Human Resource Management in the Era of Industry 5.0:
A Human-Centric, Sustainable, and Technology-Driven Perspective

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Abstract

The transition from Industry 4.0 to Industry 5.0 marks a paradigm shift in industrial development, emphasizing not only technological advancement but also human well-being, sustainability, and societal value. Industry 5.0 focuses on the collaboration between humans and intelligent machines, redefining the role of Human Resource Management (HRM) in organizations. This article explores how HRM is transforming in the era of Industry 5.0, highlighting its evolving roles, challenges, and strategic importance. The study discusses human-centric HR practices, ethical use of artificial intelligence, skill development, employee well-being, sustainability, and inclusive growth. It also examines how HR professionals act as strategic partners in balancing technological innovation with human values. The paper concludes by emphasizing that HRM in Industry 5.0 is no longer administrative but a value-creating, ethical, and socially responsible function essential for sustainable organizational success.

Keywords: Industry 5.0, Human Resource Management, Human-Centric HR, Artificial Intelligence, Sustainability, Employee Well-Being, Future of Work

Introduction

The industrial landscape has undergone significant transformation over the centuries, evolving through distinct industrial revolutions. From mechanization in Industry 1.0 to mass production in Industry 2.0, automation in Industry 3.0, and digitalization in Industry 4.0, each phase has reshaped work, organizations, and human roles. Today, the emergence of **Industry 5.0** represents a new era that goes beyond automation and efficiency to focus on **human-centricity, sustainability, and resilience**.

While Industry 4.0 emphasized smart factories, artificial intelligence (AI), robotics, big data, and the Internet of Things (IoT), it also raised concerns about job displacement, skill gaps, ethical dilemmas, and employee alienation. Industry 5.0 addresses these concerns by placing

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humans back at the center of production systems, promoting collaboration between humans and machines rather than replacement.

In this context, **Human Resource Management (HRM)** plays a crucial role in shaping the future of work. HRM is no longer limited to recruitment, payroll, or compliance but has evolved into a strategic function responsible for managing talent, fostering innovation, ensuring ethical practices, and supporting employee well-being. The era of Industry 5.0 demands a redefinition of HR roles, policies, and practices to align technology with human values.

This article aims to provide a comprehensive understanding of HRM in the era of Industry 5.0 by examining its key principles, emerging trends, challenges, and strategic implications. The paper contributes to academic literature by integrating technological, social, and human perspectives in HRM and offering insights for organizations, policymakers, and HR professionals.

Objectives of the Study

The present study aims to examine the evolving role of Human Resource Management in the era of Industry 5.0, with a focus on human-centric, ethical, and sustainable organizational practices. The specific objectives of the study are as follows:

1. **To understand the concept and key principles of Industry 5.0** and its implications for Human Resource Management.

2. **To analyze the changing role of HRM** from a traditional administrative function to a strategic and human-centric role in Industry 5.0 organizations.

3. **To examine the impact of advanced technologies** such as Artificial Intelligence, automation, and human–machine collaboration on HR practices.

4. **To study the importance of employee well-being, ethical practices, and sustainability** in HRM under the Industry 5.0 framework.

5. **To identify the challenges faced by HR professionals** in implementing Industry 5.0-oriented HR strategies.

6. **To suggest suitable HR strategies and practices** that support human-centric, inclusive, and sustainable organizational growth in the Industry 5.0 era.

Research Methodology

Research Design

The study adopts a **descriptive and exploratory research design**, as it seeks to explore emerging concepts related to Industry 5.0 and analyze their implications for Human Resource Management. Since Industry 5.0 is a relatively new concept, an exploratory approach is considered appropriate to understand evolving trends, practices, and challenges.

Nature of the Study

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The research is **conceptual and qualitative in nature**, focusing on theoretical frameworks, models, and secondary evidence related to HRM and Industry 5.0. The study does not involve primary data collection but relies on an in-depth review and analysis of existing literature.

Sources of Data

The study is based entirely on **secondary data**, collected from the following sources:

- Research articles published in national and international journals
- Books on Human Resource Management, Industrial Revolutions, and Technology Management
- Reports and publications of international organizations such as the European Commission, World Economic Forum, and ILO
- Conference papers, working papers, and reputed online academic databases
- Government and institutional policy documents related to Industry 5.0 and future of work

Period of Study

The study covers literature published mainly during the period **2015 to 2024**, as most scholarly discussions on Industry 5.0 and advanced HR practices have emerged during this timeframe.

Method of Analysis

The collected secondary data were analyzed using **content analysis and thematic analysis**. Key themes such as human-centric HRM, ethical AI, employee well-being, sustainability, skill development, and human–machine collaboration were identified and systematically examined.

Scope of the Study

The scope of the study is limited to:

- Understanding HRM practices in the context of Industry 5.0
- Analyzing global trends and conceptual developments
- Drawing implications for organizations across industries

The study does not focus on any specific organization or country but provides a generalized perspective applicable to modern organizations.

