THE INFLUENCE OF HUMAN RESOURCES MANAGEMENT TECHNOLOGY DEVELOPMENT
(Application of Electronic Human Resource Management in the Human Resource Development System of the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency in the Era of the Industrial Revolution 4.0)

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ABSTRACT

Technological advances that continue to develop have had an impact on current management practices and are inseparable from human resource management practices. These practices in the Industrial 4.0 era. now it is inseparable from E-HRM. In running an E-HRM information system, of course, an organization must have adequate technology assets. In this case the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency follows developments in the current era in its application in terms of Human Resource Development. The Ministry of ATR/BPN pays adequate attention to the development of apparatus work competencies both in terms of quality and quantity both Knowledge, Expertise, Skills and Attitudes so that they can carry out their duties and positions in a professional manner.

Keywords: competency; human resources, upskill, reskilling

Introduction

The flow of technological developments that are increasingly rapidly becoming a means to fix lagging behind, update systems, and provide improvements in various aspects of life. For organizations, the development of information and communication technology is an innovation or new breakthrough to improve service quality (Bondarouk & Ruel, 2014). Mahedi and Fartash (2012) explain that the development of information and communication technology can change the way organizations carry out their activities, contribute to changes in structure and function as well as improve performance and effectiveness, whereas for Parry (2011), developments in information technology and Communication is a new way to bring organizations to success. The key to the success of

an organization is its human resources. Human Resources play a central role in the organization (Mardatillah et al., 2013). For this reason, many organizations have taken various ways to improve the quality of their Human Resources, one of which is by utilizing information and communication technology developments.

Technological advances that continue to develop have had an impact on current management practices and are inseparable from human resource management practices. Not a few organizations in the last four decades have even started to integrate information technology into Human Resource Management practices, or what is commonly called electronic human resource management (e-HRM). Bondarouk and Ruël, (2013) found that e-HRM is a phenomenon that is driven by the discovery of new technologies such as mobile applications and extensive networks that can help improve the HRM function in value creation. The integration between information technology and the Human Resource Management function has created efficiency and increased the effectiveness of the HR (human resource) unit from an administrative one to a more strategic direction (Blom et al., 2019). (Fındıklı and Bayarçelik, (2015) agree that the implementation of e-HRM has succeeded in reducing organizational costs and increasing the effectiveness of communication between leaders and subordinates as well as increasing the time efficiency of the HR division in carrying out its functions and activities. Obeidat (2016) also argues that e-HRM able to increase the effectiveness of employee performance by facilitating HRM work operations and increasing the involvement of employees and line managers by shifting responsibility to line managers.

Technology is playing a critical role in changing the way organizations work and is dramatically impacting human resource practices and their rapidly increasing influence. Here the presence of e-HRM (Electronic Human Resource Management) or e-Human Resource Management (Electronic Human Resource Management) is crucial. The success of e-Human Resource Management is highly dependent on the effective interaction between people and computers. Blom, et.al. (2019) stated the opinion of some experts that many large multinational organizations have adopted e-Human Resource Management, making technology central to Human Resources practices. For more than four decades, organizations have implemented e-HRM technology with the hope of achieving administrative and strategic benefits (Marler & Parry, 2016 in Blom, et.al., 2019). e-Human Resource Management has changed the strategic function of Human

Resource Management in organizations (Srihari and Kar, 2020). The amalgamation of information/web technologies with Human Resources practices is increasing the strategic use of Human Resources data and is being used in many organizations and in various sectors. Likewise, there are several dimensions of e-HRM practices such as recruiting/recruitment, selection, learning, performance management, compensation and benefits, payroll, training, and others.

The development of information and communication technology that is currently being developed and used by various organizations is Electronic Human Resource Management (E-HRM). Marler and Fisher (2014) explain that E-HRM is a set of patterns used to manage Human Resources in organizations with the aim of creating competitive advantage and realizing organizational goals. E-HRM is also defined as a way to create and implement quality human resource management (HRM) based on information and communication technology (Bondarouk, et.al, 2013). Thus it is clear that the main characteristic of EHRM is based on information technology. and communication, so that activities supported by E-HRM no longer depend entirely on face-to-face meetings.

