

ANALYZING THE STRENGTH OF TECHNOLOGICAL DEVELOPMENT AND TECHNICAL INNOVATION IN AN INTERNATIONAL MANUFACTURER IN KUDUS, CENTRAL JAVA, INDONESIA

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ABSTRACT

Technological development and innovation is a critical factor for company success and sustainability. This study seeks to analyze the strengths of technology and innovation in Pura Group, an international manufacturing company in Kudus, Central Java, Indonesia. As one of the unpublicly listed companies, Pura Group's success as an international company is based on cutting-edge technology, based on internal values as well as creating cutting-edge products that are able to adapt to the development of global demand, including capable of exploiting the strategic role of the division of research and development. The results show that Pura Group's success is supported by several important factors, such as maintenance of human resources, work culture, superior performance of products, research funding, and research and development.

Key words: Manufacturer Performance, Technology Development, Innovation, Human Resource Management, Research and Development.

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1. INTRODUCTION

The success of a company is inseparable from the role of innovation developed continuously (Jiménez-Jiménez & Sanz-Valle, 2011). Several previous studies have revealed the strategic role of innovation and technology development in corporate performance. However, such roles usually have greater opportunities in large and open companies, compared to family firms and SMEs (Igartua, Garrigós, & Hervás-Oliver, 2010; Nupus, Setiadi & Soesanto, 2017). On one hand, companies based on entrepreneurship and non-bureaucratic can encourage technological innovation and good strategic management practices (Priem, Li and Carr, 2012; Varis & Littunen, 2010). However, family firms have many obstacles, especially with regard to crucial issues of succession of leaders. Changes between generations in leading companies usually affect the company's performance in general (Molly, Laveren & Deloof, 2010). White and Bruton (2017) reveal a link between business strategy, technology management and innovation. Similarly, Camisón, and Villar-López, (2014) revealed a link between organizational innovation with the technological innovation and company performance

This study seeks to analyze the strengths of development and technological innovation in Pura Group, a private company, in Kudus, Central Java. The company has been internationally well-known as a high-tech manufacturing company (Priyotomo, 2004). In this context, this research seeks to describe in depth this company, to know more details how the role of the founder in the company's sustainability, and how innovation and development of technology run. In this regard, the study also attempts to examine human resource management strategies in the company. Generally, this study begins with an introduction, followed by a brief overview of the company's, issues related to technology development, work culture, the strategic role of research and development, product strategy diversification, and ending with the management of human resource.

2. BRIEF OVERVIEW OF PURA GROUP

Pura was built first in 1908. At that time it was named Ong Djing Tjong Electriche Drukkery, owned by grand father Jacobus Busono (now President Director of Pura Group). With its 8 employees, Ong Djing Tjong was one of three offset companies were located in Kudus. It was in a little garage in Jl. Mangga that had conjured up to become the offset company. In 1970, when he returned from his study in Holland and Germany, he started to lead the company and changed its name to be Pusaka Raya (Pura). Now it has been developed by many units of production with the core business in the sector of printing, special paper, and banknote paper, converting, hologram and engineering. Now total of its employees reach 8.700 persons.

3. BACKGROUND OF TECHNOLOGY DEVELOPMENT

Jacobus Busono as the leader was grown up in the environment of family-owned offset industry. The early on his spirit of industrialist had grown in himself. He completed his academic degree in program study of offset and paper production in Holland and Germany. The long experience in Europe later influenced the vision of Jacobus Busono that the high- tech products had the future prospect. He had strong will to make Pura as the offset company with the best quality in Indonesia. In fact, Pura now has been the best packaged and completed offset company in South East Asia.

4. WORK CULTURE OF COMPANY

By successful maintenance of human resources, so it could be created the work culture of company. Pura Group has company culture to continuously innovative and continuing penetration performed at the entire staffs. This work culture ultimately aimed to operate the philosophy of company in practical beings. Along with its vision, Pura hold tightly the

philosophy of company, to use the innovative products, high-tech with high local contents in spite of the import things and to export commodity. As manufacturer company that heavily relied on technological development, the early point of view is that technology constitutes the future prospect. Innovation is regarded to be able to be reached if the work culture has been created. Moreover, technology is considered as the beginning side without the end because it has to be developed continuously. The technology is going off means that it is left behind, or out of date. It is not a machine, the all formulas can be bought but it can not be developed alone. Basically, it is located to its human being who can absorb, create, and develop it. Pura also attempts to create product by involving high local content, to process the raw materials which are available in the home country as many as possible. In spite of availability import commodities, Pura support the stand point to improve the development of the quality of local content produced by suppliers in the home country, toward the dependence on the import products and to be directed to the international marketing.

5. DIVERSIFICATION STRATEGY

Pura has many divisions, among others the offset company, total security system (including the security offset company). The paper processing, (special paper, security paper, and money paper), converting (The continues paper and film processing), engineering (the production of machines). Pura has 20 divisions of production, with 8.700 employees. And it site occupied the wide area around 50 acres.

