

The Human Resource Data Analytics on AI: Case Study Indonesian Genose

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Abstract

The fundamental goal of this research is to find the evolution of the usage of data analytics applications in the field of human resources, as well as the challenges of data analytics in crucial artificial intelligence in the industrial era 4.0 in Indonesia. This study's objective is to investigate the impossibility of replacing the intellect of humans with machine intelligence, an endeavor that is predicated on the similarity between machines and people in terms of their ability to handle large amounts of data. The method that is being used for analytics is troubling method on a qualitative level due to the approach that is being taken. According to the findings, data analytics in the industrial era 4.0 can be conducted just as well by robots with very vast data memory as humans can, in all aspects of human intelligence on weak Artificial Intelligence phase.

Keywords: analytics, data, intelligence, humans, machines, industry 4.0

Introduction

Changes in all facets of human life have been significantly influenced by the rapid advancements in technology that have taken place during the past ten years. The advancement of technology in the usage of smart cellular devices, which make it more convenient to communicate with a variety of parties, affects the interchange of data and information for linked parties, which contributes to very high economic growth in comparison to the preceding ten years. According to Marr (Marr, 2017), the flow of data and information is causing a sea change not only in our world but also in the way we live and the jobs we do. Depending on how we frame the situation, we are either at the beginning of something really exciting (Depari, Shu, & Indra, 2022) or we are entering the Big Brother period, a terrifying era in which our every move can be followed and even predicted (both sides) us and our business colleagues over the appropriateness of the position that has been taken (Febriani, Ikbali, & Erfina, 2023). The leaders and managers of firms, on the other hand, today have very little time to examine how doubtful the data can be (Melissa, Rambe, & Sanjaya, 2023). The presentation of data and the management of that data has fundamentally altered the way in which businesses work, and these two processes are only going to become more vital to the continued existence of every organization in the years to come. Companies that see the management and display of data as strategic assets are the companies that will continue to exist and

flourish in the years to come (Suryadi & Rambe, 2023). The enormous growth of Big Data and the Internet of Things in the current era of industry 4.0, combined with the rapidly evolving methods of managing and presenting data for the purposes of data analytics (Depari, Shu, & Indra, 2022), demonstrates how important data management and presentation is in every facet of business, (Zara, Wahyudi, & Widjanarko, 2023) and this importance is only going to increase in the foreseeable future.

Human resources are recognized as the backbone that determines the data and information produced, including determining the existence of organizations for centuries (Ayunindya, 2023), according to Nijjer & Raj (Nijjer & Raj, 2021). This includes management that uses data analytics in changing conventional ways of managing the role of human resources into having contemporary data-based competencies in every aspect of the business environment.

In addition, Nijjer and Raj (Nijjer and Raj, 2021, p. 4) mentioned that data analytics in business is frequently considered to be a component of business intelligence (BI). The term business intelligence (BI) is intended to be used as a general term that serves as an umbrella in data analytics, reporting, management, and presentation of data (Sundara, Utami, & Hermiyetti, 2023). This provides perfection in various applications, infrastructure, materials, and equipment, as well as best practices that are used by organizations to obtain information, improvise on needs, data extraction, and help optimal organizational decision making (Rosa, Rambey, & Sanjaya, 2023). The phrase "data analytics" is frequently used as an umbrella word that encompasses both "business analytics" and "data analytics," both of which are utilized to gather business insights (Mauladi & Gultom, 2023) and their respective relevance and context of developments in the overall business environment (Nijjer & Raj, 2021).

