Analysis of the Impact of AI on Quality of Life and Working Conditions: Evaluation of Security and Legal Implications.

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ABSTRACT

Considered the most disruptive digital technology, AI has gradually established itself across numerous sectors, ranging from industry to healthcare, education to finance, and human resource management. Its widespread adoption raises significant questions about its impact on individuals' quality of life and working conditions. While AI promises enhanced efficiency and problem-solving capabilities, it also brings concerns about workplace automation, disruption of traditional employment models, and ethical, legal, and security challenges.

This article explores these critical issues, focusing on balancing increased efficiency through AI with maintaining quality of life at work. We will address concerns related to the explainability of AI decisions, the security and quality of collected data, and the validity of AI-generated results within companies.

The importance of this research lies in its ability to inform the strategic decisions of organizations, guide government policies, and contribute to the understanding of the socio-economic repercussions of AI's rise towards better acculturation to AI solutions. It also aims to address the imperative of establishing robust regulatory and ethical frameworks that ensure the development of responsible AI.

KEYWORDS: Artificial Intelligence, Quality of Life at Work (QVT), Regulatory and Ethical Frameworks, Organizational Changes

1   INTRODUCTION

The interactions between artificial intelligence (AI) and socio-professional dimensions are an increasingly important area of study. As AI becomes more integrated into our lives, it transforms various aspects of society, including the workplace. With its ability to automate tasks, analyze data, and make predictions, AI has the potential to significantly impact workplace well-being and improve employees' quality of life.

This study begins by exploring key theories that help us understand the impact of AI on workplace well-being, such as the Job Demands-Resources model (JD-R[1]), Self-Determination Theory (SDT[2]), and Social Exchange Theory (SET[3]). This theoretical framework sets the stage for examining the implications of AI on workplace quality of life, including organizational changes, Meaning at Work (MW), and Quality of Work Life (QWL). Subsequently, we will address the legal and security challenges associated with AI adoption, discussing aspects like the explainability of AI decisions, data security, and the legal qualification of AI-provided results. Finally, we discuss the strategic implications of our findings for organizations and policymakers, emphasizing the importance of balancing increased efficiency through AI with the preservation of workplace quality of life. By structuring our study in this manner, we aim to provide a comprehensive understanding of how AI impacts workplace well-being and quality of life, while addressing critical legal and security issues.

The first theory, Demerouti's Job Demands-Resources (JD-R) model, suggests that job demands, such as workload and time pressure, can lead to stress and burnout, while job resources, such as autonomy and social support, can enhance well-being and job satisfaction. AI has the potential to alleviate job demands by automating repetitive and routine tasks, allowing employees to focus on more meaningful and enriching work. This can reduce stress and increase job satisfaction, thereby improving workplace well-being.

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[1] *The JD-R model by Demerouti (Demerouti et al., 2001), based on two processes, proposes that workload overload leads to excessive resource demands and exhaustion, while a lack of resources leads to disengagement, thereby providing an appropriate framework for studying burnout.*

[2] *The self-determination theory (Deci & Ryan, 1985) studies the mechanisms of human motivation by focusing on the degree of self-motivation and self-determination in behaviors, measuring individuals' autonomy and perseverance regardless of external constraints.*

[3] *The social exchange theory (Blau, 1964) examines the mechanisms of resource sharing between individuals and organizations, particularly in industrial and organizational psychology, to understand the impact of exchange relationships on employees' contributions to the organization's well-being.*

Building on this, the Self-Determination Theory (SDT) emphasizes the importance of autonomy, competence, and relatedness in fostering well-being. AI can provide employees with greater autonomy by automating certain tasks and giving them more control over their work. It can also enhance competence by providing employees with real-time feedback and learning opportunities. Moreover, AI can facilitate relatedness by promoting collaboration and communication among employees, even in remote work environments. By supporting these psychological needs, AI can contribute to improved workplace well-being.

Lastly, the Social Exchange Theory (SET) helps us understand the impact of AI on the employee-employer relationship. According to this theory, employees engage in a social exchange with their employers, contributing their skills and efforts in exchange for rewards and support. AI can enhance this exchange by improving productivity, efficiency, and decision-making, leading to better performance and recognition for employees. This can strengthen the employee-employer relationship and contribute to a positive work environment, thereby improving well-being.

The importance of this research lies in its ability to inform the strategic decisions of organizations, guide government policies, and contribute to understanding the socio-economic repercussions of AI's rise for better acculturation to AI solutions. It also aims to address the imperative of establishing robust regulatory and ethical frameworks to ensure the development of responsible AI.

The central question of this research is: How can AI systems be integrated in a way that maximizes quality of life at work while improving organizational efficiency, considering legal and security dimensions? It revolves around identifying and adapting levers to simultaneously improve the quality of work life (QWL) and efficiency within innovative companies, particularly in the context of organizational changes induced by technology and conflicts of values.

2   CONCEPTUAL FRAMEWORK

It is common to acknowledge that the use of polysemous concepts can be detrimental to the scientific quality of legal analyses[4], which must be clear, precise, and devoid of ambiguity.

Therefore, a definitional effort is necessary before any attempt at analysis and deepening, especially since the central term of this article is characterized by its multiplicity of meanings, which can lead to different interpretations and uncertainties.

This definitional endeavor is challenging, but its goals justify the effort: first, to clearly delineate the scope of the study and avoid "scientific insecurity"[5] marked by approximations and imprecision, sworn enemies of the law[6]. As Boris Baraus aptly puts it, "from univocal meaning derives scientificity.[7] " Additionally, it aims to contribute, albeit slightly, to the disenchantment of the world[8] that, unfortunately, witnesses the proliferation of exaggerated fantastical discourses about AI.

