Research Activity**

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Has the research activity received approval in principle?<br>(please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual) | | **YES** | ☒ | **NO** | ☐ |
| | | | | | ***Date*** | |
| 2 | If Yes, please indicate source of approval (and date where known): ***Approval in principle must be obtained from the relevant source prior to seeking ethical approval*** | Research Degrees Committee | | ☐ | | |
| | | Institute Research Committee | | ☐ | | |
| | | Other (write in) Supervisor Sharon Cole | | ☒ | | |

**SECTION C: Internal and External Ethical Guidance Materials**

| | Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, location-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines. You may add rows to this table if needed. | |
|---|---|---|
| 1 | **UWTSD Research Ethics & Integrity Code of Practice** | ☒ |
| 2 | **UWTSD Research Data Management Policy** | ☒ |
| 3 | British Sociological Association – Ethics Guidelines | ☒ |

**SECTION D: External Collaborative Research Activity**

If there are external collaborators then you should gain consent from the contact persons to share their personal data with the university. If there are no external collaborators then leave this section blank and continue to section E.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Institution | Not applicable | | | | |
| 2 | Contact person name | Not applicable | | | | |
| 3 | Contact person e-mail address | Not applicable | | | | |
| 4 | Is your research externally funded? | | **YES** | ☐ | **NO** | ☐ |
| 5 | Are you in receipt of a KESS scholarship? | | **YES** | ☐ | **NO** | ☐ |
| 6 | Are you specifically employed to undertake this research in either a paid or voluntary capacity? | Voluntary | **YES** | ☐ | **NO** | ☐ |
| 7 | | Employed | **YES** | ☐ | **NO** | ☐ |
| 8 | Is the research being undertaken within an existing UWTSD Athrofa Professional Learning Partnership (APLP)? | If YES then the permission question below does not need to be answered. | **YES** | ☐ | **NO** | ☐ |
| 9 | Has permission to undertake the | (If YES attach | **YES** | ☐ | **NO** | ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| | research has been provided by the partner organisation? | copy)<br>If NO the application cannot continue | | | | |

**Where research activity is carried out in collaboration with an external organisation**

| | | | | | |
|---|---|---|---|---|---|
| 10 | Does this organisation have its own ethics approval system? | **YES** | ☐ | **NO** | ☐ |
| | If Yes, please attach a copy of any final approval (or interim approval) from the organisation (this may be a copy of an email if appropriate). | | | | |

**SECTION E: Details of Research Activity**

| | | | | |
|---|---|---|---|---|
| 1 | Indicative title: | AI, Ethics and Women in Employment: The Impact on Existing Biases | | |
| 2 | Proposed start date: | 31/09/2024 | Proposed end date: | 31/09/2025 |
| | **Introduction to the Research (maximum 300 words per section)**<br>**Ensure that you write for a <u>Non-Specialist Audience</u> when outlining your response to the points below:**<br>*Purpose of Research Activity*<br>*Proposed Research Question*<br>*Aims of Research Activity*<br>*Objectives of Research Activity*<br><br>Demonstrate, briefly, how **<u>Existing Research</u>** has informed the proposed activity and explain<br>*What the research activity will add to the body of knowledge*<br>*How it addresses an area of importance.* | | | |
| 3 | **Purpose of Research Activity**<br><br>This research activity aims to explore the implications of artificial intelligence's (AI) hasty development, how it impacts gender biases, and working women's experiences in the UK. By exploring how AI can challenge or deepen gender inequality, the researcher will portray potential challenges and opportunities that will help inform better policy and practice in the UK and beyond.<br><br>Research is showing that rapid technological advancement is contributing to the persistent existence of bias (de Graaf & Allouch, 2018; Haring *et al*., 2018; Kuchenbrandt *et al*., 2013). Jobin *et al*. (2019) highlight the importance of recognising how accidental transfer of human biases can impact AI's design.<br><br>Artificial intelligence's data sets and algorithms depend on a vast amount of data, which often showcases existing biases and a lack of transparency (Daneshjou *et al*., 2021; Zajko, 2022). Furthermore, Wellner (2020) argues that AI's algorithms may be gender biased. Additionally, Weissmann (2018) | | | |

describes an AI recruitment tool used by Amazon that directly discriminates against women. This raises concerns related to the equality and fairness for women in the workplace (Ramos, 2022).

