

Human Capital Approach to Enhance Sustainable Innovation Activity in Manufacturing Company

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Abstract: In the era of the industrial revolution 4.0 business competition is incredibly tight because this era can result in the gradual modernization of the industrial sector and has the potential to bring on changes in technology. So companies must improve their capabilities by making continuous innovations in technology supported by adequate human resources. Realizing the important role of human resources in innovation activities, companies must manage human resources as best they'll. This study aims to discuss the human capital approach in increasing the ability and motivation of people towards sustainable innovation activities within the application of technology in manufacturing companies. The method utilized in this study is a qualitative method with descriptive research. This research was conducted on pump manufacturing objects within the process of making a sand mold in PT. Ebara Indonesia, Jakarta, Indonesia. The results in this study indicate that to apply technology as innovation in changing complex production processes, a human capital approach is needed in terms of staff's and engineer's increasing skills, mindset and motivation so that continuous innovation activities can be carried out in accordance with the company's business targets.

Keywords: Human Capital, Innovation, Sustainable Innovation, Work Motivation, Manufacturing Company.

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I. Introduction

In the era of globalization where competition all told business sectors is increasingly sharp, companies are expected to be able to choose the correct strategy to be able to compete with their competitors within the market. To be able to maintain its competitiveness, every company must innovate, not least for companies engaged in manufacturing. In completing the assembly process, manufacturing companies must still innovate in improving product quality, reducing production and operating costs, and increasing labor productivity.

Conditions of competition are increasingly competitive, dynamic, and need an aggressive, innovative attitude. The increasing competition also impacts the necessity for companies to become more flexible, adaptive, and act quickly (Mirvis, 1997). Innovation affects the company's performance. In his research Han et al. (1998) said that innovation positively and significantly affected company performance.

Amabile et al (1996) say that innovation is the successful application of creative ideas in companies. Innovation may be a company's mechanism to be ready to adapt to a dynamic environment. Therefore, companies are required to be ready to create judgments and new ideas and offer innovative products.

Company resources are all factors, both tangible assets, and intangible assets. Human capital is one in every of the most components of intangible assets owned by the corporate. But thus far the evaluation of company performance usually uses more resources that are tangible assets.

Thus human capital isn't positioning humans as capital like machines in order that humans are identical to machines. But human capital can actually help decision-makers target human development so as to boost organizational quality. Therefore, companies must be ready to improve the standard of human resources in facing challenges, especially improving the standard of human resources in generating creative ideas for the achievement of continuous innovation in organizations or companies.

According to Larkan (2008), Human capital was born supported the phenomenon that within the 21st century the notice of corporate management within the management of human resources is increasingly high. Companies began to understand that company performance isn't only determined by capital within the style of finance, machinery, technology, and glued capital but is especially influenced by intangible capital, namely human resources.

At this time many companies still do not understand that human resource management is very important to the continuous innovation activities in the manufacturing process with the global competition with very rapid technological developments. From this the author has expressed an interest in conducting research on human resource management with a human capital approach on individual ability and motivation to the implementation of sustainable innovation activities on manufacturing processes in manufacturing companies.

II. Literature Review

Human Capital

Human Capital is defined as humans themselves who are personally lent to companies with their individual capabilities, commitment, knowledge, and private experience. Although not merely seen from individuals, but also as a piece team that features a relationship both inside and outside the corporate. (Stewart 1997).

Human Capital refers to the spread of valuable skills and knowledge that an individual has gathered from time to time (Burt, 1992). The most important characteristic of human capital is its manifestation in humans (Becker, 1993).

According to Bontis and Fitz-enz, 2002, Human capital could be a combination of information, skills, innovation, and therefore the ability of an individual to hold out their duties so on create a worth to attain goals. The formation of added value contributed by human capital in completing its duties will provide Sustainable Revenue within the future for an organization.

Human capital is an additional value for companies within the company on a daily basis, through motivation, commitment, competence, and effectiveness of teamwork, an additional value which will be contributed by workers within the type of competency development owned by the corporate, transferring knowledge from workers to the corporate and changing management culture (Mayo and Andrew, 2000). Human resources are called the extent of competence and skill possessed by employees (Wiig, 1997). Human resources are a source of innovation and strategic renewal. (Bontis and Serenko, 2007).

Jac Fitz-Enz (2009), Human capital as a combination of skills, motivation, involvement, and commitment of the workforce.

Recognizing human capital as a strategic resource that has to be allocated properly can produce important results because innovation activities are very dependent on employee knowledge and expertise. (Youndt et al., 1996)

The researchers also emphasized the role of human capital in explaining how companies successfully translate innovation inputs into innovation outputs. (e.g., Faems and Subramanian, 2013).

Existing literature gives limited attention to the range of companies in terms of activities within the workplace and reduces the dimension of human resources to the amount of education or a part of employees that are scientists or engineers. (e.g. Sofka et al., 2014; Grimpe and Kaiser, 2010).