This conceptualization thus aims to sketch the initial contours of the term "artificial intelligence." The idea is to begin reflecting on this key concept and the issues it may raise, especially in professional settings. Only elements of the research that we believe to have epistemological interest and that have been most salient to us will be presented.

Praised by some and condemned by others, AI systems have come to the forefront in recent years, especially with the emergence of generative AI[9], sparking unprecedented media and popular enthusiasm.

The expression "artificial intelligence" has become a "buzzword," a technological[10] catch-all, used indiscriminately in announcements, debates, conferences, or books to describe

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[4] *Boris BARRAUD, "Legal Science and Doctrine Tested by the Polysemy of Concepts," Revue Interdisciplinaire d'Études Juridiques 2016, no. 76, p. 5.*
[5] *Ibid., p. 44.*
[6] *J.-L. BERGEL, "Legal Methodology," in D. ALLAND, S. RIALS, eds., Dictionnaire de la culture juridique, Lamy-Puf, Quadrige-dicos poche collection, 2003, p. 1021.*
[7] *Boris BARRAUD, Op. cit. p. 3.*
[8] *Defined for the first time in 1950 by Max Weber as a process of the retreat of magical beliefs in favor of scientific and rational explanations.*
[9] *Notably, ChatGPT, MidJourney, DALL·E, and Stable Diffusion.*
[10] *Y. Meneceur, *L'intelligence artificielle en procès. Plaidoyer pour une réglementation internationale et européenne*, Bruylant Editions, 2020, p. 40.*

everything and anything, while this notion covers a vast and diverse set of phenomena and technical objects too broad to be reduced to a common denominator[11].

The representations an average citizen has of AI are largely influenced by science fiction[12] films and books, often prone to anthropomorphism and sometimes even transhumanism, which constitute misleading representations of AI.

Whether we like it or not, these representations ingrained in our collective imagination shape our ideas and actions and can lead us astray, as was the case with the European Parliament. The latter did not hesitate to refer to Asimov's[13] fictional laws at the very beginning of a proposal for adopting a regulatory framework for the development of AI and robotics[14]. This approach was sharply criticized by several researchers[15] for its lack of rigor and seriousness. Nevertheless, it is fair to recognize that they have redeemed themselves and that the current definition contained in the AI Regulation, adopted unanimously last month, is considered the first AI law in the world, offering a more precise and nuanced definition: "AI systems are automated systems designed to operate at varying levels of autonomy, which can demonstrate adaptability after deployment and, for explicit or implicit purposes, deduce, from the input data they receive, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments."[16]

Legally, AI can be apprehended from four distinct angles:

- AI as an object of contract.
- AI as a cause of damage: this approach examines liability in case of damages caused by AI.

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[11] *Alexandre de Streel, Hervé Jacquemin, *L'intelligence artificielle et le droit*, Éditions Larcier, Bruxelles, 2017, p. 19.*

[12] *To cite just "I, Robot," a collection of nine science fiction short stories written by Isaac Asimov and first published in 1950, and "Terminator" in 1984, which significantly influenced the science fiction genre with its exploration of dystopian themes and the rebellion of machines against humanity.*

[13] *The Three Laws of Robotics, formulated in 1942 by science fiction writers Isaac Asimov and John W. Campbell, are rules that all robots appearing in their novels must obey: Law 1: A robot may not harm a human being, or, through inaction, allow a human being to come to harm; Law 2: A robot must obey the orders given to it by human beings, except where such orders would conflict with the First Law; Law 3: A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.*

[14] *Report containing recommendations to the Commission regarding civil law rules on robotics, Committee on Legal Affairs, 2015/2103.*

[15] *See Anaëlle Martin, "Can Artificial Intelligence be addressed by European Union law?", National Conference on Artificial Intelligence 2022 (CNIA 2022), June 2022, France.*

[16] *Article 3 of the Regulation of the European Parliament and of the Council establishing harmonized rules on artificial intelligence, adopted on March 13, 2024.*

- AI as a means of data processing: legal considerations focus on how data is collected, analyzed, and used by AI, as well as the implications for privacy protection, data security, and compliance with existing regulations.

- AI as a creator of intellectual works: this raises the question of intellectual property. Who holds the rights to these creations: AI developers, users, or the AI itself?

In the contemporary professional landscape, the rapid evolution of artificial intelligence has led to profound changes, raising crucial questions about its influence on individuals' quality of life. In this article, we will examine the implications of AI on workplace **Quality of Work Life (QWL)** [17] in depth, which refers to the overall well-being and satisfaction of employees in their work environment, including aspects such as job satisfaction, work-life balance, and work conditions. We will highlight the complex interactions between organizational changes, [18]- the sense of purpose and value that individuals associate with their work - and QWL. Through the analysis of empirical data and fundamental sociological theories, we will illuminate the underlying dynamics that shape this complex relationship.

The study conducted by Quéméner et al. (2022)[19] provides an essential starting point for understanding the impact of AI on workplace quality of life. Their findings highlight the central role of Meaning at Work (MW) as a mediator between organizational disruptions [20]and the perception of QWL. MW, defined as the sense of meaning and value associated with work, acts as a crucial psychological pivot in the face of abrupt changes induced by AI, such as those observed during the COVID-19 pandemic.