In spite of the fact that it serves a purpose, the majority of businesses only take a limited approach when examining data analytics, concentrating their attention solely on data pertaining to people and ignoring the interactions that take place between these individuals. The process known as "Analytical Relationalization," which takes place between them, examines the flow of relationships that take place within HR Analytics. They use each other regardless of what data becomes communication material between people in the organization; for example, data exchange using e-mail, organizational communications, file transfers, and so on (Nijjer & Raj, 2021, p. 27). The term HR analytics is seen as a relationship that expresses the exchange of data based on person-to-person interaction. (Nijjer & Raj, 2021) Similarly, the term business analytics is seen as a relationship that expresses the exchange

According to Mondy and Martocchio (Mondy & Martocchio, 2016, p. 295), the relationships between people in data analytics are grouped into three groups within the framework of global data exchange relationships. These three groups are the first group that utilizes global data analytics and benefits from data those: provided by the government, the second group that benefits from data analytics mandated by the government (Hamboer, Alamsyah, & Pranawukir, 2023), and the third group that benefits

from data analytics voluntarily provided (Rahmawan & Romli, 2023). Therefore, the first thing a company ought to do when contemplating a benefit package in a global environment is to define a strategy for obtaining the benefits of data analytics and establish a corporate identity in respect to the essential data analytics. The second thing a company ought to do is create a strategy for obtaining the benefits of data analytics and define a plan for obtaining the benefits of data analytics (Mondy & Martocchio, 2016).

Literature Review

According to Lozny and McGovern (Lozny & McGovern, 2019), in a global framework, these relationships in the midst of society are at a high degree of interaction complexity as a result of data analytics. This is in relation to the continuity of interactions between people in the usage of data analytics. In a long-term perspective, interaction is carried out by preserving a combination of relationship sustainability and adjusting it to the most dominant cultural changes (Schühly, 2022). This is done with the goal of sustaining both. Studies of this kind that are longitudinal give new perspectives on the ways in which global societies manage their tactics in order to solve a variety of challenges that crop up from time to time (Yorks, Abel, & Rotatori, 2022). They reveal the stressful environmental adaptations of altering interactions between local and regional community authorities, as well as external political problems that are repeated internationally, connected to the management policies of resources such as water, soil, grasslands, forests, and entire ecosystems (Hampson & Narlikar Amrita, 2022). These challenges are tied to the management policies of resources like as water, soil, grasslands, and forests. On the other hand, they show that the adaptation of the dominant culture, which was mentioned earlier and is operating at an optimal level, for instance a robust production and data exchange system, can generate positive feedback relationships (Asprion, Schneider, & G, 2018). These relationships can be seen in times of major disturbances such as droughts, climate shifts, market upheavals, or political conflicts in global issues (Lozny & McGovern, 2019).

According to King and Vaiman (King & Vaiman, 2019), in terms of adaptation to global changes and individual interactions, global changes are met with the need for global talent management (Global Talent Management, GTM). King and Vaiman state that global changes are faced with the need for global talent management. It is anticipated that the successful execution of global talent management would result in the creation of positive value through the management of human resources as a strategic resource for a company (Miller-Merrell, 2022). This management is coordinated through the strategic decisions made by HR management (Malik, 2022). This focus of the GTM provides a significant source of value for the company; however, in order for the GTM to be effective, the company must not only manage talent within the context of the corporation, but it must also evaluate, understand, and exert some level of influence over the wider external cultural changes in which talent management is created, developed, and managed. at the macro level, beyond the scope of the company (King & Vaiman, 2019). Follow

government policies that encourage investment in global talent management in the quality and quantity needed nationally (Miller-Merrell, 2022). This can be done by special state agencies aimed at improving the quality of employee skills and education (Wu, 2020), or it can be done as part of a workforce quality improvement program by other state agencies. The method is to follow these policies. corporations can only influence how they recruit talent management for the company's business needs if they also affect the availability of talent management on a macro scale and the process of supplying it (Miller-Merrell, 2022). This is the only way for corporations to achieve this level of influence (King & Vaiman, 2019).

