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HR analytics, intellectual capital towards employee performance: A systematic literature review

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Abstract
Purpose: This paper proposed a systematic literature review of HR analytics, intellectual capital and employee performance. After the coming of Fourth Industrial Revolution (41R) to real world adopt the upsurge technology in HRM practices. The current study investigates HR analytics and intellectual capital on employee performance.
Design/methodology/approach: This study uses a systematic literature review, exploring prior research works on HRM practices, HR analytics, intellectual capital towards employee performance.
Findings: The findings are able to identify the context of studies on HR analytics and intellectual capital assessing employee performance in HRM practices. The result of empirical research is examining to construct the relationship.
Research limitation/implications: The theoretical perspectives of HR analytics and intellectual capital that provide understanding of both relationship towards employee performance. The conceptual framework may be used by future researchers to be tested using empirical data.
Practical implications: HR Practitioners can use their limited resources to boost employee performance by improving the HRM practices in the current changing era to human technology factors.
Originality/value: While most researchers focus on innovative human resource and smart HRM by neglecting the intangible assets in human resource areas, this study attempts to assessing both of HR analytics and intellectual capital as variable in HRM practices and its effect on employee performance.

Keywords: HR Analytics, Intellectual Capital, Employee Performance, Systematic Literature Review.

Introduction

Employee performance is making the direct waves of success in organization. It is believed the technology advanced is changing the phase of human resource in digitalization practices. Many companies have agreed that Industrial fourth revolution addressed in countless sectors. The word of human resources had known in time as people analytics and talent management (Fitz-Enz 2010; Cappeli, et al., 2014; and Kutik, 2014). The ability of individuals acts as tendency to create the elementary skills, abilities, knowledge and expertise to spill the performance within a company (Collings and Mellahi, 2009). Skills, knowledge, and educational as asset

of employee in the context of intellectual capital. This situation encourage employee to adopt analytical tools to use as the practices in work. However, Dahlbom et al., (2019) stated the possibility of employee to used analytical tools is impeded by the gap in employee skills. Kaur and Fink (2017) believed to have a strategic HR function; it is start from superior level that enhance by talent analytics and results shown as the best analysis outcome. This have been supported by Edwards (2019), companies with analytical methods are more likely to make a strong evidence-based as one of their approaches to analyze the quantitative data and announced as systematic data.

The role of HR professionals scrolled the entire of time from "personnel administrators" and change by the time to "industrial relations professionals" in the twentieth 100 years to "HR administrator" to "individual directors" in the 21 centuries (Kaufman, 2014).

According to Lawler et al., (2004) and Zeidner (2009) found the link of HR analytics with the dimensions as evidence of performance at all level in human resources corner. Thus, the authors simplify the lack of supporting evidence for empirical research between individually and professionally in between analytic capability and performance. Previous study also relates the challenge of HR analytics in the human resource world. Andersen (2017) indicated one of the challenges is lack of quality data and proper data is the root cause of implementation of analytics development in organization. Another argument from different research have identified that the lack of organization to buy off the analytics tools and applications and faced the crisis in figuring out how to use AI-powered tools in organizations (Strohmeier and Piazza, 2013).

Theoretically speaking, this study concentrates on analytical skills to enable the organization to make better strategic decisions for employee angle (Fred, 2017). Bondarouk (2017) also agreed with advanced analytics effectively have an opportunity to predict both in the short term and long term the trends of the modules with big data, business intelligence and statistical application. Asri (2017) discovered the relationship of individual performance with talent by declaring that capable companies develop positive influence on improving employee performance. Robbins & Judge (2015) look into the study about company that benefits to employee is actually make the company more competitive when they are employed talent acquisition, talent retention, and career management skills. Davenport (2012) claimed that benefits of implementing technology can be seen whether organization in the situation of analytics adoption is successful or not.

A study from Kamukama et al., (2010) have confirmed the intellectual capital as the valuable resource and competencies, which give the best individual future experience with superior performance. Intellectual capital actually acts as a person to use their intelligence when it requires in description of job duties, this called intangible assets in company. Therefore, employees gained the support from top management to improve the level of work, by the time it will be increase the metrics of performance.

