Digital HRM with Machine Learning Approach

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Abstract: The purpose of this paper is to provide an overview of how modern resource management resolves conventional challenges in that area. Computing technology with all its specific application variants will help human performance in HR management in the contemporary era. The rapid advancement of technology and digitalization has presented a digital economy characterized by business and the trade transactions based on technology. This study aims to analyze the influence of the digital economy as measured by the Value of Electronic Money Transactions and the Value of E-Commerce Transactions on Indonesia's economic growth. This research method is descriptive qualitative with a literature study approach. The data sources used are journal manuscripts, books, and other sources that are in accordance with the theme of this study. The data will be elaborated to get the construction of relevant thoughts and reflect an adequate analysis of computers and human resource management in this modern era. The results of the study are computing is able to carry out administrative tasks automatically; computing is able to increase employee engagement; computing can help improve the recruitment and orientation process; computing can help ensure compliance; and computing can help drive data-driven decision making.

Keywords: Digital; HRM; Machine; Learning approach

Introduction

Feeding ML models with big data can provide asset managers with recommendations that influence decision-making around portfolio allocation and/or stock selection, depending on the type of AI technique used (OECD, 2021). However, in the research area of human resource management, there is still a lack of an overall ML application framework, combined with the specific dimensions of human resource management, to analyze its specific application.

Therefore, based on the six dimensions of human resource management and the main technical applications of ML, this paper proposes a conceptual AI application to HRM model to guide enterprises how to use AI technology to assist human resource management (Jia et al., 2018).

The implementation of AI and ML takes a number of different forms. One possible form is robotics automation, which helps workers perform routine or repetitive manual tasks. Instead, machine learning allows computers to collect and interpret input directly, analyze work and business processes, detect and translate languages, as well as design and automate production (Sakka et al., 2022).

According to Saibene et al. (2021) and Wagner (2017), Expert system (ES) is a field within Artificial Intelligence that has now been around for several decades. Since its inception in the 1970s and its rise to popularity in the 1980s and 1990s, many case studies have been published containing a wealth of knowledge about what worked and what did not work for that particular application of think (IoT) is a media that is used in various systems with the use of internet media, all data (Buccieri et al., 2020; Lombardi et al., 2021; Mouha, 2021).

Employee turnover can be defined as "The proportion of the employees who leave an organization

over a set period", which is definitely unwelcoming for organizations. Every effort is taken by organizations to increase employee engagement and thus retain them once they prove their worth to the organization. In the era of fifth industrial revolution, organizations can definitely rely on technology to play a major role in this aspect (Cabrera et al., 2022; Tomaszewski et al., 2020).

Figure 1. Machine learning comes to HR (Source: Google.com)

Information becomes the need or need (almost) principal and manifest as metaphor as follows: "information is the lifeblood that sustains political, social and business decisions". The next interpretation is that there is no perspective in living this global life without the presence of information. The public must open themselves to the dynamics of new media or new media and the level of trans-national communication. Circulation of production, consumption and distribution of information tips and strong lightning tips. Technology supports the interaction's joints (Setiawan & Padmaningrum, 2020).

Method

The type of research the author uses is qualitative research. Qualitative research is research whose final results produce descriptive data sourced from information on people and behavior that is usually observed directly (Fischer & Guzel, 2023). This means that the author will provide factual information in data and information because of direct observation. The approach used is ethnography (Wijaya, 2018).
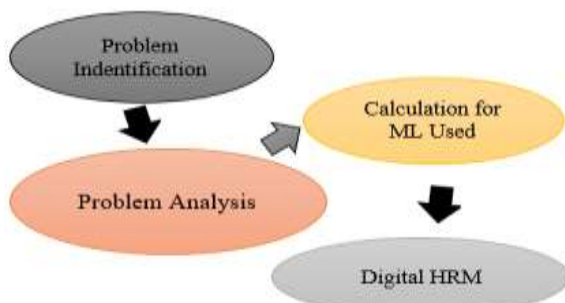

Figure 2. Flow method of study

The data taken, identified in the following order: data collection; data sorting; data analysis (4) conclusion making. As for data analysis, there is a predetermined sequence in accordance with the empirical steps taken, namely as follows: (1) Examination of data (2) suspected data findings, (3) Data confirmation (4) Diagnosis, (5) Action.

This research uses qualitative methods by reading previous research, by exploring journals that conduct similar research and reading many books that discuss research like this, qualitative methods by also conducting discussions with various parties who understand this research (Cresswell, 2012).

Machine Learning fulfills its destiny to become a business instrument, which in the discourse of this study is the marketing of various products, both from the government and from the business world, from micro to multinational scale. The financial supervision department further clarifies the responsibility, applies Machine Learning technology to supervision methods and means, and improves the degree of supervision automation and intelligence.