Furthermore, the overall automation of AI can lead to job displacement and administrative roles no longer existing in the future (Yong-Oliviera *et al*. 2019), (PwC, 2021). Acknowledging that women are concentrated in administrative and customer service sectors could directly impact their future employment (Peetz and Murray, 2019).

To address these emerging societal challenges around AI's development, the establishment of comprehensive and inclusive policies and guidelines will be crucial (Alvarez *et al*., 2024). These policies and guidelines will need to focus on AI ethics, address existing biases, and allow fairness of opportunity for both men and women (Ramos, 2022).

This research will contribute to the future development of AI's ethical policies and to a better understanding of the challenges and opportunities faced by working women in the UK.

**Reference List:**

Alvarez, A., Caliskan, A., Crockett, M.J. *et al.* (2024). Science Communication with Generative AI. *National Humanitarian Behaviour* Vol. 8, pp. 625–627. Available at: https://doi.org/10.1038/s41562-024-01846-3.

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Daneshjou R, Smith MP, Sun MD, Rotemberg V., Zou J. (2021). Lack of Transparency and Potential Bias in Artificial Intelligence Data Sets and Algorithms: A Scoping Review. *JAMA Dermatol.* Vol. 157: Iss.11, pp.1362–1369. Available at: doi:10.1001/jamadermatol.2021.3129.

de Graaf MM, Ben Allouch S, van Dijk JA. (2018). A Phased Framework for Long-term User Acceptance of Interactive Technology in Domestic Environments. *New Media Sociology.* Vol. 20: Iss. 7, pp. 2582-2603. Available at: doi: 10.1177/1461444817727264.

Jobin, A., Ienca, M. & Vayena, E. (2019). The Global Landscape of AI Ethics Guidelines. *National Machine Intelligence* Vol. 1, pp. 389–399. Available at: https://doi.org/10.1038/s42256-019-0088-2.

K. S. Haring, K. Watanabe, M. Velonaki, C. C. Tossell and V. Finomore. (2018). "FFAB—The Form Function Attribution Bias in Human–Robot Interaction," in IEEE Transactions on Cognitive and Developmental Systems, Vol. 10: Iss. 4, pp. 843-851.

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Peetz, D., & Murray, G. (2019). Women's Employment, Segregation and Skills in the Future of Work. *Labour and Industry*, Vol.29: Iss.1, pp. 132–148.
Available at: https://doi.org/10.1080/10301763.2019.1565294.

PwC (2021). *Sizing the Prize, PwC's Global Artificial Intelligence Study: Exploiting the AI revolution*
Available at: PwC's Global Artificial Intelligence Study | PwC (Accessed: 30th October 2024).

Ramos, G. (2022). "A.I.'s Impact on Jobs, Skills, and the Future of Work: The UNESCO Perspective on Key Policy Issues and the Ethical Debate," *New England Journal of Public Policy*: Vol. 34: Iss.1, Article 3.
Available at: https://scholarworks.umb.edu/nejpp/vol34/iss1/3.

Weissmann, J. (2018). *Amazon Created a Hiring Tool Using AI.*
Available at: Amazon's AI hiring tool discriminated against women. (Accessed: 30th October 2024).

Wellner, G. (2020). When AI Is Gender-biased. *Humana Mente* Vol. 13, pp. 37.
Available at: When AI Is Gender-biased. – DOAJ.

Zajko, M. (2022). Artificial intelligence, Algorithms, and Social Inequality: Sociological Contributions to Contemporary Debates. *Sociology Compass*, Vol. 16.
Available at: https://doi.org/10.1111/soc4.12962.

(this box should expand as you type)

| | |
|---|---|
| 4 | **Research Question**<br><br>AI's Ethics and Women in Employment: How does AI's rapid development and |

