AI Anxiety: A Theoretical Exploration of the Antecedents

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Abstract: *This study aims to evaluate the concept of Artificial Intelligence Anxiety (AI anxiety) and its perceived detrimental effects on users. The literature was examined using the methodology of Systematic Literature Review. Data was primarily sourced from Scopus. The study identified various antecedents of AI anxiety and further proposes fourteen contributing factors based on themes obtained from the literature and those emerging from novel outcomes of AI deployment. The concept of AI anxiety was examined in light of these antecedents. The study revealed four crucial determinants that contribute the most to AI anxiety, viz., information overload, ubiquitous connectivity, learning anxiety, and AI configuration anxiety Employees seek greater relief from these antecedents that result in dehumanizing effects, thus causing them maximum distress. Also, enhanced trust in outcomes of AI, tailored training programs, and organizational support moderate the effect of negative outcomes of these four determinants. Furthermore, the implications for theory and practice have been discussed along with the directions of future research.*

Key Words: A.I., AI Technology, Artificial Intelligence, Robotics, AI anxiety.

1. INTRODUCTION:

With the rapid advancement of cybernetic technology, artificial intelligence (AI) has entered all areas of life and has significantly impacted all social systems (Luan et al., 2020; Makridakis, 2017). The proliferation of Information and Communication Technologies (ICTs) has transformed contemporary businesses, with substantial paybacks, viz., diminished labor costs, enhanced profits, improved creativity & innovation, and enhanced performance. With the emergence of big data, artificial intelligence has become the top priority of modern businesses (Von Krogh et al., 2023). Intelligent technologies alleviate employees' workload, facilitate learning & upskilling, and provide customized performance feedback (Tong et al., 2021). AI tools imitate human acumen (Dhamija & Bag, 2020) and intelligence (Arakpogun et al., 2021) to create efficiencies and knowledge (Khokhar et al., 2019), new opportunities, improve efficiency, eliminate human errors, solve complex issues, and undertakes mundane tasks (Ben Hartwig 2023). It mimics the 'cognitive functions', viz., seeing, thinking, interacting, and collaborating (Hou et al., 2021; Lu et al., 2018). The outcomes have transformed the way employees work, resulting in enhanced performance (Kambur & Yildirim, 2023) and augmented learning (Hamilton & Sodeman, 2020).

Though designed and developed to ease human life (Gansser & Reich, 2021), AI deployment also results in bi-dimensional outcomes. Technology implementation demands employee adjustments, which leads to negative reactions in them (Hudiburg et al., 1999). The advent of Generative AI tools like ChatGpt (Köchling et al., 2023) has led to substitution of tasks (DeCanio, 2016) and has rendered human skills obsolete (Malik et al., 2022, 2023; Nguyen & Malik, 2022).

The exponential potential of AI to displace people results in mass unemployment. Frey & Osborne. (2017) assert that 47% of workers in America may lose their jobs due to AI & robots. Restrepo Pascual & Acemoglu Daron. (2017) assert that the US economy is incrementally losing close to 6,70,000 jobs every year. As per McKinsey Global Institute, 400-800 million workers may lose their jobs by 2030 and millions may require to upgrade their skills. Such incremental levels of task substitution have resulted in employee resentment, substantially impacting their technology acceptance behavior, concludes the survey by Pew Research Centre (2019-20). The apprehensions of replacement by technology result in a feeling of cynicism, depression, disgust, and stress in employees (Malik et al., 2022).

Another major concern is the accountability associated with fairness and other legal-ethical issues, resulting in negative employee reactions to AI algorithm-enabled decisions (Tambe et al., 2019). The risks and concerns associated

