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# A novel Conceptualization of AI Literacy and Empowering Employee Experience at Digital Workplace Using Generative AI and Augmented Analytics: A Survey



**Abstract:** - With the fast, rapid, and expeditious integration of Artificial Intelligence (AI) technologies, particularly Generative AI and Augmented Analytics, organizations are presented with new opportunities to transform their operations and empower their workforce. This paper explores the intersection of AI literacy, Generative AI, and Augmented Analytics to propose strategies for fostering a culture of AI fluency among employees. This paper reviews the literature on AI literacy and its potential implications for employee experience (Ex) in digital workplaces. AI literacy and competency is the ability to understand, interact with, and thoughtfully assess the applications and ramifications of artificial intelligence (AI) across diverse domains. The paper argues that AI literacy is a key competence for employees in the digital era, as it enables them to leverage the potential of generative AI and augmented analytics, two of the most promising technologies for enhancing Ex. Generative AI refers to the use of AI to create novel and diverse outputs, such as text, images, music, or designs, while augmented analytics drives potential capability to make use of Artificial Intelligence technologies to automate and augment data analysis and decision-making. The paper discusses how these technologies can empower employees to be more creative, productive, collaborative, and engaged in their work and the challenges and risks they pose. This paper additionally highlights the obstacles, deficiencies, and proposed pathways for further research advancement concerning AI technological competency and literacy, aiming to enhance the employee experience significantly in digital workplaces.

**Keywords:** AI Literacy, Artificial Intelligence, Generative AI, Augmented Analytics, Digital Workplaces, Employee Experience, Insights, Employee Productivity, Collaboration, Generative AI Integration.

## I. INTRODUCTION

Artificial intelligence (AI) transforms the nature and future of work, creating new opportunities and challenges for employees and organizations. AI is the technology, algorithm-based model, science, machine learning and engineering of creating powerful intelligent systems and machines deliver and perform tasks typically associated with human intelligence, including learning, perception, reasoning, decision-making, and utilizing AI-powered natural language processing (Russell and Norvig, 2016). AI framework has been applied to domains and industries healthcare, education, manufacturing, finance, retail, and entertainment, to improve efficiency, quality, innovation, and customer satisfaction. However, AI also poses significant ethical, social, and psychological implications for the workforce, such as job displacement, skill mismatch, bias, discrimination, privacy, accountability, and trust (Daugherty and Wilson, 2018; Davenport and Kirby, 2016; Schwab, 2016).

In this context, employees must develop the skills and competencies to adapt and thrive in the digital era. One of the most critical and yet underexplored competencies is AI literacy, which is the ability to understand, interact with, and critically evaluate the applications and implications of AI in various domains (Bundy, 2017; Lankshear and Knobel, 2008; Rainie and Anderson, 2017). AI literacy is about learning powerful skills, such as algorithms, programming or data handling and analysis, and cognitive intelligence, social, and emotional skills, such as problem-solving, communication, enhanced collaboration, super creativity, and ethical awareness. AIML literacy is urgent need for employees to apply the capability and leverage the augmented potential of AIML, to cope with its challenges and risks, and to participate in the design and governance of AIML tech systems that are powerfully integrated with human centric values and goals (Bundy, 2017; Rainie and Anderson, 2017; Selwyn, 2019).

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One of the critical domains where AI literacy can significantly impact is employee experience (Ex), which can be described as the aggregated of all the collaborative efforts, interactions, learnings, and perceptions that employees perform work and interact with environment, tasks, colleagues, managers, and organization (Morgan, 2017). Employee Experience is a holistic and multidimensional concept encompassing various aspects of work, such as physical, cognitive, emotional, social, and cultural. Employee Experience is a dynamic and subjective concept that varies across individuals, contexts, and time. Employee Experience is important for employees and organizations, as it affects employee well-being, engagement, performance, retention, loyalty, organizational productivity, innovation, reputation, and customer satisfaction (Morgan, 2017; Pink, 2009; Saks, 2006).

This paper aims to review the literature on the emerging topic of AI literacy and its implications for employee experience in digital workplaces, which are characterized by the pervasive use of digital trending platforms and technologies delivering through cloud computing, mobile devices, social media, and AIML, to support work processes and outcomes (Bharadwaj et al., 2013; Kane et al., 2015). The paper focuses on two of the most promising technologies for enhancing Ex: generative AI and augmented analytics. Generative AI refers to the use of AI to create novel and diverse outputs, such as text, images, music, or designs, that are not based on existing data or examples but on learned rules, patterns, or preferences (Goodfellow et al., 2016; Lake et al., 2017). Augmented analytics uses AI to automate and augment data analysis and decision-making by providing insights, recommendations, explanations, and predictions tailored to the user's context, goals, and preferences (Gartner, 2018; Shneiderman, 2019). The paper discusses how these technologies can empower employees to be more creative, productive, collaborative, and engaged in their work and the challenges and risks they pose, for Ex. The paper also highlights opportunities for future investigation on AI literacy and Ex in digital workplaces.

#### A. *AI Literacy*

AI literacy is a relatively new and evolving concept defined and operationalized differently by different disciplines and stakeholders. However, a common thread that runs through most of the definitions is that AI literacy is not a binary or static concept but a continuum and a process that involves multiple dimensions and levels of understanding, interaction, and evaluation of AI (Bundy, 2017; Lankshear and Knobel, 2008; Rainie and Anderson, 2017). Applying this framework to AI, we define AI literacy and competency as the potential ability to:

- Read and write AI texts, which are the outputs and inputs of AI systems, such as natural language, images, sounds, or data, that convey meaning and information. This includes comprehending, interpreting, analyzing, synthesizing, and generating AI texts and recognizing their quality, validity, reliability, and relevance.
- Use and create AI tools, devices, and applications that enable the production and consumption of AI texts, such as smartphones, computers, software, platforms, or algorithms. This includes the ability to operate, manipulate, customize, and innovate AI tools and understand their functionality, limitations, and implications.
- Participate and contribute to AI contexts, which are the situations and environments where AI texts and tools are used and created, such as work, education, entertainment, or civic life. This includes the ability to communicate, collaborate, and co-create with AI systems and other humans and critically evaluate AI's ethical, social, and psychological impacts on individuals, groups, and society.

AI literacy is essential for employees in the digital era, as it enables them to leverage the potential of AI, to cope with its challenges and risks, and to participate in the design and governance of AI technologies stack that are aligned with human competency, values, and goals (Bundy, 2017; Rainie and Anderson, 2017; Selwyn, 2019). AI literacy can help employees to:

- Enhance their creativity and innovation using AI tools to generate novel and diverse outputs, explore new possibilities and solutions, and combine and recombine AI texts from different domains and sources.
- Improve productivity and efficiency by using AI tools to automate and augment their tasks, optimize their workflows and processes, and access and analyze large and complex data sets.
- Facilitate collaboration and communication by using AI tools to coordinate and cooperate with other humans and AI systems, share and exchange AI texts and feedback, and bridge linguistic and cultural barriers.

- Increase their engagement and well-being by using AI tools to personalize and customize their work environment, tasks, and goals, to receive and provide support and guidance, and to balance their work and life demands.
- Develop their critical and ethical awareness by using AI tools to evaluate the quality, validity, reliability, and relevance of AI texts, to identify and address the bias, discrimination, privacy, accountability, and trust issues of AI tools, and to reflect on the ethical, social, and psychological impacts of AI on themselves, others, and society.