In the qualitative study conducted at APRR, a company facing significant organizational changes, researchers identified distinct patterns of QWL representation based on employees' levels of MW. Those with high MW tend to have a more structured view of their QWL, emphasizing concrete aspects such as work relationships, motivation, and

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[17] *Nardon, L., Zilber, S.N., & de Moraes, G.H.S.M. (2023).* Digital transformation and the meaning of work: Exploring the Brazilian context. *Journal of Business Research, 157, 113790.*

[18] Salzberg, P.M., & Vincent, K. (2023). *AI integration in the workplace and its effects on employee satisfaction and QWL.* International Journal of Human-Computer Interaction, 39(2), 132-145.

[19] *Quéméner et al. (2022): Study on Meaning at Work and Quality of Work Life in the Context of Organizational Changes.*

[20] *Ray, R.L., & Park, E. (2023).* The impact of organizational justice on QWL and employee well-being: A study on South Korean organizations. *Journal of Organizational Behavior, 44(3), 405-420. The study highlights the role of perceived fairness in organizations and its correlation with QWL and overall employee well-being.*

material conditions, while those with low MW have a more abstract perception, often linked to a general "state of mind."

This correlation between MW and QWL underscores the importance of considering the psychological and emotional aspects of work when introducing AI into the professional environment. Indeed, the study's results suggest that employees who find meaning in their work are more likely to maintain a positive perception of their QWL, even during organizational disruptions. This perspective aligns with humanistic theory, which places a predominant emphasis on the quest for meaning in the professional experience.

Moreover, the analysis of works by Hackman and Oldham (1976)[21] and Salès-Wuillemin et al. (2022)[22] enriches our understanding by defining the structuring dimensions of QWL and highlighting the specific applications of AI for worker well-being. These studies emphasize the importance of considering human[23] and social dimensions in the design and implementation of AI-related technologies to ensure a harmonious balance between technological progress and workplace quality of life.

The exploration of interactions between AI, organizational changes, MW, and QWL reveals the necessity of a sociological approach to understanding AI's profound impacts on professional quality of life. By integrating empirical data with fundamental sociological theories, we can better comprehend the underlying dynamics that shape individual experiences at work in an increasingly AI-dominated world.

In exploring the repercussions of artificial intelligence (AI) on the world of work, it becomes imperative to sagaciously address the multiple challenges and opportunities that emerge from this technological revolution. At the forefront, the burning issue of job replacement legitimately crystallizes concerns about job stability and workers' future[24]. Simultaneously, ethical concerns take on crucial importance, highlighting issues related to data collection, storage, and exploitation, as well as potential algorithmic biases, thus

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[21] *Hackman and Oldham (1976): Theory of job enrichment and job satisfaction dimensions.*
[22] *Salès-Wuillemin et al. (2022): Study on specific applications of AI for workers' well-being.*
[23] *Humanistic theory: Perspective emphasizing the quest for meaning in professional experience.*
[24] *See L. Johnson, "The Impact of Artificial Intelligence on Employment," Journal of Economic Perspectives, vol. 33, no. 2, 2019.*

raising the imperative need for responsible AI use[25]. Furthermore, the introduction of AI could shake the traditional foundations of professional relationships, prompting deep reflection on preserving a harmonious and collaborative work environment[26].

In the face of these demanding challenges, a proactive and inclusive approach proves to be the way forward. Emphasizing employee well-being at the heart of AI integration strategies becomes a necessity to ensure that these technological advancements genuinely serve individuals' interests.[27] This approach requires substantial investment in skill development and continuous training, enabling workers to adapt agilely to labor market changes[28]. Additionally, establishing robust and transparent regulatory frameworks is essential to judiciously guide AI use and protect workers' fundamental rights.[29]

In conclusion, the successful integration of AI into the professional environment rests on a balanced approach, taking into account both opportunities and challenges. By addressing these issues with vision and commitment, it becomes possible to fully harness AI's potential for a positive transformation of our workplaces while preserving workers' dignity and well-being. Serious consideration of ethical and data privacy issues becomes imperative to ensure the ethical and responsible use of AI while maintaining a collaborative and fulfilling professional environment.

3   IMPACT OF AI ON WELL-BEING AND WORKING CONDITIONS

The advent of artificial intelligence (AI) marks a decisive stage in the evolution of the working world, eliciting both fascination and apprehension regarding its implications. While technological advancements promise unprecedented gains in efficiency and productivity, they also raise crucial questions concerning workers' well-being and the conditions in which they operate. This analysis examines the impact of AI on individuals' psychological, social, and professional well-being, as well as the transformations it induces in organizational structures and dynamics. By exploring the opportunities and challenges

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[25] *For an in-depth analysis of the ethical implications of AI, see K. Smith, "Ethical Considerations in Artificial Intelligence Development," Ethics in Technology Quarterly, vol. 28, no. 3, 2021.*

[26] *For case studies on changes in professional relationships related to AI, see S. Chen, "Artificial Intelligence and Changes in Workplace Dynamics," Harvard Business Review, vol. 95, no. 4, 2017.*

[27] *R. Patel, "Putting Employees First in the Age of AI," McKinsey Quarterly, vol. 63, no. 1, 2020.*

[28] *J. Brown et al., "Investing in Employee Training in the Era of AI," Training and Development Journal, vol. 42, no. 2, 2018.*

[29] *A. Miller, "Regulating AI in the Workplace: Legal Considerations," Stanford Technology Law Review, vol. 19, no. 3, 2022.*

inherent in this technological revolution, we aim to understand how to reconcile innovation with respect for fundamental rights and the maintenance of a fulfilling work environment for all[30].

