

Artificial Intelligence, Big Data, Automation, MBTI, and HR Performance in the Digital Era

Chairul Hakim, Albert Yansen, Fery Hernaningsih, Firda Hafidh Alifia, Irfan Zidni

Universitas Mohammad Husni Thamrin

Correspondence: chairulhakim1001@gmail.com, albert.yansen@gmail.com, Feryherna@gmail.com,
firdaalifia197@gmail.com, irfanzdni@gmail.com

ABSTRACT

Business Landscape Transformation and Its Impact on Human Resource Management in the Digital Era. The business landscape, which has undergone a fundamental transformation due to the digital era, presents new opportunities and challenges in human resource (HR) management. In the increasingly digital corporate world, this study will explore the impact of automation, big data, artificial intelligence (AI), and MBTI on HR effectiveness. The aim of this research is to understand the influence of these technologies on HR, both positively and negatively. The research methodology involves surveys, data analysis, and case studies on small and medium-sized enterprises (SMEs). One of the issues discussed is the extent to which AI has changed the way HR carries out daily tasks. AI has the potential to significantly impact HR by helping companies improve recruitment procedures, offer specialized training, and anticipate future workforce needs. Additionally, this study will examine how big data has emerged as a useful tool in HR decision-making. The accuracy of MBTI, derived from various sources, will provide a comprehensive understanding of employee performance, job satisfaction, and productivity patterns. Furthermore, automation will be analyzed to assess how much mundane workplace tasks can be replaced by technology, thereby allowing HR staff to focus on more strategic and impactful work for the company

Keywords: Artificial Intelligence, Big Data, Automation, MBTI, HR Performance

INTRODUCTION

Some people claim that the boundaries between the physical, digital, and biological domains are being erased by the Fourth Industrial Revolution due to advancements in information technology. Machines that exhibit elements of Human Intelligence (HI) are examples of Artificial Intelligence (AI), which is increasingly used in the service sector and is now a primary source of innovation (Alwy, 2022). Artificial Intelligence (AI) and robotics are two examples of major technological advancements that have occurred in the last 20 years, and these advancements are expected to disrupt many jobs globally. Technology that combines hardware and software to enable intelligent (human-like) behavior is known as artificial intelligence (AI). The goal of AI is to develop computational systems that can mimic human intelligence to the extent that AI-based devices can perform almost all tasks without human assistance (Devianto, 2020). When making various strategic decisions, big data is very important. As a result, stakeholders can handle and utilize the vast amounts of data available, with significant diversity, complexity, and high-speed addition, and they can gain considerable advantages from it (Tahar et al., 2022).

Human resources research shows that workers are highly anxious about automation, and this technological advancement can have a significant impact on the labor market and productivity. On the other hand, some economists argue that these technological advancements actually create new jobs because automation reduces the need for unskilled labor, increases the demand for skilled labor, and raises wage standards (Maharani et al., 2023). The Myers-Briggs Type Indicator (MBTI) is a psychological test designed to measure an individual's basic psychological preferences in perceiving the world and making decisions. This test contains questions about how individuals typically feel or act in certain situations. MBTI was developed by Isabel Briggs Myers in the 1940s. This test is designed to measure an individual's intelligence, talent, and personality type. MBTI is the most widely used instrument and has been updated and rigorously validated for over seventy years (Robbins et al., 2013). The human resources of a company are viewed as a long-term investment and a crucial component of the success and profitability of any business. In fact, the 10 most sought-after roles in

Industry 4.0 were not in the top 10 last year. Therefore, the skills required to perform these jobs are currently unavailable. According to research findings, the distinctions between jobs are becoming less clear due to technological/digital advancements. A key feature of the Fourth Industrial Revolution is the emergence of a digital economy centered around the Internet of Things (IoT) (Kusuma, 2021).

METHODS

This study finds, collects, categorizes, and consolidates relevant knowledge related to the research problem in order to generate objective study results using a methodical literature review approach. The first step in conducting this comprehensive literature review is to consider: 1) the research design (including research questions and bibliographic techniques); 2) data processing (simple selection, filtering, and exporting bibliographic document data); 3) analysis (data cleaning assignment, identification of subgroups/analytical clusters, and bibliometric software); 4) visualization of results; and 5) interpretation of findings. This study uses a similar approach in data collection and evaluation of literature on the implementation of AI, Big Data, Automation, and MBTI in the service industry over the past decade (2014-2024). Data was collected using the Publish and Perish software from Google Scholar and literature searches with the search string "Artificial Intelligence, Big Data, Automation, and MBTI" (Zupic & Cater, 2015). Furthermore, to identify the novelty in this research, green and yellow nodes are used in overlay visualization (distribution visualization), and to explore innovations or research areas that have not yet been studied previously, a green pattern is used in density visualization (density visualization). Strings with blue nodes in the overlay representation have an Impact Factor (IF) of less than 1, green nodes have an IF of 2, and yellow nodes have an IF of 3 or more (Van Eck & Waltman, 2019).