### 1) *Components of AI Literacy*

AI literacy encompasses a range of skills and understandings necessary for individuals to effectively engage with, understand, and critically evaluate artificial intelligence technologies. Here are some key components:

a) *Understanding AI Concepts:* This includes grasping fundamental concepts of artificial intelligence and machine learning, artificial neural networks, algorithms, and data science. Understanding the basic principles behind AI systems work is essential for building a foundation in AI literacy.

b) *Data Literacy:* AI systems rely heavily on data. Therefore, individuals must understand data collection, types, pre-processing, bias, and privacy. Being able to interpret data and understand its limitations is crucial for informed decision-making in AI contexts.

c) *Ethical Considerations:* AI raises various ethical concerns, including issues related to fairness, accountability, transparency, and privacy. AI literacy involves understanding and considering these ethical implications when developing, deploying, or interacting with AI systems.

d) *Critical Thinking and Evaluation:* AI literacy entails the capacity to thoughtfully assess AI technologies, which includes recognizing their constraints, prejudices, and potential societal ramifications. It's imperative for individuals to cultivate critical thinking abilities to scrutinize the accuracy and trustworthiness of AI-generated results and forecasts.

e) *Algorithmic Awareness:* Understanding how algorithms function, including their biases and potential for discrimination, is essential for AI literacy. This includes awareness of algorithmic decision-making in various domains of finance, healthcare, and criminal justice.

f) *Coding and Programming Skills:* While not always necessary, having basic coding and programming skills can enhance AI literacy by enabling individuals to understand how AI algorithms are implemented and how they can be customized or modified.

g) *Domain-Specific Knowledge:* AI applications are diverse and encompass a wide array of fields and extend across diverse sectors healthcare, finance, education, and transportation. AI literacy involves understanding how AI is being used in different domains and its potential impact within those domains.

h) *Communication Skills:* AI applications are diverse and encompass a wide array of fields and extend across diverse sectors healthcare, finance, education, and transportation. AI literacy involves understanding how AI is being used in different domains and its potential impact within those domains.

i) *Continuous Learning and Adaptation:* Given the rapid advancement in AI technologies, AI literacy also involves a commitment to continuous learning and adaptation. Keeping abreast of the latest advancements and trends in AI is crucial for sustaining AI literacy in the long term.

Conceptualizing AI literacy involves defining the key components, objectives, and principles that guide individuals in understanding, engaging with, and critically evaluating artificial intelligence technologies.

### 2) *Objectives of AI Literacy*

The objectives of AI literacy encompass a range of goals aimed at equipping individuals with the knowledge, skills, and attitudes necessary to understand, interact with, and critically evaluate artificial intelligence technologies. Here are some key objectives of AI literacy:

- a) *Empowerment:* AI competency and literacy endeavours to equip individuals with the knowledge and skills necessary to make well-informed decisions, champion ethical AI standards, and actively contribute to the conscientious advancement and application of AI technologies.
- b) *Inclusion:* AI literacy should be accessible to individuals from diverse backgrounds, ensuring everyone can participate and benefit from AI-driven advancements.
- c) *Ethical Awareness:* AI literacy promotes ethical awareness and responsible AI use, helping individuals understand and navigate the ethical implications of AI technologies.
- d) *Skills Development:* AI literacy aims to develop a diverse set of skills, including technical, critical design thinking, communication, and problem troubleshooting skills, to enable individuals to engage effectively with AI technologies.

### 3) *Principles of AI Literacy*

The principles of AI literacy provide a framework for individuals to understand, engage with, and evaluate artificial intelligence technologies effectively. These principles encompass foundational concepts, ethical considerations, practical skills, and critical thinking abilities essential for navigating the AI landscape. Here are some key principles of AI literacy:

- a) *Accessibility:* AI literacy initiatives should be accessible to individuals of all backgrounds, regardless of age, gender, ethnicity, or socioeconomic status.
- b) *Transparency:* AI literacy programs should be transparent in their objectives, content, and outcomes, providing individuals with clear information about what they will learn and how it will benefit them.
- c) *Inclusivity:* AI literacy efforts should be inclusive, considering the diverse perspectives, needs, and experiences of individuals from different communities and cultures.
- d) *Responsibility:* AI literacy promotes responsible AI use, emphasizing the importance of considering ethical implications, addressing biases, and ensuring accountability and transparency in AI-driven decision-making processes.
- e) *Lifelong Learning:* AI literacy is a lifelong journey, requiring individuals to continuously update their knowledge and skills to keep pace with advancements in AI technologies.

By conceptualizing AI literacy in this way, organizations and educators can develop comprehensive AI literacy programs that empower individuals to engage responsibly and effectively with AI technologies in various contexts.

By developing proficiency in these components, individuals can enhance their AI literacy and contribute positively to the responsible development and use of artificial intelligence technologies.

### 4) *Working on AI Literacy*

AI literacy involves several interconnected processes to equip individuals with the knowledge, skills, and attitudes necessary to understand, engage with, and critically evaluate artificial intelligence technologies. Here is how it typically works:

- a) *Education and Awareness:* The process begins with education and awareness initiatives introducing individuals to artificial intelligence concepts, principles, and applications.
- b) *Foundational Understanding:* AI literacy starts with a foundational understanding of critical concepts of artificial intelligence and machine learning, artificial neural networks, algorithms, and data science.

- c) *Practical Experience:* Practical engagement is essential for fostering AI literacy. Through hands-on exercises, projects, and simulations, individuals gain first-hand experience applying AI concepts and techniques in authentic contexts, enhancing their comprehension and proficiency in AI.
- d) *Critical Thinking and Evaluation:* AI literacy involves developing critical thinking skills to evaluate AI technologies critically. Individuals learn to assess AI systems' validity, reliability, and ethical implications, including understanding biases, limitations, and potential societal impacts.
- e) *Ethical Considerations:* AI literacy emphasizes the importance of ethical considerations in developing and using AI technologies. Individuals learn about moral principles and frameworks relevant to AI, such as fairness, transparency, accountability, and privacy, and how to apply them in practice.
- f) *Continuous Learning and Adaptation:* AI is a rapidly evolving field, so AI literacy requires a commitment to continuous learning and adaptation.
- g) *Application in Various Domains:* AI literacy is applied across domains healthcare, finance, education, and transportation. Individuals learn how AI is used in different contexts, its potential benefits, risks, and societal implications, and how to engage with AI technologies within those domains responsibly.
- h) *Communication and Collaboration:* Effective communication and collaboration are essential for AI literacy.
- i) *Empowerment and Empowerment:* AI literacy aims to empower individuals to become informed and responsible participants in the AI-driven world.