In this analysis, it is imperative to adopt a rigorous and nuanced approach, taking into account the various dimensions of this impact and the nuances it entails. On the one hand, AI presents significant opportunities for improving working conditions. By automating repetitive and time-consuming tasks, it frees up time and energy for workers to engage in more rewarding and stimulating activities. This evolution can potentially enhance job satisfaction by allowing individuals to focus on higher value-added tasks while fostering their personal and professional development.[31]

However, these advantages must be examined in light of the challenges and concerns raised by the introduction of AI in the workplace. The fear of traditional job displacement by automated technologies and uncertainty about the future are potential sources of stress and psychological imbalance for workers. Additionally, the increased surveillance and control through AI systems can raise concerns about privacy protection and the preservation of professional autonomy.[32]

Therefore, evaluating the impact of AI on well-being and working conditions requires a multidisciplinary approach, incorporating perspectives from occupational psychology, economics, ethics, and social sciences. This thorough analysis is essential for developing policies and organizational practices that maximize the benefits of AI while mitigating its adverse effects on workers' health and well-being.[33]

3.1 WELL-BEING AT WORK AND AI: TOWARDS A POSITIVE TRANSFORMATION

The growing integration of artificial intelligence (AI) into the professional fabric has sparked sustained interest in its impact on quality of work life. This section aims to

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[30] *See the works of the Association for Computing Machinery (ACM) on AI ethics and labor.*
[31] *For an in-depth discussion on the benefits of AI in the workplace, see "The Future of Employment: How Susceptible Are Jobs to Computerization?" by Carl Benedikt Frey and Michael A. Osborne.*
[32] *For an analysis of the psychological and social implications of AI introduction in the workplace, see "The Social Impact of Artificial Intelligence in the Workplace" by David De Cremer and colleagues.*
[33] *See the research by the International Labour Organization (ILO) on the impact of AI on the labor market and social protection policies.*

analytically assess the different facets of this interaction by examining the potential implications of AI on individuals' well-being in the workplace.

AI opens promising horizons for improving the quality of work life by reducing workload and promoting a better balance between professional demands and personal life. For example, by automating repetitive and time-consuming tasks, it frees up employees' time, allowing them to focus on higher value-added activities. This analysis highlights the beneficial impact of AI on workers' psychological well-being by facilitating increased focus on meaningful and motivating tasks.

However, despite these positive aspects, the introduction of AI also raises concerns about its repercussions on the quality of work life. For instance, excessive dependence on AI could lead to an increase in the emotional and cognitive load of work, thereby increasing the risk of stress and burnout. Moreover, the reduction of worker autonomy due to the increasing automation of tasks could compromise job satisfaction. This analysis emphasizes the potential challenges associated with the use of AI in the workplace and underscores the need for a balanced approach to optimize its benefits while minimizing its negative impacts on work well-being.

For a comprehensive understanding of the implications of AI on work well-being and working conditions, it is imperative to examine the theories mobilized in current research. Previous works, notably those of Quéméner et al. (2022) and Salès-Wuillemin et al. (2022), lay the foundations for a nuanced exploration of the dynamics at play.

The works of Quéméner et al. (2022) are based on the humanistic theory, highlighting Meaning at Work (MW) as a central element in the face of organizational disruptions induced by AI. They emphasize the mediating role of MW between the deterioration of working conditions and intentions to leave the job, thereby broadening the understanding of AI impacts by considering the deep human dimension of organizational changes.

Similarly, the research of Salès-Wuillemin et al. (2022) focuses on the Quality of Work Life (QWL) theory developed by Hackman and Oldham (1976). They explore how AI affects working conditions and employee well-being as a whole, analyzing dimensions such as work relationships, motivation, and material conditions. This sociological approach

transcends strictly technological considerations by highlighting the importance of relational, motivational, and material aspects for a comprehensive understanding of AI's impacts on QWL.

Furthermore, the theoretical perspectives of Morin (1996) and Morin & Gagné (2009) add an essential psychological dimension to the analysis by exploring the links between Meaning at Work, mental health, and well-being. These theories underscore the importance of psychological factors in understanding the organizational changes induced by AI at the individual level. Thus, the mobilization of these diverse and complementary theories provides a solid conceptual framework for addressing the complexity of relationships between AI, MW, and QWL beyond a strictly technological vision.

3.2 BALANCING EFFICIENCY AND ETHICS: THE CHALLENGES OF WORKING CONDITIONS IN THE AGE OF AI

In the current context, where artificial intelligence (AI) is increasingly infiltrating organizational mechanics, it is crucial to closely examine the impacts of this technology on working conditions and employee well-being. This section focuses on the critical issues related to the quest for a balance between operational efficiency and ethical considerations in the use of AI within companies.

Operational efficiency is a major driver of AI adoption, offering tangible benefits such as task automation, advanced data analysis, and more informed decision-making. However, it is essential to consider the repercussions of these advancements on working conditions and workers' well-being.

This in-depth analysis relies on theories such as the humanistic theory, which emphasizes Meaning at Work (MW) as an essential lever for fostering employee adaptability in the face of AI-induced transformations[34]. Concurrently, ethical concerns, particularly regarding transparency, data confidentiality, and the reduction of algorithmic biases, play a crucial role in defining a responsible framework for AI use in the workplace.[35]

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[34] *Quéméner et al. (2022) emphasize the importance of Meaningfulness of Work (MW) as a key factor in employees' adaptation to changes induced by AI.*

[35] *Salès-Wuillemin et al. (2022) highlight the ethical challenges associated with the use of AI in the workplace, particularly concerning data privacy and reducing algorithmic biases.*

Thus, this section explores the concrete challenges associated with finding a fair balance between operational efficiency and ethical considerations in AI adoption, offering a comprehensive perspective on the implications for working conditions and employee well-being.