Even if the implementation of E-HRM provides benefits to the organization, if it is not planned properly and implemented wisely, this will actually cause problems for the organization. Maniviannan (2013) in his research found that there were obstacles in the implementation of E-HRM in the form of technical barriers which included internet networks, unattractive designs and the level of complexity in operating applications, as well as the strong traditional culture in carrying out tasks. Pattil (2013) and Aurelian and Damasaru (2013) explain that problems in implementing E-HRM by organizations are caused by a lack of socialization of use which has an impact on personal knowledge, organizational size and facilities, support and perceptions from colleagues are also one of the determining factors the success of implementing E-HRM into the organization.

In order not to cause problems in implementing E-HRM, organizations need to pay attention to several important things which are the key to implementing EHRM. Steps that must be considered in implementing E-HRM such as costs, information and communication technology infrastructure, readiness of human resources, easy application design and ensuring the confidentiality of employee personal data, legal instruments, because E-HRM is closely related to the creation, distribution of data or information as well as intellectual property rights that must be protected by law. The role of management

is needed to change the paradigm, way of thinking, way of behaving and how to work and behave so that employees can accept the implementation of E-HRM in the organization.

Implementing E-HRM in an organization or agency is not easy. The application of E-HRM must be linked to Human Resource Management in the agency. In this case the author would like to discuss the implementation of E-HRM in the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency. Writing references do not show that there is a thorough in-depth research on E-HRM at the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency. To what extent is the implementation of E-HRM in the Era of the Industrial Revolution 4.0 at the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency.

Formulation of the problem
1. What is meant by E-HRM?
2. What is Human Resource Management?
3. How is the application of E-HRM in the Human Resources development system at the Ministry of ATR / BPN in the era of the industrial revolution 4.0.?

Literature review

a. *Eelectronic – Human Resource Management*(E-HRM).

Tavakoli (et al., 2015) explains that EHRM is a set of innovative ways that function to overhaul traditional systems within organizations with the aim of improving human resource performance (HRM) and providing competitive advantage to organizations. Veidhoven, then Yusliza (et al., 2014) explains E-HRM as administrative support from the HR function in organizations using information and communication technology. E-HRM is also defined as a method used to manage HR in an organization with the aim of realizing organizational goals and creating and implementing quality human resource management (HRM) based on information and communication technology (Marler et al., 2014 & Bondarouk et al. , 2013).

The application of E-HRM provides positive benefits for the organization. E-HRM helps employees to catch up in their daily work (Tavakoli et al., 2015 &

Gachunga.et al., 2014), providing the Human Resources function with opportunities to create new avenues to contribute to organizational effectiveness through ways such as knowledge management and creation of intellectual and social capital (Yusliza et al., 2014). Furthermore, Manivannan (2013) states that E-HRM helps many organizations to build a more committed workforce. In addition, the presence of E-HRM makes it easier for employees to access information about their duties and obligations, as well as access data and process data related to data- personal data such as information regarding salaries, employee personal data, performance management, training, recruitment and others (Tabiu & Nura, 2013, Voermans & Van Veldhoven 2012). By looking at the various benefits as mentioned, it can be concluded that implementing E-HRM provides time and cost efficiency for organizations. In addition, the implementation of the system also provides convenience in business processes, increases information flow and organizational performance, centralized data management, optimizes the development and productivity of Human Resources and increases employee satisfaction which of course has an impact on employee productivity.

DWhen studying e-HRM, it is necessary to know the function of HRM. HRM is a management function that aims to ensure the number of employees and organizational structure is sufficient and available at the right time and in the right position at an affordable cost, where the available employees will be motivated to achieve the current and strategic goals of the organization (Ma & Ye, 2015). Initially, the implementation of HRM activities was carried out with support from the human resources information system (HRIS). HRIS refers to a systematic procedure for collecting, storing, maintaining, updating and distributing organizational human resource data where the data can only be accessed by the HR department (Ruel et al., 2004). In its development, HRM information systems are developed using internet technology known as e-HRM. e-HRM refers to the application of strategies, policies and practices related to human resources in organizations that depend on the use of internet technology where human resource data is not only accessible to HR department staff, but also to other employees, potential employees and also management (Dusmanescu and Bradic-Martinovic

2011). In other words, the difference between HRIS and e-HRM lies in data accessibility where HRIS can only be accessed by HR department staff while potential employees as well as management (Dusmanescu and Bradic-Martinovic 2011). In other words, the difference between HRIS and e-HRM lies in data accessibility where HRIS can only be accessed by HR department staff while potential employees as well as management (Dusmanescu and Bradic-Martinovic 2011). In other words, the difference between HRIS and e-HRM lies in data accessibility where HRIS can only be accessed by HR department staff whileE-HRMcan be accessed by other users who have an interest in company HR data (Ruël & Kaap, 2015).