While the researchers Bontis et al., (2000) has lightened the significant contributor of intellectual capital in their study mentioned the performance of organization in different type of industry in Malaysian. The same researchers used three different aspects of intellectual capital. For example, human capital refers to knowledge, skills, work experience and communication skills as the characteristics of the labour, structural capital specify to the knowledge and systems embedded within the company, and customer capital introduce to the relationship between company and its customers to shown its value.

Research Questions

This paper seeks to identify what variable could influence employee performance in human resource areas. This paper also determines the role of analytics in human resources and

intellectual capital in HR practices that remains significant towards employee performance. The existence of analytical tools obliviously makes over the routine task and required intangible assets to support the outcomes and performance. But in order to fully understand the idea of this paper, a review of the topic highlight the underlying occurrences.

Objectives of the research

The research identifies a relationship to the direct investigation. The objectives of this study to determines the precise definition of employee performance, human resource analytics and intellectual capital in this context as well as its relevance. The aim of the study is to determine how significant employee performance with the two independent variables which are human resource analytics and intellectual capital. The objective of the study also involves analyzing the relation of employee performance with human resource analytics and intellectual capital.

Literature Review

HR Analytics

The term *human* refers to individuals, each person that has kind of human characteristics. *Resource* refers to the assets that support, giving guidance and the resource could turn to be valuable when it utilizes in the best way instead of wasting of the resource easily. When its combine to *"Human Resource*" can be formalized as the root of the team among people to be manpower or workforce in organization. According to Boudreau and Ramstad (2017), considered HRM practices set up as complex data and systematic analysis by the adoption of analytics and regarded as best future driver in the human resource. The readiness level of the HR professional has been supported by Bazurli et al., (2014) indicated HR analytics with commitment as a continuing to learn and have intention to adopt this 'new' approach of HR. The additional letters of "*analytic*" after human resource shows current era changing to cutting edge revolution. The term "human resource" was now being used to refer to human capital analytics, talent management, workforce analytics and people analytics due to technological advances.

From previous literature, many researchers have evidence review context of "analytics" to each of these. More specifically, an approach thru analytics to shape better decision which contains of tools and technology support from simple HR metrics to predictive modelling report. The findings from prior research indicate the differ definition from different scholar. Bassi (2011) defined HR analytics as the predictive that contrary from the basic reporting that impact to the end of the spectrum. Moreover, Prokopeak (2014) stated that HR practitioners have the advantage on the soft skill and present slightly less comfortable dealing with analytical task when involve with people issue.

Thus, in the context of analytics and intellectual capital, human capital analytics as the most potential tools which supports determining and verifying the issue, by utilized the individual and group behavior of the performance. Meanwhile, Rana et al., (2019) literately stated managerial executives as in charge of the issue to make a solution by taking talent analytics as strategic function in analysis results. Burdon and Harpur (2014) clarify when its lead to higher performance, that means talents analytics has been utilized and automatically turned to talent pool.

A study from Kigo and Hazel (2016) defined talent management is a series of a processes in which resources in the company are allowed to conduct training to increase competitive advantage. Indicators of talent management are recruitment, career development, awards, and strategic management. The term talent refers to the most qualified individual to fit in position and talented to make the contribution with the accomplishment of the strategic goals

(Poorhosseinzadeh & Subramaniam, 2011). In other expression, talent management does not hold one face, many organizations try to avoid the unknown issue by implementing with the unique strategy. Workforce analytics referred to employee that can apply predictive model through application of analytical tools and techniques, this can be the advantage of organization and especially benefit for strategic decision making include when it involves in organizing, analyzing, interpreting and presenting the data in the latest version.

While, people analytics defined by Gitell and Ali (2021), the application of predictive model can be used by individual, such as big data and artificial intelligence.

From the previous literature review, it is directly highlighted that HR in the top management has highest importance when it comes to managing the talent (Huselid, 1995). The modern period changing quickly, it forces to dealing with uncertainty, and competing with global labor market. According to Schuler et al., (2011) addressed the major problems of HR professionals is battling with the challenges in global level of talent management (Scullion et al., 2010). Despite the fact that many executives work with human capital insights with excellence-oriented in organizational structure. However, HR professionals realize that not all the human resource practitioners possess the analytical skills and capabilities (Lawler, 2006). Through theoretical research, this study seeks to close the gap by determining complementary role play in employee performance.

