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SCALING INDIA FOR INDUSTRY 5.0: THE ROLE OF INNOVATIVE WORK BEHAVIOUR IN ENHANCING EMPLOYABILITY AND ACHIEVING SUSTAINABLE DEVELOPMENT GOAL 4

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Abstract

The global economic revolution prompted by emerging technologies has cultivated the path for the emergence of Industry 5.0, emphasizing human-machine synergy, sustainability, and innovative solutions centred on human needs. Unlike the preceding industrial revolutions centered around automation and efficiency, Industry 5.0 unites cutting-edge technologies and human ingenuity to unlock new possibilities. Within this context, Innovative Work Behaviour (IWB) assumes a primary role in amplifying organizational agility, propelling innovation, and readying the workforce to navigate the challenges of Industry 5.0. So, the present study focuses on the influence of innovative work behaviour in influencing employability and the success of organizations in Industry 5.0. The research also brings forth the impact of encouraging innovation in the workplace in churning up the Sustainable Development Goal (SDG) 4 of propelling quality education and lifelong learning. The results suggest that cultures centred around innovation enhance employee flexibility and creativity that consequently lead to achieving Sustainable Development Goal 4 objectives through the process of continuous learning.
Keywords: Industry 5.0; Innovative Work Behaviour; Future of Work; Employability; Sustainable Development Goal.

Introduction

Digitalization has been evolving rapidly and Industry 5.0 is the new model that highlights people-centric and sustainable innovations by way of collaboration between Humans and machines that work in harness, Industry 4.0 introduced Automation and digitalization, While Industry 5.0 brings in the Human element, ethics , social benefits in development of technology, with higher emphasis on the employees and their contribution to development of innovation and organizational flexibility on going. Now a days, Companies are recognizing Innovative Work Behaviour's role in driving performance and competitiveness. IWB refers to the process of generating, promoting, and putting new ideas into action to improve the organizational outcomes (Janssen, 2000). Innovative employees contribute to creating

knowledge, fixing issues, and making the organization better. As industries head into Industry 5.0, how well employees innovate and adjust to technological changes will make or break the organization. As workplaces become more innovation-focused, ideas around work and employability are changing. Modern organizations need employees with technical skills plus creativity, critical thinking, and adaptability. Technological advancements are reshaping labour markets by cutting demand for routine tasks and boosting need for cognitive and innovative skills (Brynjolfsson and McAfee, 2014). So, organizations should foster environments that boost employees' innovative abilities and encourage continuous skill-building. Fostering innovative work behaviour among employees helps in achieving SDG 4 i.e., inclusive, quality education and continuous learning opportunities for all. As per SDG 4, building skills is key for people to contribute to modern economies and sustainable development (United Nations, 2015). By fostering innovation, workplaces boost learning, sharing, and skill-building among employees. With a huge, young workforce, India can massively benefit from shifting to Industry 5.0. But preparing for this change needs innovation-driven skills and continuous learning opportunities. Fostering innovation at work enhances employability, workforce capabilities, and drives sustainable development. So, the present study examines the role of innovative work behaviour in shaping the future of work, boosting employability, and achieving SDG 4.

Review of Literature

Industry 5.0 and Human-Centered Innovation

Industry 5.0 is a disruptive industrial development whereby the manufacturing production system of the future leaves behind the technology-driven production models as the main determinant of success, and returns to a new holistic model based on the cooperation of digital technologies such as artificial intelligence, robotics, data analytics, and human creativity, ingenuity, and innovation (Nahayandi, 2019) .

According to Leng et al. (2022), Industry 5.0 fosters a synergistic partnership between humans and intelligent machines, empowering organizations to unlock unprecedented levels of productivity, innovation, and growth. In this collaborative landscape, employees are anticipated to bring forth creative ideas, drive problem-solving, and actively participate in multifaceted innovation processes.

Innovative Work Behaviour

Innovative work behaviour is widely acknowledged as a crucial driver of organizational innovation and overall performance. As defined by Janssen (2000), innovative work

behaviour encompasses the deliberate generation, promotion, and realization of novel ideas within the workplace, fostering a culture of continuous improvement. By exhibiting such behaviour, employees play a pivotal role in enabling organizations to navigate complex market dynamics, respond to technological disruptions, and stay ahead of the competition.

