IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology
International Conference on Interdisciplinary Global Research in Adaptation, Transformation & Engineering
INTEGRATE 2025
Geetanjali Institute of Technical Studies (GITS)

Vol. 12, SPECIAL ISSUE 2, NOVEMBER 2025 DOI: 10.17148/IARJSET/INTEGRATE.2025.12208

Redirecting the Wave of Artificial Intelligence: Shaping the Future of Human-Centric Innovation

Diyanshi Surana[1], Chhavi Mehta[2]

Student, Department of Computer Science, Geetanjali Institute of Technical Studies, Udaipur, India[1, 2]

Abstract: This study investigates the potential impact of Artificial Intelligence (AI) on the future of work. It explores the likelihood of AI replacing human workers entirely, and conversely, the possibility of AI augmenting human capabilities and creating new job opportunities. The research will examine the specific tasks and industries most susceptible to AI automation, while also identifying the unique human skills and qualities that will remain irreplaceable. AI applications are expanding across all sectors. Growing public excitement and reliance on AI tools. Used in construction, design analysis, and project automation, creates opportunities as well as bring new challenges. Al is shifting from reducing human chores to replacing human roles. Fear of unemployment and reduced creativity. Machines lack human judgment, empathy, and innovation. - In Redirect Al's use from replacement to empowerment. Use Al to enhance human creativity and decision-making. Combine machine precision with human insight. Build a future where technology supports not replaces people. When used responsibly, it empowers humans rather than replaces them. The future depends on how we guide Al's development and integration. This abstract explores key themes such as the impact of AI on employment, the need for responsible AI governance, and the potential for human-machine collaboration. It concludes by highlighting the importance of interdisciplinary collaboration and ethical considerations in shaping the future of AI for the benefit of society.

Keywords: Artificial Intelligence, Human-Centric Innovation, Ethical AI, Technology and Society, Future of Work

I. INTRODUCTION

Artificial Intelligence (Al) is transforming every industry, including civil engineering. It enhances efficiency, accuracy, and innovation. Al helps in designing smart cities, optimizing construction, and managing infrastructure.

IMPORTANCE OF AI: Processes large data sets quickly and precisely. Improves project planning and risk management. Enables sustainable and smart infrastructure development. Reduces human errors, maximizing results and boost efficiency.

THE PROBLEM: Al is shifting from reducing human chores to replacing human roles. Fear of unemployment and reduced creativity. Machines lack human judgment, compassion, and innovation. In civil engineering,
automation might overshadow practical experience

THE GOAL: Redirect Al's use from replacement to empowerment. Use Al to enhance human imagination and understanding. Combine machine precision with human insight. Build a future where technology supports not replaces people.

II. AI AS A PARTNER: AUGMENTING HUMAN CREATIVITY AND PRODUCTIVITY

Human-Centric AI is defined by its ability to amplify human agency, unlocking new levels of creativity and productivity in the workplace and beyond.

- Shifting the Paradigm: The focus moves from automation (replacing human tasks) to augmentation (enhancing human skills). AI handles routine, data- intensive tasks, freeing human professionals to concentrate on high-value activities that require empathy, critical thinking, strategic planning, and novel creation.
- Redesigning Workflows: Successful AI integration requires a strategic redesign of roles and workflows. For instance, in fields like medicine, AI can analyze complex imaging data for diagnostics, allowing doctors to focus their time on patient care, communication, and nuanced treatment strategies.
- Superagency: When humans are empowered by AI, they enter a state of "superagency," where their positive impact and potential are significantly heightened. This partnership facilitates faster problem-solving and innovation by enabling seamless collaboration between intuitive human judgment and data-driven insights.

© IARJSET This work is licensed under a Creative Commons Attribution 4.0 International License

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology
International Conference on Interdisciplinary Global Research in Adaptation, Transformation & Engineering
INTEGRATE 2025
Geetanjali Institute of Technical Studies (GITS)

Vol. 12, SPECIAL ISSUE 2, NOVEMBER 2025 DOI: 10.17148/IARJSET/INTEGRATE.2025.12208

III. AI'S TRAJECTORY: PROBLEM, SOLUTION, AND FUTURE FOCUS

1. The Current Problem:

The central problem with the current wave of Artificial Intelligence (AI) is its narrow focus on maximizing **efficiency, automation, and corporate profit** at the expense of broader human values. This approach creates three major risks: **systemic unfairness**, the **devaluation of human labor**, and a **crisis of trust**. AI models are trained on biased historical data, causing them to amplify social inequalities in critical areas like hiring and justice—a serious issue known as **algorithmic bias** . Furthermore, the drive for total automation leads to the erosion of jobs, ignoring the potential to use AI to **augment** human capabilities instead of replacing them entirely. Finally, the complexity of "Black Box" AI systems means that when errors or harm occur, the lack of transparency makes it impossible to assign accountability, causing public trust in the technology to collapse.