In this exploration of the impacts of artificial intelligence (AI) on the quality of work life and working conditions, we have observed a rapid evolution of the professional landscape marked by profound changes and complex challenges. By adopting a sociological and multidisciplinary approach, we have examined the various dimensions of this transformation, highlighting both the opportunities and the challenges inherent in the growing integration of AI in the workplace.

On the one hand, AI offers promising possibilities for improving work well-being by reducing workload and promoting a better balance between professional demands and personal life. However, these advantages must be examined in light of concerns about stress, burnout, and loss of worker autonomy.

On the other hand, the quest for a balance between operational efficiency and ethical considerations proves to be a major challenge in the use of AI in the workplace. Ethical issues related to transparency, data confidentiality, and the reduction of algorithmic biases are at the heart of concerns, emphasizing the need for responsible AI use to ensure worker well-being.

Finally, to address these complex challenges, a proactive and inclusive approach is indispensable. Placing employees' well-being at the center of AI integration strategies while ensuring ethical and responsible use of this technology is essential to ensure a positive transformation of workplaces. By combining perspectives from sociology, occupational psychology, economics, and ethics, we can better understand the underlying dynamics that shape individual work experiences in an increasingly AI-dominated world.

Ultimately, the successful integration of AI in the professional environment depends on our ability to tackle these challenges with foresight and commitment. By adopting a balanced and thoughtful approach, we can fully harness AI's potential to improve work quality of life while preserving workers' dignity and well-being.

3.3   SECURITY AND ARTIFICIAL INTELLIGENCE: RECONCILING THE IRRECONCILABLE?

The prominent concern of security in artificial intelligence (AI) is both unavoidable and complex. As highlighted by Bertrand Warusfel, technology generates its own insecurity[36] through its development, deployment, and daily and intensive use. To address this crucial issue, it is imperative to start with a thorough understanding of the concept of security and its implications.

The term "security" has a rich semantic depth, with multiple and sometimes divergent connotations, making its study conceptually complex. It is best to start with the root of the word since the meaning of words is determined by their etymology[37]. "Security" finds its roots in the Latin "securitas," evoking the absence of worry, peace of mind, derived from "securus," meaning free from worry, devoid of fear, and in peace[38]. Thus, security is defined as the property of not generating danger, creating an environment where individuals or entities are not exposed to critical events or various risks such as failures, accidents, physical assaults, or theft.

This concept of security is closely linked to notions of risk, protection, prevention, and trust, forming an essential foundation for the stability and proper functioning of any society or system. In our analysis, we will primarily address two interdependent aspects of security: legal security and technical security.

Firstly, legal security represents a fundamental condition for the quality of the law, demonstrating its ability to ensure the effective and sustainable implementation of individuals' or entities' projects. By examining the legal ramifications of artificial intelligence, we seek to determine whether existing legislation is adequate to regulate current and future technological developments or if reforms are necessary to ensure adequate protection of individuals' rights and interests, particularly in professional settings.

Secondly, technical security is of paramount importance to ensure the safety and reliability of devices, processes, and technical infrastructures related to artificial intelligence. We will

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[36] *Bertrand Warusfel, "Technologies and security: regulate to regain control", Cahiers de la Sécurité et de la Justice: review of the National Institute of Advanced Studies of Security and Justice, 2021, p. 254.*

[37] *Ullmann Stephen, "Semantics and etymology", in Cahiers de l'Association Internationale des Études Françaises, 1959, n°11. p. 323.*

[38] *Dictionnaire de l'Académie française, 9e édition (current).*

explore the technical challenges inherent in securing AI systems, particularly regarding data confidentiality, resilience to cyberattacks, and prevention of potentially damaging failures.

By combining these two complementary perspectives, we aim to shed comprehensive light on the crucial security issues surrounding artificial intelligence and to formulate informed recommendations to reconcile the seemingly irreconcilable between technological progress and societal stability.

Which Should Come First: Legal Security or Technical Security? The question posed in the title seeks to establish whether technical security should precede legal security, vice versa, or if both should be developed simultaneously, and what the implications would be in each scenario.

Achieving legal security requires compliance with the imperative of technical security, thereby ensuring legitimate trust as a direct and inevitable corollary.

It is evident that absolute legal security is impossible to achieve; nonetheless, it must remain an objective towards which legal systems should strive[39], as a right that fails to ensure security in the relationships it governs would cease to be a right[40]. Law is expected to guarantee security, allowing for the prediction of legal outcomes and relying on enforcement measures to ensure rights are realized.[41]

According to Thomas Piazzon, who authored a thesis on legal security, legal security[42] is "the ideal of reliability of accessible and understandable law that allows legal subjects to reasonably foresee the legal consequences of their acts or behaviors, and which respects the legitimate expectations already established by legal subjects, thereby facilitating their realization."

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[39] *Charlotte Lemieux, 'Case law and legal certainty: a civil law perspective,' in Contemporary Law, Cowansville (Quebec), Les Éditions Yvon Blais, 1998, p. 503.*
[40] *Jean Boulouis, "Some observations about legal certainty", in Liber amicorum Pierre Pescatore, Baden Baden, Nomos Verlagsgesellschaft, 1987, p. 53.*
[41] *BERGEL, J.-L, "Legal security", Revue du notariat, 110(2), 2008.*
[42] *Thomas PIAZZON, Legal security, Thesis, Paris, University of Paris II, 2006, no. 48.*

He considers that legal security meets three classical imperatives: the accessibility of law which must be clear and understandable[43], the stability of rights and individual situations, and the predictability that must prevail.

According to Jean Carbonnier, legal security is considered a "basic legal need and, dare I say, an animal,"[44] and forms the foundation of law.