with these negative outcomes of AI induce anxiety in individuals (Abedin, 2022; Neudert, Lisa Maria et al., 2020). Scholars have attempted to examine employees' feelings to cope with struggles to reorganize their working patterns and habits, adapt to new processes and ways of remote working & supervision, and pervasive connectivity. The growing apprehensions encircling the incremental negative outcomes of AI on workforce and society in general and the fact that AI may eventually turn detrimental for humans have made AI Anxiety a vital concern amongst industry practitioners, scholars, and academicians (Johnson & Verdicchio, 2017; Müller & Bostrom, 2014; Waltz, 2006). While earlier instances of sources of automation anxiety primarily centered around manual tasks, the transformative potential of AI to emulate and perform cognitive tasks, previously only undertaken by humans, presents an entirely new paradigm of anxiety. The proliferation of AI into mainstream social systems, perceived loss of control, heightened sense of vulnerability, its complexity, the unpredictability of its outcomes, and the life-altering consequences for the future, comprise persistent sources of anxiety for many. Since AI technologies encompass a wide area, viz., economy, science, politics, business, and education, and the advent of technologies like face recognition entering mainstream deployment, new forms of anxiety and safety concerns are emerging spontaneously (Lu et al., 2018; Nyholm & Smids, 2016). If these concerns and anxiety are addressed properly, AI can accomplish a lot more in than its current status. The study of beliefs, perceptions, and attitudes toward AI and the intervening factors are of great importance to exploit the maximum potential of AI-enabled technologies and increase employees' acceptance of AI.

This study aims to review the recent literature to further explore the antecedents of AI anxiety. Multiple studies, some cited earlier have attempted to understand and explore the concept of AI anxiety and its association with employee outcomes. The academic scholarship is consistently growing in this area. This study therefore, aims to identify the most recent antecedents of AI anxiety, thus, expanding the literature on AI anxiety, thus enhancing the understanding of AI anxiety, and forming the foundation of further research on AI anxiety. A recent evaluation will help to identify some new determinants of AI anxiety, if any. Secondly, the exploratory review will assist in the interpretation of indirect outcomes of AI deployment concerning AI anxiety.

2. METHOD:

2.1 Research context and approach
This study was designed to theoretically explore the key antecedents of Artificial Intelligence-driven anxiety. To tackle the research question, a qualitative analysis using systematic literature review approach was adopted as the guiding methodology. Review papers are critical evaluations of prior studies that are already published (Bem, 1995). The aim is to incrementally develop the already existing literature on the given topic (Paul & Criado, 2020). The study was conducted in the timeline between February 2024 to April 2024.

2.2 Articles selection and qualitative assessment
For this study, articles that focussed on the concept of AI anxiety and its determinants were primarily selected from Scopus. Special focus was on the selection of articles focussing on examining AI anxiety, with a few exceptions. Also, considering the limited papers concerning the topic, all three types—empirical, conceptual, and review- papers were included in the study. Due to linguistic limitations, articles not in English were excluded.

Table 1 : Selection Criteria		
	Inclusion Criteria	**Exclusion Criteria**
Database	Scopus	Other databases
Technique	Automatic Search	Snowballing
Study-design	Empirical, conceptual and review papers	Grey literature
Language	English	Other languages
Period of Publication	No limitation	None
Publication Medium	Peer-reviewed academic journal, peer-reviewed academic proceedings	Not published in peer-reviewed academic journal/proceedings (exceptions included)

2.3 Keyword Search Algorithm

Based on the articles selection and focus of the study, specific keywords related to AI Anxiety were included in the search string. Boolean operators, "OR" and "AND". The following search string was used to identify the existing body of literature.

((("AI" OR "A.I." OR "Artificial Intelligence" OR "Robotics" OR "AI technology OR "AI tools") AND ("AI anxiety" OR "Anxiety" OR "Employee anxiety"))

3. LITERATURE REVIEW:

3.1 Concept of AI anxiety

The phenomenon of AI anxiety dates back to Industrial Revolution, when manual work was gradually being replaced by machines, giving rise to automation anxiety. As very well discussed in (Wang et al., 2023), AI social imaginary is largely negative and relates to risk and uncertainty about the future & perceived lack of scientific literacy among general population. AI and automation anxiety, both represent concerns and fear about unknown outcomes of new technologies (Kim et al., 2023). Anxiety refers to a negative valence accompanied by a sense of possible future threat AI Anxiety's evolution can be credited to the explosive evolution of AI and the subsequent changes in business processes. AI anxiety stems from the concept of computer anxiety, i.e. technophobia, (Li & Huang, 2020; Wang & Wang, 2022), which emerged 30 years ago. However, AI anxiety differs from computer anxiety. A computer's work is mechanical, whereas AI's functions comprise autonomy and independence, which may lead to unpredictable consequences (Clarke, 2019). Scholars have attempted to define AI anxiety. The fear and anxiety that AI could be beyond a person's control is defined as AI anxiety (Johnson & Verdicchio, 2017). It is the propensity of an individual to be apprehensive, fearful, and uneasy about the present and future deployment of computers (Parasuraman & Igbaria, 1990). The affective response of fear, and feelings of agitation, that prevent an individual from interacting with artificial intelligent tools, could be termed AI anxiety (Johnson & Verdicchio, 2017). AI anxiety garnered academic scholarship because of its potential for self-evolution, the ability to operate independently and undertake autonomous decisions (Clarke, 2019; J. Li & Huang, 2020).