De Jong and Den Hartog (2010) elaborated that innovative work behaviour encompasses a range of interconnected stages, including the exploration of novel ideas, the generation of creative solutions, the promotion of innovative concepts, and the implementation of new ideas. These multifaceted activities foster organizational learning, drive knowledge creation, and facilitate the development of innovative solutions to address intricate challenges.

Innovative Work Behaviour and Employability

In today's fast-evolving labour markets, marked by rapid technological advancements and intensified globalization, employability has emerged as a vital attribute for professionals to thrive. Fugate, Kinicki, and Ashforth (2004) conceptualized employability as an individual's capacity to secure and sustain employment by engaging in ongoing learning, skill development, and adaptability, thereby ensuring their continued relevance in the job market.

Exhibiting innovative work behaviour allows employees to cultivate essential competencies like creativity, adaptability, and problem-solving skills, thereby augmenting their employability. De Spiegelaere, Van Gyes, and Van Hootegem (2018) discovered that employees who proactively engage in innovation processes tend to prioritize continuous learning and professional development, enhancing their career prospects.

Innovative Work Behaviour and Sustainable Development Goal 4

Promoting innovative work behaviour resonates with the objectives of SDG 4, emphasizing inclusive, quality education and lifelong learning. Institutions fostering innovation-oriented learning ecosystems contribute significantly to developing skills that prepare individuals for the complexities of the future. According to Ramirez-Montoya et al. (2025), such innovation-driven education systems are instrumental in achieving sustainable development by equipping individuals to address pressing social and technological issues.

Research Gap

Despite increasing literature on innovative work behaviour, organizational innovation and employability, the extant literature has predominantly been from developed economies and traditional organizational contexts. The extant understanding of the dynamics of innovative work behaviour in emerging economic contexts is underdeveloped with respect to Industry 5.0 and also the impact in the changing demands. The pioneering works of Janssen (2000)

and De Jong and Den Hartog (2010) have shown the antecedents and the outcomes of innovative work behaviour, but the role of innovative work behaviour on workforce adaptability and readiness in a technology driven and human-centric environment has not been adequately addressed. The extant literature has predominantly conceptualized innovative work behaviour only as an antecedent to organisational performance with the little consideration on its broader development implications, in particular, the pathways to develop employability, continuous learning and adaptability on the workforce. With the emphasis on the human creativity and related outcomes in Industry 5.0, it is imperative for reconceptualizing innovative work behaviour as a critical enabler towards job readiness and the organizational outcomes and development of skills and competencies, career resilience and continuous learning as well. There can be a huge gap in the understanding in terms of connecting the innovative work behaviour to the Global Sustainability, in particular the SDG-4 with the focus on equitable quality education and lifelong learning. The extant literature on the role of innovation and the employee driven creativity to facilitate the attainment of SDG-4 related to quality education and lifelong learning is inadequate. There is a gap to fill in the empirical and conceptual understanding on the impact of integrating innovation in the workplace practices on the skill development, knowledge development and lifelong learning in the context of sustainable development. This gap in India is more important for the context of the country with the demographic dividend (India with its working population of 247 million) and the need for future ready workforce. Industry 5.0 demands workforce that is highly skilled, tech savvy, innovative, adaptable and future ready. Little is known about the role of innovative work behaviour on the transformation to empower workforce as well in the context of SDGs. So, the present study attempts to explore the innovative work behaviour's contribution for the workforce development, employability and lifelong learning in India with a focus on SDG-4. The study attempts to contribute to the comprehensive understanding about the impact of integrating innovative approach on the workforce to facilitate India's Transformation to Industry 4.0 along with the constraints in the context of sustainability and environmental and social aspects.