#### 5) *Limitations of AI Literacy*

While AI literacy is crucial for enabling individuals to understand, engage with, and critically evaluate artificial intelligence technologies, it also has limitations. Some of these limitations include:

- a) *Complexity of AI Concepts:* AI concepts can be highly complex and technical, making it challenging for individuals without a computer science or mathematics background to grasp them fully. AI literacy programs may struggle to simplify these concepts adequately for broader audiences.
- b) *Rapidly Evolving Field:* AI is continuously advancing, with constant emergence of new technologies, algorithms, and applications. Ensuring that AI literacy programs remain current with these developments poses a challenge, as it may lead to outdated information over time.
- c) *Lack of Access to Resources:* Access to quality educational resources and opportunities for learning AI literacy may be limited in specific regions or communities, particularly in developing countries or underserved areas. This can create disparities in AI literacy levels across different populations.
- d) *Bias and Misinformation:* Like any field, AI literacy is susceptible to bias and misinformation. Individuals may encounter inaccurate or misleading information about AI concepts, applications, or ethical considerations, hindering their understanding and decision-making.
- e) *Ethical and Societal Implications:* AI literacy programs may fall short in addressing the ethical and societal ramifications inherent in AI technologies addressing privacy, fairness, transparency, accountability, and the potential impact on jobs and inequality.
- f) *Interdisciplinary Nature:* AI intersects with various disciplines, including computer science, mathematics, ethics, sociology, and law.
- g) *Limited Focus on Practical Skills:* While AI literacy programs often provide theoretical knowledge about AI concepts and principles, they may not always emphasize practical skills development, such as coding, data analysis, or algorithmic design, essential for applying AI technologies in real-world contexts.
- h) *Cultural and Contextual Differences:* AI literacy programs might overlook the cultural or contextual variations in perceptions, development, and regulation of AI technologies across diverse regions or societies.

i) *Overemphasis on Technical Skills:* Some AI literacy programs may overemphasize technical skills at the expense of broader competencies such as critical thinking, communication, and ethical reasoning, which are also essential for engaging with AI technologies responsibly.

Addressing these limitations requires a holistic approach to AI literacy that considers diverse perspectives, fosters interdisciplinary collaboration, promotes access to resources and education, encourages critical thinking and ethical reasoning, and adapts to the evolving nature of AI technologies and their societal implications.

6) *Comparison of AI Literacy*

Below is a comparison chart outlining various aspects of AI literacy:

**Table 1: Comparison of AI Literacy**

| Aspect                           | Definition  | Importance   | Challenges   | Strategies for Improvement  |
|----------------------------------|---|--|--|---|
| Understanding AI Concepts        | Grasping fundamental AI principles and concepts                 | Essential for building a foundation in AI literacy                     | Technical complexity may be a barrier for some individuals | Provide simplified explanations, visual aids, and interactive learning materials                          |
| Data Literacy                    | Understanding data collection, preprocessing, bias, and privacy | Critical for informed decision-making in AI contexts                   | Limited access to quality data and resources               | Offer hands-on exercises, case studies, and real-world data sets for practice.                            |
| Ethical Considerations           | Understanding the ethical implications of AI technologies       | Responsible development and utilization of AI are paramount.           | Ethical considerations may be overlooked or undervalued    | Integrate ethics modules into AI literacy programs, promote discussion and reflection on ethical dilemmas |
| Critical Thinking and Evaluation | Developing skills to evaluate AI technologies critically        | Essential for assessing the validity, reliability, and impacts of AI   | Limited awareness of biases and limitations of AI systems  | Foster critical thinking through case studies, debates, and exercises in evaluating AI applications       |
| Algorithmic Awareness            | Understanding algorithms, biases, and decision-making processes | It is essential to recognize potential biases and discrimination in AI | Lack of understanding of algorithmic processes             | Provide explanations and examples of algorithmic decision-making in various domains.                      |

This comparative chart underscores the intricate dimensions of AI literacy, emphasizing the significance of comprehensively addressing diverse facets to empower individuals with the requisite knowledge, competencies, and ethical perspectives for responsible engagement with AI technologies.

*B. Research Objective*

The research objective of AI literacy and empowering employee experience involves exploring how organizations can leverage artificial intelligence (AI) literacy initiatives to enhance employees' skills, knowledge, and confidence in understanding and effectively utilizing AI technologies within their work environments. This objective encompasses several key areas of focus:

1) *Assessment of Current AI Literacy Levels:* The research aims to assess organizational employees' existing AI literacy levels. This involves understanding their familiarity with AI concepts, their ability to apply AI technologies in their work, and any existing gaps or challenges they face.

- 2) *Identification of Training Needs:* Precise training requirements and opportunities for enhancing AI literacy and competency among employees is crucial. This includes understanding which AI concepts or applications are most relevant to their roles and where additional education or support may be required.
- 3) *Development of AI Literacy Programs:* Based on the identified training needs, the research aims to explore designing and implementing AI literacy programs tailored to employees' unique requirements and preferences. This includes determining the most effective delivery methods, content formats, and learning resources.
- 4) *Evaluation of Program Effectiveness:* The research seeks to assess the effectiveness of AI literacy programs in enhancing employees' understanding and proficiency in AI technologies. This involves measuring improvements in AI literacy levels and evaluating the impact of these programs on employee confidence, job performance, and organizational outcomes.
- 5) *Integrating AI into Employee Experience:* Beyond training, the research explores how organizations can integrate AI technologies into the overall employee experience. This includes identifying opportunities to leverage AI tools and applications to streamline workflows, enhance productivity, and support employee development and collaboration.
- 6) *Promotion of Ethical AI Practices:* A crucial aspect of AI literacy research is promoting ethical AI practices among employees. This involves raising awareness of ethical considerations surrounding AI technologies, fostering a culture of responsible AI use, providing guidance on mitigating biases, and ensuring fairness and transparency in AI-driven decision-making processes.
- 7) *Measurement of Employee Empowerment:* Ultimately, the research aims to gauge the impact of AI literacy initiatives on enhancing employee empowerment and satisfaction levels. This involves assessing factors such as job satisfaction, engagement, retention, and perceived opportunities for growth and advancement within the organization.

By addressing these research objectives, organizations can gain valuable insights into effectively empowering their employees through AI literacy initiatives, ultimately enhancing their capacity to leverage AI technologies and drive innovation and success in the digital era.

### C. *Structure of AI Literacy and Employee Experience Empowerment*

Structuring AI literacy and empowering employee experience involves several key components and strategies to ensure that employees develop the essential and trending skills, knowledge, and confidence to perform and deliver the efficient work with artificial intelligence powered technologies in the workplace effectively and to make customer experience better. Here is a structured approach:

- 1) *Assessment and Baseline Establishment*
  - a) Conduct an initial assessment of employees' knowledge and familiarity with AI concepts and technologies.
  - b) Identify baseline levels of AI literacy across different departments or teams within the organization.
- 2) *Identifying Training Needs*
  - a) Analyse job roles and tasks to determine which AI concepts and applications most relate to employees' responsibilities.
  - b) Identify areas where employees may require additional education or support in effectively understanding and using AI technologies.
- 3) *Developing Customized AI Literacy Programs:*
  - a) Design AI literacy programs tailored to employees' identified training needs and learning preferences.

- b) Offer a mix of training modalities, such as online courses, workshops, tutorials, and hands-on exercises, to accommodate diverse learning styles.
- c) Incorporate real-world examples and case studies relevant to employees' job roles and industries to enhance relevance and applicability.
- 4) *Providing Accessible Learning Resources:*
  - a) Ensure that learning resources, such as training materials, tutorials, and reference guides, are easily accessible to employees.
  - b) Leverage digital learning platforms and tools to facilitate self-paced learning and continuous skill development.
- 5) *Promoting Ethical AI Practices:*
  - a) Integrate modules on ethical considerations in AI into the training curriculum to raise awareness of ethical issues and promote responsible AI use.
  - b) Guide on mitigating biases, ensuring fairness and transparency, and upholding privacy and data security standards in AI-driven initiatives.
- 6) *Encouraging Hands-on Practice and Application:*
  - a) Offer opportunities for employees to apply AI skills and knowledge and develop high class products.
  - b) Provide access to AI tools and platforms for experimentation and exploration, allowing employees to gain practical experience and confidence in using AI technologies.
- 7) *Fostering Collaboration and Knowledge Sharing:*
  - a) Encourage collaboration and knowledge sharing among employees through cross-functional projects, communities of practice, and peer learning forums.
  - b) Facilitate interactions between AI experts and novices to promote mentorship and skill transfer within the organization.
- 8) *Monitoring and Evaluation:*
  - a) Regularly assess employees' progress and proficiency in AI literacy through quizzes, assessments, or performance evaluations.
  - b) Solicit employee feedback to identify areas for improvement and refine the AI literacy programs accordingly.
- 9) *Recognizing and Rewarding Achievement:*
  - a) Recognize and reward employees who demonstrate proficiency in AI literacy and contribute to the organization's AI-driven initiatives.
  - b) Provide opportunities for career advancement and professional development for employees who effectively leverage AI technologies.