Based on the opinion above, it may be concluded that human capital is everything about humans with all the capabilities they need so that they can innovate to create value for organizations to realize goals.

Innovation

The word innovation comes from the Latin "innovation" which implies renewal or change. The verb "Innova" means renewing and changing. Innovation is interpreted as a "process" and/or "result" of the event and utilization or mobilization of data, skills (including technological skills) and knowledge to make or enhance new products (goods and/or services), processes, and systems that provide meaningful value or especially economic and social significance. (<http://library.binus.ac.id>).

Innovation could be a creative process that produces new discoveries that are different from existing ones. (Sutawijaya and Nawangsari, 2019)

Different steps of the innovation process require different competencies and resources. (Henderson and Cockburn, 1994; Danneels, 2002).

The innovation process will be divided into two parts: the primary is related to making products, where organizational creativity and technological competence are needed; and, secondly, associated with product commercialization, depending on more market-oriented capabilities, like marketing. (Grant, 1991; Song and Parry, 1997; Cooper, 2001; Anderson et al., 2014).

Employees who perform abstract assignments are mainly involved in cognitive activities and intensive knowledge. Creativity is the essence of abstract tasks, especially when comparing with manuals and routines. (Bartel and Lichtenberg, 1987; Autor et al., 2003).

The tendency of companies to hold out innovation activities is usually related to certain characteristics that show the potential ability to form and implement new ideas, like the intensity of research and development, company size and employee education. (Huiban and Bouhsina, 1998; Galende and de la Fuente, 2003).

Sustainable Innovation

Sustainable innovation could be a process whereby environmental, social, and financial sustainability considerations are integrated into company systems from idea creation to research and development and commercialization. This is applicable to products, services, and technology, also as new business and organizational models.

Arthur D. Little (2004) define sustainability-driven innovation as the creation of the latest market spaces, products, and services or processes that are driven by social, environmental, or sustainability issues.

As with general innovation, there's an emerging recognition that sustainable innovation isn't only about new concepts but about the commercialization of technology, products and services, and about entrepreneurship. Innovation also can be within the variety of the adoption of recent processes and systems at the community level.

Sustainable Innovation or Eco-Innovation has been known as a process to develop new ideas, behaviors, products, and processes that contribute to reducing the environmental burden or towards ecologically determined sustainability targets. (Rennings, 2000).

However, it's been said that to realize the emission targets implied in truly sustainable development, it'll not be enough to enhance the existing technology gradually. Instead, technology products and systems must be significantly reconstructed that's, radical innovation is required. (Huesemann, 2003).

Sustainability innovation reflects the following generation of economic development thinking. Sustainability and innovation sustainability has been determined by different individuals representing various scientific disciplines and institutions. (Sutawijaya and Nawangsari, 2019)

Work Motivation

Motivation comes from the Latin word "movere" which suggests maneuvering. Motivation in management is geared toward human resources. Motivation explains the way to direct the potential of employees to work together productively so on realize the company's business targets.

Broussard dan Garrison (2004) motivation is defined as an attribute that moves us to try and do or not do something.

Motivation and job satisfaction have a positive and significant effect on performance both partially and simultaneously. The higher motivation and job satisfaction of employees will have a positive impact on employee performance. (Setyo et al., 2017).

Work motivation and work environment partially have a major effect on employee performance. (Setyo et al., 2017).

Manufacturing Company.

Manufacturing companies are business entities that operate machinery, equipment, and labor in an exceedingly very large process to convert raw materials into finished goods that have a sale agreement value.

Manufacturing can take the shape of a series of activities which include product design, item selection, planning, manufacturing, quality assurance, management, and sales implemented by the company.

III. Research Methodology

The study uses a library approach, which could be a series of studies referring to library data collection methods, or research whose research objects are explored through various library information (books, encyclopedias, scientific journals, newspapers, magazines, and documents).

Literature research or literature review may be a study that critically studies the knowledge, ideas, or findings contained in an academic-oriented body of literature, and formulates theoretical and methodological contributions to a specific topic.

The focus of library research is finding various theories, laws, arguments, principles, or ideas won't to analyze and solve research questions that are formulated. The character of this research is descriptive analysis, namely the decomposition of knowledge that has been obtained, then given an understanding and explanation so it's well understood by the reader.

This study uses secondary data. Secondary data is not obtained from direct observation but from the results of research conducted by previous researchers and the information data about innovation issues in pump manufacturing processes in PT. Ebara Indonesia in Jakarta, Indonesia.

IV. Research Discussion

Innovation activities altogether fields in manufacturing companies that are associated with financial performance are important things that must be considered in increasing productivity and global competition. Manufacturing innovation includes the creation, selection, and development/improvement of products, processes, and technology. (Zahra and Das, 1993; Lukas and Ferrell, 2000).

Almost all companies within the world attempt to build a unique and sustainable value by increasing assets that can't be measured by money (intangible assets) which are often called intellectual capital owned by human resources.