Research Methodology

The present research paper adopts a conceptual approach, rooted in the extensive review of the existing literature on Industry 5.0, innovative work behaviour, employability and sustainable development goals. Secondary data were collected from the academic sources like Journals, Books and Conference papers in addition to reports from the international body the

United Nations. The available literature was subjected to systematic analysis, resulting in key themes related to innovation, workforce development, and skill enhancement. Based on the synthesis of lessons drawn from the extant research, the study develops a conceptual framework depicting the relationships between Industry 5.0, innovative work behaviour, employability and SDG-4. This conceptual framework points to theoretical insights into how the organizations and the educational institutions can create environment to develop innovative capabilities of the employees and individuals respectively by ultimately contributing to the sustainable workforce development. The following are the objectives of the study:

- To analyse the role of innovative work behaviour on the future of work during industry 5.0 era.
- To probe the relationship between innovative work behaviour and employee employability.
- To examine the ways in which innovative work behaviour contributes to the achievements of Sustainable development Goal 4.
- To identify the consequences of the innovation led workplace on the work force development in India.

Role of Innovative Work Behaviour in Shaping the Future of Work and Enabling Industry 5.0

- IWB has emerged as a critical construct in understanding the adaptation of the organizations and individuals to the evolving modern workplace dynamics. It is defined as the intentional generation, promotion, and implementation of novel ideas within a work role or organization (Janssen, 2000). IWB is increasingly recognized as a key driver for transformation in the Industry 5.0. The paradigm of Industry 5.0 focuses on the human-centric innovation where leading-edge technologies such as Artificial Intelligence, Robotics, and Big Data Analytics are complemented with the human creativity, ethics and problem-solving capabilities (Nahavandi, 2019; Longo et al., 2020). IWB enables the employees for effective collaboration with the intelligent system that led to the delivery of the values. The significant contribution of IWB is augmenting organizational flexibility and the innovation capacity across the industry.
- For example, in the manufacturing environment, the innovative employees are contributing in the adoption of the smart manufacturing systems. Ideas like the incorporation of predictive Al-driven maintenance or data analytics based optimized

production are proposed by the employees thereby increasing the efficiency and reducing the operational production down time (De Jong & Den Hartog, 2010).

- In the IT industry, professionals experimenting on the nascent technological framework like cloud computing, machine learning or block chain display the high level of IWB and designing innovative digital solutions to solve the complex business problems (Anderson et al., 2004).
- In the healthcare environment, IWB leads to improvement in the services and patient's outcome. The healthcare professionals who adopt the AI-driven diagnostic in combination with the clinical experience or the intelligent care models are displaying the impact of innovative behaviour on the increased efficiency and the enhanced care (Scott, Bruce, 1994).
- In the marketing environment, individuals using the data analytics and digital platforms to craft the tailored marketing campaigns are displaying the impact of IWB on customer engagement and competitiveness (Fugate, Kinicki andAshforth, 2004). The above examples clearly indicate the relevance of IWB in shaping the future of the work on the various industry.
- IWB also helps in the development of the continuous learning as well the increment on the employability. In the context of the future of the work, the employability depends on the learn and adapt and innovate rather than the formal qualification (Van der Heijde, Van der Heijden, 2006). The employees participating on the innovation display greater chances of learning, gaining new competencies and excelling in the fluid labour market (World Economic forum, 2020) in particular in the context of industry 5.0, the ability on the hybrid skills are important. IWB also helps in the increment on the learning and employability, for example as far as the current topic of industry 5.0, the ability on the hybrid skills is necessary.
- Human-machine collaboration, the key to industry 5.0, is enhanced by IWB, the innovation led employees experiment with the technology, to unlock the human-tech synergies (Nahhayandi, 2019). An example of the innovative impact is, Engineers using the cobots and Analyst with the AI tool.
- The role of IWB in the support of the global priorities –SDG-4 that based on the inclusive and equitable quality education and lifelong learning. The impressive impact of the adaptive innovative organizations on the increment of the skills and knowledge (United

Nations,2015). This complements the formal educational training and prepare the individual on the challenges of the future (OECD, 2019).