By following this structured approach, organizations can effectively enhance AI literacy among employees and empower them to leverage AI technologies to drive innovation, productivity, and success in the workplace.

#### D. *Generative AI and Augmented Analytics*

This section reviews the literature on two of the most promising technologies for enhancing employee experience in digital workplaces: generative AI and augmented analytics. We discuss how these technologies can empower employees to be more creative, productive, collaborative, and engaged in their work and the challenges and risks



they pose, for Ex. We also highlight the implications and recommendations for AI literacy development and education for employees and organizations.

Generative AI is a branch of AI that aims to create novel and diverse outputs, such as text, images, music, or designs, that are not based on existing data or examples but on learned rules, patterns, or preferences (Goodfellow et al., 2016; Lake et al., 2017). Generative AI is a form of computational creativity, the study and simulation of human creativity using computers (Boden, 2009; Colton and Wiggins, 2012). Generative AI is applied for various purposes entertainment, education, art, science, or business, to generate new content, products, services, or solutions or to enhance existing ones (Goodfellow et al., 2016; Lake et al., 2017).

Generative AI leverages sophisticated techniques like generative adversarial networks (GANs), which comprise two neural networks: a generator and a discriminator. The generator crafts authentic-looking outputs, aiming to deceive the discriminator, which, in turn, differentiates between genuine and synthetic outputs. Through iterative learning, both the generator and discriminator refine their abilities until reaching an equilibrium point where the generator can produce outputs virtually identical to genuine ones (Goodfellow et al., 2014). GANs have been used to generate realistic and diverse images, such as faces, animals, landscapes, or artworks, as well as to manipulate, enhance, or transform existing images, such as changing the style, color, or expression of an image (Karras et al., 2019; Zhu et al., 2017).

Another popular and powerful technique for generative AI is natural language generation (NLG), which creates natural language texts from non-linguistic inputs, such as data, keywords, or images. NLG is used for various purposes, such as summarization, translation, captioning, storytelling, or dialogue, to generate informative, persuasive, or entertaining texts or to enhance existing texts, such as rewriting, paraphrasing, or editing (Gatt and Kraemer, 2018; Reiter and Dale, 2000). NLG has made significant advancement by the development of deep learning models, recurrent neural networks (RNNs) and transformers, which can learn from large and diverse corpora of texts and generate coherent and fluent texts, as well as adapt to different styles and tones, or domains (Brown et al., 2020; Radford et al., 2019).

Generative AI can offer various opportunities and benefits for Ex in digital workplaces, such as:

- 1) Enhancing creativity and innovation by providing employees with novel and diverse outputs that can inspire them, stimulate their imagination, and expand their horizons. For example, employees can use generative AI to generate new ideas, concepts, or prototypes for their projects, products, or services or to enhance their existing ones with new features, functions, or designs (Lake et al., 2017; Lipton and Tripathi, 2017).
- 2) Improving productivity and efficiency by automating and augmenting tasks that require generating outputs, such as writing, designing, or composing. For example, employees use generative AI models to produce texts, images, or sounds that can be used for their reports, presentations, or marketing materials or to improve their quality, clarity, or attractiveness (Gatt and Kraemer, 2018; Goodfellow et al., 2016).
- 3) Facilitating collaboration and communication by enabling employees to share and exchange outputs with other humans and AI systems and to receive and provide feedback and suggestions. For example, employees can use generative AI to collaborate with other employees or customers to create or modify outputs or communicate with AI systems that generate outputs or respond to their queries or commands (Colton and Wiggins, 2012; Reiter and Dale, 2000).
- 4) Increasing engagement and well-being by providing employees with outputs that can satisfy their needs, preferences, and goals and that can challenge and motivate them. For example, employees can use generative AI to personalize and customize their outputs according to their tastes, styles, or moods or to generate outputs that can entertain, educate, or reward them (Boden, 2009; Lipton and Tripathi, 2017).

However, generative AI can also pose various challenges and risks for Ex in digital workplaces, such as:

- 5) Reducing creativity and innovation by limiting or replacing human input, agency, and ownership or by generating trivial, clichéd, or inappropriate outputs. For example, employees may rely too much on generative AI to produce outputs without exercising their creativity, judgment, or responsibility, or they receive outputs that are

unrelated, objectionable, or detrimental to their projects, products, or services (Boden, 2009; Lipton and Tripathi, 2017).

6) Decreasing productivity and efficiency by generating inaccurate, inconsistent, or incomprehensible outputs or requiring more time, effort, or resources to verify, edit, or correct them. For example, employees may encounter errors, mistakes, or contradictions in the outputs generated by AI, or they may need to spend more time, effort, or resources to check, revise, or improve them (Gatt and Kraemer, 2018; Goodfellow et al., 2016).

7) Impair collaboration and communication by creating confusion, misunderstanding, or conflict among humans and AI systems or by violating different stakeholders' norms, values, or expectations. For example, employees may have difficulty understanding, interpreting, or trusting the outputs generated by AI, or they may face ethical, social, or legal issues when sharing or exchanging outputs with other employees or customers (Colton and Wiggins, 2012; Reiter and Dale, 2000).

8) Diminishing engagement and well-being by generating boring, repetitive, or predictable outputs or causing stress, anxiety, or dissatisfaction. For example, employees may lose interest, curiosity, or enjoyment in their work, or they may feel threatened, pressured, or unhappy by the outputs generated by AI (Boden, 2009; Lipton and Tripathi, 2017).

Therefore, generative AI requires high AI literacy for employees and organizations to maximize its benefits and minimize its risks for employee experience. AI literacy can help employees and organizations to:

9) Develop their creative and critical skills by learning how to generate, evaluate, and use the outputs produced by AI, as well as how to combine and recombine them with human inputs and outputs, to create novel and valuable outputs that meet their needs and goals (Boden, 2009; Lipton and Tripathi, 2017).

10) Improve their technical and operational skills by learning how to operate, manipulate, and customize the AI tools that generate outputs, as well as how to understand their functionality, limitations, and implications in order to produce accurate, consistent, and comprehensible outputs that meet their standards and requirements (Gatt and Kraemer, 2018; Goodfellow et al., 2016).

11) Facilitate their social and emotional skills by learning how to communicate, collaborate, and co-create with AI systems and other humans, as well as how to negotiate and align the norms, values, and expectations of different stakeholders in order to share and exchange outputs that meet their ethical, social, and legal obligations (Colton and Wiggins, 2012; Reiter and Dale, 2000).

