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EFFECT OF E-COMMERCE APPLICATION, DISTRIBUTION MANAGEMENT SYSTEM, AND WAREHOUSE MANAGEMENT SYSTEM IN IMPROVING HUMAN RESOURCE PERFORMANCE

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Abstract

Many organizations that run their business processes depend on the individuals within the organization rather than to the system so that problems can occur. If one individual does not exist and consequently hinder the performance of other individuals, such as the example of the division of sales and finance dependence on administration and warehouse divisions. Difficulty serving many customers and many kinds of products, as well as mismatches stock data and reports in real compare by system also raises its own problems in this company. Therefore, the authors are interested in doing research, which this study aims to determine how the effects of the adoption of E-Commerce system, Distribution Management System (DMS), and Warehouse Management system to the performance improvement of human resources in the company Marine Asia Pacific. This study was conducted in individuals who use the system the number of respondents 40 people. The census data collection methods, and data processing using multiple linear regression analysis, assisted with SPSS software version 21. Results of this study showed that the adoption of E-Commerce system, Distribution Management system (DMS), and Warehouse Management system (WMS) had effect on Performance Improvement of Human Resources partially or simultaneously in the MAP company.

Keywords: E-Commerce, Distribution Management System, Warehouse Management System, human resource, human resource performance.

INTRODUCTION

Human resources have an important role that affects the company's success in facing global market and competition. In the new organizational and economic development, it is necessary to support an information system capable of integrating and automating business processes, logistics, distribution, marketing, accounting, finance and human resources.

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1 Mitch Rosses (in Jogiyanto, 2005) suggests the information system as a system in an organization that brings together a daily transaction management needs, supports operations, managerial and strategic activities of an organization and provides certain parties with required reporting reports. By utilizing the information system is expected to improve the effectiveness and efficiency of performance and develop business within the company.

Business competitors in the free-market era have made companies invest in information technology and spend more money, but the amount of cost invested is generally no longer considered to be a cost center when companies get benefit from applying information systems

¹ as perceived by PT Marine Asia Pacific (MAP) in running its current business so as to be able to timeline efficiency and transaction accuracy to get trust of its consumer.

Information technology is considered able to provide benefits in terms of increasing the effectiveness of Fulfilment Order services, expand marketing and promotion as well as improve the efficiency of the organization, individuals and other parties in the business process. In terms of utilizing information technology for on-line sales, MAP companies utilize E-Commerce systems, while to support the delivery of warehouses or distribution centers using the Distribution Management System (DMS), and to manage inventory and resources, company using Warehouse Management System (WMS).

Information systems will be effective if able to provide accurate and fast data. An integrated information systems can facilitate organizational management. Before using an integrated information system such as E-Commerce, DMS and WMS, previously PT. MAP used obsolete systems that still need to be supported by manual activity from the user to transmit individual data at each location to the central office. This reality can lead to misunderstandings in data communications between each location and allow the occurrence of corrupt data due to user error. It will also take longer to coordinate the provision of data compared to companies that have integrated each department's functions. This integrated data can foster efficient business processes and facilitate decision making by corporate management (Shebab et al., 2004). With the integration of all enterprise application systems to the center, data storage can easily be accessed by all parties that need (Sabana, 2002) to produce high efficiency for the company.

But the success of using an integrated information system is highly dependent on its human resources. Therefore, the limitation of research is effect of application of E-Commerce information system, DMS and WMS on human resource performance in Marine Asia Pacific Company. Indicators of system benefit have

¹ impact on the decrease in processing time that can improve Service Level Agility (SLA). Based on the above description and its relevance in the development of research and development of theories that describe the success of information systems (Delone & McLeon, 1992,2003; Seddon & Kiew, 1994; Gable, Sedera, & Chan, 2003; Ifinedo, 2006; Davis, 1999), author is interested to examine all three utilization of information technology at Marine Asia Pacific (MAP).