Intellectual Capital

The first and foremost in 1969, *"intellectual capital*" announced by John Kenneth Galbraith in the study of Chang and Hsieh (2010) and Khalique et al., (2011). Lynn (1998) defined intellectual capital as the abundance of ideas and the capacity for newness, not the inborn knowledge or experience of human. Youndth, Subramaniam and Snell (2004a) defined intellectual capital as the whole of data and information and understanding ability and capacity that may be applied to obtain a competitive edge. A person's experience, knowledge, information, intellectual property, competition, and learning from others are all considered forms of intellectual capital that may be used to develop skills. Stewart (2000), identified human capital as the "output" of human innovation, while the structural capital is efficiency. The high value of relationship between employers and employee is being significance (Schweitzer and Lyons, 2008).

Previous research has examined intellectual as intangible asset (e.g., knowledge, skills, and learning from experience) that enhance value creation might give edge over competitors (Bontis et al., 1999). A study from Liu et al., (2020) stated intellectual capital comprises of professional knowledge, competencies and technical know-how. While, in the company perspectives, Darline (2000) indicated research when the ability of the business to innovate while protecting and fully utilizing intangible assets. This has been supported by Sumedrea (2013) claimed if firm can be measured by performance in intellectual capital and employee performance.

The conceptualization of intellectual capital is still youthful which means not adequate, with little online definition. Kozak (2011) justify that there is no agreed-upon definition for its subcomponents. The three dimensions that Reed et al., (2006) identify are human capital, which is the knowledge created and stored by a company; structural capital, which is the embodiment, empowerment, and backup systems of human capital; organizational capital, which is further divided into customer capital and organizational capital. The knowledge created and stored by a company information system and processes that are in line within organization; and the latter is the relationship that a company has with its customers.

In another scholars, defined three dimensions of intellectual capital is human capital, organizational capital, and social capital. Schultz (1961) human capital referred as the

knowledge, skills, work experience and communication skills. Youndth et al., (2004b) defined organizational capital as institutional knowledge and set up with experience and assigned via use of manuals, databases, patents, systems and procedures. The information ingrained in and made accessible by interactions between people and their networks of (Nahapiet and Ghoshal, 1998). A study from Amrizah & Rashidah (2013) claimed that each resource of intellectual capital is better equipped to compete in the market than those that just have one intellectual resources.

Therefore, the purpose of this study is to determine whether the independent variables are related with employee performance

For example, the study from Phusavat et al., (2011) in manufacturing areas, found that significantly affects intellectual capital on firm's performance. The authors strength the findings with the result stated competitive success relies heavily on intellectual capital compared to other resources. A study by Joia (2000) found that intellectual capital has a significant influence on current and future of the company success performance. Employees might be considered more valuable when they are seen as intangible assets.

Findings from prior research indicated that the slightness of HR management expertise is expected not adopt HR practices (Walley, 1995). Lack of time, financial support, and HR competence are some of the reasons why modern procedures in human resources are lacking, this problem has been highlighted by Klaas et al., (2000) and de Kok and Uhlaner (2001). For the outstanding practices, organizations need to take part in these issues and best practices is to plan and design strategically to overcome these problems. Hence, this study's objectives are to fill the gap through proposed theoretical framework that include variables of intellectual capital as intangible assets that play an essential part in this study that affect through employee performance.

Employee Performance

Formally speaking, employee performance is defined as the value of the collection of employee activities that either favorable or adversely impact the achievement of company goals (Jeffrey et al., 2017). Numerous studies have been conducted to have a deeper understanding of the definition of employee performance. Sinambela (2012) defined as the ability and capability of employee to do necessary task with skills. Employee performance is what employees do or do not do (Robert & John, 2006), the outcome of worker labor through a management procedure or an organization whose output can be quantified and demonstrated with tangible proof (Sedarmayanti, 2007). Earlier definition of employee performance can be referred as the performance is a blend of actions that meet expectations and the selection or partial fulfillment of a job that is currently assigned to every worker of the company (Waldman, 1994). The definition of employee performance as the amount of quality and quantity involved in job assigned (Mangkunegara, 2001 and Palan, 2007). The quality and quantity of a product made or a service rendered by someone doing, the outcome of an employee's ability to complete task with the assigned responsibilities in terms of both quality and quantity of work; these three factors together represent the aspects of employee performance.