2. The Current Solution: The "Fix-It-Later" Approach:

The common solutions currently being deployed often amount to a **reactive, "fix-it-later" approach** that struggles to keep pace with the rapid advancement of AI technology. Organizations frequently rely on publishing **vague ethical guidelines** or principles that lack the teeth of mandatory compliance or technical enforcement. When biases are detected, the effort usually involves expensive, last-minute checks and **patching** the already-built AI model, rather than integrating fairness from the initial design phase—a phenomenon sometimes called "bolted-on ethics." For labor market disruptions, the primary strategy has been slow-moving **job retraining programs** that fail to meet the scale of rapid technological displacement. Furthermore, government **regulations** are typically slow to draft and enact, consistently lagging behind the speed of AI innovation, leaving critical gaps where harmful or unfair systems can operate without clear oversight or accountability.

3. Future Aspects: Redirection to Human-Centric Innovation

The strategy for the future is to fundamentally **redirect** the AI wave by embedding human values into the core design process. This means shifting from

Automation to **Augmentation**.

A: AI as a Partner (Augmentation)

- **Future Goal:** Design AI to make human skills *more valuable*, not obsolete.
- **Mechanism:** Focus on the **Centaur Model**, where human judgment and AI calculation combine to achieve superior results.
- **Example:** AI handles the complex data and patterns; the human focuses on empathy, ethical decisions, and patient/client care.
- **Desired Outcome:** A more skilled, higher-value workforce where human creativity and critical thinking are essential.

B: Trust and Accountability by Design (Ethics)

- **Future Goal:** Make AI systems inherently safe, fair, and understandable.
- **Mechanism:** Mandate **Trust-by-Design**. This includes:
  - **Explainable AI (XAI):** Systems must show their work so humans can understand *why* a decision was made.
  - **Independent AI Audits:** Required checks for bias and compliance *before* the AI is allowed to be deployed to the public.
  - **Privacy-Preserving AI (PPAI):** Use technologies like Federated Learning to train models without collecting and centralizing sensitive personal data.
- **Desired Outcome:** Public confidence in AI and clear legal accountability when errors occur.

C: Shared Design and Governance (Inclusion)

- **Future Goal:** Ensure AI reflects the diverse needs and values of all people, not just the people who code it.
- **Mechanism:** Require **interdisciplinary teams** (including ethicists, sociologists, and domain experts alongside engineers) and **participatory design**

(getting feedback from marginalized communities).

- **New Metric:** Shift the measurement of success from **Return on Investment (ROI)** to **Return on Humanity (ROH)**. ROH measures AI's positive impact on social well-being and equity.

- **Desired Outcome:** AI systems that solve real societal problems, reduce inequality, and are aligned with democratic values.

© IARJSET This work is licensed under a Creative Commons Attribution 4.0 International License

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology
International Conference on Interdisciplinary Global Research in Adaptation, Transformation & Engineering
INTEGRATE 2025
Geetanjali Institute of Technical Studies (GITS)

Vol. 12, SPECIAL ISSUE 2, NOVEMBER 2025 DOI: 10.17148/IARJSET/INTEGRATE.2025.12208

IV. CREATING SMART RULES AND GLOBAL GOVERNANCE

Because AI is changing so quickly and easily crosses borders, we need flexible and cooperative rules to manage it effectively. Policies must look to the future and be based on global human rights.

A. Adaptive Rules and Checks

Good governance means creating regulations that are appropriate for the level of risk. An AI system used for something minor (like recommending a song) needs less oversight than one used for something critical (like diagnosing a disease or managing power grids).

- **Risk-Based Regulation:** We need to use a system that applies **strict rules** only to **high-risk** applications that could cause serious harm, while leaving less dangerous innovations free to develop quickly.
- **Mandatory AI Audits:** To enforce accountability, independent **AI audits** must become a required step. These checks would verify that an AI system meets fairness, privacy, and safety standards **before it is used** and on an ongoing basis. This creates a mandatory check on ethical performance.