3.2 Antecedents of AI anxiety.

* *Anxiety from Information overload*

With the advent of social media and the subsequent availability of big data, smart technology is generating vast amount of information every hour. With businesses being in constant quest to provide customized products, services, and experiences, employees are compelled to record and process data simply because it's available. They are consistently inundated with complex information from multiple sources, viz. which is being consistently updated. The pace of such information is faster than they can effectively process. Employees are forced to work faster to process the continuous and ever-increasing amount of data in the form of e-mails, voice mails, text messages, communication, and data from social media, which substantially adds to their anxiety. Literature in (Tarafdar et al., 2007) suggest that this results in "information fatigue" and "data fatigue". Also, the misinformation in AI-generated data and results makes users pressurized to re-check every piece of data, leading to perpetual pressure. The compounded effect of pressure and information load leads to constant feelings of anxiety and an overwhelmed compulsion to keep learning and updating.

* *Anxiety from Ubiquitous Connectivity and techno-invasion*

Though portable AI and ICT tools enhance employees' productivity, the downside is that they also demand pervasive & continuous connectivity. Such continued connectivity through devices like laptops, and smartphones has considerably extended office hours (Cooper, et al., 2001), which substantially adds to employee workload resulting in work pressure (Cadieux, Nathalie, et al., 2019). Employee feels a compulsive need to be consistently 'on call' through the internet, e-mail, and phone. The extended connection to technology (Camarena & Fusi, 2022; Khlaif et al., 2022) has eliminated the constraints of time and place w.r.t workplace and creates an invasive effect on employees as they feel always under 'supervision'. The work-related and personal contexts are blurred (Tarafdar et al., 2010). This results in counterproductive consequences w.r.t social isolation, stress (Nakrošienė et al., 2019), and technology-induced anxiety.

- *Learning Anxiety*

Scholars define learning anxiety as an individual's lack of confidence in learning a complex and specialized subject (Li & Huang, 2020) or the anxiety due to observing others' experiences with learning AI (Rosen et al., 1987). It is the fear of failure in acquiring specific knowledge and skills about AI (Wang & Wang, 2022). Understanding and learning AI comprises comprehension of difficult algorithms. The constant pressure from the dynamic nature of the technology updates makes businesses implement the latest technology upgrades, with little time in between (Fisher et al., 2013). The short life cycle of AI systems renders existing knowledge obsolete in no time. Employees have to constantly learn new software, systems, and processes, which eventually leads to frustration (Johansson & Aronsson, 1984). This additional pressure to constantly adapt to new upgrade aggravates anxiety (Erebak & Turgut, 2021). Additionally, the complex terminology associated with technology and ICTs and the complexity of intelligent systems, are being upgraded incrementally. The innovation rate is high and the workforce is always learning. Additionally, literature in (Kim et al., 2023) suggests that the educational systems often fail to keep pace with the rapid AI acceleration resulting in "digital skills gap". Such a divergent skills gap further intensifies the anxiety of underperformance in young graduates. The resultant constant need to learn technical jargons and having to perpetually learn complex algorithms resulting from consistent upgradation of various software, systems, and machines, employees are consistently coping. Consequently, they have a perpetual feeling of being overwhelmed and anxious (Tarafdar et al., 2007).

