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TOP MANAGEMENT SUPPORT IN IMPLEMENTATION OF ENTERPRISE RESOURCE PLANNING (ERP) HIGHER EDUCATION IN EAST JAVA INDONESIA

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Abstract
Enterprise resource planning (ERP) has an important role in supporting the realization of Indonesia as a tough country in global competition, through the development and utilization of information and communication technology. Implementation of ERP becomes a demand and necessity in the management of universities. The purpose of this study is to analyze the role of top management support in the implementation of ERP universities in East Java, Indonesia. The study used a sample of 164 universities involving 492 respondents. The results showed that the reflection of top management support in guarding the implementation of college ERP in East Java, Indonesia is good.

Keywords: Enterprise resource planning, Universities, and top management support.

INTRODUCTION

Implementation of information systems into demands and imperatives in the management of universities, so that investment in information technology to improve competitiveness, facilitate services, and guaranteeing broad access with blue print is clearly a priority development in several universities. The use of information systems in universities other than due to demands, will also get rating ratings on the progress of the best universities in the world or World Class University (WCU), so it is important implementation.

An information system capable of integrating multiple business activities including: human resources, marketing, production, management and consumer relationships, and finance on a single system through the use of a shared database called Enterprise Resource Planning (ERP). ERP has the ability to: balance the supply and demand of the company thoroughly through the ability to connect customers and suppliers within a single supply chain, as a decision support system in business processes, and integrate all the functional parts of the company (Wallace & Kremzar, 2001).
The reflection of the implementation of college ERP is: Academic Information System (Siakad), Lecturer Career Information System (SIPKD), Higher Education Database (Simisabmas), self-evaluation, garuda portal, e-journal, and e-learning. PDDikti is one of the real ERP applications used in universities.

PDDikti is the process of recording and collecting data as regulated in Law Number 12 Year 2012 on Higher Education (Dikti Dikti), and Regulation of the Minister of Research, Technology and Higher Education (Permenristekdikti) Number 61 of 2016 specifically regulates the Database of Higher Education (PDDikti).

The benefits of implementing ERP are widely felt by universities, but some issues arise among them: ERP implementation is relatively difficult because of integrated application, and organizations must change the way they do business. This problem if not anticipated quickly and precisely will result in failure marked by a large investment, but the company does not benefit and benefit optimally (Brynjolfsson, 2006) or called information technology paradox (IT Paradox)

Esteves, Pastor and Casanovas (2000) stated that top management support is a factor of successful ERP implementation, Bradford and Florin (2003) stated that top management support affects corporate performance and satisfaction of the use of information systems, and Liang et al. (2007) states that management participation affects the use of information systems. The conclusions of this study indicate that the role of top management support is important in guarding the implementation of ERP systems to a success.

The role of top management support, and differences in characteristics of developed and developing countries in the implementation of ERP, it is possible that top management support indirectly implies the influence of product quality & information quality on the level of user behavior (use & user satisfaction). Good product quality, without accompanying good user behavior will also experience failure of implementation. The role of the management through its support and involvement is predicted to increase from the level of product quality to the level of user behavior, as the process of technology transfers to determine success.

Universities in Indonesia are 4,757, and the highest number of universities in one province is in East Java (Forlap.dikti, 2015). East Java Province has 474 universities consisting of 88 academies, 18 polytechnics, 261 high schools, 21 institutes, and 86 universities. The scope of coordination of universities in East Java is within the Ministry of Research, Technology and Higher Education (kemenristekdikti) of 314 universities, and 160 universities are in the coordination of the ministries of religion, the ministry of communication, the ministry of health, the central statistical
agency, College status includes: active as many as 444, over 6 forms, delete as much as 2, and non-active as much as 22 (Forlap.dikti, 2015).

**THEORETICAL BASIS**

ERP as a whole executes, and integrates corporate functions into one system. Problems that can be solved with ERP include: payroll/employees cost accounting, general ledger, job / project management, budgeting, logistics, materials, etc. (Subba, 2000). ERP provides a total solution to all divisions in the company by integrating all corporate activities into integrated information management with the database. The ERP model according to Subba, (2000) consists of: strategic and business planning-materials, operational planning and execution-materials, strategic and business planning-resources, and operational planning and materials.

Implementation of ERP has objectives, among which are: 1) Improving customer service, 2) Increasing productivity, 3) Cost reduction and inventory turnover, 4) Supply chain management and e-commerce (Wallace & Kremzar, 2001). The advantages of ERP are: 1) single tools in enterprise resource planning, 2) integrating sales, operations and finance data, 3) Linking resource planning approaches to the development of customer supply chain and channeling.

The modules in the ERP system package are designed to integrate business activities, although in the implementation the company can choose several modules according to the company's requirements. The completeness of the modules in each package depends heavily on the target consumers as well as the software developments made by the company.


Top management in the information system is: the party responsible for providing general guidelines for the activities of information systems. The level of support provided by top management for organizational information systems can be a very important factor in determining the success of all activities related to information systems (Hasmi, 2004).