B. Working Together Globally

AI challenges are global, so the solutions must be too. We need **international cooperation** to set common standards, stop companies from moving to countries with the fewest rules, and focus AI on solving global problems like climate change and poverty. Governance must be **inclusive**, bringing together not just governments and companies, but also citizens and experts from different countries. This ensures the rules are fair, widely accepted, and truly represent the diverse needs of all communities impacted by AI.

V. CONCLUSION

Redirecting the wave of Artificial Intelligence to focus on human-centric innovation is the most important mission we have today. It's about changing our mindset: seeing AI not as a cost-cutting tool, but as a powerful partner designed to enhance human life and solve real-world problems. This is achieved by building a strong ethical foundation, creating new forms of work where AI and humans' team up, and setting up smart, global rules to guide its path. The future is not one where machines take over, but one where AI systems, guided by human values and supervised by human judgment, help us build a world that is better, fairer, and more deeply human.

REFERENCES

[1]. B. Baltuttis, B. Häckel, C. M. Jonas, A. M. Oberländer, M. Röglinger, and J. Seyfried, "Conceptualizing and assessing the value of Internet of Things solutions," *Journal of Business Research*, vol. 140, pp. 245–263, Feb. 2022.

[2]. S. Choudhary, H. Shrimali, and J. Shreemali, "Stages and challenges in implementation of smart city project, Udaipur," *International Journal of Innovative Science and Research Technology (IJISRT)*, vol. 8, no. 5, pp. 2451–2456, May 2023.

[3]. S. Choudhary, H. Shrimali, and J. Shreemali, "Techno-managerial phases and challenges in development and implementation of Smart City Udaipur," in *Proc. 4th Int. Conf. Emerging Trends in Multi-Disciplinary Research*, 2023. [Online]. Available: https://www.researchgate.net/publication/370402952

[4]. S.-K. Kinnunen, S. Marttonen-Arola, A. Ylä-Kujala, T. Kärri, T. Ahonen, P. Valkokari, and D. Baglee, "Decision making situations define data requirements in fleet asset management," in *Proc. 10th World Congress on Engineering Asset Management (WCEAM 2015)*, Lecture Notes in Mechanical Engineering, K. T. Koskinen *et al.*, Eds. Springer, 2016, pp. 357–364.

[5]. S. Choudhary, H. Shrimali, and J. Shrimali, "Techno-managerial phases and challenges in development and implementation of smart city Udaipur," in *Proc. 4th Int. Conf. Emerging Trends in Multi-Disciplinary Research*, 2023. [Online]. Available: https://www.researchgate.net/publication/370402952

[6]. K. Poonia, P. Kansara, and S. Choudhary, "Use of GIS mapping for environmental protection in Rajasthan – A review," *International Advanced Research Journal in Science, Engineering and Technology (IARJSET)*, vol. 10, no. 5, pp. 812–814, 2023.

[7]. M. M. Rathore, A. Paul, A. Ahmad, and S. Rho, "Urban planning and building smart cities based on the Internet of Things using Big Data analytics," *Computer Networks*, vol. 101, pp. 63–80, 2016.

[8]. A. Zanella, N. Bui, A. Castellani, L. Vangelista, and M. Zorzi, "Internet of Things for smart cities," *IEEE Internet of Things Journal*, vol. 1, no. 1, pp. 22–32, Feb. 2014.

[9]. S. Choudhary, M. Hasan, M. Suthar, A. Saraswat, and H. Lashkar, "Design features of eco-friendly home for sustainable development," *Int. J. Innovative Res. Electr. Electron. Instrum. Control Eng. (IJIREEICE)*, vol. 10, no. 1, pp. 88–93, Jan. 2022.

[10]. S. Madakam, V. Lake, V. Lake, and R. Lake, "Internet of Things (IoT): A literature review," *Journal of Computer and Communications*, vol. 3, no. 5, pp. 164–173, 2015.

[11]. A. Al-Fuqaha, M. Guizani, M. Mohammadi, M. Aledhari, and M. Ayyash, "Internet of Things: A survey on enabling technologies, protocols, and applications," *IEEE Communications Surveys & Tutorials*, vol. 17, no. 4, pp. 2347–2376, 2015.

© IARJSET This work is licensed under a Creative Commons Attribution 4.0 International License