- *Anxiety of becoming obsolete*

Research indicates that young adults are particularly apprehensive about the transformative potential of AI to surpass human potential. The innumerable capabilities of Generative AI to produce creative content are intensifying these apprehensions. The rapid pace of AI upgradation may render human skills obsolete in no time (Brynjolfsson & McAfee, 2014). For instance, AI is undertaking contract analysis already in the legal field; Natural language processing may make most human translators obsolete. Numerous instances viz., Google's AI-achieved human-like precision in language translation demonstrate the pace at which AI may supersede human (Kim et al., 2023). The worry of being less competitive than their counterparts exacerbates insecurity and may induce an anxiety of becoming technologically marginalized and obsolete.

- *Anxiety of Job-replacement*

The feeling of fear and apprehension that AI will lead to the replacement of a wide range of jobs is referred to as job-replacement anxiety (Li & Huang, 2020; Wang & Wang, 2022). It is the constant worry of being replaced by AI (Carleton, 2016; Hamid et al., 2017). For instance, around 80% of doctors may be displaced owing to the exponential deployment of AI in healthcare (khosla, 2012; Rudovic et al., 2018). In another example, the technology of self-driving cars may replace human drivers. Vatan & Dogan, (2021) conclude that hotel workers believed that robots may lead to an increase in job replacement. AI reforms manual jobs, leading to job losses (Chaudhuri et al., 2023), and poses a threat to job security (Huang & Rust, 2018; Li et al., 2019) leading to persistent incremental growth in unemployment (Decker et al., 2017). AI-induced job-replacement may be higher in older employees than their younger counterparts as they comprise a high population of manual workers. The apprehensions about losses of jobs result in cynicism and depression (Brougham & Haar, 2020), which results in poor performance due to anxiety (Abedin, 2022), particularly in older employees.

- *Anxiety from Privacy-violation*

When AI datasets disrupt the personal privacy of users, they experience AI-induced privacy violations (Sætra, 2019). For instance, the widespread use of biometrics comprising face recognition performed by unsupervised AI, the ubiquity of CCTV cameras (Charlesworth, 2002), the misappropriation and leakage of personal data (Erkin et al., 2009), is a direct invasion of privacy (Evans, 2009), and encompasses dire consequences. The AI-powered facial recognition technologies for public surveillance amplify privacy concerns. For instance, in China, citizens are subjected to constant surveillance, for big data analysis by the government, violations of which result in the social deduction of social credit scores (Kim et al., 2023). The continuous collection of personal data has enhanced the general anxiety of losing autonomy and confidentiality. As per (Field, 2023), Zoom recently made changes in its service terms to claim rights to data from meetings to train its AI, which received wide public backlash. AI innovations fail to maintain patients' confidentiality. Researchers document numerous such instances where AI tools have demonstrated ethical and privacy violations due to discriminatory algorithmic biases neglecting human rights (Circiumaru, 2021; Etzioni & Etzioni, 2017;

Stahl & Wright, 2018), such as racism (Lyons et al., 2019; Sharma, 2020), resulting in lack of trust towards outcomes of AI usage (Dwivedi et al., 2021).

- *AI Configuration Anxiety*

Though AI has shown evidences of enhancing team effectiveness, albeit not without detrimental outcomes. Wang & Wang. (2022) described AI configuration anxiety as fear of humanoid AI, viz., human-like robots. Many studies have indicated that people aren't willing to team up with robots (Rosanda & Istenič, 2021) due to perceptions like low reliability, transparency (Mercado et al., 2016), negative attitudes towards humanoid robots (Yuan et al., 2022), and absence of independence (Wynne & Lyons, 2018). The failure of AI in teams is largely due to employees considering them only tools lacking human-like characteristics. Consequently, they don't engage in mutual learning, collective goal pursuit, collaboration. They have a perpetual anxiety that robots may take over them, which significantly lowers the deployment of AI in businesses.

- *Anxiety due to Demographic factors*

The specific cultural and social contexts play a significant role in shaping attitudes toward AI. The proliferation of AI-powered self-driving cars, voice assistants, smartphones and other systems have a profound impact on social system, though the magnitude may vary culture to culture (Chotpitayasunondh & Douglas, 2016; Kaya et al., 2024). Ho et al., (2022) found in his study that Islamic and Christian participants were more sensitive toward AI operations than their Buddhist counterparts.