In selecting global management talent (Miller-Merrell, 2022), as executives, management consultants, job placement consultants, career training, and business training services, with a focus on how to fully understand the concept of suitability from the provider's perspective work and talent candidates, placing is the method that is done by placing, as stated by the practice according to Webb (Webb, 2020) 30 years of experience. According to Marchington and Wilkinson 2021, human resources are one of the primary variables that divide successful firms from unsuccessful organizations. The other two primary factors are technology and finance (Karasan, 2022). This is especially clear in the service industry, which is characterized by the fact that employees are the primary point of contact with clients, whether it be in-person during the course of providing services or through the phone or the internet (Webb, 2020). Even in manufacturing organizations, how human resources are managed is regarded as a very crucial component in the production process (Marchington & Wilkinson, 2021). This is especially true in terms of assuring the quality and dependability of the end product. The majority of their roles are determined by the degree to which they are given the opportunity and permitted to be creative on their own (Webb, 2020).

It is impossible, in this era of globalization, to separate the management of talent from the economic and commercial links that exist between countries (Miller-Merrell, 2022). Globalization is a phrase that is used to characterize the rising speed of economic and cultural interrelationships between countries, as stated by Nankervis et.al (Nankervis, Baird, Coffey, & Shields, 2020). Not only has the monetary worth of international trade expanded over the past two decades, but also the interconnection of nations has grown as a direct result of an increase in the utilization of worldwide supply chains. According to the definition provided by the World Trade Organization (WTO), the international supply chain is an interaction that takes place when "goods and services traded contain raw material inputs originating from many different countries." According to estimates provided by the WTO (Lozny & McGovern, 2019), re-exports of intermediate product inputs make up approximately thirty percent of overall international trade. It also serves as an indicator of the worldwide relationship in data analytics (Yorks, Abel, & Rotatori, Strategic Human Resource Development in Practice, Leveraging Talent for Sustained Performance in the Digital Age of AI, 2022), the importance of which has grown

substantially over the course of the past few decades (Nankervis, Baird, Coffey, & Shields, 2020).

In the middle of these global contacts, the requirements and complexities of the industry in relations in the sectors of economy and commerce have exhibited a tendency of steadily expanding over the past several years (Demir, Paksoy, & Kochan, 2021, page 21). The rapid progression of technology, the intense rivalry in the market, the ever-increasing unpredictability of global marketplaces, the rising desire for highly customized products (Manrique, 2021), and the increasing prevalence of products with short life cycles all provide significant hurdles for businesses (Kaplan, 2022). This makes it possible to take the approach that was chosen, which is to construct a supply chain inside the trading relationship that is efficient in terms of costs, adaptable to new circumstances, stable, and sustainable (Demir, Paksoy, & Kochan, 2021). In order to preserve their degree of sustainability, nations that possess robust industrial sectors are obligated to follow the Industry 4.0 progress agenda (Nawaz & Koç, 2020). Adapting to this novel idea, bringing highly flexible and coordinated production, and delivering real-time system optimization, cost savings, and the development of new business models are all part of the plan (Demir, Paksoy, & Kochan, 2021). Real-time monitoring of the flow of material shifts, continuously better material handling, and risk management protection through numerous possible applications of Industry 4.0 with worldwide influence are all attainable with this technological advancement.

In the context of globalization, there is no longer any room for question regarding the capacity of data management and presentation to demonstrate its importance (Miller, 2022). Since the early 2000s, Big Data has made it possible to make extensive use of data all over the world (Nasrollahi & Fathi, 2022). This has been made possible by the development of Cloud Computing (the storing of data via cloud) and other digital technologies that are becoming increasingly prevalent in our everyday lives (Gahi & El Alaoui, 2021). Early on in the 2010s, the proliferation of data analytics technologies provided businesses with access to Big Data, which in turn enabled those businesses to devise particular strategies to anticipate trends and the actions of individuals (Nawaz & Koç, 2020). In today's world, an increasing number of businesses and communities are looking to management of big data for assistance in making decisions (Depari, Shu, & Indra, 2022). On the other hand, the power that this data possesses is frequently the target of assaults that are directed at Big Data platforms (Alaoui, Aksasse, & Farhaoui, 2020). Virus attack vulnerabilities remain at all scales of the Big Data platform, even at the data analytics level, despite the significant efforts and resources that have been offered by Big Data tools and providers. Virus assaults against big data are only expected to increase in frequency, necessitating the use of both time-honored protective strategies like security rules and cutting-edge cryptography procedures (Gahi & El Alaoui, 2021).