The innovation strategy of a manufacturing company can serve as a guide for executives in four ways, as follows: (Zahra and Das, 1993; Afuah, 1998; Salaman and Storey, 2002).

1. Determining whether innovation in a very product or process could be a strategy used as a priority for the competition will thus be ready to link manufacturing activities with the company's competitive strategy (for example with the company's long-term planning).
2. Innovation strategies in manufacturing companies help executives in allocating limited resources by choosing projects which will enhance the capabilities and competencies of producing companies. Thus, innovation helps to differentiate the company's products on the market, exert influence on negotiations with suppliers and keep competitors from the company.
3. This strategy forces the manager to clarify the main target and sources of future manufacturing innovation by considering the company's strategy, industry conditions, internal capabilities, resources, strengths, and weaknesses. This can help make sure that the innovation effort is in line with the need to succeed.
4. The manufacturing innovation strategy can even help companies to clarify their competitive advantages through different products and build value for customers. If a replacement product or process is different from other existing products that make the product unique, it'll be very difficult for competitors to emulate. Companies can use these innovative products to safeguard existing markets or markets to new niche markets, thereby increasing financial performance that's superior to competitors.

With very fierce competition and changing market conditions and rapidly changing demand, the innovation isn't done one time, innovation must be done continuously and continuously for the creation of company goals.

For the achievement of continuous innovation in various fields there's a reference to the readiness of human resources to hold out these activities in a very planned and directed with high discipline. To provide human resources who have the abilities and expertise yet nearly as good behavior must be realized with human capital.

In the organizational context, Joia in Alpkhan et al, (2010) defines the concept of Human Capital as the sum of the expertise and skills of the workers of a company. Dakhli and De Clercq (2004) argued that Human Capital is manifested in skills, knowledge, and expertise which will be improved primarily by education and work experience. Therefore, people, who are better educated, have more extensive work experience and invest longer energy, and resources in honing their skills, are better able to secure and produce higher returns for themselves and for the company.

(Koroglu and Eceral, 2015). Human resources are believed to be the most source of information and skills within the innovation process, endogenous growth theory takes human capital united of the most important inputs in innovation from a macro level.

High-skilled human resources or at the amount of abstraction is an important dimension of the innovation process at the company level and on the performance of its product innovation. (Fonseca et al, 2019).

Human resources are beneficial in the framework of intellectual capital by developing a system of indicators with the aim of enabling a transparent picture of the connection between human resources and innovation within the company. (Mariz-Perez et al, 2012).

The use of human resources associated with task training and employee participation can increase company innovation in terms of the commercial success of developing new products and also the percentage of company revenue from newly developed products. (Li Ma et al, 2019).

Based on some expert opinions and also the above synthesis, what's meant by innovation during this study is that the overall activity directed to make and implement new ideas better than before.

In the manufacturing industry, there's a process from the supply, inventory, production, distribution, financial, human resource, marketing and distribution processes, from each of those parts an ongoing process of innovation is required to make a competitive company performance. From the concept of human capital.

Previous empirical studies conducted by Bantel and Jackson (1989) show the importance of Human Capital and reveal that more innovative organizations are managed by educated teams, who are diverse in the functional area of their expertise.

Dakhli and De Clercq (2004) found strong support for the positive influence between Human Capital and innovation in their study of secondary data on cross-national differences in innovation. Human resources are a source of innovation and strategic renewal. (Bontis and Serenko, 2007)

Jac Fitz-Enz (2009) also explains that Human capital could be a combination of skills, motivation, involvement, and commitment of the workforce. This suggests that human capital will produce motivation for workers in the company. In addition to ability and motivation, intelligence and skills must even be considered as a function of employee performance. (Setyo and Lukertina, 2019).

From the explanation, it will be found that one of the important inputs in innovation is human resources, and also the process of obtaining good human resources is by carrying out the concept of human capital. the concept of human capital during this study is the overall ability inherent in individual employees and may be a valuable asset of the company in order that it must be fostered, developed given motivation which will

further affect the method of continuous innovation in an exceeding company, especially in manufacturing companies that have several processes and systems.

From the explanation above, the concept of human capital in producing skilled and motivated human resources is very influential in innovation activities so that the concept of human capital as a way to implement sustainable innovation in companies, especially manufacturing companies.

Thus the capital human approach in enhancing the ability and motivation of employees in continuous technological innovation activities is to be expected. Likewise in the innovation of technological process changes in the manufacture of sand molds at PT. Ebara Indonesia needed a human capital approach in managing its employees in improving their technological capabilities, mindset, and motivation of staffs and engineers in order to achieve the company's business targets.

V. Recommendation

From the results of this study the author suggests the manufacturing company apply the concept of human capital approach in managing the employees in improving their technological capabilities, mindset, and motivation to utilizing technological developments to create sustainable innovation in order to achieve the company's business targets.

Further research is needed on a more specific human capital component in manufacturing firms with empirically specific work fields to obtain detailed research results.

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