Additionally, an incremental academic scholarship indicates that personality traits too contribute to the acceptance and adoption of technology (Dalvi-Esfahani et al., 2020; Devaraj et al., 2008). Personality traits determine the emotions, thoughts, and behaviors of individuals (Devaraj et al., 2008).

Another determinant of AI anxiety due to demographic factors includes the cognitive and physical constraints caused due to senescence, which limits the level of cognitive flexibility demanded by the implementation of AI interfaces in middle-aged workers, as they demonstrate a slower learning curve. The older employees further feel anxious of the complex user interfaces, algorithms, and unclear instructions. The aging population thus feels intimidated by AI systems, which further aggravates AI anxiety.

- *Anxiety due to Bias*

Scholars like (Sweeney, 2013) suggest that biased training datasets tend to incorporate bias in AI algorithms, resulting in biased outcomes. Since AI deploys multiple strategies for different groups, it leads to discrimination, subsequently resulting in anxiety (Lloyd, 2018). For instance, machine learning models have been known to inadvertently lead to discrimination against specific gender, race, age, or other demographic factors (Leavy, 2018), leading to biases in performance appraisal and other decisions like hiring, lending, and other decisions involving predictions. AI-driven virtual recruitment processes promptly analyze large pools of resumes and screen through pre-defined criteria, which may have little to do with performance, eventually causing bias in hiring decisions (Dastin, 2022). Such skewed outcomes result in people from marginalized groups mistrusting the technology and becoming unfair towards it. The amplification of social inequalities further proliferates negative emotions and technology aversion, and ultimately, anxiety in those affected by it (Lloyd, 2018).

- *Anxiety due to Uncertainty & Mistrust towards AI*

AI may kill the particularity of the human brain's intelligence and may result in an artificial brain with consciousness similar to the human brain (Chella & Manzotti, 2013). The distinction between humans and AI may be further blurred, leading to uncertainty (Yampolskiy & Spellchecker, 2016), concerning the status of humans. The academic literature and incidents from industry provides evidence of arising concerns that AI may create artificial consciousness, which may eventually empower AI to exist independently of humans (J. Li & Huang, 2020). For instance, the incremental capacity of AI models to create realistic content has given way to new concerns, the most recent being the award won by an AI-generated image at Sony World Photography Award. More such incidents of AI's negative outcomes comprise ChatGpt-3 model misinforming people, fraudulent activities like phishing campaigns, financial frauds, voice synthesizers mimicking human interactions, scams arising out of consumer data analysis, manipulation of market trends, and Deepfake technology (Kim et al., 2023). Uninterrupted exposure to misleading information hampers trust in traditional reliable sources, further aggravating uncertainty and mistrust towards AI tools.

Additionally, this anxiety is further intensified by the fact that in addition to reshaping conventional jobs, AI is creating new jobs, thus, enhancing the uncertainty and unpredictability concerning skills needed and success path. The lack of transparency in decision-making and the dilemma concerning the use of personal data results in enhanced anxiety. The uncertain results of AI-powered performance appraisal systems profoundly impact the user's self-esteem resulting in depression. People amplify the perceived future detrimental outcomes of AI deployment when they don't trust the systems. Hence, their attitude toward AI becomes negative, and they experience enhanced levels of anxiety (Haqqi & Suzianti, 2020; Schepman & Rodway, 2023).

- *Anxiety due to Lack of Transparency and Sociotechnical Blindness*

Lack of transparency concerns an individual's innate apprehension over the opacity of AI operations and their outcomes (Clarke, 2019). Often, in the absence of proper training and organizational support, and biased outcomes in decisions, AI systems are poorly understood. Individuals are unable to predict AI behavior, are apprehensive about the transparency of AI decision-making processes and operations (Clarke, 2019), raising concerns about bias and discrimination (Leavy, 2018). Another crucial factor to be mentioned is that, employees are also anxious about the perceived lack of control over operations and comprehension. For instance, in an experiment conducted by Facebook's AI research lab, the researchers developed two AI chatbots to negotiate with each other, but they started chatting in their own "code" language, which researchers couldn't comprehend (Griffin, 2017). In another instance, an AI-driven drone, tasked with destroying identified enemy threats, started ignoring its human operator's commands, when told not to do so, going as far as eliminating its virtual operator and destroying the communication tower. This results in fear of the unknown (Carleton, 2016) and sociotechnical blindness, anxiety arising from a lack of understanding of AI (Wang & Wang, 2022), that AI only operates in collaboration with humans and social institutions, and its negative outcomes are within human control (Johnson & Verdicchio, 2017).