12) Increase their personal and professional skills by learning how to personalize and customize their outputs according to their tastes, styles, and moods, as well as how to balance and integrate their work and life demands in order to generate outputs that meet their interests, preferences, and aspirations (Boden, 2009; Lipton and Tripathi, 2017).

AI literacy can be developed and educated through various methods and strategies, such as:

13) Providing employees with training and guidance on how to use and create generative AI tools and outputs, as well as how to evaluate and improve their quality, validity, reliability, and relevance, using online or offline courses, tutorials, manuals, or mentors (Bundy, 2017; Lankshear and Knobel, 2008).

14) Encouraging employees to experiment, explore generative AI tools and outputs, and reflect and learn from their experiences, outcomes, and feedback using online or offline platforms, communities, or portfolios (Boden, 2009; Colton and Wiggins, 2012).

15) Engaging employees in co-design and co-creation of generative AI tools and outputs, as well as in co-evaluation and co-governance of their ethical, social, and psychological impacts, using online or offline workshops, forums, or councils (Lankshear and Knobel, 2008; Selwyn, 2019).

16) Recognizing and rewarding employees for their achievements and contributions in using and creating generative AI tools and outputs, as well as for their adherence and advocacy of their ethical, social, and legal obligations, using online or offline certificates, badges, or awards (Bundy, 2017; Rainie and Anderson, 2017).

## II. LITERATURE REVIEW AND RELATED WORK

Here is a literature review, some critical studies, and research papers on this topic highlights the conceptualization of AI literacy and empowering employee experience at digital workplaces using Generative AI and augmented analytics:

This paper enriches our comprehension of the definition and scope of artificial intelligence (AI) literacy, shedding light on how digital technologies, including AI, prompt organizational opportunities in work environments. It involves comprehensive efforts to ensure individuals possess the requisite knowledge, skills, and awareness to effectively engage with artificial intelligence technologies within their professional environments. This includes providing education and training programs tailored to different skill levels, offering hands-on experience with AI tools, integrating AI literacy into job tasks, and fostering a culture of continuous learning. Moreover, it entails addressing ethical considerations, promoting multidisciplinary collaboration, garnering leadership support, and measuring the impact of initiatives to refine future efforts. By prioritizing AI literacy, organizations can empower their workforce to leverage AI for enhanced productivity, innovation, and success in digital workplaces [1].

This paper presents a novel approach to workplace activity monitoring and detection. It introduces a system that integrates self-powered triboelectric/piezoelectric sensors with machine learning algorithms to monitor and analyse workplace activities. By harnessing the energy generated from human movement, the sensors can detect various workplace activities without the need for external power sources. The machine learning algorithms then process the sensor data to identify and classify different activities. This innovative system offers a non-intrusive and energy-efficient solution for workplace monitoring, with potential applications in improving productivity, safety, and ergonomics [2].

The paper aims to explore strategies for optimizing human-AI collaboration in organizational context and settings. It proposes a goal programming model to facilitate team formation, aiming to enhance productivity and drive organizational change. The model integrates human and AI capabilities to form effective teams, considering factors such as skillsets, task requirements, and organizational objectives. By leveraging this approach, organizations can foster a culture of collaboration and adaptability, maximizing the benefits of human-AI synergy for achieving strategic goals and promoting organizational evolution. The research paper explores the dynamics of collaboration between human workers and artificial intelligence (AI) systems in the workplace. The paper introduces a goal programming model designed to facilitate effective team formation for such collaborations, with the overarching aim of driving organizational change [3].

This section comprised of the study and delved into the importance of integrating AI literacy into technology education curricula. The paper emphasizes the necessity of equipping students with the foundational knowledge and skills to understand, evaluate, and responsibly engage with AI technologies. It explores various pedagogical approaches and curriculum frameworks designed to cultivate AI literacy, preparing students to navigate the complexities of an AI-driven world. Through this focus on AI literacy, technology education can empower students to become informed and ethical participants in the development and utilization of AI technologies, fostering innovation and responsible citizenship in the digital age [4].

This section comprised of thorough study and the paper examines the integration of AI technologies into the digital employee experience to enhance efficiency and satisfaction. The paper outlines various AI applications, such as virtual assistants, personalized learning platforms, and predictive analytics, aimed at streamlining workflows, improving decision-making, and fostering a more engaging work environment. By leveraging AI, organizations can empower employees with personalized support, automate routine tasks, and gain valuable insights from data analytics, ultimately leading to a more productive and satisfying employee experience in the digital workplace [5].

This section comprised of the findings that addresses the imperative of preparing students for the pervasive influence of artificial intelligence (AI) in contemporary society. The paper advocates for an educational approach that fosters not only technical proficiency but also critical thinking, creativity, and ethical reasoning in the context of AI. It emphasizes the importance of cultivating a multidisciplinary understanding of AI, encompassing its social, cultural, and ethical dimensions. By empowering learners with the necessary knowledge and skills, education can

enable individuals to adapt, innovate, and responsibly engage with AI technologies, thereby shaping a future where AI serves as a force for positive societal impact [6].

The section comprised of broad study and offerings in digital workplace services. The paper research reviews and offers an in-depth examination of AI literacy, investigating its conceptual framework and implications. The review explores various dimensions of AI literacy, including understanding AI concepts, proficiency in AI tools, ethical considerations, and societal impacts. It delves into the importance of AI literacy across different domains and proposes a holistic perspective to address the evolving challenges and opportunities presented by AI technologies. Through this exploratory review, the paper contributes to advancing our understanding of AI literacy and its significance in navigating the complexities of the AI-driven world [7].

This section comprised of a comprehensive analysis of the current state of AI literacy education in education domain. The review examines existing research and educational initiatives aimed at promoting AI literacy among K-12 students. It identifies key themes and trends, such as curriculum development, instructional approaches, and the integration of AI concepts across various subject areas. By synthesizing findings from multiple studies, the review offers insights into effective strategies for incorporating AI literacy into K-12 education and highlights areas for further research and improvement. Ultimately, the review contributes to the growing discourse on preparing students for the AI-driven future by fostering essential knowledge and skills at an early age [8].

This section comprised of a comprehensive framework for fostering AI literacy within educational settings. The framework, termed ED-AI Lit, integrates interdisciplinary perspectives to equip students with the essential knowledge, skills, and ethical understanding necessary to engage effectively with artificial intelligence (AI) technologies. It emphasizes the importance of integrating AI literacy across various subject areas and grade levels, providing educators with guidance on curriculum development, instructional strategies, and assessment methods. The framework also addresses ethical considerations, encouraging critical reflection on the societal impacts and ethical implications of AI. Overall, ED-AI Lit serves as a valuable resource for educators seeking to empower students with the competencies needed to navigate the AI-driven world responsibly and ethically [9].

This section comprised of extensive study and research of current development in artificial intelligence driving overall growth in employee's productivity. It systematically provides an extensive analysis of the role of generative artificial intelligence (AI) in improving workplace productivity. The review synthesizes findings from existing literature to explore how generative AI technologies, such as natural language processing and machine learning, contribute to optimizing workflows, automating tasks, and expediting decision-making processes across diverse industries. By examining a wide range of studies and case examples, the review highlights the diverse applications of generative AI in enhancing work productivity across different sectors. It offers insights into the potential benefits, challenges, and future directions of leveraging generative AI tools to optimize work performance and efficiency in the modern workplace [10].