Many companies that run their business processes depend on the individuals within the organization rather than rely on the system, so that if the individual does not exist, it will hamper the performance of other individuals. In addition, few consumers really understand every product owned by the company, so only a certain group of consumers who can use the services of the company.

Based on the previous description, the researcher identified that previously the MAP Company used an old information system that required manual user assistance, allowing data errors and data corruption, and takes a couple of time to coordinate. After the MAP Company uses an integrated new information system, some divisions or departments are formed according to their respective functions such as Customer Service using Distribution Management System (DMS), Sales on-line using E-Commerce, admin accounting and sales division using information system from Warehouse Management System (WMS).

LITERATURE REVIEW

Information System

Information systems are systems created by analysts and managers to perform specific tasks that are essential to the functioning of an organization (Scott, 2001). The information system is a system within an organization that meets the needs of daily transaction processing, support operations, managerial and strategic activities of an organization and provide the necessary reports to other parties (Jogiyanto, 2005). While the information system according to Laudon (translated by Sungkono & Eka, 2008) states that the

information system are components that are interconnected and work together to collect, process, store and disseminate information to support decision-making, coordination, control, and to provide an overview of activities within the company. Information systems can be defined as a system within an organization that is a combination of people, facilities, technology, media procedures and controls aimed at obtaining critical communication channels, processing certain types of transaction routines signaling to other management of internal and external events, and provide a basis information for decision making.

Previous Research on E-commerce, DMS, WMS, and HR Performance

The first reference study was a study titled *Measurement of Benefit Perception and Convenience Perception on Attitude and Its Impact on Online Shopping Reuse on E-commerce* by Iwan Sidharta and Rahmahwati Sidh from STMIK Mardira Indonesia 2012, Information Technology Hall, Indonesian Institute of Sciences, Bandung.

The research was conducted at STMIK Mardira Indonesia Bandung. This research uses descriptive exploratory method with sampling data using purposive sampling technique. Data analysis technique used in this research is Structural Equation Modeling (SEM), component based Partial Least Squares (PLS) with instrument test by analyzing independent variables that are perceived usefulness, perceived ease of use, user attitude) and the dependent variable is the behavior of reuse (intention to use). The results of the analysis concluded that perceived ease of use and user attitude significantly have influence the reuse (intention to use) proxied on the attitude of students to make online shopping on E-commerce. While perceive usefulness does not have a significant influence on reuse (intention to use) proxied on the attitude of students to make online shopping on E-Commerce. However, from the overall test results, it is concluded that the attitude of the users (attitude) and the behavior of reuse (intention

to use) have significant effect on the students to purchase online shopping on E-Commerce.

The second references is the research of Sholiq and Arrizqy Nur Shabrina from Institute of Technology Sepuluh Nopember, Surabaya in 2013 with the title *Investment Feasibility Analysis of Point of sales Application At Wholesale and retail with cost benefit analysis*. A case study was conducted at the Nirwana Pamekasan store. This study aimed to determine the factors of feasibility factor costs and benefits to obtain justification of investment Point of Sales system. The method used in the feasibility analysis is Cost Benefit Analysis (CBA) which for the cost and benefits of intangible identification using DNA of Tangibility. The parameters used in the CBA analysis include: Net Present Value (NPV), Return of Investments (ROI), and Payback Period (PP) with feasibility test using two investment scenario options ie (1) third party outsource for hardware and software, 2) buy hardware and software separately. The results of this study shows that the NPV, ROI, and PP scores in the first scenario have greater cost and benefit feasibility for nirvana stores in investing point of sales applications than in the second scenario.