RESULTS

The world has undergone significant and drastic changes, creating new needs. Revolutions have served as turning points in the stages of industrial revolution. Undoubtedly, advancements in the industrial sector will have an impact on other fields, including politics, economics, education, culture, and security. This shift has also led to the emergence of new professions and the decline of certain established professions. Employees within a company need to acknowledge this and treat it as a human resource issue. At the Hannover Messe Industrial Exhibition in 2011, the concept of Industry 4.0 was introduced to the general public. Because of this event, terms like Industry 1.0, Industry 2.0, and Industry 3.0 were coined. The Digital Revolution and Technological Revolution were previously used terms. The term "Industry 4.0" refers to a more comprehensive development that combines advances in robotics, artificial intelligence (AI), the Internet of Things (IoT), 3D printing, genetic engineering, quantum computing, and other fields, all integrated with computers and robots. In response to these global events, companies must adapt to these developments and use the appropriate technologies to achieve their organizational goals. Companies must make every effort to ensure that their human resources are prepared to compete in all areas.

Human Resource Performance (Kinerja SDM)

Human resource performance is the outcome of work performed over a specific period of time, compared against various benchmarks, such as standards, targets, or jointly established criteria (Maryoto, 2000). Human resource performance refers to the extent to which individuals successfully fulfill their roles in terms of quantity and completion of tasks. It can also be defined as what is done and produced, whether in the form of products or services, during a specific period and within certain metrics, by an individual or group of people through their competencies (Widaningsih, 2010). Human resource performance indicates how well an employee fulfills the job requirements and documents the results of specific tasks or activities carried out during a set period, as reflected by their work methods or style and the outcomes achieved (Anwar, 2006).

Artificial Intelligence (AI)

Many ideas in the field of computer science and technology are based on Artificial Intelligence (AI). These ideas include natural language processing, computer vision, robotics, machine learning, deep learning, recommendation systems, and the internet (Ashley, 2017). Because they use computer programs, these ideas can be widely applied in science and technology. AI is effective because most of

us don't need human assistance due to its high cost and potential inaccuracies. The learning process can be seen as AI itself, where decision-making systems depend on data and patterns (Jackson, 2019). In the field of human resources, AI is incredibly important. Today, many HR activities are assisted by AI. However, every year, there are growing concerns about cyberattacks, including data loss and computer hacking (Dilek et al., 2015).

Big Data

Big Data has several indicators, such as volume (usually very large), variety (highly diverse data), and velocity (adequate data access speed). Structured databases or other types of data may serve as sources of Big Data. To process unorganized Big Data, several steps need to be completed, such as producing output information for consumers (obtained, retrieved, evaluated, and applied) (Hilbert & Lopez, 2011). The four stages of Big Data management, along with supporting tools, are: (1) Acquired (Related to the sources and methods of data acquisition); (2) Accessed (Related to data access; collected data requires governance, integration, storage, and computing); (3) Analytic (Related to the information to be obtained); and (4) Application (Related to the visualization and reporting of analytical results).

The benefits of Big Data technology have been widely felt across various sectors. Companies operating in the business sector can leverage valuable information generated by Big Data to optimize decision-making processes (Hilbert and Lopez, 2011).

Automation

Automation is a technology that combines mechanical, electronic, and computer-based systems through processes or procedures that are usually arranged according to program instructions and combined with automatic feedback control to ensure that all instructions are carried out correctly, thereby increasing productivity, efficiency, and flexibility (Groover, 2001). In automated control systems, products will be inspected automatically. Information is processed to make adjustments. The concept of automation is to imitate human functions, consisting of ****Sensing**** → ****Thinking**** = ****Decision Making****. Mechanization can be seen as efforts to assist humans in physical tasks, while automation assists humans with mental tasks (Groover, 2001). Automated process controllers are used to achieve accuracy, precision, and productivity. In the current system scenario, automation strives to meet competitive strategies in the form of ****QCDF**** (Quality, Cost, Delivery, Flexibility) (Groover, 2001).

Myers-Briggs Type Indicator (MBTI)

Personality tests are psychometric instruments used to explain individual characteristics. Over time, personality tests have evolved to not only reveal a person's traits but also help in future career planning, such as choosing an academic path. In the industrial and organizational sectors, personality tests can be used to place employees in positions that match their skills (Amaliyah & Noviyanto, 2013). The Myers-Briggs Type Indicator (MBTI) is an instrument developed by Katharine Cook Briggs and Isabel Briggs Myers. The goal of developing MBTI was to make Carl Jung's theory more accessible and relevant to daily life (King & Mason, 2020). Several studies in Indonesia have shown that the use of MBTI has an impact on employee placement (Amaliyah & Noviyanto, 2013) and the alignment of personality types with job performance in fields recommended by MBTI (Apriyani, 2014).

CONCLUSION

The results of this study conclude that technology has a significant influence on the effectiveness of HR management. HR performance can be measured through the achievement of tasks and targets set. With technologies like AI and Big Data, performance can be improved through increased efficiency in decision-making, data processing, and administrative tasks. However, challenges like job losses due to automation and changing skill requirements remain major concerns.

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