| | |
|---|---|
| | deployment maintain or challenge gender biases, and what are the implications for women in employment in the UK?<br><br>(this box should expand as you type) |
| 5 | **Aims of Research Activity**<br><br>The aim of this research is to explore how the rapid development of AI technologies can impact gender-related biases concerning women in employment in the UK. This research study will focus on women's experiences at work, informed by challenges in AI ethics, workplace inequality, and the unique impacts of AI on women.<br><br>(this box should expand as you type) |
| 6 | **Objectives of Research Activity**<br><br>• To examine AI's historical progression and its challenges and possibilities in connection to women in employment.<br><br>• To investigate the understanding of the ethical implications of AI in connection with bias and discrimination against women.<br><br>• To critically explore the persistence of gender inequality in the workplace in relation to women's career prospects shaped by AI.<br><br>(this box should expand as you type) |
| | **Proposed methods (maximum 600 words)**<br><br>Provide a brief summary of all the methods that **may** be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed. You do not need to justify the methods here, but should instead describe how you intend to collect the data necessary for you to complete your project. |
| 7 | This is an extended literature review. Current literature in the field, including a diverse range of peer-observation journals, books, and UK legislation and policy, will inform the review. The researcher will incorporate the UK AI Strategy and Gender Equality at Every Stage: A Roadmap for Change policy paper (UK Government, 2019), examining key themes to identify how contemporary AI initiatives and frameworks shape the career pathways and professional development of working women in the UK. Additionally, the researcher will examine the UK Equality Act to assess how compliance with legal obligations influences the fair and inclusive adoption of AI, ensuing recommendations and insights that prioritise gender equality and support women's professional growth. By integrating these sources, the extended literature review will present a holistic view of the current landscape, aligning emerging academic discourse with evolving regulatory standards, ethical considerations, and practical realities facing women in the workplace.<br><br>(this box should expand as you type) |
| | **Location of research activity** |

| | |
|---|---|
| | Identify all locations where research activity will take place. |
| 8 | Place of residence and University. Desk research – home based.<br>(this box should expand as you type) |
| | **Research activity outside of the UK**<br>If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural and/or legal sensitivities or vulnerabilities of participants. If you live in the country where you will do the research then please state this. |
| 9 | Not Applicable<br>*(this box should expand as you type)* |

| | | | |
|---|---|---|---|
| 10 | Use of documentation not in the public domain: Are any documents **NOT** publicly available? | **NO** | ☒ |
| | | **YES** | ☐ |
| 11 | If Yes, please provide details here of how you will gain access to specific documentation that is not in the public domain and that this is in accordance with the current data protection law of the country in question and that of England and Wales.<br>*(this box should expand as you type)* | | |

| | **Does your research relate to one or more of the seven aims of the Well-being of Future Generations (Wales) Act 2015?** | **YES** | **NO** |
|---|---|---|---|
| 12 | A prosperous Wales | ☐ | ☒ |
| 13 | A resilient Wales | ☒ | ☐ |
| 14 | A healthier Wales | ☐ | ☒ |
| 15 | A more equal Wales | ☒ | ☐ |
| 16 | A Wales of cohesive communities | ☒ | ☐ |
| 17 | A Wales of vibrant culture and thriving Welsh language | ☐ | ☒ |
| 18 | A globally responsible Wales | ☒ | ☐ |
| 19 | If YES to any of the above, please give details: | | |
| | (this box should expand as you type) | | |

**SECTION F: Scope of Research Activity**

| | **Will the research activity include:** | **YES** | **NO** |
|---|---|---|---|
| 1 | Use of a questionnaire or similar research instrument? | ☐ | ☒ |
| 2 | Use of interviews? | ☐ | ☒ |
| 3 | Use of focus groups? | ☐ | ☒ |
| 4 | Use of participant diaries? | ☐ | ☒ |
| 5 | Use of video or audio recording? | ☐ | ☒ |
| 6 | Use of computer-generated log files? | ☐ | ☒ |
| 7 | Participant observation with their knowledge? | ☐ | ☒ |
| 8 | Participant observation without their knowledge? | ☐ | ☒ |
| 9 | Access to personal or confidential information without the participants' specific consent? | ☐ | ☒ |
| 10 | Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive? | ☐ | ☒ |
| 11 | Performance of any acts which may cause embarrassment or affect self-esteem? | ☐ | ☒ |
| 12 | Investigation of participants involved in illegal activities? | ☐ | ☒ |
| 13 | Use of procedures that involve deception? | ☐ | ☒ |
| 14 | Administration of any substance, agent or placebo? | ☐ | ☒ |
| 15 | Working with live vertebrate animals? | ☐ | ☒ |
| 16 | Procedures that may have a negative impact on the environment? | ☐ | ☒ |
| 17 | Other primary data collection methods. Please indicate the type of data collection method(s) below. | | |
| | Details of any other primary data collection method:<br><br>(this box should expand as you type) | ☐ | ☒ |