Dnature of running an information systemE-HRMtof course an organization must have adequate technology assets. Technology assets, also known as information technology infrastructure, are information technology assets owned by an organization, both in the form of hardware and software that are utilized to manage and produce accurate and timely information (Prasetyaningrum, Purwanto, & Minarni, 2019). Therefore, the existence of adequate and adaptive technology assets is absolutely owned by an organization so that business processes areE-HRMcan take place well (Fahrianto et al., 2015).

E-HRM assists organizations in managing their Human Resources and provides added value to the role of HR in organizations which certainly influences the competitive advantage of organizations or companies (Marler & Fisher, 2014). E-HRM also helps organizations to improve service quality (Bondarouk et al., 2014), while Arenawati (2012) explains that E-HRM provides time and cost efficiency for various activities within the organization.

b. Philosophy of Human Resource Management

Adapting human resource management in the era of the industrial revolution 4.0 must be firmly guided by the philosophy of human resource management. The latest human resource management techniques based on the digital technology revolution in the era of the industrial revolution 4.0 will not be practiced effectively and will easily mislead human resource managers in the era of the industrial revolution 4.0 without being firmly guided by the philosophy of

human resource management, namely the philosophy that provides guidelines for human resource managers in the 4.0 industrial revolution era in making decisions to create professional, prosperous, high performance, and successful career employees.

Albert Einstein's theory of relativity helps physicists manage atoms. Management theory helps managers manage organizations. Human resource management theory helps human resource managers manage organizational human resources. What is the meaning of human resource management? There are two meanings of human resource management. First, in simple terms, human resource management is the job of the human resource manager.

Simply put, the job of a human resource manager is human resource management. The human resource manager has many distinctive names, namely head of staffing, head of personnel, director of human resources, head of the human resources department, minister for the utilization of the state apparatus and bureaucratic reform, head of the regional staffing agency, and director of human capital management.

An example of a human resource manager is Tjahjo Kumolo as Minister of State Apparatus Empowerment and Bureaucratic Reform of the Republic of Indonesia. Tjahjo Kumolo's job as Minister of State Apparatus Empowerment and Bureaucratic Reform of the Republic of Indonesia is managing the state apparatus and bureaucratic reform of the Republic of Indonesia.

Second, human resource management is an organizational activity in applying the concepts and techniques of job analysis, employee planning, employee recruitment, employee selection, employee orientation, employee training, providing salaries, providing financial incentives, providing benefits, providing quality work life, performance appraisal, and employee career management to achieve organizational goals (Dessler, 1986 and 2013).

What is the philosophy (vision) of human resource management? The philosophy (vision) of human resource management is to create highly motivated employees (Dessler, 1986). Motivation is the willingness to carry out high levels of effort to achieve organizational goals, which is conditioned by the ability of the

business to satisfy the needs of a number of individuals (Robbins and Coulter, 2002).

This philosophy (vision) is difficult for stakeholders to understand, so this philosophy (vision) needs to be expressed in other words. In other words, the philosophy (vision) of human resource management is to create employees who are professional, prosperous, have high work performance, and have successful careers. The philosophy (vision) of human resource management can be explained using the human resource management motivational model (Dessler, 1986).

Four human resource management experts Victor H. Vroom (1964), Edward Lawler III and John Rhode (1976) and Gary Dessler (1986) say the law of motivation reads, "People are usually motivated or driven to behave in a certain way that is perceived leads to reward". Thus to motivate employee work two absolute requirements are needed, namely the ability to work and willingness to work.