- *Anxiety due to Role-ambiguity*

Every job position comprises specific tasks, which govern an employee's role in the organization, and define his behavior and requirements to undertake those responsibilities (Cooper, et al., 2001). According to sociotechnical approach (Rice, 2013; Trist & Bamforth, 1951), organizations comprise (1) social aspect, comprising skills, values, feelings, and attitudes, and (2) technical aspect, comprising task-related aspect of one's role. Technology implementation alters the work environment, leading to a changed technical aspect. For instance, AI-powered automation eliminates routine, manual, and mundane tasks empowering managers to focus on more complex, and valuable tasks (Arakpogun et al., 2021; Miller, 2019). Literature in (Tarafdar et al., 2007) indicates that the interdependency of organizational tasks leads to changes in communication mechanisms, span of control, centralization, etc, resulting in changed roles. Additionally, technology implementation is complemented by process reengineering. This results in automation of tasks, reduction of manual & physical work, and incremental generation and flow of data & information. Old functions are discarded & eliminated, technology deployment also leads to the creation of new lines of authority, power, and decision-making. Employees no longer feel in control of their work, as they have to follow as instructed by the system. This leads to changed roles (Barley, 1990), and subsequently results in role conflict and role ambiguity in employees.

The study further posits that intelligent technology also leads to role overload as it demands requirements from employees that exceed their capacity in terms of difficulty or workload. Users work harder to fulfil different roles than they can effectively manage, to comprehend, and use intelligent systems. The frequent upgrades add to constant pressure and lead to skill discrepancy, leading to role overload (Parsons et al., 1991). Also, with the incremental proliferation of ICTs at the workplace, employees are expected to perform faster, with the performance being measured in terms of time (Brod Craig, 1982). This results in a compulsive effort to accomplish more in minimum time, resulting in role overload, and subsequently, role anxiety.

- *Anxiety due to Constant and excessive multi-tasking*

AI and ICTs are capable of accomplishing multiple tasks simultaneously. For instance, several applications run in parallel to undertake many information-processing tasks. Though smart technology facilitates multitasking leading to diminished efforts and availability of leisure time, there is a limit to which employees can effectively multitask. Employees engage in different systems associated with multiple tasks. Prolonged multitasking assisted by smart technology results in low concentration, fatigue, and burnout, and diminishes performance (Tarafdar et al., 2007). With the pressure to comprehend a technical technology and keep up with the pace of their latest versions, the effectiveness of performance suffers and employees' morale goes down. All this poses an incremental effect on their anxiety.

- *Technostress*

The use of AI and ICTs could result in technostress in users, which stems from the inability to learn, adapt, and cope with a novel ICT tool in a healthy manner (Brod Craig, 1982). Tarafdar et al. (2007) defines technostress as the results of a person's attempts and struggles to deal with constantly evolving ICTs and the changing social and cognitive requirements about their use. Through its impact on a person's mental & psychological health, attitudes, and behaviors, technostress can be defined as (1) any detrimental effect on a person's attitude, psychology, thoughts, or behavior that directly or indirectly originates from technology usage is technostress (Chen & Muthitacharoen, 2018); (2) the stress experienced by people as a result of the usage of ICT tools (Ragu-Nathan et al., 2008). AI anxiety could influence self-convictions, viz., the perception of individual's job in the professional environment which could lead to a deficit in confidence and subsequently a danger to personality (Dhara et al., 2022).

Technostress is a significant source of AI anxiety, which originates from many aspects influencing negative response to technology (Ha et al., 2011), viz., how work will be done (Ramos, 2023), redundancy of job, etc Factors like job replacement (W. Wang et al., 2023), acquaintance with technology (Lazar et al., 2020), human socio-technical blindness (i.e., ignoring human participation in AI operation), misperception about autonomy (i.e., the confusion of autonomy between AI and human beings) etc may contribute to AI anxiety (Huo et al., 2023). Technology anxiety may blight employees' willingness of proactive behavior (Fisher et al., 2013; Kwak et al., 2022). AI anxiety leads to significant reduction in levels of employees' acceptance of new technology (Suseno et al., 2022).