The third research reference is *Marketing Management Journal of Petra Christian University* by Zeplin Jiwa Husada Tarigan (2009) with the title of influence of ERP implementation on product differentiation and cost leadership in improving company performance. A case study was conducted on a manufacturing company in eastern Java. This study aims to determine the effect of ERP implementation on the effectiveness of marketing or also called differentiation Strategy and company operations that can create low cost leadership on corporate performance. The results of this study, it can be concluded that the adoption of ERP in East Java manufacturing company has a positive effect on differentiation strategy and low cost strategy because the integrated system can provide fast information and efficiency occurs on the system of corporate administration. While company performance is determined by

ERP adoption through intervening variable that is low cost strategy, because manufacture company in East Java has low research and

development part, but not with differentiation strategy because it does not have significant effect to company performance.

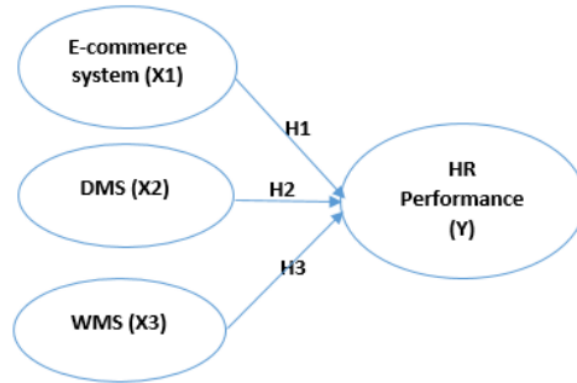


Figure 1. Framework

Based on the results of previous research studies and frameworks, the hypotheses in the research are formulated:

H₁: There is a significant influence of E-commerce system on the Human Resource performance in PT MAP.

H₂: There is a significant influence of Distribution Management System (DMS) on Human Resource performance in PT MAP.

H₃: There is a significant influence of Warehouse Management System (WMS) on Human Resource performance in PT MAP.

H₄: There is a significant influence of E-Commerce system, Distribution Management system (DMS) and Warehouse Management System (WMS) on Human Resource performance in PT MAP.

MATERIALS AND METHODS

The research methods uses a quantitative approach, a method for analyzing the effect of E-commerce system, Distribution Management System and Warehouse Management System on Human Resource performance at PT Marine Asia Pacific. In this study, the researcher used a census sampling survey method to get primary data. Primary data is obtained by giving questionnaires directly to all users with total

40 persons, which are divided based on the division, as shown in Table 1.

Table 1. Data Total User

No	Division	Population
1	Sales on line	3
2	Distribution	7
3	Warehouse	7
4	Administration	6
5	Accounting	6
6	IT	7
7	Customer Service	4
	Total	40

The number of samples in this study as many as 40 respondents were employees of the head office of PT Marine Asia Pacific. This study uses survey method with Likert scale to answer the questionnaire items. The variables of E-Commerce system implementation were measured using the theory according to Gaertner and Smith (2001), the variable of Distribution Management System was measured using the theory according to Delone and McLeon (1992), the variables of Warehouse Management System implemented by theory according to O'Brien (2005), and variable of Improvement of human resource performance was measured using Gomes's

theory (2003). Data obtained were processed with analytical tools such as descriptive analysis, simple linear regression analysis and multiple regression analysis using SPSS version 25 software.

Based on the test result, each variable has met the validity, reliability, and normality criteria where for validity test, each variable has shown r-statistic value greater than r-table (0,3120), for reliability, the value of Cronbach alpha from each variable showed greater value than 0,60, and for normality test, each variabel has sig value greater than 0,05.

RESULTS AND DISCUSSIONS

Validity, Reliability, and Normality Test Results

Table 2. *Validity, Reliability, and Normality Test Results*

Variable	Validity		Reliability		One	Sample
	r-stat	r-table	Cronbach Alpha	Criteria	Kolmogorov Sig	Smirnov 0,05
X1	0.869	0.3120	0.93	0.60	0.201	0.05
X2	0.754	0.3120	0.94	0.60	0.427	0.05
X3	0.873	0.3120	0.95	0.60	0.192	0.05
Y	0.858	0.3120	0.96	0.60	0.376	0.05

The influence of Implementation of E-Commerce System (X1), Distribution Management System (X2), Warehouse

Management System (X3) on Improving Human Resource Performance (Y).