The level of employee performance comes from additional characteristics of workers. Best performance workers are aiming for the best accomplishments, future progress, boost strength and their shortcomings for their individual target. The necessity will not be working alone, the best features are related to the intangible assets such as skills, knowledge, and expertise. Surely in this era, technological support needs to be binding together. Human resources practices really need to take part in HR analytics to ensure the data and report supposedly showed to the umbrella result. As mentioned by Hassan (2016) that organization must

consider the daily practices perform by workers as an essential approach to accomplish their goals through employee performance.

The result of employee performance is originated by employee effectiveness. The measurement of individual effectiveness is strength with the advanced technology available today. Every worker in an organization urgently needs to learn and practice technology skills to cater with the Fourth Industrial Revolution (4IR). Technological advancement could reduce the workload in an organization. Dahlbom et al., (2019) argued that the lack of sufficient skills among employees might occasionally make it difficult to the information systems and analytical tools that are already in place. Delery & Doty (1996) indicated human resource policies should incorporate seven elements that positively impact employee performance. These elements include social support, employee relationship, training and development, rewards, job analysis, and selection, and employee empowerment. The management teams are measured and quantified using performance as measurement or metrics that execute the data and information to ensure decision making process in a good condition. Human resources and organizational sub-departments like enrollment, selection, training, compensation, motivation, and performance appraisal are also effective and efficient in this regard (Naisa et al., 2020). This study focuses on the relationship between individual outcomes and performance appraisal.

Batarline et al., (2017) supported with their statement that organization have to concentrated on developing favorable performance, through providing the tools and skills to tackle the new difficulties and realities. Isaac et al., (2017) suggest when employees used the internet at work, their task processes, education, and communication improved, which enhanced both organizational and individual performance. High skills directly lead to best expectations for the future (Pancasila et al., 2020). As it compares an organization's performance results or outcomes to its intended goals, performance assessment is a crucial component of organizational success (Palshikar et al., 2017).

There are always a few spots in employee performance related to skills and expertise which is the reason for inefficiency. The achievement of a milestone always comes from a trained workforce. Managers in an organization should monitor each of the employees and compare workers' level of performance to the required standards. The essential part is measuring performance progresses and compares result or outcomes to its intended goals.

The productivity of organizational goals is dependent on employees. As such, organizations need human assets to pull the target. This paper is to examine what variables can influence employee performance. In other words, what is leading to the best human resource practices by not neglecting intellectual capital and injecting human resource analytics in the routine. Employee performance is impacted by both internal (person) and external (organization). Employees also influenced by environment of organization. For example, managers should take part to introduce activities and provide package of tools that needed which help employees to empower the skill even though in changing era.

Methods

This study employed a quantitative method. The systematic literature review approach presented and outlined a clear aim of identifying relevant information. The summarize in this systematic literature review spotted as the evidence related to the variables. The focus of this paper is to review literature related to the three main themes which consists of employee performance, human resource analytics and intellectual capital. The aim of this study is to propose a theoretical structure for combining human resource analytics and intellectual capital for an individual to the best performance. A systematic literature review seeks to gather all the relevant evidence that meets prespecified eligibility criteria. This research is to performs

an overview of the scope of the study. As a result, this study can act as an accelerator for further primary research in this field. To conduct all relevant primary research, this study provides a systematic literature review. This approach intends to guide documentation of systematic literature review by developing guidelines to improve transparency, accuracy, and consistency. The selected literature was analyzed and brought to discussed to the main context in this paper.