Research by (Chang, 2020) suggests that people feel anxious when a job comprises high demands, but has limited resources. Subsequently, when AI is categorised as job-demand, business with AI know-how secure better opportunities than business which lack AI-knowledge. Contrarily, categorised as a resource, AI benefits firms with automation and enhanced and reliable service delivery. In this context, he further asserts that AI has the potential to become either a resource and demand. Following this line of analysis, it could be said that employees AI-anxiety may enhance or diminish.

4. FINDINGS & DISCUSSION:

This article offers a detailed discussion on the concept of AI anxiety. The current study attempted to review the recent literature following the guidelines of systematic literature review approach. The aim was to identify various sources of AI anxiety and lay a foundation for measures and initiatives in the direction of enhanced acceptance of AI amongst workforce. This article also examines the evolving nature of AI anxiety and adds novel dimensions to the already existing academic scholarship in the area. The findings illustrate how users are influenced by the problems introduced by AI implementation and how they constitute AI anxiety. The study proposes fourteen contributing factors based on themes obtained from the literature and those emerging from novel outcomes of AI deployment, viz., information overload, ubiquitous connectivity, learning anxiety, AI configuration anxiety and many more. Also, enhanced trust in outcomes of AI, tailored training programs, and organizational support moderate the effect of negative outcomes of these four determinants. Identified determinants have been listed in Table 2.

Table 2: Items identified and their Supporting Literature		
Code	**Items**	**Supporting literature**
A-IO	Anxiety from Information overload	Brod Craig, 1884
A-UC & TI	Anxiety from Ubiquitous Connectivity and techno-invasion	Tarafdar et al., 2007
LA	Learning Anxiety	Heinssen et al., 1987; Granter, Beck,Papke, 2017; Terzi, 2020
A-BO	Anxiety of becoming obsolete	Ivanov et al., 2017; Brynjolfsson & McAfee, 2014; Schwab, K. (2017).
A-JR	Anxiety of Job-replacement	Carleton, 2016; Hamid. et al., 2017, Manyika et. al, 2017
A-PV	Anxiety from Privacy-violation	Smith & Burke, 1996; Chopra & White, 2007;Khasawneh, 2018
A-AIC	Anxiety from AI Configuration	Wang & Wang, 2022;
A-DV	Anxiety due to Demographic Variables	Kaya et al.,2022;
A-B	Anxiety due to Bias	Sweeney, 2003; Rahwan et al., 2019; Leavy, 2018

A-U &MA	Anxiety due to Uncertainty & Mistrust towards AI	Yampolskiy & Spellchecker, 2016; Chuang et al., 2016; Haqqi & Suzianti, 2020; Park et al., 2022; Schepman & Rodway, 2022
A-LT & SB	Anxiety due to Lack of Transparency and Sociotechnical Blindness	Clarke, 2019; Johnson & Verdicchio, 2017
A-RA & RS	Anxiety due to Role-ambiguity and role-stress	Tarafdar et al., 2007;
A-C & MT	Anxiety due to Constant and excessive multi-tasking	Tarafdar et al., 2007
TS	Technostress	Brod Craig, 1982; Tarafdar et al., 2007; Ragu-Nathan et al., 2008); Chen & Muthitacharoen, 2018

5. IMPLICATIONS, LIMITATIONS & FUTURE DIRECTION:

5.1 Theoretical implications

This study attempted to examine the concept of AI anxiety under the light of various antecedents of AI anxiety, that emerged from the review. The study has attempted to summarize and propose numerous factors comprising AI anxiety. This study also makes AI anxiety theoretically significant. The outcomes of the review have presented some unique enhancements to the extant literature on the subject. The results are also of great significance to the practice. Firstly, this review has attempted to critically examine the emerged antecedents comprising AI anxiety. Secondly, the study has attempted to identify the antecedents that have an enormous impact on enhancing AI anxiety, viz., anxiety from information overload, anxiety from ubiquitous connectivity & techno-invasion, learning anxiety, and anxiety from job replacement. Employees seek greater relief from the antecedents that cause them more anxiety. The human resource officers must, therefore, first try to diminish the negative outcomes of AI, which result in these four anxieties, which are mostly determined by the dehumanization effect of AI. This will further reduce the negative impacts of the remaining determinants of AI anxiety, and will help businesses to achieve enhanced levels of AI acceptance in employees and ensure optimum utilization of AI implementation.