Result and Discussion

Introducing for Machine Learning
The term Machine Learning was first coined by John McCarthy in 1956 when he organized the first academic conference on the subject. But the journey to understand if machines can really think started long before that. In Vannevar Bush's as We May Think (1945) he proposed a system that amplifies people's knowledge and understanding. Five years later Alan Turing wrote a paper on the idea of machines that could simulate humans and the ability to do intelligent things, such as playing chess (1950). Machine Learning is a big umbrella. Under it, we find visual recognition, voice recognition, natural language processing, expert systems, affective computing, and robotics (Siregar et al., 2020).

One key technological development with a likely profound impact on manufacturing is cyber-physical systems (CPS). These entail the convergence between the physical and virtual industrial environments by means of business networks that integrate equipment, production, and inventories. They can also be defined as collaboration systems between entities with online and intensive connection with the physical environment and ongoing process in order to provide simultaneous access to data processing dedicated to decision-making (Buccieri et al., 2020).

The term machine learning is basically the process of computers to learn from data. Without data, computers will not be able to learn anything. Therefore,

if we want to learn machine learning, we will definitely keep interacting with data. All machine learning knowledge will definitely involve data. The data can be the same, but the algorithms and approaches are different to get optimal results. In recent years, the new challenges brought about by digitalization have also required changes in traditional human resource management (HRM) models (Mosca, 2020).

The concepts of "digital employees", "digital natives", "net generation", "millennial", is assumed that the early, intimate and enduring interaction with digital technologies has shaped a new generation of people with distinctively different attitudes, qualifications, behaviors and expectations. It is obvious that HRM should react to such changes and align its strategies and activities to this new job market cohort, and search for adequate ways to recruit, to develop, to compensate etc such digital employees and moreover to integrate them with previous generations of employees (Prakash et al., 2019).

In the beginning, Machine Learning existed only in universities and research laboratories, and very few - if any - practical products had been developed. Towards the end of the 1970s and early 1980s, it began to be fully developed and the results gradually came to market. Today, many research results are being and have been 1 are being converted into real products that bring benefits to the users (Kalsum, 2022).

Digital employee management by ML is about planning and implementing digital technologies to support and network the HR profession. Operational functions of HR such as pay roll processing, but also managerial functions such as compensation, performance management or development are "digitally" supported (Chytiri, 2019). No doubt, the study revealed that an important aspect of Human Resources Management which has been neglected over years is staff training and development (Bakare, 2020).

Using Machine Learning for HRM

Digitization is not only just about using digital tools within an organization, but it is also a tool for implementing these innovative business models and long-term corporate strategies. Verhoef argue that digitalization describes how digital technology can be made to change existing business processes. This change requires the intervention of digital technology to shape the new organizational technology structure, which would not have been possible without the timely intervention of digital technology. In the digital domain, information technology may facilitate business process relationship management and is better suited to the organization, becoming key elements of HRM operations that drive innovation (Zhang & Chen, 2023).

The positive operational effects of this digital employee management such as less cost, higher speed and quality of HR processes, increased corporation and trust among HR stakeholders, more strategic orientation, etc. are obvious. Some negative issues such as lack of user acceptance, threats to privacy, loss of personal contacts, downsizing the HR – department or burdening HR professionals with technical implementation, administration and application tasks, should not be out of consideration (Chytiri, 2019).

Significant transformation sat the level of economic organization, technological capacity, and social processes are bound to be reflected in the history of human resource management (HRM). The development of artificial intelligence (AI) constitutes one such transformation with wide-ranging implications, particularly for such fields as engineering, industrial organization, and HRM. The promise of AI is that automated devices like machines, robots, and software might be able to perform routine tasks that were traditionally undertaken by humans (Kalia & Mishra, 2023; Sakka et al., 2022).

With specific reference to HRM practices, this means that a number of activities (like recruitment, performance management, determination of compensation and benefits, provision of training and development) could become automated to a considerable extent in the near future (Sakka et al., 2022).

The term digital HR can be understood as integrating social, mobile, analytics and cloud (SMAC) technologies aimed at automating different areas of HR for better productivity, redefining how HR processes are delivered, improving work-life balance focusing on real-time access, decision-making and results (Mazurchenko & Maršíková, 2019).
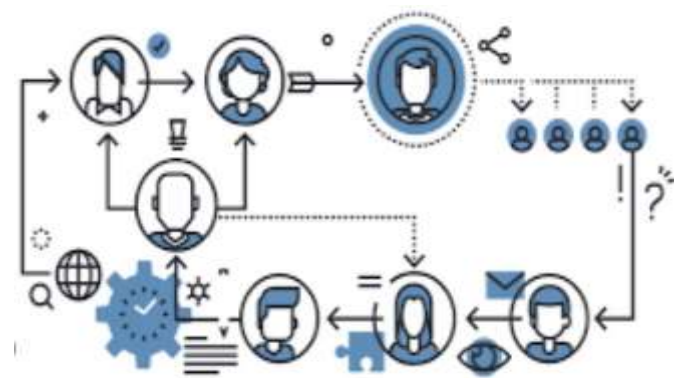

Figure 3. ML and AI in HR logic flow (Source: Google.com)

Employees that display high levels of on-the-job efficacy, productivity, and participation are a source of value added to an organization. At the same time, these variables are difficult to assess from the company's side using conventional success metrics, since these are often

too crude. ML can enhance the granularity of performance appraisal by HR administrators by making it possible for them to assess performance over smaller ranges of observation, therefore contribute to more precise interventions for improving cumulative performance (Kehoe et al., 2023).