If NO to every question, then the research activity is (ethically) low risk and **may** be exempt from **some** of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

**SECTION G: Intended Participants**

If there are no participants then do not complete this section, but go directly to section H.

| | **Who are the intended participants:** | **YES** | **NO** |
|---|---|---|---|
| 1 | Students or staff at the University? | ☐ | ☒ |

| | | | |
|---|---|---|---|
| 2 | Adults (over the age of 18 and competent to give consent)? | ☐ | ☒ |
| 3 | Vulnerable adults? | ☐ | ☒ |
| 4 | Children and Young People under the age of 18? (Consent from Parent, Carer or Guardian will be required) | ☐ | ☒ |
| 5 | Prisoners? | ☐ | ☒ |
| 6 | Young offenders? | ☐ | ☒ |
| 7 | Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper? | ☐ | ☒ |
| 8 | People engaged in illegal activities? | ☐ | ☒ |
| 9 | Others. Please indicate the participants below, and specifically any group who may be unable to give consent. | ☐ | ☒ |
| | Details of any other participant groups:<br>Not applicable<br><br>(this box should expand as you type) | | |

| | **Participant numbers and source**<br>Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited? | |
|---|---|---|
| 10 | How many participants are expected? | Not applicable<br>*(this box should expand as you type)* |
| 11 | Who will the participants be? | Not applicable<br><br>Not applicable<br>*(this box should expand as you type)* |
| 12 | How will you identify the participants? | Not applicable<br>*(this box should expand as you type)* |

| | **Information for participants:** | **YES** | **NO** | **N/A** |
|---|---|---|---|---|
| 13 | Will you describe the main research procedures to participants in advance, so that they are informed about what to expect? | ☐ | ☐ | ☒ |
| 14 | Will you tell participants that their participation is voluntary? | ☐ | ☐ | ☒ |
| 15 | Will you obtain written consent for participation? | ☐ | ☐ | ☒ |
| 16 | Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)? | ☐ | ☐ | ☒ |

| | | | | |
|---|---|---|---|---|
| 17 | If the research is observational, will you ask participants for their consent to being observed? | ☐ | ☐ | ☒ |
| 18 | Will you tell participants that they may withdraw from the research at any time and for any reason? | ☐ | ☐ | ☒ |
| 19 | With questionnaires, will you give participants the option of omitting questions they do not want to answer? | ☐ | ☐ | ☒ |
| 20 | Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs? | ☐ | ☐ | ☒ |
| 21 | Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken? | ☐ | ☐ | ☒ |
| 22 | If NO to any of above questions, please give an explanation | | | |
| | *(this box should expand as you type)* | | | |

| | **Information for participants:** | **YES** | **NO** | **N/A** |
|---|---|---|---|---|
| 24 | Will participants be paid? | ☐ | ☐ | ☒ |
| 25 | Is specialist electrical or other equipment to be used with participants? | ☐ | ☐ | ☒ |
| 26 | Are there any financial or other interests to the investigator or University arising from this study? | ☐ | ☐ | ☒ |
| 27 | Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims? | ☐ | ☐ | ☒ |
| 28 | If YES to any question, please provide full details | | | |
| | *(this box should expand as you type)* | | | |

**SECTION H: Anticipated Risks**

| | | | |
|---|---|---|---|
| | Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them.<br><br>If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form. | | |
| **1** | Full risk assessment completed and appended? | Yes | ☐ |
| | | No | ☒ |
| 2 | **Risks to participants**<br>For example: sector-specific health & safety, emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information | | |
| | Risk to participants:<br><br>Not applicable<br>*(this box should expand as you type)* | *How you will mitigate the risk to participants:*<br><br>*(this box should expand as you type)* | |