- The relevance of IWB in the Indian context is considerable due to the demographic advantage (in the country the number of the working population 247 million) and transition to the knowledge-based economy in India, the organizations operating in the India in the IT, Manufacturing and Startup arena consider the importance of innovation on the global competitiveness (NASSCOM, 2021). The skill programs and the innovation hubs support the impact on the prepares the future ready workforce through the fostering of the innovative work behaviour, the increment of the agility, learning and competitiveness as part of the industry 5.0.

Findings

The following key findings emerge from the study:

- Industry 5.0 emphasises human-centred innovation over automation, with employee creativity emerging as a pivotal force for organisational value creation.
- Innovative Work Behaviour (IWB) notably boosts organisational flexibility by enabling employees to strategise and execute novel solutions.
- IWB exhibits significant cross-sectoral adaptability, notably in manufacturing, IT, healthcare, and marketing settings.
- IWB promotes effective human–machine integration, facilitating advanced technologies integration in Industry 5.0 systems.
- Employees demonstrating IWB show enhanced engagement in continuous learning, reinforcing their adaptation to evolving work roles.
- IWB positively influences employability by cultivating crucial competencies including creativity, adaptability, and problem-solving skills.
- Digital transformation fuels demand for innovation-driven skills, establishing IWB as a foundational workforce need.
- Innovative organisational cultures bolster workforce resilience amid tech and economic disruptions.
- IWB makes a direct contribution to the achievement of Sustainable Development Goal 4 by encouraging lifelong learning and skill progression.
- In the Indian context, IWB facilitates workforce prepared for Industry 5.0, by addressing skill gaps and encouraging innovation-based growth.

Conceptual Framework Diagram

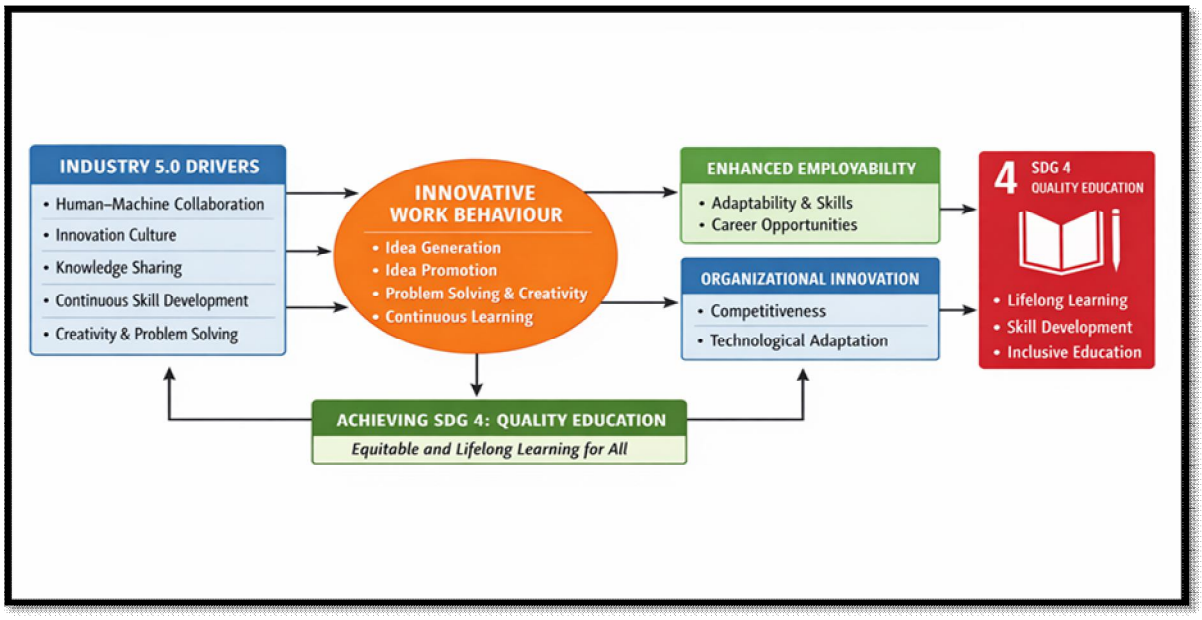

Figure 1. Conceptual model illustrating the relationship between Industry 5.0 drivers, innovative work behaviour, employability outcomes, and the achievement of SDG 4.

