Guest Editorial Preface

Special Issue on the Transition From Industry 3.0 to Industry 4.0: Strategic Human Resource Management in the Era of Digitalization

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INTRODUCTION

The business world has witnessed the game-changing technologies that marked the past three industrial revolutions. While steam technology characterized the "First Industrial Revolution", electricity was the game-changing technology of the "Second Industrial Revolution". The fast-paced advances in digital computer systems and communication technologies brought about the "Third Industrial Revolution". We have already entered the "Fourth Industrial Revolution" (4IR), where the cyber-physical system is the new driving force. 4IR aims for smart manufacturing to enhance efficiency and productivity. Many countries have adopted 4IR initiatives and making significant progress. The Government of Germany and the European Union have designed 4IR programs to accomplish digital goals. The Italian Government has implemented the 4IR National plan to increase the capital investment in 4IR technologies and research to provide a competitive edge to the manufacturing firms.

Similarly, Hungary has launched the 4IR National technology platform to embrace smart technologies. The Austrian Government has adopted a National level "Plattform Industrie 4.0" that works as an advice-giving body for 4IR promotion. The digital program in the U.S. is named "Smart manufacturing leadership coalition". The Government of India has undertaken "Make in India" initiative and digital strategy with a special focus on the manufacturing sector. Furthermore, a National policy framework including 4IR is under formulation to advance the growth of modern manufacturing using advanced materials. Countries like South Korea and Japan have also taken digital initiatives for smart production of goods. Chinese Government has undertaken a "Make in China 2025" initiative that demonstrates specific goals and performance measures to improve manufacturing capability through innovation-driven production in this digital age. Therefore, datadriven technological applications are receiving increasing importance in the manufacturing sector. In 4IR, people are working alongside robots and smart machines. It is about robots assisting humans to work better and faster by leveraging advanced technologies like the Internet of Things and big data-powered artificial intelligence. It adds a personal human touch to the 4IR pillars. As machines in the workplace get smarter and more connected, 4IR aims to merge those cognitive computing capabilities with human intelligence and resourcefulness in collaborative operations. 4IR will change the manufacturing environment significantly and big data-powered artificial intelligence will play a major role in the 4IR era. The pairing of human and smart machine workers opens the door to countless business opportunities. And since the cases of 4IR are still in their relative infancy, manufacturers

should be actively strategizing ways to integrate human and smart machine workers to maximize the unique benefits that can be reaped as the movement continues to evolve.

This special issue of the *International Journal of Technology and Human Interaction* (IJTHI) contains six papers that extend the theory and practice of strategic human resource management in digital technological environments. It fulfills the need for stimulating critical debate on and research into theories, approaches, principles, applications and the implementation of strategic human resource management in this digital era. Before being approved for this special issue, each publication was subjected to a thorough double-blind peer-review process. Please see the details of each article below.

The first paper is titled "Building and Bridging Security and Privacy-Related Technical Knowledge Amongst Human Resource Professionals: A Review in the Context of Industry 4.0." This article pointed out that an ever-increasing range of smart, linked Internet of Things (IoT) gadgets creates new security and privacy challenges. Business models that rely on smart product adoption must assure the capacity to deploy systems that provide acceptable sensor data integrity while ensuring user privacy. To navigate and integrate industry 4.0 into their processes, strategic support units such as human resources require appropriate technical knowledge of the state-of-the-art. Human resources professionals are encouraged to take on more strategic roles rather than operational ones. The security and privacy concerns posed by IoTs are exposed in this paper, which uses a systematic review process to propose a framework that maps viable solutions to the highlighted problems. The framework complements the strategic plan.

The second paper is titled "Strategies for Responding to Technological Enhancement Solutions for Coping With Technologies: A Study on Three Companies." This study examines the actions used by team managers to deal with technostress by identifying coping mechanisms. It assesses the selection of coping methods to improve performance. Four new coping theories based on these can handle technostress from an international perspective have been proposed. This adds to the body of knowledge on coping techniques and technostress, and the findings explain various team manager behaviours.

The third paper is titled "Quantify the Behaviour Attention of Individuals to Control Supply Chain Performance by Exploring Cloud Storage Services: An Extended UTAUT2 Approach." The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) is investigated as a theoretical foundation for developing an extended UTAUT2 model with relevant variables for examining cloud storage services technology acceptance at the individual level to respond to current and future supply chain operations. The empirical findings show that performance expectations, social influence, trust, and perceived speed of access are powerful and significant determinants influencing and changing individual (customer) behavioural intentions toward using cloud storage service technology in managing their firm's supply chain operations.

The fourth paper is titled "Antecedents of E-Marketing of Agriculture Products in This Digital Era: An Empirical Study." This study shows the role of the workforce in this digital age in the electronic marketing of agricultural products. E-Marketing Platform, i.e., Search engine optimization, affiliate marketing, social media marketing, and email marketing helps digital marketers track and analyze dynamic and complex consumer buying behaviour. Structural equation modeling is used to test the agricultural e-marketing framework. The developed model can enhance the ability of this digital age workforce to create effective electronic marketing strategies for agricultural products.

The fifth paper is titled "Family Businesses and Their Transition to Industry 4.0: Human Resource Perspectives From Bangladesh." This study uses qualitative research techniques to investigate the family business status in Bangladesh's adaptation to I4.0. The theme analysis identified four themes: the current state of the company, challenges, the impact of pandemics on human resources, and future plans. The findings show that Covid-19 acts as a catalyst and is highly recognized and incorporated in digital practices. The emphasis is on education, but not on both careers and general advice, which can be harmful in the future. This study takes a resource-based perspective to find bundles of resources

that are conditions for the development of family business towards I4.0, thereby helping to understand the role of the family business in implementing the I4.0 policy.

The sixth paper is titled "Perceived Impediments and Anticipated Solutions to Human Resource Towards Implementing Industry 4.0 in SMEs." The study aims to evaluate perceived constraints and solutions expected to human resources while implementing Industry 4.0 initiatives in SMEs'. A group of ten decision-makers from these SMEs was tasked with assigning ratings to various parameters. To create the model for ten perceived impediments and five anticipated solutions and subsequently rank them, the TOPSIS technique is employed. According to the data analysis, job reductions, unemployment, and job uncertainty have emerged as the top three significant hurdles. In contrast, challenges to trainers, replacement of humans, and training costs have been recognized as the bottom three. Smart HR 4.0 and AI & Data Analytics are the top and lowest-ranked solutions, respectively. In this article, HR in I4.0 in SMEs, these parameters have been graded based on their contributing attributes.

May these contributions create the way for all new advances in the field of strategic human resource management in the digital age to pave the way for vast and open oceans ahead and overcome managerial problems.

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