According to Alaoui et.al., (Alaoui, Aksasse, & Farhaoui, 2020), protecting big data and data analytics is related to data mining. Data mining is analytics that is carried out with

reference to the process of finding valuable knowledge from a number of Big Data. The mining of data has a variety of potential uses, some of which include the telecommunications industry, business, marketing, biological data analytics, and other scientific applications (Depari, Shu, & Indra, 2022). When investigating data analytics, there are many analytical tools that may be employed from various open sources and are freely available for usage in data mining frameworks on the market; however, the apps known as Weka, KNIME, Orange, and RapidMiner are the most powerful tools (Meunier, 2020). The following is a rundown of the data mining toolbox that is included in the application: Weka, which stands for Waikato Environment for Knowledge Analytics, is one type of software that serves as a tool that may be utilized to carry out data analytics based on the principles of machine learning (Alaoui, Aksasse, & Farhaoui, 2020). The University of Waikato in New Zealand is responsible for the development of this application. The application possesses a high level of sophistication and is capable of supporting a wide variety of data processing tasks, including clustering, classification, regression, visualization, and feature selection (Asprion, Schneider, & G, 2018). Because it is distributed under the General Public License, Weka can be used without cost and gives users access to SQL databases based on how they interact with the program's interface. You can have access to these data by using the explorer interface commands (Alaoui, Aksasse, & Farhaoui, 2020). Orange is the same as a data analytics tool that is based on Python or data that has been extracted from a variety of sources of big data (Gahi & El Alaoui, 2021). This application is highly powerful, and it may be utilized by users of all expertise levels, from beginners to experts. This program comes equipped with a full complement of data analytics compositions (Alaoui, Aksasse, & Farhaoui, 2020). In addition to that, it possesses a comprehensive collection of data analytics components that cover topics such as pre-processing data, carrying out feature filters, developing models, assessing models, and investigating processing methodologies. KNIME, which stands for "Konstanz Information Miner," is a user-friendly open source data analytics platform that was developed in Java and is based on Eclipse. KNIME analyzes reporting and data integration in an easy-to-navigate manner. This application enables users to add plug-ins to the data that is to be evaluated by providing new functionality, and it does so by giving users the capacity to do so (Gahi & El Alaoui, 2021). Java is the programming language that RapidMiner, an application for environmental data analytics, use. Its primary functions include machine learning and conducting in-depth data experiments (Alaoui, Aksasse, & Farhaoui, 2020). This program offers more advanced data analytics by making use of a framework that is built on templates (Karasan, 2022). Additionally, it can be utilized for research jobs and real-world data assessment tasks, such as the preprocessing and visualization of data, as well as predictive analytics and the creation of statistical modeling, evaluation, and the application of data in decision making (Alaoui, Aksasse, & Farhaoui, 2020).

There is no way to divorce widespread conversations about data analytics from the industrial revolution, which seems to be the topic of conversation for practically everyone these days, beginning only in the most recent few years (Eubanks, 2022). An initiative

taken by the German government was the impetus behind the original appearance of the term "Industry 4.0" (abbreviated as I4.0) in nations where German is the primary language spoken. (Asprion, Schneider, & Frank G, 2018) Developed countries, in particular those with high incomes, take use of technical innovation in order to keep up with the competition and manage information systems in order to stay ahead of the market (Bettiol, Maria, & Mice, 2020). The term "cyber information systems" refers to the practice, prevalent in industrialized nations, of bringing together digital data and the physical environment in order to accomplish this objective (Demir, Paksoy, & Kochan, 2021). This system is the primary force behind the growth of the Fourth Industrial Revolution, which includes developments such as the internet as a platform for all activities, the internet of things (IoT), big data, and augmented reality (AR) in German (Asprion, Schneider, & G, 2018).