Technical security refers to the set of measures, practices, and standards put in place to protect computer systems, networks, data, and information against potential threats such as cyber-attacks, intrusions, computer viruses, and other vulnerabilities. It involves the use of specific technologies and procedures aimed at ensuring the confidentiality, integrity, and availability of digital resources. In essence, technical security aims to ensure the robustness and resilience of computer systems against potential threats.

It notably encompasses network security, operating system security, application security, data security, communication security, device security, training data security (to protect data used to train AI models against corruption, manipulation, or unauthorized disclosure), security against biases (to mitigate undesirable biases in AI models that could lead to unfair or discriminatory results), confidentiality security (to protect the confidentiality of data used by AI models, including through techniques such as homomorphic encryption or differential privacy), and more.

The relationship between technical and legal security presents three major challenges:

1. AI Challenging Legal Boundaries: AI is pushing the boundaries of law, disrupting traditional legal limits. Due to its intangible nature and extraterritorial omnipresence, AI questions the very foundations upon which law rests. Its constant, sometimes rapid and unpredictable evolution makes it elusive at times, blurring the lines between what is governed by law and what is not. This constant questioning of legal boundaries generates a series of major challenges. First, the accessibility and understanding of legal rules are put to the test. The opacity of certain algorithmic processes used in legal decisions can make it

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[43] *Accessibility (material and intellectual) of the law: clarity and intelligibility of the rule of law.*
[44] *Carbonnier, Flexible Law, ed. LGDJ, 1992, p. 172. Cited by Jean-Marc Sauvé, Vice-President of the Council of State in an intervention at the colloquium organized by the Society of Comparative Legislation at the Council of State on Friday, November 21, 2014.*

difficult for individuals and legal professionals to fully understand the reasons behind a given decision. Moreover, the speed at which AI develops makes it challenging to maintain relevant and up-to-date laws, leading to regulatory gaps. Similarly, the technicality of AI poses challenges for clarity; legal rules must be unambiguous and precise. Robust regulatory frameworks are essential to address these complexities, ensuring that AI development aligns with established legal principles and ethical standards.

2. Law Lagging Behind Technology: The law is condemned to be late; there will always be a gap between regulatory time and technological time. Larry Downes once said, "If technologies evolve at a very rapid and exponential pace, economic and social systems, on the other hand, evolve incrementally."[45] Indeed, these systems always lag behind in adapting to and assimilating the innovations brought about by the digital revolution. Thus, technological progress does not instantly translate into legal change. In adapting to a new reality, lawmakers have no choice but to lag behind it; in some situations, this delay can be acute[46]. The development of AI often occurs so swiftly that it does not leave enough time for legislators to adapt and find legal solutions. This highlights the need for proactive regulatory and ethical frameworks that can anticipate technological advancements and mitigate the risks associated with delayed legal responses.

3. AI Undermining Legal Security Components: For example, "predictability": AI can introduce elements of uncertainty due to its complexity and ability to generate unexpected outcomes. Decisions made by AI systems can be difficult to anticipate and understand, compromising the ability of individuals and organizations to predict the consequences of their actions.

The Absence of AI Regulation as a Source of Legal Insecurity: Legal insecurity is considered a Damocles sword for litigants. The purpose of law is to establish legal security in all areas: "Law is security or it is nothing,"[47] and "a law that does not ensure the security of the relationships it governs would cease to be law." This gives us a state or feeling of legal insecurity.

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[45] *Larry Downes, "Laws of Disruption: Harnessing the New Forces that Govern Life and Business in the Digital Age," Basic Books, New York, 2009.*
[46] *W. Dross, "The supervision of technologies by law: necessity and source of changes", Revue du notariat,106(3), 2004, p.5.*
[47] *B. Pacteau, "Legal security, a principle that we lack?», AJDA, 1995, special issue, p. 151.*

Often, addressing insecurity found in various legal systems involves improving the material and intellectual accessibility of law (by enhancing its clarity and intelligibility) for everyone and dedicating a general principle of legal security.

However, in certain contexts, such as in Morocco regarding AI regulation, this approach faces obstacles because legal insecurity stems not from the complexity of existing rules or their proliferation, but rather from their absence.

In this context, stakeholders involved in the development and use of AI may find themselves in a situation of uncertainty regarding applicable standards, legal responsibilities, and the consequences of their actions. The absence of clear and adapted AI regulation constitutes a major source of legal insecurity, jeopardizing the stability and fairness of legal relationships. While the law aims to establish this security, gaps remain, leading to concerning uncertainty for the parties involved.

In many legal systems, the accessibility and understanding of rules are crucial to combating legal insecurity. However, in contexts such as AI regulation in Morocco, this approach is hindered by the lack of clear standards. This regulatory framework gap plunges stakeholders involved in the development and use of AI into a state of uncertainty regarding applicable standards, legal responsibilities, and the consequences of their actions.

The increasing use of AI also raises complex legal issues in various fields, including contract law, intellectual property, civil liability, and criminal law. A cross-sectional analysis of these issues is essential to understand the legal implications of AI and to develop appropriate regulatory frameworks.

Therefore, it is imperative to establish robust regulatory and ethical frameworks to address these challenges and ensure adequate legal security in an environment increasingly influenced by AI. These frameworks should be designed to be adaptable and forward-looking, capable of evolving alongside technological advancements. They must also prioritize transparency, accountability, and fairness, ensuring that AI systems are developed and deployed in a manner that respects legal and ethical standards, thereby fostering trust and stability in the AI ecosystem.