First, work ability (professionalism or competence), the human resource manager tries to make employees feel that the work they do will be rewarded. Second, the willingness to work (employment benefits or welfare), the human resource manager tries to find out the needs of employees and then uses the needs of these employees as a reward.

For example, a shareholder as a company owner requests the willingness of an employee that the employee will be promoted to marketing director on condition that sales revenue increases by 60% per year. What happen? The employee is not motivated to become a marketing director because the employee feels that he has no work ability to increase sales revenue by 60% per year, even though the employee wants rewards and has the willingness to work as a marketing director. Thus, to motivate employees to work, two absolute conditions are needed simultaneously, namely the ability to work and willingness to work.

In essence, work ability and willingness to work and the process of exchange (exchange process) between work ability and willingness to work is the main core of motivating employee work. First, work ability (professionalism or competence). The human resources manager must ensure that employees have the

employability skills to do the job. In other words, human resource managers must know that the work done by employees will be rewarded.

Therefore, to obtain employees who have the ability to work, human resource managers must work on the concepts and techniques of job analysis, employee planning, employee recruitment, employee selection, employee orientation, employee training. Second, willingness to work (work benefits or welfare). The human resource manager must ensure that the employee has the willingness to do the job.

In other words, the human resource manager must know the employee's needs and then use the employee's needs as a reward. Therefore, to get employees who have a willingness to work, human resource managers must work on the concepts and techniques of paying salaries, providing financial incentives, providing benefits, and providing quality of work life. Third, check work ability and willingness to work.

The human resource manager must examine the results of work in motivating employee work (checking the ability to work and willingness to work of employees) and try to take human resource management strategies and policies needed to improve employee motivation or improve work ability and willingness to work employees. Therefore, human resource managers must work on the concepts and techniques of performance appraisal and career management.

Research methods

The research methodology used is library research with a qualitative descriptive nature including by collecting data sources in the form of journals, online articles, and books and with a research focus on THE INFLUENCE OF TECHNOLOGICAL DEVELOPMENT OF HUMAN RESOURCE MANAGEMENT (Application of Electronic Human Resource Management in Human Resource Development Systems) Ministry of Agrarian and Spatial Planning/National Land Agency Human Resources in the Era of the Industrial Revolution 4.0).

Results and Discussion

a. **Adapting in the Industrial Revolution Era 4.0**

In essence, the industrial revolution 4.0 in the 21st century is digitalization. In other words, the industrial revolution 4.0 in the 21st century is a digital technology revolution to create digitization. The digital technology revolution, namely the communication technology revolution, the information technology revolution and the internet technology revolution to create digitization.

Digitization using digital technology. In the era of the industrial revolution 4.0, organizations have digitalization needs and solutions for digitalization needs are supplied by digital technology companies (Klaus Schwab, The Fourth Industrial Revolution, 2016). For example, solutions for digitalization needs and internet technology in Indonesia are supplied by PT Telekomunikasi Seluler.

The digital technology revolution in the era of the industrial revolution 4.0 will create digitization of human resource management techniques. First, the digital technology revolution in the era of the industrial revolution 4.0 will create digitalization of human resource management techniques to get employees who have work skills.

In the era of the industrial revolution 4.0, organizations will practice the latest techniques based on the digital technology revolution in carrying out job analysis, employee planning, employee recruitment, employee selection, employee orientation, employee training.

Second, the digital technology revolution in the era of the industrial revolution 4.0 will create digitalization of human resource management techniques to get employees who are willing to work. In the era of the industrial revolution 4.0, organizations will practice the latest techniques based on the digital technology revolution in working on paying salaries, providing financial incentives, providing benefits, and providing quality work life.

Third, the digital technology revolution in the era of the industrial revolution 4.0 will create digitization of human resource management techniques to check work results in motivating employees (checking work ability and willingness to work) and trying to adopt human resource management strategies and policies needed to improve work motivation. employee. In the era of the

industrial revolution 4.0, organizations will practice the latest techniques based on the digital technology revolution in working on performance appraisal and career management.

In the era of the industrial revolution 4.0 based on the digital technology revolution, human resource managers are challenged to create employees who are professional, prosperous, have high work performance, and have successful careers. Adapting human resource management in the era of the industrial revolution 4.0 must be firmly guided by the philosophy of human resource management.