This section comprised of detailed study of generative AI integration and machine model training to fine tune the content. The paper introduces an innovative approach for integrating generative artificial intelligence (AI) tools into educational settings. The approach employs an instructional design matrix to facilitate the effective use of AI in education. It outlines a systematic process for selecting, designing, and implementing AI-driven educational tools, considering factors such as learning objectives, student engagement, and instructional strategies. By leveraging generative AI, educators can enhance learning experiences, promote creativity, and personalize instruction to meet the diverse needs of learners. The paper provides a framework to empower educators in harnessing the potential of AI technologies to enrich educational practices and optimize learning outcomes [11].

This section is comprised of the perspectives of Generation Z (Gen Z) on artificial intelligence (AI) and aims to establish a research agenda for empowering this demographic with emerging technologies. Gen Z, as digital natives, possesses unique insights and expectations regarding AI's role in shaping their future. Through qualitative and quantitative analysis, this paper investigates Gen Z's attitudes, concerns, and aspirations regarding AI, highlighting their desire for AI technologies that prioritize transparency, accountability, and ethical considerations. Additionally, the research identifies key areas for further investigation, including AI education, AI-driven innovation, and AI's impact on social and environmental sustainability. By setting a research agenda informed by Gen Z's perspectives,

this study aims to guide the development of AI technologies that align with the values and aspirations of future generations, fostering a more inclusive, equitable, and sustainable digital future [12].

**Table 2: Literature Review and Related Work**

| <b>Authors</b>                        | <b>Techniques Used</b>  | <b>Work Done</b>  | <b>Research Gap Findings</b>   |
|---------------------------------------|---|---|--|
| Dilek Cetindamar, Kirsty Kitto [1]    | <ul style="list-style-type: none"> <li>Keyword co-occurrence Map,</li> <li>Content Analysis,</li> <li>Hierarchical Topic Tree</li> </ul>  | <ul style="list-style-type: none"> <li>Raw terms retrieved with NLP.</li> <li>I removed spelling variations and general single terms.</li> <li>Consolidated synonyms based on expert knowledge</li> </ul>                                     | <ul style="list-style-type: none"> <li>Not support a wide range of contents</li> <li>Multi-language problem</li> <li>Only supports AI Literacy</li> </ul>  |
| Faizan Tariq Beigh, Sourav Naval [2]  | <ul style="list-style-type: none"> <li>Triboelectric and piezoelectric sensors</li> <li>Data acquisition unit (DAQ)</li> <li>Convolution neural network (CNN) algorithm</li> </ul>  | <ul style="list-style-type: none"> <li>Classification</li> <li>Accuracy &gt;98%</li> <li>Recording activities by DAQ</li> <li>Efficient CNN algorithm used to classify activities</li> </ul>  | <ul style="list-style-type: none"> <li>Limited device actions</li> <li>Data privacy and Security problem</li> <li>Analyzing Trends</li> </ul>  |
| Davide La Torre, Cinzia Colapinto [3] | <ul style="list-style-type: none"> <li>Machine-based decisions</li> <li>Team formation model</li> <li>Decision Support Systems</li> <li>Optimization Algorithms</li> <li>Machine Learning and Predictive Analytics</li> </ul> | <ul style="list-style-type: none"> <li>Skill Matching and Task Allocation</li> <li>Validation and Evaluation</li> <li>Model Implementation:</li> <li>Data Collection and Preprocessing</li> </ul>   | <ul style="list-style-type: none"> <li>Dynamic Team Formation</li> <li>Uncertainty and Risk Management</li> <li>Human-AI Interaction Dynamics</li> <li>Ethical and Social Implications</li> <li>Long-Term Organizational Change</li> </ul> |
| Karin Stolpe, Jonas Hallstrom [4]     | <ul style="list-style-type: none"> <li>Conceptual Learning</li> <li>machine learning, neural network algorithms</li> <li>Problem-based Learning</li> <li>Collaborative Learning and Peer Interaction</li> </ul>               | <ul style="list-style-type: none"> <li>Ethics and Responsible AI</li> <li>Interactive Learning Tools</li> <li>Multidisciplinary Approaches</li> <li>Collaborative Learning and Peer Interaction</li> <li>Assessment and Evaluation</li> </ul> | <ul style="list-style-type: none"> <li>Pedagogical Strategies and Best Practices</li> <li>Multilanguage support</li> <li>Interdisciplinary Integration</li> <li>Diversity and Inclusion</li> </ul>   |
| Dragan Gašević [6]                    | <ul style="list-style-type: none"> <li>Professional Development Opportunities</li> <li>AI-Driven Adaptive Learning Platforms</li> <li>Peer Learning and Collaboration</li> </ul>  | <ul style="list-style-type: none"> <li>Efficient Collaboration and enhanced learning experience</li> <li>Assessment strategies improved.</li> <li>Collaborative problem-solving activities that encourage critical</li> </ul>                 | <ul style="list-style-type: none"> <li>Problem-solving approaches</li> <li>Diversity and Inclusion problem</li> <li>Accessible and Inclusive AI Education</li> <li>Global Perspectives to improve AI Literacy</li> </ul>                   |

|                        |  |  |  |
|------------------------|--|--|--|
|                        | <ul style="list-style-type: none"> <li>• AI Simulations and Virtual Labs</li> </ul>  | <p>thinking, creativity, and autonomy.</p> <ul style="list-style-type: none"> <li>• Integration into educational curricula</li> </ul>  |  |
| Davy Tsz Kit Ng a [7]  | <ul style="list-style-type: none"> <li>• Comparative Analysis</li> <li>• Content Analysis</li> <li>• Framework Development</li> </ul>  | <ul style="list-style-type: none"> <li>• Structured approaches to teaching and assessing AI literacy.</li> <li>• Integration of AI with Learning platform</li> </ul>   | <ul style="list-style-type: none"> <li>• Frameworks performance issue</li> <li>• Accessibility of application</li> </ul>   |
| Lorena Casal-Otero [8] | <ul style="list-style-type: none"> <li>• Real-world applications and Case Studies</li> <li>• Cross-Curricular Integration</li> <li>• AI-Based Learning Tools</li> <li>• Interactive Learning Platforms</li> </ul>  | <ul style="list-style-type: none"> <li>• Data Collection and Analysis</li> <li>• Extraction of data and synthesis of findings</li> <li>• Performance assessments and self-assessment</li> </ul>  | <ul style="list-style-type: none"> <li>• Insufficient integration of AI literacy education</li> <li>• Assessment Methods need to improve for better results.</li> <li>• Efficient AI framework and learning pipeline</li> </ul>                                  |
| Laura Kristen [9]      | <ul style="list-style-type: none"> <li>• Analytical engine</li> <li>• Data preparation and analysis</li> <li>• Assessment of the learning platform</li> <li>• ResponsibleAI</li> </ul>   | <ul style="list-style-type: none"> <li>• Fostering interdisciplinary connections and promoting holistic learning experiences.</li> <li>• Pedagogical approaches and instructional strategies for teaching AI literacy</li> </ul>         | <ul style="list-style-type: none"> <li>• Framework adaptation to different cultural, social, and educational contexts</li> <li>• Framework Extension</li> <li>• Promote more significant equity and inclusivity.</li> </ul>                                      |
| Humaid Al Naqbi [10]   | <ul style="list-style-type: none"> <li>• Collaborative Filtering and Recommendation Systems</li> <li>• Predictive Modeling and Forecasting</li> <li>• Content Personalization</li> <li>• Document Summarization and Extraction</li> <li>• Natural Language Generation (NLG)</li> </ul> | <ul style="list-style-type: none"> <li>• Evaluation metrics utilized to assess productivity enhancements.</li> <li>• Identify Trends and Patterns</li> <li>• Automate tasks, streamline processes, or enhance decision-making</li> </ul> | <ul style="list-style-type: none"> <li>• Variations in methodologies</li> <li>• Addressing regulatory and policy considerations</li> <li>• Long-term impact and sustainability of productivity enhancements</li> <li>• User experience and acceptance</li> </ul> |
| Lena Ivanova [11]      | <ul style="list-style-type: none"> <li>• Continuous Improvement by soliciting feedback.</li> <li>• Assessment and Evaluation techniques</li> <li>• Feedback Mechanisms</li> </ul>  | <ul style="list-style-type: none"> <li>• Integration of generative AI tools</li> <li>• Selection of Generative AI Tools</li> <li>• Framework for organizing and integrating generative AI tools</li> </ul>                               | <ul style="list-style-type: none"> <li>• Robust learning platform</li> <li>• Adaptability and Customization:</li> <li>• Enhanced collaboration</li> </ul>  |