Training is particularly crucial to keep abreast with the pace of technological development. AI can play a role in this respect, at the level of scheduling, arranging, and coordinating virtual training activities, such as online courses and remote classrooms. Beyond these logistical tasks, AI can also play a higher role in assigning employees to tailored training activities, based on their personal needs. Studies suggest that the typical worker has less than 25 minutes (weekly) to devote to continuing professional development: this makes it particularly vital to optimize the effective use of such time—a task where AI can be of use (Sakka et al., 2022).

Employee databases can, if properly queried, be a source of useful information for directing workers to appropriate training opportunities, since they store information on the specific expertise and competencies of different employees. Such databases can also be queried to track the impact of any training in the employee's subsequent history within the organization. Finally, AI can improve talent retention, by making it possible to respond proactively to staff members' needs. In particular, AI-assisted applications can be used to assess individual traits, compose a richer picture of an employee's performance, and so do justices to hard-working staff. By paying attention to these data, talent retention difficulties can be caught before they manifest (Sakka et al., 2022).

An emerging field in this respect is that of "emotion analysis", which is based on processing data from employees' social media activity to gauge their positive and negative feelings, as well as their possible biases. For instance, user responses can be arranged into a lexicon, so that positive or negative scores might be associated to specific expressions, as being disclosive of particular emotions. An intelligent use of such tools could put emotion analysis software at the forefront of HRM practice, in order to enable organizational responsiveness to employee sentiment and motivation. As we come to the end of the first part of the paper, it is useful to note the considerable (Sakka et al., 2022).

The less contact economy can reduce the spread of the coronavirus from the hyper connectivity economy that brings many people together such as in traditional markets (Setiawan & Putro, 2021). Promise attached to AI adoption for improving HRM function within organization. However, there remains a gap between the fulfilment of such promises and on-the-ground experience with AI. The increase in information-

processing power that AI would afford requires a matching increase in the capability of HR staff to query and interpret AI applications meaningfully. This is where there is an extant skills gap. These considerations set the stage for the focus of the next section, which looks in greater detail at the anticipated skill sets that AI introduction would require organizations to have at their disposal (Sakka et al., 2022).

However, the formulation and execution of digital organizational strategies implies more systematic and fundamental changes. By contrast, the concept of digital disruption necessarily shows no relation to the typology of digital organizations, as digital disruption does not result in digital but marginalized organizations.

Socio-technical designs are necessary for an appropriate and practical realization of digital HRM. This is realized by developing innovative solutions for digital HRM. Based on the above elaboration, it is obvious that such solutions have a complex socio-technical nature, that is, comprised of interrelated managerial and technical components (Strohmeier, 2020). Rather than waiting for innovations in digital HRM to emerge in practice and investigating them ex post facto, research should accompany and even guide practice by (developing, evaluating, and then) providing appropriate solutions (Strohmeier, 2020).

While design generally refers to all digital ideal-types, it is obvious that the strategic integration of digital technologies constitutes the core challenge of design research. Again, developing different scenarios of a strategic integration of digital technologies is beyond the scope of this article, but a brief example can be drafted. As mentioned, the ideas of HRA and ERM show basic features of and potential for a digital HR strategy (Strohmeier, 2020).

Conclusion

Machine learning has made some enormous strides over the last couple of years thanks to certain technological advances, but it is safe to say that we have yet to see its full impact on the world of business and HR specifically. The important thing is not to oppose it immediately and see it as a bringer of doom. The future of HR will most probably involve a human-machine collaboration and that can end up being a good thing. Machine learning can change the way the human resource management domain functions in an organization. It is making changes in all aspects of human resource management starting from human resource planning. Enormous data is available in human resource information systems (HRIS) available in organizations. Personal data of employees are also available in their social networking sites like LinkedIn,

Facebook and also in blogs. It is up to the organization to unleash the potential of such data and convert that into valuable insights and predictions for a better functioning of organization.

Author Contributions
In this study, all researchers contributed actively with the tasks that were carried out together. In other words, this research was supported by equal distribution of roles and contributions of all authors, because each stage was always discussed together.

Conflicts of Interest
In this research, there is no tug of interest and or hidden interests among the researchers. In addition, this research is also not an order from any funder because it is an independent research or in other words, the research team itself plays a role in preparing proposals, selecting topics, conceptualizing problems, collecting data, analyzing problems, drawing conclusions until the publication stage in this journal.

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