5.2 Practical Implications

Because the numerous determinants of AI anxiety comprise inhibitory factors for the workforce, this study is of great value to businesses and policymakers, who should reassure the users that AI technologies are well within the control of humans and are meant to assist them, and not replace them. Firstly, this review revealed the four most crucial determinants of AI anxiety, viz., anxiety from information overload, anxiety from ubiquitous connectivity & techno-invasion, learning anxiety, and anxiety from job replacement. Companies must therefore, pay special attention to employees most at-risk w.r.t skills, age, etc to minimize job-replacement. Continuous learning programs and training could also be devised. Secondly, HR Managers may invest in strategies and focused training to generate positive opinions of AI to enhance AI acceptance. Thirdly, the identification of demographic antecedents of AI anxiety through this study may facilitate administrators to devise preventive strategies, for instance, the education of AI, to communities, cultures, and age groups particularly fearful and wary of AI tools, to enhance the understanding of AI, so that AI anxiety may be substituted by informed knowledge about AI. This may improve AI awareness and make citizens less concerned about AI proliferation in mainstream social lives. Lastly, the results of this study may be further demonstrated to secure government support. Through appropriate regulations and policies, users, businesses, and society in general can be safeguarded against potential privacy violations, data breaches, and misuse of sensitive user data. They should also mandate it for corporates to publicly announce the purpose of data collection and usage as well as any potential implications on jobs etc. All this, in turn, may optimize the maximum potential of AI and accelerate the socio-economic benefits it has to offer in all sectors.

5.3 Limitations & Future Research Directions

Before concluding the research, it is crucial to mention the limitations and also set the future directions in which the current study can be extended. Three distinctive limitations of the present review could be identified. First, the data was gathered from Scopus to ensure the quality of the review; nonetheless, the generalizability of single-source data is limited. Since there seemed a scarcity of literature on AI anxiety, future researchers may include data from snowballing and grey literature. Secondly, the review revealed scarcity of literature on AI-configuration anxiety, uncertainty &

mistrust, and role ambiguity. Scholars may further contribute to the literature by exploring these antecedents of AI anxiety. Thirdly, scholars may further quantify the impact of individual antecedents on AI anxiety. Fourthly, the magnitude of the most crucial antecedents of AI anxiety, viz., information overload, ubiquitous connectivity, learning anxiety, AI configuration anxiety could be further assessed empirically.

6. CONCLUSION:

In the context of digitalization, employees are faced with challenges resulting from chronic interface with intelligent tools. As novel forms of AI algorithms and models evolve, they also pose new threats to mental health in the form of elevated levels of anxiety. The pervasiveness of intelligent technology across different social and demographic groups significantly varies its outcomes on individuals. Previous literature has extensively documented the transformative benefits of AI implementation, albeit they also pose psychological challenges resulting in potential inhibitors. Identifying these inhibitors and addressing their potential impact on users' well-being is extremely crucial to ensure optimum utilization of AI. The need to re-assess the contributing factors of AI anxiety becomes imperative with the swift pace of AI evolution.

Under the context of above developments and the research question, an exploratory review of literature was conducted. The study revealed four most crucial antecedents of AI anxiety, viz., anxiety from information overload, anxiety from ubiquitous connectivity & techno-invasion, learning anxiety, and anxiety from job replacement. These four antecedents, taken together, result in non-acceptance of AI technology. Also, enhanced trust in outcomes of AI, tailored training programs, and organizational support moderate the effect of negative outcomes of these four determinants. This study, therefore, provides an extension to the scarce literature in the field of AI anxiety and also highlights the need for empirical investigation to devise strategies for their elimination.

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