The latest techniques of human resource management based on the digital technology revolution in the era of the industrial revolution 4.0 will not be practiced effectively and will easily mislead human resource managers in the era of the industrial revolution 4.0 without being firmly guided by the philosophy of human resource management, namely a philosophy that provides guidelines for human resource managers in the 4.0 industrial revolution era in making decisions to create professional, prosperous, high performance, and successful career employees.

Changes in the world are now entering the era of the industrial revolution 4.0 or the fourth world industrial revolution where information technology has become the basis of human life. Everything becomes borderless with the use of unlimited computing power and data, influenced by the development of the internet and massive digital technology as the backbone of the movement and connectivity of humans and machines. This era will also disrupt various human activities, the problem of human resources is one of the important elements in the organization. Human resources play a role in determining the direction and progress of an organization. Director General Ghufron believes that Indonesian tertiary institutions will be able to survive in this industrial revolution era if they implement 4C. First, Critical thinking, we should be skeptical and critical. "It's useless if you're smart if you're not critical," he said. Second, Creativity, which is able to give birth to new innovations.

Furthermore, Communication, especially about science and technology so that it can be properly accepted by the public and not cause misunderstandings.

"It's useless for several industries if we don't communicate it. No one will understand or know," he said. Lastly, Collaboration, this is the power that can build Indonesia. According to him, Indonesia's weakness is the lack of collaboration. We are weak when we are in groups. Because it requires cooperation and understand each other.

Straubhaar and LaRose (2011) well describe technological change as a revolution that society experiences in their lives due to technological developments. Starting from the pre-agriculture community which was marked by a culture of speaking or oral tradition (spoken words) where the people during the henna period were in groups and lived from hunting and farming. However, a shift occurred when tools for fishing (fishing), collecting wood in the forest (logging), and mining materials (mining) changed the way humans interact. At this stage, the oral tradition becomes a reading tradition. The tradition of reading is still very limited to Catholic clergy and has not reached most other people. The emergence of the industrial revolution also changed the face of the reading tradition which was previously limited to more people who could read ideas or thoughts because of the mass production of the invention of the printing press. Then a shift occurred again when people were able to consume and produce messages by adopting digital technology. This stage signifies a major change in the way humans interact with other humans; because digital technology has created a very interactive media, namely the internet. The internet has changed the way humans carry out daily interactions from verbal to written interactions. Then a shift occurred again when people were able to consume and produce messages by adopting digital technology. This stage signifies a major change in the way humans interact with other humans; because digital technology has created a very interactive media, namely the internet. The internet has changed the way humans carry out daily interactions from verbal to written interactions. Then a shift occurred again when people were able to consume and produce messages by adopting digital technology. This stage signifies a major change in the way humans interact with other humans; because digital technology has created a very interactive media, namely the internet. The internet has changed the way humans carry out daily interactions from verbal to written interactions.

As stated by Straubhaar & LaRose (2000:14-15) that the internet era is an era of information society where individuals spend more time behind computers and change media forms into written forms (computer-readable). The written form in this interactive media allows for an understanding that is different from the actual reality. One of the facts is the emergence of a change in individual attitudes and behavior (Simangunsong, 2011).

In this day and age, with the rapid development of increasingly sophisticated technology, every individual is required to be able to explore all the human resources they have, to be able to support our performance so that it will greatly affect the implementation of tasks every day. Even the system of facilities and infrastructure within the organization can continue to develop and continue to be refined over time, so that an organization can develop in accordance with existing human resources. Many experts argue that quality human resources determine the success or failure of an organization with the competence of every employee. To form such an apparatus figure does require time and a long process and efforts that should not stop.

Personnel management needs to be improved, starting with implementing the correct recruitment pattern in accordance with regulations and competency-based. Likewise in employee development, work performance appraisal (PPK), career patterns, payroll, promotions/demotions, dismissals, and so on. All these changes require high commitment and consistency. Changes that can be made immediately are improving skills or competencies through education and training (training) and non-training.