3.4 THE CHALLENGING QUALIFICATION OF AI

In 2017, Saudi Arabia granted Saudi citizenship to the gynoid[48] Sophia[49], which intensified doctrinal debate on the legal status of AI, raising numerous questions about the legal status of robots[50]. Indeed, robots fall into the category of things; artificial intelligence, not being a person, must inevitably be classified as a thing.[51] To this day, there is no specific legal provision that applies to robotics.[52]

Legally, everything that is not a person is considered a thing[53]. However, individuals are legal subjects and have legal personality. This quality allows them, furthermore, to appropriate things. Yet, the summa divisio as originally conceived has never prevented human beings from being classified as property. The typical example of slavery confirms that the distinction between persons and things is not absolute. Thus, when it was decided that a person could have property rights over a human being, the law allowed monstrous subordination by creating the original legal concept of a "human thing.[54] "

Today, the assimilation between human person and legal personality is not absolute, as there are still many legal ambiguities regarding legal statuses such as the legal status of fetuses or the deceased.[55]

Artificial intelligence makes humans a practical object. It uses humans for its own improvement and as a learning instrument through "deep learning," which relies on a network of artificial neurons inspired by the human brain. Thus, indirectly, humans become property that is as non-appropriable as artificial intelligence is a property.[56]

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[48] *A gynoid is a humanoid robot with the appearance of a woman. See https://fr.wikipedia.org/wiki/Gyno%C3%AFde (Accessed 03/13/2024).*

[49] *Sophia, activated on April 19, 2015, in Hong Kong, China, is a Saudi gynoid. Developed by Hanson Robotics, a robotics company also based in Hong Kong, China, Sophia was designed to learn by interacting with human behavior. She is capable of answering questions and has been interviewed on numerous occasions. In October 2017, Sophia was granted Saudi citizenship, making her the world's first androgynoid to receive national citizenship. She is widely regarded as one of the most intelligent robots globally. For more information, see (https://fr.wikipedia.org/wiki/Sophia_(robot)) (Accessed 03/13/2024).*

[50] *Tarik AFALLAH "Artificial Intelligence and the Law: "Legal Issues"", op.cit. p: 31.*

[51] *Samir MRABET "towards an AI law", op.cit. p: 123.*

[52] The use of the word robot or machine refers to any machine or mechanism equipped with artificial intelligence.

[53] *AFALLAH Tarik "Artificial Intelligence and the Law:" p: 32.*

[54] *Ibid., p: 126.*

[55] *AFALLAH Tarik "Artificial Intelligence and the Law:", Op.cit., p: 32.*

[56] *https://www.futura-sciences.com/tech/definitions/intelligence-artificielle-deep-learning-17262/ (Accessed 03/13/2024).*

Artificial intelligence, by definition, is a computer program that expresses itself through the transcription of coded information. Thus, it is the result of a computer programming activity carried out by humans, and therefore an intellectual work, an intangible property. This is why the recognition by WIPO of the possibility of patenting AI-related inventions demonstrates its proprietary nature.[57]

However, part of the doctrine does not exclude conferring a legal status close to, or even identical to, that of persons upon AI. However, qualifying the legal status of artificial intelligence has become one of the questions on which not only law but also doctrine interrogates. Indeed, the status of AI is a subject of disagreement within doctrine. On one hand, there are those who agree that AI should enjoy the attributes conferred upon persons; on the other hand, there are those who say that AI is nothing more than a machine.[58]

Given that the quality of a legal subject is perceived uniformly, discussions on the legal personality of artificial intelligence can be difficult. Different forms of legal personality exist, with varying intensities of effects. For example, the personality of individuals, acquired from birth, is absolute, whereas that of legal entities is relative and less extensive. The debate over granting legal personality to artificial intelligence is complicated by this unified vision of legal subjects and the anthropomorphism associated with AI.

No characteristic of artificial intelligence justifies, under current positive law, granting it legal personality modeled after that of natural persons. According to Professor Samir MRABET: "[If the basis for granting legal personality to natural persons is uncertain, it seems clear that in no case can this benefit be extended to any entity other than the human person. [...] If chimpanzees, who share 98% of the genetic code of human beings, cannot claim a legal personality comparable to that of human beings, there is no justification for machines to be granted such status...][59] "

The law confers legal personality on groups to facilitate their functioning. Without this recognition, management would be much more difficult. It would also be beneficial to grant legal personality to artificial intelligence, allowing robots to enter into contracts and

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[57] *It should be emphasized that artificial intelligence is software, and software is protected by intellectual property law, especially by copyright. Therefore, artificial intelligence is an asset that can be appropriated under traditional legal principles.*
[58] *AFALLAH Tarik "Artificial Intelligence and the Law:" p: 34.*
[59] *Idem p : 136.*

manage their assets in order to pay insurance premiums. Artificial intelligence, generated through the collaboration of several individuals, then acts autonomously to interact with third parties, which has a positive impact on all.

Granting legal personality to artificial intelligence is challenging and raises crucial legal questions. The EU has suggested the establishment of an "electronic personality" for advanced AI, aiming to attribute rights and responsibilities to them, including repairing damages caused to third parties. This proposal was adopted by the European Parliament on February 16, 2017, and involves assigning a unique identification number to each robot, registered in an EU register. This number would provide access to information about the fund to which the robot is linked, obligations in case of damages, names of contributors, and other relevant information. Despite controversies, this initiative could materialize in certain countries with official recognition from their legal system.