Table 3. *Coefficient of Determination X to Y*

	R	R Square	Std error of the estimate	Durbin Watson
X1	0.894	0.799	3.52979	1.291
X2	0.929	0.863	2.90742	2.201
X3	0.594	0.353	6.32887	1.546

a. Predictors: (constants), X
b. Dependent Variable: Y

Table 3 shows the amount of coefficient of determination (R2) of each independent variables: 1) The contribution of Implementation of E-Commerce System (X1) to the Improvement of Human Resources Performance (Y) is 79.9% (0.799) and the remaining 20.1% is the contribution of other factors; 2) The contribution of Implementation of Distribution Management System (X2) to

Improvement of Human Resource Performance (Y) is 86.3% and the remaining 13.7% is contributed by other factors; 3) The contribution of Implementation of Warehouse Management System (X3) to the Improvement of Human Resource Performance (Y) is 35.3% and the remaining 64.7% is contributed by other factors.

Table 4. *Coefficient of Determination X1, X2, X3 simultaneously to Y*

Model	R	R Square	Std error of the estimate	Durbin Watson
1	0.964	0.930	3.52979	2.13718

a. Predictors: (constants), X1, X2, X3
b. Dependent Variable: Y

¹ Table 4 shows that the coefficient of determination (R²) is 0.930 or 93%, so it can be concluded that the contribution of implementation of E-Commerce System (X1), Distribution Management System (X2), and Warehouse Management System (X3) on Improvement of Human Resource Performance (Y) is 93% while the remaining 7% is contributed by other factors.

Based on the results, the variables that have significant influence is implementation of Distribution Management System (X2) of 86.3%. Then Warehouse Management System (X3) variable gives an effect of 35.3%, this is lower than variable (X2) due to lack of understanding of Warehouse Management System. Effective training is required for the operation of Warehouse Management System application.

CONCLUSIONS

Implementation of E-Commerce System has a significant effect on Improvement of Human Resource Performance at Marine Asia Pacific Company. This means that if the E-Commerce System have increases then the performance of human resources in the MAP Company will also increase.

Implementation of Distribution Management System has a significant effect on Improvement of Human Resource Performance at Marine Asia Pacific Company. This means that if the Distribution Management System increases then the performance of human resources in MAP Company will also increase.

Implementation of Warehouse Management System has a significant effect on the Improvement of Human Resources Performance at Marine Asia Pacific Company. This means that if Warehouse Management System increases, then the performance of human resources in MAP Company will also increase.

Simultaneously there is a strong and significant effect of implementation of E-Commerce system, Distribution Management System, and Warehouse Management System on Improving Human Resources Performance

by 93%. However, user satisfaction is also influenced by other variables beyond 7%.

Recommendation

Implementation of Warehouse Management System received the lowest rating of 35.3% by respondents, meaning that the use and training of this WMS system needs to be improved so that the problem of stock conformity incurred can be overcome by the lack of user error in the use of this WMS. Also, if understanding of the use of this system increases then the dependence between individuals will be reduced because the true integrated system allows users not the other way around, so that the implementation of this WMS system can ultimately improve the performance of human resources in the MAP Company as the goal of the management of PT. FOLDER.

The results obtained from the Implementation of Distribution Management System and E-Commerce system have high percentage, meaning the problem of product knowledge employees, ineffective sales, and limited segmentation of positive customers can be overcome by the application of DMS and E-Commerce system, therefore the quality of the system must be maintained even utilized and developed more widely in the future.

The ability of employees of using E-Commerce system and DMS have been well viewed from the results of the contribution of human resource performance improvement, but for WMS users need to be improved in the future.

Further development for WMS systems may need to be done so that the system more user friendly. It needs to be coordinated with the vendor.

The results of this study assist the management to determine the structure of salary, from the results of employee productivity evaluation, sales and finance division of the most major contribution.

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