Pura is the first company in South East Asian, producing CTP perforating machine. In terms of copyright, Pura is the first company among the others has the largest patents in Indonesia. Until now, it has been registered 21 proposed copyrights, 10 among them are ready to be certified formally. The superior product is Pura package. The offset division of Pura is the best in Indonesia and the most complete in South East Asia which get the reliance from various producers in both the home country and abroad. The multinational companies operated in Indonesia such as Unilever, P & G, L'Oreal, Revlon, Bayer, Boehringer, Pfizer, Gillette, and KFC use the packages produced by Pura. In pharmaceutical sector, almost 70% of pharmaceutical company in Indonesia use the package made by Pura. Pura also produces total security system of software & hardware. The anti- imitation offset division of Pura has owned the complete software and hardware facilities under one roof, so that it ensures the security of products produced such as from certificate, postage stamp, stamp, seal, securities, phone card to money paper.

In the production sector, money paper of Pura has supplied both the paper or its offset to the abroad government, such as for the government of Somalia. Lastly, Pura has been able to produce money paper by using the security system similar with that made European companies. In hologram and Hot Stamping Foil sectors, Pura has been also master its technology entirely. One of which was applicated to the pre-paid cellular phone. This innovation wins the reward of Excellence in Holography from IHMA (International Hologram Manufacturer Association). It is also capable to produce The Fractal Hologram, one of the newest protection holograms in the world.

Moreover, Pura also becomes a manufacturer of machines. Most of its production machine is the product result and modification performed by its technical team, including offset machine of rotogravure, coating, extrusion lamination, paper maker, hologram and hot stamping foil, CTP laser perforator, and so forth. Most of its production machine are designed and made by itself by its engineering division. The hologram application machine made by Pura obtains the acknowledgment of Louisenthal, the best well-known money paper plant from Germany.

To advance the agricultural sector, Pura produces Rice Dryer, the drying machine with multi fuel system. The machine made by Pura has obtained the reward of technology award from the

Ministry of Research and Technology. The product of afterburner – the very latest heat-well technological penetration for dryer by using the rice husk produced by Pura was the first developed in Indonesia. Efficiency level of the mechanical dryer is relative high, capable of reducing the cost significantly, and easily operated and maintained by farmers.

Beside marketed in home country of Indonesia, the products of Pura has been exported to more than 40 countries in region of Asia, Australia, Middle East, Africa, Europe, and America. Because of these achievements, Pura has been awarded many awards, including Primaniyarta Export Award 2001 from The Ministry of Industry and Trade as the best exporter, excellence in Holography from IHMA (International Hologram Manufacturer Association), Technology Award 2001 in Agricultural Industry Sector.

6. THE STRENGTH OF RESEARCH & DEVELOPMENT DIVISION

Artz, Norman, Hatfield and Cardinal (2010) state that there are effects of R&D on firm performance. The division of Research & Development (R&D) respectively performs the research and development continuously according to its respective sectors. The development is not only performed by R & D division, but also every support-given employee for purposing the inputs. The developing result of technology in Pura is the original result of Indonesian. Pura also allocates large funds from the entire revenues, including approximately 5 % for research and development purposes.

Pura always exploits the source of technology advancement from various sources such as research, literature, show, seminar, etc.,. Additionally, the technological development and innovation is conducted to fulfill the market needs and trends. Pura has many laboratories, placed in every production unit with the apparatus and the room according to the need. It is standardized and applied to the activity of production. The collaboration in research and development has conducted with many parties. For instance, the development in the drying machine of cacao and coffee was conducted in collaboration with the Center of Cacao Research in Jember, the development of process in paper production with the Association of Cellulose in Bandung, the development of data communication system and internet with Indosat, the development of data information system with Muria Kudus University, and the data information system and demography with the Government of Kudus Regency. The form of collaboration is much more to the direction of consultancy and advisory. This strategic role of R&D in Pura is confirmed by Atalay, Anafarta and Sarvan, (2013) stating the relationship between innovation and firm performance in automotive industry.

7. THE MAINTENANCE OF HUMAN RESOURCES

Realizing that human resources were the important asset of company, so it was performed the maintenance morally and mentally as effort of character building as the first step. Then, it is continued by maintaining the technique and management of human resources. The maintenance of character was prioritized because of 95% success supported by EQ (emotional quotient – which was close related to character) while IQ (intelligence quotient –related to intelligence) only supporting 5%.

Along with its work culture, the innovation of Pura is continuously penetrating, so it is performed the maintenance of human resources recalling technology in the real mean as human being capable of creating the technology. It is started by maintenance of character, because the company success is more determined by character building. The good characters among the company employees are honest, responsibility, enjoying to the job, hardworking, not easy to surrender, desirable, spirit, and etc. After the maintained character, it is continued with the maintenance in the technique and management sectors.

The effort of supporting the progress of science and technology is also done by Pura by sending related specialist labors to various institutions in the home country and abroad gradually to follow the existing development of technology and the alternative of its development. For instance, in the agricultural industry sector, Pura prepares the training center to overcome the time after rice harvest to rice drying. These efforts include technical, operational, theoretical teaching in class rooms and direct practice of work training. This is the service of pre-sale in the social training form – the first commercial in Indonesia. Pura also has the training center functioned as the effort run operationally a center to give the description to the trainees about the real situation.

8. CONCLUSION

This study concludes that the success of Pura Group is supported by good human resource management practice, as well as continuous development of technology and innovation to produce superior products accepted by the international market. The development of technology advancement of Pura is the internal result of massive exploitation of research and development strategy. In addition, Pura Group also allocates substantial funds to support the process of creating and researching its products. The company also has its foundation based on a product diversification strategy, supported by good practice of human resource management.

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