| | | |
|---|---|---|
| 3 | If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities | |
| | *(this box should expand as you type)* | |
| 4 | **Risks to the investigator**<br>For example: personal health & safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest | |
| | Risk to the investigator:<br><br>Well-being risk related to being a woman in a professional environment, some of the findings can cause emotional distress.<br><br>Ergonomic risk by prolonged sitting<br><br>*(this box should expand as you type)* | *How you will mitigate the risk to the investigator:*<br><br>By being professional and forming an unbiased opinion based on existing research.<br>Also, by being kind to myself.<br><br>The researcher will take regular breaks and also have a special ergonomic chair and blue light screens to support this. |
| 5 | **University/institutional risks**<br>For example: adverse publicity, financial loss, data protection | |
| | Risk to the University:<br><br>Reputational risk to the University<br><br>*(this box should expand as you type)* | *How you will mitigate the risk to the University:*<br><br>I commit to using public, approved and reliable peer-reviewed journals and books to conduct and complete my research without causing the university any reputational damage.<br><br>*(this box should expand as you type)* |
| 6 | **Environmental risks**<br>For example: accidental spillage of pollutants, damage to local ecosystems | |
| | Risk to the environment:<br><br>There is not much risk since I will conduct the research at home; however, perhaps some printing could be considered.<br><br>*(this box should expand as you type)* | *How you will mitigate the risk to environment:*<br><br>I will stick to using digital materials and minimise my impact on the environment by avoiding printing.<br>*(this box should expand as you type)* |

| | **Disclosure and Barring Service** | | | |
|---|---|---|---|---|
| | If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants. | **YES** | **NO** | **N/A** |
| 7 | Does your research require you to hold a current DBS Certificate? | ☐ | ☐ | ☒ |

| | | |
|---|---|---|
| 8 | If YES, please give the certificate number. If the certificate number is not available please write "Pending"; in this case any ethical approval will be subject to providing the appropriate certificate number. | |

**SECTION I: Feedback, Consent and Confidentiality**

| | |
|---|---|
| 1 | **Feedback**<br>What de-briefing and feedback will be provided to participants, how will this be done and when? |
| | Not applicable<br><br>*(this box should expand as you type)* |
| 2 | **Informed consent**<br>Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded in accordance with prevailing data protection legislation. |
| | Not applicable<br><br>*(this box should expand as you type)* |
| 3 | **Confidentiality / Anonymity**<br>Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case. |
| | Not applicable<br><br>*(this box should expand as you type)* |

**SECTION J: Data Protection and Storage**

| | | | |
|---|---|---|---|
| | Does the research activity involve personal data (as defined by the General Data Protection Regulation 2016 "GDPR" and the Data Protection Act 2018 "DPA")? | **YES** | **NO** |
| 1 | ***"Personal data"*** *means any information relating to an identified or identifiable natural person ('data subject'). An identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person. Any video or audio recordings of participants is considered to be personal data.* | ☐ | ☑ |
| | If YES, provide a description of the data and explain why this data needs to be collected: | | |
| 2 | *(this box should expand as you type)* | | |
| | Does it involve special category data (as defined by the GDPR)? | **YES** | **NO** |

| | | | |
|---|---|---|---|
| **3** | ***"Special category data"*** *means sensitive personal data consisting of information as to the data subjects' –*<br>*(a) racial or ethnic origin,*<br>*(b) political opinions,*<br>*(c ) religious beliefs or other beliefs of a similar nature,*<br>*(d) membership of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992),*<br>*(e) physical or mental health or condition,*<br>*(f) sexual life,*<br>*(g) genetics,*<br>*(h) biometric data (as used for ID purposes),* | ☐ | ☑ |
| | If YES, provide a description of the special category data and explain why this data needs to be collected: | | |
| 4 | *(this box should expand as you type)* | | |

| | **Will data from the research activity (collected data, drafts of the thesis, or materials for publication) be stored in any of the following ways?** | **YES** | **NO** |
|---|---|---|---|
| 5 | Manual files (i.e. in paper form)? | ☐ | ☒ |
| 6 | University computers? | ☐ | ☒ |
| 7 | Private company computers? | ☐ | ☐ |
| 8 | Home or other personal computers? | ☒ | ☐ |
| 9 | Laptop computers/ CDs/ Portable disk-drives/ memory sticks? | ☐ | ☒ |
| 10 | "Cloud" storage or websites? | ☒ | ☐ |
| 11 | Other – specify: | ☐ | ☐ |
| 12 | For all stored data, explain the measures in place to ensure the security of the data collected, data confidentiality, including details of backup procedures, password protection, encryption, anonymisation and pseudonymisation: | | |
| | Data and resources will be saved on the University OneDrive system; I will avoid storing any resources on my personal device. The journals and books being used are already part of the public domain.<br><br>*(this box should expand as you type)* | | |