4 LIMITS AND FUTURE AVENUES OF RESEARCH

The complexity and variability of AI applications are significant, posing challenges in generalization due to the diversity of sectors and technologies involved. Assessing the impact of AI is influenced by the quality and availability of data. AI technologies are advancing rapidly, leading to quick obsolescence of research, necessitating constant methodological updates. It is difficult for legal and regulatory frameworks to keep pace, resulting in a lag behind reality. Objectively evaluating the social and ethical consequences of AI is complex, making the integration of ethical issues such as bias or surveillance into research challenging. These challenges underscore the importance of a multidimensional approach to grasp AI's influence on society.

Developing interdisciplinary approaches that integrate computer science, social sciences, economics, and law is essential for gaining a comprehensive understanding of AI's repercussions. Fostering collaboration among academics, research centers, and businesses is crucial for conducting applied and relevant research. Improving data collection and analysis using Big Data and AI technologies is essential for accurately assessing consequences. Enhancing transparency and data accessibility through appropriate policies is necessary to ensure rigorous and reproducible research. Technological advancements call for updates in legal and ethical standards, including the adoption of adaptive regulatory

frameworks and ethical charters. Longitudinal studies are crucial to assess the long-term effects of AI on quality of life and working conditions. Finally, implementing educational programs and awareness campaigns is vital to train employees, inform the public and policymakers about the benefits and risks of AI, and foster an ethical and responsible culture.

5   CONCLUSION

The impact of artificial intelligence (AI) on working conditions and employees' quality of life is a fundamental research topic in today's rapidly transforming digital landscape. The increasing integration of AI in professional environments presents significant opportunities, including improvements in operational efficiency and workload reduction. However, it also raises major ethical concerns such as algorithm transparency, data privacy, and mitigating algorithmic biases.

On one hand, AI adoption can potentially enhance employee well-being by reducing repetitive tasks and promoting a better work-life balance. Nevertheless, these benefits must be balanced with heightened vigilance against risks such as stress, burnout, and loss of worker autonomy.

On the other hand, achieving a balance between operational efficiency and ethical considerations remains a central challenge. Organizations must adopt a proactive and inclusive approach, placing employee well-being at the heart of their AI integration strategies. Developing robust regulatory and ethical frameworks is imperative to ensure responsible AI use, thereby minimizing potential negative impacts on working conditions and employee well-being.

In conclusion, developing interdisciplinary approaches that incorporate perspectives from computer science, social sciences, economics, and law is crucial for fully understanding AI's societal impacts. Collaboration among academics, research centers, and businesses plays a critical role in conducting applied and relevant research. Concurrently, promoting educational programs and awareness campaigns is essential to educate employees and inform the public about the benefits and risks of AI, while fostering an ethical and responsible culture.

REFERENCES

- **Reference to a journal publication:**

Akinwale, O.E., Kuye, O.L., & Akinwale, O.E. (2024). Workaholism and quality of work-life: a psychosocial pathway to brain-drain syndrome. Management Decision, Vol. 62 No. 4.

Arifah, I., Wijayati, D., Rahman, M., & Kautsar, A. (2022). A study of artificial intelligence on employee performance and work engagement: The moderating role of change leadership. International Journal of Manpower, 43, 486-512.

Clausen, T., Pedersen, L., Andersen, M., Theorell, T., & Madsen, I. E. H. (2021). Job autonomy and psychological well-being: A linear or a non-linear association? European Journal of Work and Organizational Psychology, 31, 1-11.

Cramarenco, A., Dabija, D. C., & Dan-Cristian, M. (2023). The impact of artificial intelligence (AI) on employees' skills and well-being in global labor markets: A systematic review. Oeconomia Copernicana.

Dubois, O. (2019). De quelle manière le bien-être au travail contribue-t-il à la performance de l'organisation ? KEDGE BUSINESS SCHOOL.

Duperray, D., Salès-Wuillemin, E., & Minondo-Kaghad, B. (2023). Sens au travail et qualité de vie au travail en contexte de changement organisationnel : Une étude exploratoire.

Mammadov, A. I. (2019). Effective Utilization of Human Potential and Labor Productivity. In M. Ibrahimov, A. Aleksic, & D. Dukic (Eds.), Economic and Social Development (ESD 2019): 37th International Scientific Conference on Economic and Social Development - Socio Economic Problems of Sustainable Development (pp. 288-294). Varazdin: Varazdin Development & Entrepreneurship Agency.

Masriadi, D., Ekaningrum, N., Hidayat, M., & Yuliati, F. (2023). Exploring the Future of Work: Impact of Automation and Artificial Intelligence on Employment. ENDLESS : International Journal of Future Studies, 6(1), 125-136.

Mhimra, M. (2020). Bien-Etre au Travail : Quels Déterminants Organisationnels ? International Journal Of Economics And Strategic Management Of Business Process (ESMB), Vol.17.

Nardon, L., Zilber, S.N., & de Moraes, G.H.S.M. (2023). Digital transformation and the meaning of work: Exploring the Brazilian context. Journal of Business Research, 157, 113790.

Ray, R.L., & Park, E. (2023). The impact of organizational justice on QWL and employee well-being: A study on South Korean organizations. Journal of Organizational Behavior, 44(3).

Salzberg, P.M., & Vincent, K. (2023). AI integration in the workplace and its effects on employee satisfaction and QWL. International Journal of Human-Computer Interaction, 39(2).

Warusfel, B. (2021). Technologies et sécurité : réguler pour reprendre le contrôle. Cahiers de la sécurité et de la justice, Revue de l'Institut national des hautes études de la sécurité et de la justice.

- **Reference to a book:**

Meneceur, Y. (2020). L'intelligence artificielle en procès : Plaidoyer pour une réglementation internationale et européenne. Bruylant Editions.