Findings

The details of context gathered from previous researchers, this study proposed and focuses on the intellectual capital and HR analytics in enhancing employee performance. Therefore, the practices of human resource had brought outdated HR to analytical and statistical. The result is to remake data and decision more accurately and easily transform and present the data. Many scholars have gathered the variables from analytics to determine how independent and dependent variables related to one another. In the meantime, the possibility to leverage the current information systems and analytics techniques is sometime impeded by the gap in the employee skills (Dalhlom et al., 2019). Although human resources has been changing to new era to start developing technological advancements, it still considered to have the intellectual capital, for example knowledge, skills, work experience and communication skills and abilities in order to get flying color in performance by individually.

The integration of analytics in intellectual capital has divided by three. First, the intellectual capital value is transparent to upgrade personal physical, strength and insight with information and abilities (Schultz, 1961). Second, the part of outputs conceives intellectual capital that proprietary information and expertise, work experiences and the abilities of managers to make an innovation (Weijie & Zhao, 2001). Third, the holistic output, which develop intellectual capital as the individual strength, insight and information and abilities for use (Wang et al., 2005).

All workers aspire to perform well in their professional capacity and abilities (Paais & Pattiruhu, 2020). The study from Baard et al., (2014) has mentioned that effective adaptive performance necessities employee's the capacity to effectively handle unexpected situations at work. Therefore, implementing analytics tools and application as routine and process. The study from Abdullah, Ramayyah and Mutahar (2017) explained in their study, employees overwhelmingly concur that using the internet at work has improved processes, learning, opportunities, and communication quality, all of which have positively impacted individual performance and directly impacted organizational results. Gomes (2014) suggest the benchmark of individual performance by eights aspects; workload volume, quality, job expertise, creative thinking, teamwork, dependability, initiatives and personal characteristics. Overall, this paper has emphasized the significance of HR analytics in employee performance as well as from the literature suggests the role of intellectual capital as predictor for best outcome in individually. Sum up, this study helps to have a better understanding the function of HR analytics and intellectual capital which is relevant and leads to the upgrading the better employee performance. This suggests HR management put intangible assets as the resource and element that bring the analytical and statistical data of human resource spark into the stars and in organizational results.

Implications and Recommendations

In this paper, researcher discovered the importance, however limited scientific data to support HR analytics adoption. This study provides the understanding level to the conceptual literature which include HR analytics and intellectual capital as the predictors of the employee performance. This paper also provides the implications of blaming HR function being

unskilled to meet the challenge of HR analytics to be tried and true. Thus, HR professionals especially, tend to put too much weight on statistical expertise. This paper provides the influence of analytics in daily practices of workers and still consent on intellectual capital as intangible asset as a completed set as being a worker.

This paper proposed to implement the up-to-date managerial process skills which include intellectual capital to swap old-fashioned process of HR that consist of managing, measuring, reporting, and presenting the report. This paper provides a useful and updated overview of the technological advancement in the human resource world that linked to the intangible assets with the analytics style of reporting. This study suggested the identified variables, which are covered in-depth in this study to be empirically explored in future research. In this study, the empirical data and evidence is anticipated by scholars and researchers. Additionally, to expand the deeper understanding of the subject matters and to have a betters bite of knowledge and insights of analytical and intellectual capital knowledge of the problems.

Conclusion

Analytical practices and intellectual capital as the combination of competencies, abilities, and skills to be applied. The additional of knowledge, expertise and skill of analytics will lead to excellent performance. This will not reduce the significance of statistical analysis in the standard of HR decision making and going against the norm. The findings of the paper show that technological advancements into HR practices are unavoidable to ensure that HR practices that will leading to individual performance stay relevant. HR management must reconsider the procedures for human resources and start synchronizing with the development of technological advancement. This paper provides a deeper perspective in understanding the analytics tools in human resource function and does not neglect the intangible assets, which are the combination of both variables. This paper demonstrated the importance of intellectual capital in employee performance continue significant, but HR professional need to prepared to induced by technology applications and tools that will guarantee as one step forwards from others. The findings of this paper, show the attention with the arrival of Industrial Fourth Revolution (4IR) are inevitable to all human resource areas and accept the HR function with the relevant ways to continue the HR practices to the excellence performance to be as outcome in an organization.

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