| | **Data Protection** | | |
|---|---|---|---|
| | Will the research activity involve any of the following activities: | **YES** | **NO** |
| 13 | Electronic transfer of data in any form? | ☒ | ☐ |
| 14 | Sharing of data with others at the University outside of the immediate research team? | ☐ | ☒ |
| 15 | Sharing of data with other organisations? | ☐ | ☒ |
| 16 | Export of data outside the UK or importing of data from outside the UK? | ☐ | ☒ |
| 17 | Use of personal addresses, postcodes, faxes, emails or telephone numbers? | ☐ | ☒ |

| | | | |
|---|---|---|---|
| 18 | Publication of data that might allow identification of individuals? | ☐ | ☒ |
| 19 | Use of data management system? | ☐ | ☒ |
| 20 | Data archiving? | ☐ | ☒ |
| 21 | If YES to any question, please provide full details, explaining how this will be conducted in accordance with the GDPR and Data Protection Act (2018) (and any international equivalents, where appropriate): | | |
| | Data will be transferred between student and Supervisor using password protected University emails<br><br>*(this box should expand as you type)* | | |
| 22 | List all who will have access to the data generated by the research activity: | | |
| | Student Researcher<br>Supervisor<br>Second Marker<br>External Examiner<br><br>*(this box should expand as you type)* | | |
| 23 | List who will have control of, and act as custodian(s) for, data generated by the research activity: | | |
| | Student Researcher<br>Supervisor<br><br>*(this box should expand as you type)* | | |
| 24 | Give details of data storage arrangements, including security measures in place to protect the data, where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not. | | |
| | Data and resources will be saved on the University OneDrive system; I will avoid storing any resources on my personal device. The journals and books being used are already part of the public domain; therefore, there's no risk there. The folders will be deleted after the end of this dissertation project.<br><br>*(this box should expand as you type)* | | |
| 25 | Please indicate if your data will be stored in the UWTSD Research Data Repository (see https://researchdata.uwtsd.ac.uk/ ). If so please explain. (*Most relevant to academic staff)* | | |
| | Not applicable<br><br>*(this box should expand as you type)* | | |
| 26 | Confirm that you have read the UWTSD guidance on data management (see https://www.uwtsd.ac.uk/library/research-data-management/) | **YES** | ☒ |
| 27 | Confirm that you are aware that you need to keep all data until after your research has completed or the end of your funding | **YES** | ☒ |

**SECTION K: Declaration**

| | | | |
|---|---|---|---|
| | The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants**.**<br><br>In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice which is published on the website: https://www.uwtsd.ac.uk/research/research-ethics/ | | |
| 1 | **Signature of applicant:** | Sunny Hall | **Date:**<br><br>06/11/2024 |

***For STUDENT Submissions:***

| | | | |
|---|---|---|---|
| 2 | Director of Studies/Supervisor: | | **Date:** |
| 3 | Signature: | | |

***For STAFF Submissions:***

| | | | |
|---|---|---|---|
| 4 | Academic Director/ Assistant Dean: | | **Date:** |
| 5 | Signature: | | |

**Checklist:** Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

| | |
|---|---|
| ☒ | I have read the guidance notes supplied before completing the form. |
| ☒ | I have completed **ALL RELEVANT** sections of the form in full. |
| ☒ | I confirm that the research activity has received approval in principle |
| ☐ | I have attached a copy of final/interim approval from external organisation (**where appropriate**) |
| ☐ | I have attached a full risk assessment (where appropriate) *ONLY TICK IF YOU HAVE **ATTACHED A FULL RISK ASSESSMENT*** |
| ☒ | I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice. |
| ☒ | I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Academic Director. |

| **RESEARCH STUDENTS ONLY** |
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| Once complete, submit this form via the **MyTSD Doctoral College Portal** at (https://mytsd.uwtsd.ac.uk). |
| **RESEARCH STAFF ONLY**<br>All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk , with the title 'Ethical Approval' followed by your name. |
| **STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES** should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader. |

**6.2 Appendix 2: Proposal**

# MA Dissertation Approval Form/ Ffurflen Gymeradwyo Traethawd Hir MA

| | |
|---|---|
| Student Name/ *Enw Myfyriwr* | Stanislava Ananieva Hall |
| Degree Scheme/ *Cynllun Gradd* | MA Equity and Diversity in Society |
| Start date/ *Dyddiad cychwyn* | February 2022 |

I have completed Part 1 of my degree.
*Please delete as appropriate.