Discussion

The findings from the present study outlined above emphasises on the important role played by the Innovative Work Behaviour in mediating the transition to the Industry 5.0 and future readiness of the workforce. As the industries move in the direction of adoption of cutting-edge technologies, the role of the creativity and the innovation on the part of the individuals is vital for the success of the organizations. Unlike the earlier revolutions in the industry which focused on efficiency of use of technology, the Industry 5.0 on the other hand incorporates the synergic integration between the intelligence of the human and the digital technologies for achieving the sustainable and human centred development. The findings show that organizations fostering and encouraging innovative work behaviour create an ecosystem which stimulate creativity, knowledge flow and interdisciplinary collaboration among the employees. The conducive environment empowers the employee for actively participating in the process of innovation, enhancing the agility of the organization and improving the competitiveness. Individuals who display the innovative behaviour have higher chances of exploring novel opportunities, innovating solutions for the complex problems and contribute to the organization's learning and development. The findings also demonstrate the significant correlation between the innovative work behaviour and the employee employability. In the dynamic labour market, employability of the individual increasingly

depends on its ability to adjust with changing the technological and the organization landscape. Individuals who foster the innovation competencies such as creative thinking, analytical reasoning and adept problem solving are well prepared for complicated work environment and ensuring continuous career progression. The research shows the vital importance of education institutions and the policy mechanisms promoting the innovation competencies for the individuals. Education system traditionally concentrating on the theoretical aspects need to evolve to include the experiential learning and cross discipline and innovation driven curriculums. The institutions need to collaborate with the organizations to prepare the students to work for the opportunities on the Industry 5.0. The findings also demonstrate the nurturing of IWB related to the SDGs particularly SDG 4 oriented on the equitable quality and the continuous learning by promoting the innovation led learning environment, continuous skill enhancement and support the achievement of sustainable development. The integration of the innovation, education and technology are important for preparation the future ready workforce capable of coping with the complex challenges. Stake-holders are competent to work together in creating the innovation-oriented ecology that stimulate the creativity, knowledge sharing and continuous learning.

Practical Implications for Policymakers and Educational Institutions

The transition to Industry 5.0 represents the demand for a workforce with a mix of creativity, adaptability and innovation-oriented competencies. The policymakers need to invest in the comprehensive skill development initiatives, digital literacy courses and closer co-operation between the industries and the educational institutions to ensure preparedness of the individuals for the coming challenges of technological disruption. The educational institutions need to innovate the curriculum to focus the innovation, the creativity, the inter-disciplinary learning and the experiential learning methods, such as the project-based learning and the industry internships. These initiatives enable the development of the ready skills for the future and enhance objectives of Sustainable development goal 4 by facilitating continuous learning and quality education.

Conclusion

The emergence of the Industry 5.0 signify radical development in the industrial growth that highlight human centred innovation, sustainability and synergic interaction between the human and advanced technologies. In a rapidly changing industrial environment, innovative work behaviour plays a leading role in improving organizational performance, workforce adaptability and sustained competitiveness. The present study highlights, the organizations

encouraging innovation-based workplace culture empower the employees with essential competencies such as creative thinking, adept problem solving and adaptability. These competencies have significant influence on organizational productivity and augment employee employability and career longevity. In the evolving environment of the industrialization, the employees need to upgrade their skills and engage in lifelong learning, in order to remain relevant in the labour market. The study shows, nurturing innovative work behaviour support in achieving Sustainable development goal 4 of enhancing skills development, knowledge sharing and innovation led education. The institutions, policy makers and organizations need to collaborate in creating an environment for learning that stimulate creativity, inter-disciplinary thinking and continuous professional growth. The fostering innovative skills for the workforce are the critical component in preparing the individuals for the challenges and opportunities of the industry 5.0 in case of India. Fostering innovative work behaviour and continuous learning, the organizations and the educational institutions can facilitate future ready workforce that leads to the sustainable development and technological development. The integration of the innovation, education and strategy for workforce can cultivate a sustainable and inclusive future where in individuals lead the economic growth and the societal good.

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