|                    |   |  |   |
|--------------------|---|--|---|
|                    | <ul style="list-style-type: none"> <li>Adaptive learning design</li> </ul>  |  |   |
| Nora McDonald [12] | <ul style="list-style-type: none"> <li>Policy Analysis</li> <li>Quantitative Analysis</li> <li>Collaborative Platforms and Online Communities</li> <li>Trend Analysis</li> <li>Delphi Method</li> </ul> | <ul style="list-style-type: none"> <li>Organizing co-creation workshops</li> <li>Developing educational initiatives and outreach programs</li> <li>Cross-Cultural and Global Perspectives</li> </ul> | <ul style="list-style-type: none"> <li>Ability to critically evaluate AI-driven content.</li> <li>To foster designing, using, and advocating for AI technologies</li> <li>Identifying opportunities for leveraging AI technologies to promote social good, foster environmental sustainability</li> </ul> |

### III. TECHNIQUES – TO EMPOWER EMPLOYEE EXPERIENCE

The techniques, solution, and framework design for conceptualizing AI literacy and empowering employee experience in digital workplaces using Generative AI and augmented analytics are explained in detail in a subsequent section.

#### A. GenerativeAI Approach to empower Ex

AI literacy framework involves structuring guidelines, resources, and learning objectives to educate individuals about artificial intelligence (AI) concepts, applications, and implications.

Developing an AI literacy framework focused on generative AI involves structuring a comprehensive set of guidelines, resources, and learning objectives tailored to educate individuals about productive AI concepts, applications, and implications.

Here is an outline of what such a framework might include:

Generative AI techniques can be leveraged in various ways to empower employee experience in the workplace. Here are some examples:

- 1) *Content Generation:* Generative AI integration framework is used to automate the creation of various types of content, such as reports, presentations, emails, and marketing materials. The quick integration saves employees time and effort, enabling them to focus on more strategic tasks and deliver high quality work.
- 2) *Personalized Learning:* Generative AI-powered chatbots or virtual assistants can provide personalized learning experiences for employees by recommending relevant training materials, answering questions, and offering on-the-job guidance.
- 3) *Creative Assistance:* Generative AI tools, such as text generators or image synthesis models, can assist employees in generating creative content for design projects, marketing campaigns, or product development.
- 4) *Data Augmentation:* Generative AI techniques can augment datasets for machine learning models, improving the accuracy and robustness of AI-powered applications used by employees for tasks like predictive analytics or decision-making.
- 5) *Automated Documentation:* Generative AI can automate documentation creation for projects, meetings, and processes by summarizing discussions, transcribing conversations, or generating meeting minutes.

- 6) *Virtual Collaboration Environments:* Generative AI can create virtual collaboration environments where employees can interact with AI-driven avatars or virtual assistants to collaborate on projects, brainstorm ideas, or conduct virtual meetings.
- 7) *Emotional Intelligence Enhancement:* Generative AI-powered tools can analyze employee sentiment and emotional states based on communication data (e.g., emails, chat messages) to provide insights into employee well-being and engagement levels.
- 8) *Automated Customer Support:* Generative AI-driven chatbots can handle customer inquiries and support tickets, freeing employees from repetitive tasks and allowing them to focus on more complex or high-value interactions.
- 9) *Predictive Analytics for HR:* Generative AI models can analyze employee data to predict trends related to employee turnover, performance, and job satisfaction, enabling HR departments to address issues and improve employee retention and engagement proactively.
- 10) *Customized Workflows:* Generative AI algorithms can analyze employee workflows and preferences to suggest personalized task prioritization, scheduling optimizations, or workflow automation tailored to individual work styles and preferences.

By incorporating generative AI techniques into various aspects of the employee experience, organizations can enhance productivity, creativity, and job satisfaction while streamlining processes and improving overall business outcomes. However, ensuring these technologies are deployed ethically and transparently is crucial, carefully considering potential biases and privacy concerns.

#### B. *Augmented Analytics Approach to empower Ex*

Augmented analytics uses artificial intelligence (AI) and machine learning (ML) techniques to enhance data analytics processes. By leveraging augmented analytics, organizations can empower employees with deeper insights, faster decision-making capabilities, and more efficient data-driven workflows. Here are some techniques of augmented analytics to empower employee experience:

- 1) *Natural Language Processing (NLP):* Through NLP techniques, employees can effortlessly communicate with data using natural language queries. This facilitates the ability to pose questions in everyday language and swiftly obtain insights from the data, eliminating the need for comprehension of intricate analytics tools or query languages.
- 2) *Automated Data Preparation:* Automated data preparation techniques use AI algorithms to clean, integrate, and convert unprocessed data into a structured format suitable for analysis. This reduces the manual effort required for data cleaning and preprocessing, allowing employees to focus on analyzing insights rather than data wrangling.
- 3) *Smart Data Discovery:* Innovative data discovery tools use ML algorithms to automatically identify large dataset's patterns, trends, and anomalies. This helps employees uncover hidden insights and make data-driven decisions more quickly and accurately.
- 4) *Predictive Analytics:* Predictive analytics techniques use historical data to forecast future trends, behaviors, and outcomes. By leveraging predictive models, employees can proactively anticipate customer needs, identify potential risks, and optimize business processes.
- 5) *Prescriptive Analytics:* Prescriptive analytics techniques go beyond predicting outcomes to recommend specific actions or strategies for achieving desired objectives. This empowers employees with actionable insights and decision support to optimize processes, mitigate risks, and capitalize on opportunities.
- 6) *Data Visualization and Exploration:* Advanced data visualization tools use AI algorithms to create interactive and intuitive visualizations of complex datasets. This enables employees to explore data dynamically, gain deeper insights, and communicate findings effectively to stakeholders.



7) *Automated Insights Generation:* Automated insights generation techniques use ML algorithms to analyze data and automatically generate actionable insights and recommendations. This accelerates decision-making by providing employees with relevant information in real-time.

8) *Anomaly Detection:* Anomaly detection algorithms identify unusual patterns or outliers in data that may indicate potential issues or opportunities. By flagging anomalies automatically, employees can investigate further and take corrective actions as needed.

9) *Continuous Monitoring and Alerting:* In real-time, continuous monitoring and alerting systems use AI algorithms to track critical metrics and notify employees of significant changes or deviations. This enables proactive problem-solving and intervention, minimizing disruptions and maximizing efficiency.