*Yr wyf wedi/ ar fun cwblhau Rhan 1 o fy ngradd*
** Dileu fel sy'n briodol*

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| Title of Dissertation:<br>*Teitl eich Traethawd Hir* |
| AI Ethics and Women in Employment: The Impact upon Existing Biases |
| Research Question<br>*Cwestiwn Ymchwil*<br><br>How does AI's rapid development and deployment maintain or challenge gender biases, and what are the implications for women in employment in the UK? |
| Aims and Objectives:<br>*Nodau ac Amcanion* |
| • To examine AI's historical progression and its challenges and possibilities in connection to women in employment.<br>• To investigate the understanding of the ethical implications of AI in connection with bias and discrimination against women.<br>• To critically explore the persistence of gender inequality in the workplace in relation to women's career prospects shaped by AI. |
| **Purpose of Research Activity**<br><br>The purpose of this literature review is to understand the impact of Artificial Intelligence (AI) on women in employment in the UK, and to systematically examine and critique existing literature on the workplace experiences of women, whilst also providing an understanding of how this evolving |

phenomenon interrelates with historical and persistent gender inequalities. The historical overview of AI will be discussed, alongside its ethical implications to provide an analysis of AI's challenges and possibilities, along with an overview of its ethical landscape, through the perspective of workplace inequalities faced by women and UK policy evaluations to offer a comprehensive understanding of how AI influences women's working experiences.

- Theme 1
  - How the Challenges and Possibilities Women in Employment Face Are Impacted by Existing Historical Biases in AI's Evolution
- Theme 2
  - The Growth of AI's Ethical Implications and How Bias Is Shaping Women's Experiences
- Theme 3
  - The Emergence of Policy Disconnect and the Persistence of Inequality for Women in AI-Driven Workplaces

Methodology

- Quan/qual
  - Narrative literature review
- Why?
  - A literature review can provide a detailed overview of emerging patterns and can allow further research to take place. Undertaking empirical research would have been challenging due to confidentiality concerns and the need to access company data and participants.
- Which data collection methods?
  - Secondary sources of information, including peer-reviewed journal articles, reports and books, will be used as they are key to understanding the impact of AI on women in employment.
- Sample Size if appropriate
  - N/A
- Type of analysis
  - Narrative Literature Review

Short Introductory Bibliography:
*WHAT AM I TALKING ABOUT*

This dissertation will review and discuss current literature in the field, including a diverse range of peer-reviewed journals, books, UK legislation, and policy, which will inform the review. The researcher will incorporate the UK AI Strategy and 'Gender Equality at Every Stage: A Roadmap for Change' policy paper (UK Government 2019), examining key themes to understand how contemporary AI initiatives and frameworks influence the career pathways and professional development of women in the UK. Additionally, the researcher will analyse the UK Equality Act to evaluate how compliance with legal obligations affects the fair and inclusive adoption of AI, providing recommendations and insights that prioritise gender equality and support women's professional growth. By integrating these sources, the extended literature review will offer a holistic view of the current landscape, aligning emerging academic discourse with evolving regulatory standards, ethical considerations, and practical

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| realities faced by women in the workplace. |
| Proposed Supervisor:<br>*Goruchwyliwr awgrymedig* |
| Sharon Cole |

- Ethics Form will be required
- Please indicate whether sufficient resources are available for the project
    - YES
- *Nodwch a oes digon o adnoddau ar gael ar gyfer y prosiect*
    - *OES / NAC OES*

The above topic, proposal, and supervisor have been agreed:
*Cytunwyd ar y pwnc, y cynnig a'r goruchwyliwr uchod:*

Signed : *Sunny Hall* …….. Student/
Llofnod Myfyriwr

Date: 25.09.2025……
Dyddiad

Signed : …… .Programme Director/
Llofnod Cyfarwyddwr y rhaglen

Date:……
Dyddiad

**Please return this form to your Programme Director.**
**Dychwelwch y ffurflen hon at eich Cyfarwyddwr Rhaglen.**