Research methods

The research method used in this study is a troubling method that measures (1) the relationship that occurs in a problem in data analytics that has implications for the stability of important societies and organizations, so it is very important to receive serious consideration, so that it is possible to develop an analytical solution model that is in accordance with the demands of HR data analytics in relation to global issues, and (2) on a very practical level, pragmatic solutions to the problem.

The issue of troubling method model that was used in this investigation was developed through a conversation between the researcher and the informant, with the primary objective being the discovery of causes and consequences in the form of qualitative narratives. The troubling method model that sets contradictions and ironies that emerge qualitatively is studied pragmatically, critically, and feministically here. The preparation is carried out by means of a problem method model, which is compiled by taking into account the central premise of the third path ideology, namely 1) relationship, to find cause and effect; 2) listen, to find all the information needed; and 3) not knowing, to formulate a solution that is truly really new. The preparation is carried out in this manner.

Discussion

Indonesia's police force has been better equipped thanks to a joint Australian-Indonesian capacity-building initiative led by the Indonesian National Police. According to Burhansyah A (Burhansyah A, 2016) to overcome cyber crimes which include cyber crimes such as (1) Unauthorized Access to Computer Systems and Services; (2) Illegal Content; (3) Data Falsification; (4) Cyber Espionage; (5) Sabotage and Cyber Extortion; (6) Attacks Against Intellectual Property; (7) Privacy Breach; (8) Gambling; (9) Cyber Porn / Cyber Sex; (10) Cyber stalking; (11) Hacking; and (12) Carding has been applied. With the rise of data analytics comes a heightened awareness of the need for privacy safeguards within the context of international data sharing agreements (Mondy & Martocchio, 2016, p. 295). Relational analytics, which takes place between them, when

information transfer via electronic mail, internal company communications, file sharing, and so on (Nijjer & Raj, 2021, p. 27).

A managerial revolution inside the Indonesian Police was sparked by the aforementioned program's response to global shifts in data protection (Burhansyah A, 2016). All data, formerly handled manually, has been digitized, and an integrated management system has been established as an infrastructure for digitizing organizational management, marking the beginning of the managerial revolution (Asprion, Schneider, & G, 2018). The advancement of IT (Information Technology) has allowed for this technological leap, which is a significant scientific achievement (Eubanks, 2022). Conventional information technology that has been in use by businesses since the 1980s (Bettiol, Maria, & Mice, 2020) and is regularly upgraded. Until then, enterprise IT is used to create software tailored to meet the needs of many departments inside a company (HR, finance, production, marketing, etc.). Technology advancements have made it possible for departments to rely on a central database and implement easy-to-understand fixes to improve cross-departmental management procedures (Burhansyah A, 2016).

Enterprise Resource Planning (ERP) refers to this type (Asprion, Schneider, & G, 2018) of all-in-one business management software (Depari, Shu, & Indra, 2022). By providing a unified platform on which a variety of applications can be run to accomplish a variety of business objectives and the database can be managed as a single point of reference (Ismail, 2022), this application inverts the conventional wisdom of product development and positions software intelligence as a primary factor in the creation of distinctive product value. alone (Ayunindya, 2023).

Enterprise resource planning can benefit from information management (Budhiharjo & Ananda, 2022). According to Ghavami (Ghavami, 2020), Big Data Analytics seeks to address three issues, and these developments in ERP cannot be divorced from these efforts (Darmawan, 2022). What has happened, what is happening, and what will happen in the future may all be understood by answering these questions (Zara, Wahyudi, & Widjanarko, 2023). Data analytics with a backwards look can shed light on what happened in the past, reveal patterns, and reveal the causes of occurrences (Ismail, 2022). Data analysis in real time sheds light on the current state of affairs (Burhansyah A, 2016). The goal of this data analysis is to be ready for any changes in the environment, such as the requirement to provide responses in data management up to a specific threshold status or in the form of sending responses to meet certain change regulations (Rony, 2022). As a continuation of analytics, prospective data analytics looks ahead. Data analytics like this one makes forecasts about the future, like how some variables' values might shift (Ghavami, 2020).