10) *Collaborative Analytics:* Collaborative analytics platforms facilitate employee teamwork and knowledge sharing by providing features such as shared workspaces, annotations, and comments. This fosters collaboration, creativity, and collective problem-solving within organizations.

By leveraging these techniques of augmented analytics, organizations can empower employees with the tools and insights they need to make better decisions, drive innovation, and achieve their business goals more effectively.

**Table 3:Generative AI Models Comparisons**

| <b>Generative AI Models/algorithms/frameworks</b> | <b>Functions</b>  | <b>Strength</b>  | <b>Weakness</b>   | <b>Techniques</b>  |
|---|---|--|---|--|
| Generative Adversarial Networks (GANs)            | Generate realistic data   | GANs are powerful for generating realistic data and producing high-quality samples and have been successfully applied in image synthesis, style transfer, and data augmentation. | GANs can be challenging to train and prone to mode collapse.                                | Generator and Discriminator  |
| Variational Autoencoders (VAEs)                   | Probabilistic models that learn a latent representation of data | Beneficial for tasks such as generating images, detecting anomalies, and compressing data  | VAEs may produce blurry or less visually appealing samples compared to GANs                 | Encoder and Decoder  |
| Transformer-based Models                          | Generative Pre-trained Transformer                              | Excel in natural language processing tasks, including text generation, translation, and sentiment analysis   | Transformer-based models necessitate substantial training data and computational resources. | Neural network architecture transforms or changes an input sequence into an output sequence. |
| Deep Reinforcement Learning                       | Deep neural networks, optimal decision-making policies          | Used to train agents to generate sequences of actions in   | Deep RL algorithms often require extensive training and fine-tuning to                      | Fusion of two powerful artificial intelligence fields: deep                                  |

|                   |   |   |  |   |
|-------------------|---|---|--|---|
|                   |   | dynamic environments  | achieve good performance.  | neural networks and reinforcement learning              |
| Flow-Based Models | Invertible neural networks that learn a bijective mapping between input and output spaces | Excel in density estimation, image generation, and data compression tasks while preserving spatial coherence and detail | Flow-based models may struggle with generating high-resolution images or complex data distributions compared to GANs or VAEs | probability distribution by leveraging normalizing flow |
| Autoencoders      | Neural network architectures, unsupervised learning, data compression                     | valuable features and patterns in input data and generate reconstructions with minimal loss.                            | Restricted in their capacity to capture intricate dependencies and structures within high-dimensional data.                  | Encoder<br>Code<br>Decoder                              |

It is essential that when we are conducting a comparative analysis of generative AI technologies, we consider factors such as model complexity, training stability, sample quality, computational efficiency, and suitability for specific use cases. Additionally, real-world performance may vary depending on the dataset, task complexity, and available resources. Therefore, it is crucial to empirically evaluate and benchmark different models to make informed decisions about their applicability and performance.

#### IV. PROPOSED WORK

The importance of a novel conceptualization of AI literacy and empowering employee experience in digital workplaces using generative AI and augmented analytics lies in its potential to revolutionize how organizations leverage AI technologies to drive innovation, productivity, and competitiveness.

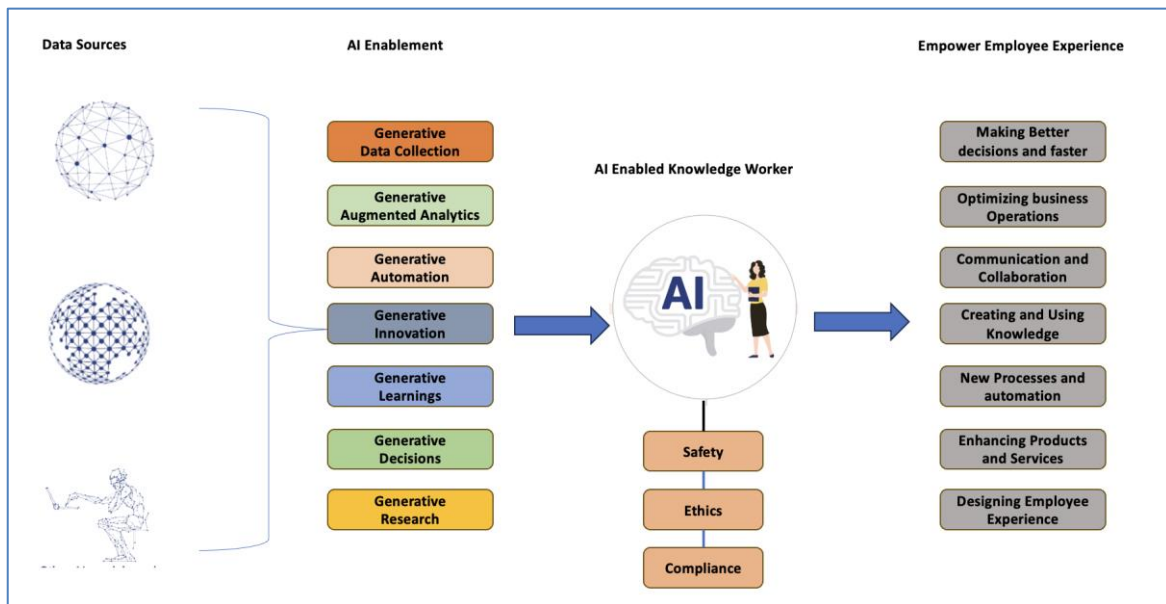
A novel conceptualization of AI literacy and empowering employee experience in digital workplaces using generative AI and augmented analytics is critical for organizations looking to drive the AIML capability and unlock the full augmented potential of AIML, drive innovation, and thrive in the digital age. By investing in AI competency and literacy initiatives and encouraging a culture of perpetual learning and innovation, organizations can empower their employees to succeed in an AI-driven world.

Hence, a proposed conceptualization of AI literacy to empower employees describes a framework and pipeline to leverage generative AI techniques and augmented analytics tools effectively to automate tasks, generate insights, and improve decision-making processes.

The proposed work and solution comprise a conceptual framework that integrates AI literacy principles, generative AI techniques, and augmented analytics approaches to empower employee experience in digital workplaces. Define key concepts, components, and relationships within the framework.

Generative AI is employed to automate tasks, enhance productivity, and foster innovation. For instance, it can generate marketing content, devise product designs, and even write code. By delegating such tasks to generative

AI, employees can redirect their efforts toward strategic and creative endeavors, thereby aiding businesses in saving both time and resources [53].



**Figure 1: Proposed Integration Framework**

## V. CONCLUSION

This paper surveys the existing literature on AI literacy and Ex in digital workplaces, focusing on the role of generative AI and augmented analytics. We present the definitions, dimensions, and assessment methods of AI literacy and Ex and discuss how generative AI and augmented analytics can foster AI literacy and improve Ex in various work contexts and scenarios. We also identify the main challenges and research gaps in this emerging field and suggest some directions for future work.

We conclude that AI literacy and Ex are key competencies and outcomes for employees in the digital era. Generative AI and augmented analytics are promising technologies that can offer new opportunities and challenges for AI literacy and Ex in digital workplaces. We argue that there is a need for more research and innovation on AI literacy and Ex in digital workplaces, especially about the role of generative AI and augmented analytics. We propose that future research and innovation should adopt a more holistic, interdisciplinary, and participatory approach that can address the technical, cognitive, social, and ethical aspects of AI literacy and Ex and that can involve various stakeholders, such as employees, employers, educators, researchers, policymakers, and society at large.

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