Changes through education and training can be made by conducting various courses, formal and non-formal education, or other education related to improving technical capabilities or competencies, as well as changing the mindset, morals and behavior of apparatus. Even though changing the mindset, morals, and behavior of the apparatus through education and training is not easy, it still needs to be done. Improving abilities or competencies through non-training can be done by creating conducive working situations and conditions for capacity building, carrying out periodic mutations, creating harmonious interpersonal relationships, and so on. The existence of the apparatus needs special attention, related to the

strategy to improve its quality and competence. Improving the competence of apparatus in carrying out bureaucratic tasks or positions through education and training is oriented towards job competency standards according to the challenges of reform and globalization which of course are adjusted to the needs of its stakeholders. It is impossible to increase the quality of the apparatus without concrete efforts to improve it.

b. Application of E-HRM in the Human Resources development system at the Ministry of ATR/BPN

In implementing several Learning Strategies of the Ministry of ATR/BPN in solving existing strategic problems through a systematic and comprehensive Organizational Learning Program approach, thereby supporting the acceleration of the achievement of the Ministry of ATR/BPN's Vision and Mission within the framework of a continuous learning process throughout the employee's career. Ministry work competency development policies ATR/BPN in realizing or creating personnel who have high performance competence in carrying out their duties and positions in a professional manner Competency development for each civil servant is carried out at least 20 (twenty) JP in 1 year. Article 203, PP 17/2020 Amendment to PP 11/2017 concerning PNS Management. Competency development is carried out through an integrated learning system approach (corporate university). Article 203, PP 17/2020 Amendments to PP 11/2017 concerning PNS Management. Talent competency development is carried out through: a. ASN corporate university using classical and non-classical methods. Article 23 PERMENPAN RB 3/2020 concerning ASN Talent Management.

"E-Learning is PNS Competency Development carried out in the form of training by optimizing the use of information and communication technology to achieve learning goals and improve performance" -LAN RI Regulation No. 8 of 2018 / Guidelines for Implementing PNS Competency Development Through e-Learning.

The use of the Learning Management System (LMS) as a tool in the e-learning-based learning process has become commonplace today. The Learning Management System allows training lessons to be well organized. The Learning

Management function is to manage all the activities of participants, managers, material providers and other training academic staff virtually in an online application container. The learning program presented by the e-learning method in the LMS is designed for independent learning.

In learning with the e-learning method, trainees access material in the form of interactive learning media that has been programmed according to the instructional design and then their competency achievement is measured with a test called a self-assessment. Based on the data in Figure 1, there has been a significant increase in the implementation of competency development carried out by PPSDM of the ATR/BPN Ministry.

Since 2019, there has been an increase in the number of training alumni by around 100 percent from the previous year, of which 70% were Technical Competency training. Technical competency training conducted at PPSDM since the CoVID 19 pandemic has been carried out using the blended learning method. In the blended training stage there is independent learning with the e-learning method. Thus it can be concluded that in 2019 around 2,100 people used the self-assessment program, and increased in 2020 to around 2,350 people and increased again in 2020 to around 3150 people.

Based on the competency development target plan carried out by the PPSDM Ministry of ATR BPN, in 2022 competency development will be held for 13,000 employees. If 70% of them are organizing technical training using the blended method or even full e-learning, then it can be assumed that in 2022 as many as 9,100 employees will take part in this self-assessment program.

So it is only natural that the Ministry of ATR/BPN pays adequate attention to the development of apparatus work competencies both in terms of quality and quantity both Knowledge, Expertise, Skills and Attitudes so that they can carry out their duties and positions in a professional manner. The implementation of all public needs should be managed professionally. In the framework of this reform, not only requires technology that is accommodating to the progress of the times, but must also be equipped with reliable human resources. Sophisticated technology will not mean much if it is not balanced with employees who are able

to operate properly. Therefore, the bureaucracy requires quality human resources to achieve the expected goals.

Conclusions and recommendations

The first conclusion is that in the current era the application of E-HRM provides positive benefits for organizations, especially in this case, the Human Resource Development process.

The second conclusion isAdapting human resource management in the era of the industrial revolution 4.0 must be firmly guided by the philosophy of human resource management.

The third conclusion is that the Ministry of ATR/BPN in implementing E-HRM in the Human Resource Development process is through E-Learning learning which is provided through the PPSDM ATR/BPN website.

The advice that the author can give is that every organization must always develop itself and keep abreast of the timescan be more creative in every activity carried out.

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