Limitations of the Study

- The study is based only on secondary data and lacks empirical validation.
- Industry 5.0 is an emerging concept; therefore, limited empirical literature is available.
- Findings are conceptual in nature and may vary based on organizational context and industry type.

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Review of Literature

The review of literature provides an overview of existing studies related to Industry 5.0, Human Resource Management, technology-driven workplaces, and human-centric organizational practices.

Schwab (2016)

Schwab highlighted the transformative impact of the Fourth Industrial Revolution on work and employment. He emphasized that technological advancements must be managed responsibly to avoid job displacement and social inequality. His work laid the foundation for the emergence of Industry 5.0, which focuses on balancing technology with human values.

European Commission (2021)

The European Commission formally introduced the concept of Industry 5.0, emphasizing **human-centricity, sustainability, and resilience**. The report stressed the importance of rethinking organizational strategies and workforce policies to ensure that technological progress serves society and employees rather than replacing them.

Ulrich (1997)

Ulrich identified HR as a strategic partner, change agent, and employee champion. His framework remains relevant in Industry 5.0, where HR professionals play a critical role in managing change, aligning human capital with business strategy, and enhancing employee engagement.

Jarrahi (2018)

Jarrahi examined the role of Artificial Intelligence in the future of work and argued that AI should augment human decision-making rather than replace it. The study emphasized the importance of human judgment, creativity, and ethical reasoning, reinforcing the core principles of Industry 5.0 HRM.

Bresciani et al. (2021)

Bresciani and colleagues discussed the transition from Industry 4.0 to Industry 5.0, highlighting the need for human–machine collaboration. They emphasized that HRM must focus on reskilling, employee empowerment, and ethical technology adoption to ensure sustainable organizational performance.

Kronke and Laulitz (2019)

Their study explored digital HRM and the use of AI in recruitment and performance management. While recognizing efficiency gains, the authors cautioned against algorithmic bias and stressed the role of HR in ensuring fairness and transparency in digital HR systems.

Deloitte Human Capital Report (2020)

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The report emphasized employee well-being, purpose-driven work, and continuous learning as critical HR priorities in the digital era. These themes strongly align with the principles of Industry 5.0 and support the shift toward human-centric HRM.

Sony and Naik (2020)

The authors highlighted challenges related to skill gaps and employee resistance during digital transformation. They argued that HR-led reskilling and change management are essential for successful adoption of advanced technologies.

Strohmeier (2020)

Strohmeier examined digital HRM and concluded that while technology enhances HR efficiency, human oversight and ethical governance remain indispensable. This aligns with Industry 5.0's emphasis on responsible and inclusive HR practices.

Summary of Literature Review

The review reveals that while extensive research exists on Industry 4.0 and digital HRM, limited studies explicitly address HRM in the context of Industry 5.0. Existing literature highlights the need for human-centricity, ethical AI, employee well-being, and sustainability, indicating a research gap that this study seeks to address.

2. Concept of Industry 5.0

2.1 Evolution from Industry 4.0 to Industry 5.0

Industry 4.0 focused on automation, cyber-physical systems, and digital integration across value chains. While it enhanced productivity and efficiency, it often prioritized machines over humans. Industry 5.0 emerged as a response to the limitations of Industry 4.0, advocating for a balanced approach where technology complements human intelligence.

Industry 5.0 does not replace Industry 4.0 but builds upon it. It integrates advanced technologies such as AI, robotics, machine learning, and digital twins with human creativity, empathy, and critical thinking. The emphasis shifts from "smart factories" to **"smart and humane organizations."**

2.2 Core Principles of Industry 5.0

Industry 5.0 is based on three fundamental pillars:

1. **Human-Centricity** – Technology should serve human needs, improve job quality, and enhance work-life balance.

2. **Sustainability** – Industrial growth must align with environmental protection, social responsibility, and long-term economic viability.

3. **Resilience** – Organizations must be adaptable and capable of responding to disruptions such as pandemics, climate change, and economic crises.

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These principles significantly influence HRM practices, making HR a key driver of organizational transformation.

3. Changing Role of Human Resource Management

3.1 From Administrative to Strategic HRM

Traditional HRM focused on administrative functions such as record-keeping, recruitment, and employee relations. In Industry 5.0, HR becomes a **strategic partner**, involved in decision-making, innovation management, and organizational design.

HR professionals are now expected to:

- Align human capital strategy with business goals
- Facilitate human-machine collaboration
- Promote ethical and inclusive workplaces
- Drive cultural change and sustainability initiatives

3.2 HR as a Human-Technology Integrator

One of the most significant roles of HR in Industry 5.0 is integrating human capabilities with advanced technologies. HR must ensure that employees are not overwhelmed or alienated by technology but empowered to use it effectively.

This involves:

- Designing human-centric job roles
- Providing continuous learning opportunities
- Ensuring transparency in algorithm-based decisions
- Addressing fears related to automation and AI

4. Human-Centric HR Practices in Industry 5.0

4.1 Employee Well-Being and Mental Health

Industry 5.0 recognizes employees as whole individuals, not just economic resources. HRM places strong emphasis on **physical, mental, and emotional well-being**.