This application is still in the implementation phase in order to employ data analytics in Indonesia with AI-based apps, creating an offline learning system (Sutarna, 2022). A report by Halim and Prasetyo (Halim & Prasetyo, 2018) states the following: This program is a simulation of AI in action; it executes programs written in the C programming language. In addition, the filtering process is incorporated into the initial section of the

courseware. Every inaccuracy in the original C language used to explain algorithms is reflected in the analytical data presentation. For example, a classroom teacher could use this program to save lesson plans and other instructional materials. In addition, the Courseware C program may process data in a number of ways, including the use of AI methods in intelligent machines and the retrieval and instruction of data through the use of an application interface. The most challenging aspect is determined by the courseware selected by the students in class, which in turn determines the parameters W_i ($i = 1.2, \dots, n$), C_j ($j = 1.2, \dots, n$), and H_k ($i = 1.2, \dots, n$). In accordance with the guidelines, H_k ($k = 1.2, \dots, n$) is assigned as the weight representing the student's choice for all data whose values are correct (Halim & Prasetyo, 2018). Simultaneously, the function f is defined in terms of the relative importance of its parameters (Febriani, Ikbali, & Erfina, 2023). Each student would have their own set of multimedia files with names like "file 1.exe," "file 2.exe," "file M.exe" (presuming that part of the document is M), and so on, from which they could choose in accordance with the following selection rules:

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if (PI = 1) then
do file 1.exe
if (PI = 2) then
do file2.exe else

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By following the aforementioned procedures, students will be able to utilize smart machine functions in data processing, giving instructors more leeway to adapt their methods of instruction based on the feedback they receive from students in real time (Halim & Prasetyo, 2018).

Data analytics has been utilized and incorporated into our daily lives and places of work thanks to the rapid advancement of communication technology, as evidenced by the aforementioned multimedia applications (Zara, Wahyudi, & Widjanarko, 2023). According to Hua, Wang, and Hu (Hua, Wang, & Hu, 2021), digital video information stored and sent in compressed form will be the only option to employ long-term communication given the current state of multimedia communication and its projected future state of development. prolonged period of time (Pratikno, 2022). The fundamental principle underlying data compression coding is the elimination of superfluous details while maintaining the intended visual impression (Halim & Prasetyo, 2018). Space-time-vision redundancy is the primary focus of the so-called redundant information in video data (Fahrizal, 2022). By eliminating unnecessary data, video analysis data can be compressed to hold as much information as possible using as few symbols as possible (Hua, Wang, & Hu, 2021).

Human-computer interaction (HCI) is a well-studied area that uses data analytics to describe "means of communication (Ismail, 2022) between human users and computer systems (Fahrizal, 2022), particularly referring to the use of input/output devices with supporting software (Afiat, 2022). UGM scholars engage in this activity because it is relevant to their study of the interplay between human and artificial intelligence. Studies

in determining Genose accuracy according to UGM (Gajah Mada University, 2021) are based on the GeNose prediction process in detecting Covid 19, which in turn is based on the following analytical data that underlies computational intelligence: 1) Pre-processing signal quality that classified into normal, low, and invalid/inconclusive classifications by improving analytic data extraction on sensor features. 2) Boosting AI performance by incorporating data analytics windows that enhance the precision of reading extraction of response features via pattern classification based on normal and low signal 3) Excluding invalid signals due to low variation and quality (Universitas Gajah Mada, 2021). The analytical data processing results of the Genose gadget demonstrate its capability of detecting Covid 19 via analytics in the human body (Halim & Prasetyo, 2018).

Conclusion

The challenges of data analytics in the globalization of important issues in the industrial era 4.0 and the difficulties of developing analytical data applications in human resources have rendered it impossible to replace human intelligence with machines. In the industrial revolution 4.0, however, robots with extremely large data memories can fully replace humans in every intellectual task. According to the results of this study, robots with very large data memories can perform data analytics in the industrial 4.0 era just as effectively as humans can. This holds true across all domains of human intelligence at the weak Artificial Intelligence stage.

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