Key initiatives include:

- Flexible work arrangements
- Mental health support programs
- Stress management and mindfulness training
- Work-life balance policies

The COVID-19 pandemic highlighted the importance of employee well-being, reinforcing HR's responsibility to create supportive work environments.

4.2 Personalized Employee Experience

Advanced analytics and AI enable HR to personalize employee experiences, from recruitment to career development. Personalized learning paths, customized benefits, and tailored performance feedback enhance employee engagement and satisfaction.

HR in Industry 5.0 moves away from a "one-size-fits-all" approach to a **personalized, employee-centric model**.

5. Artificial Intelligence and Ethical HRM

5.1 Use of AI in HR Functions

AI is increasingly used in HR for:

- Recruitment and talent screening
- Performance appraisal
- Workforce planning
- Employee engagement analysis

While AI improves efficiency and accuracy, it also raises ethical concerns related to bias, privacy, and transparency.

5.2 Ethical Challenges and HR Responsibility

HR plays a critical role in ensuring the ethical use of AI. This includes:

- Preventing algorithmic bias
- Ensuring data privacy and security
- Maintaining human oversight in decision-making
- Promoting fairness and accountability

Industry 5.0 emphasizes **responsible AI**, where technology supports human judgment rather than replacing it.

6. Skill Development and Lifelong Learning

6.1 Changing Skill Requirements

Industry 5.0 requires a combination of technical and human skills. While digital literacy remains important, greater emphasis is placed on:

- Creativity
- Critical thinking
- Emotional intelligence
- Ethical reasoning
- Collaboration

HR must identify skill gaps and prepare employees for future roles through continuous learning.

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6.2 Role of HR in Reskilling and Upskilling

HR is responsible for designing learning ecosystems that promote lifelong learning. This includes:

- Online learning platforms
- Micro-learning modules
- Cross-functional training
- Industry-academia collaboration

Reskilling not only enhances employability but also reduces resistance to technological change.

7. Sustainability and Green HRM

7.1 HR's Role in Sustainable Development

Industry 5.0 aligns closely with the United Nations Sustainable Development Goals (SDGs). HRM contributes to sustainability through **Green HRM practices**, such as:

- Eco-friendly recruitment
- Digital documentation
- Energy-efficient workplaces
- Environmental awareness programs

7.2 Social Sustainability and Inclusion

HR also promotes social sustainability by ensuring:

- Diversity and inclusion
- Equal opportunities
- Fair wages and working conditions
- Ethical labor practices

Industry 5.0 views organizations as social institutions responsible for community well-being.

8. Challenges for HRM in Industry 5.0

Despite its benefits, Industry 5.0 presents several challenges for HRM:

1. **Skill Mismatch** – Rapid technological change creates gaps between existing skills and future requirements.
2. **Resistance to Change** – Employees may fear job loss or increased workload.
3. **Ethical and Legal Issues** – Managing data privacy and AI ethics is complex.
4. **Cost of Transformation** – Training and technology investments can be expensive.

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5. **Balancing Technology and Humanity** – Ensuring that human values are not compromised by efficiency goals.

HR must adopt proactive strategies to address these challenges effectively.

9. HR Strategies for Successful Industry 5.0 Implementation

To thrive in Industry 5.0, HR should focus on:

- Developing a human-centric organizational culture
- Encouraging participative decision-making
- Investing in continuous learning
- Ensuring ethical governance
- Strengthening employee engagement and trust

Leadership development and change management are critical components of HR strategy in this era.

10. Future of HRM in Industry 5.0

The future of HRM lies in its ability to balance technology with humanity. HR professionals will act as:

- Change agents
- Ethical guardians
- Talent architects
- Sustainability champions

Industry 5.0 redefines success not only in terms of profit but also in terms of social impact, employee happiness, and environmental responsibility.

11. Conclusion

Industry 5.0 represents a transformative shift in the industrial and organizational landscape, emphasizing human-centricity, sustainability, and resilience. In this era, Human Resource Management emerges as a critical function that bridges technology and humanity. HRM is no longer confined to administrative tasks but plays a strategic role in shaping ethical, inclusive, and sustainable organizations.

By fostering human-machine collaboration, promoting employee well-being, ensuring ethical use of AI, and supporting continuous learning, HRM contributes significantly to organizational success and societal progress. The future of work in Industry 5.0 depends largely on how effectively HR professionals integrate technological innovation with human values.

References *(Sample – You may modify as per journal style)*

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on 18 and 19 December 2025

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1. European Commission (2021). *Industry 5.0: Towards a sustainable, human-centric and resilient European industry.*

2. Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*.

3. Ulrich, D. (1997). *Human Resource Champions*. Harvard Business School Press.

4. Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum.

5. Jarrahi, M. H. (2018). Artificial intelligence and the future of work. *Business Horizons*, 61(4).

Shri Dharmasthala Manjunatheshwara Institute for Management Development, Mysuru, India
13th International Conference on "HR 5.0: The Human-Centric Future of Work",
on 18 and 19 December 2025