Top management support is an activity that impacts, directs and guards the human behavior shown by directors, presidents, division heads, direct supervisors, etc. Top management steps that can be used in providing support include: 1) Recognize the members of the organization and identify their needs, 2) set goals to be achieved based on appropriate
targeting principles, 3) develop a reliable performance measurement system and provide feedback (5) provide support in completing tasks through training and fostering sense of belonging; 6) develop a system of just and compensated rewards; and 7) be fair, Objective and be an example (Trisda & Dwirandra, 2013).

Top management is committed to the time, cost, and resources to support suppliers for long-term partnerships and companies can also proceed in a stable process. Top management in running a business should always develop and create a value for the company in order to improve organizational performance (Chen & Paulraj, 2004).

The commitment and leadership of top management in an organization is measured by: effective leadership (Holland & Kumar, 1995), Visible (Carr & Smeltzer, 1997), and creative in thinking and understanding inter-company cooperation (Krause, 1999). Top management support in information systems is seen from the extent to which management understands the importance of information systems functions, and their involvement in information systems activities (Ragu-Nathan et al., 2004). The form of top management support is characterized by interest in the functioning of information systems, and encourages the operating units to collaborate with information systems (Boynton et al., 1992).

The scope of coordination of universities in Indonesia include: College of Education under the Ministry, College of Education under the Government Institution Non-Ministry (agency & institute), College of Education under the Indonesian National Police, and College of Higher Education under the Indonesian National Army, While college status is grouped into active status, transferring form, delete, over management, and non-active (Forlap.dikti, 2014). The organizers of universities have a responsibility to submit data and information on the implementation of higher education systematically and periodically to kemenristekdikti through Higher Education Database (PDPT) as regulated in the Law of the Republic of Indonesia number 12 of 2012 on Higher Education.

BAN-PT (2011) requires university information system standards to have an information system prepared to support the management and improvement of academic program quality. The information system in a university consists of data collection, data analysis, storage, retrieval, presentation of data and information, and communication with interested parties.

Data and information managed by universities may include academic, student affairs, human resources, infrastructure and administrative and financial means and other data deemed necessary for the benefit of various parties. In any case, universities should be able to utilize their information systems to maintain internal communications and coordination.
and cooperation with other institutions, government, alumni, companies / industries or the wider community (BAN-PT, 2011).

The development of information technology is very fast then the college should be able to perform professional management and update of hardware and software, human resources and management organizations to ensure the growth of information systems that have been built. Universities must also ensure access for students, staff and other academicians to utilize the existence of such information systems through transparent regulations (BAN-PT, 2011).

**RESEARCH METHODS**

This study is a type of survey study, which examines a large population by selecting and reviewing selected samples from the population to find the distribution, and the relative interrelation of variables (Kerlinger, 2004). Specifically categorized into analytical survey research is conducting critical observations or investigations to obtain light and good information on a particular problem, and within a particular area aimed at achieving generalization and analysis (Soehartono, 2000).

The population of this research is universities in East Java both PTN and PTS are in the scope of coordination Kemeterian Research Technology, and Higher Education (kemenristekdikti), and active status of 285, this is because the arrangement of university information systems in the scope of coordination kemenristekdikti already lead Implementation of ERP system, ERP example in college include: Lecturer Career Information System (SIPKD), PDPT, Similitabmas, self evaluation, garuda portal, e-journal, epsbed, etc. While at universities within the scope of coordination other than kemenristekdikti information systems have not been integrated in one database/data base.

The sampling technique uses disproportionate stratified random sampling, with the reason management of information system in college can be stratified into 2 (two) strata that is: highly rated and not ranked in webometrics. Based on webometrics ranking of universities in East Java under the scope of coordination of kemenristekdikti, 57 graded, and 228 not rated, so the population stratified but not proportional.

The sample includes college ranked in Webometrics as much as 57, and college is not rated as taken as 107. Samples at each college are taken 3 (three) respondents with the assumption that number can represent respective college in reflecting the quality of ERP system. Respondents can be represented by operational staff, manager, or person in charge of information system. The number of respondents involved in the research is $3 \times 164 = 492$. 
Frequency distribution of respondents' answers in the analysis based on the answers of each respondent, and not the average value of the respondent's answer representing the unit of analysis that is each college. The total number of respondents analyzed was 492.

The result of subsequent frequency distribution analysis is done by interpretation of the score to describe how the reflection of each variable against the predetermined category. Interpretation of score is done by assuming normal distributed data, and division unit is divided into 6 sections, so it can be calculated the maximum maximum span, the distance of respondent's answer, theoretical mean value (μ), deviation unit (σ), then categorizing respondent's answer.

The categorization in this research is categorized into 5 categories, namely: Very Good, Good, Good Enough, Not Good, and Very Not Good, with the following conditions:

<table>
<thead>
<tr>
<th>No.</th>
<th>Formula</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>mean ≤ (μ-1,5σ)</td>
<td>Very Not Good</td>
</tr>
<tr>
<td>2</td>
<td>(μ-1,5σ) &lt; mean ≤ (μ-0,5σ)</td>
<td>Not Good</td>
</tr>
<tr>
<td>3</td>
<td>(μ-0,5σ) &lt; mean ≤ (μ+0,5σ)</td>
<td>Good Enough</td>
</tr>
<tr>
<td>4</td>
<td>(μ+0,5σ) &lt; mean ≤ (μ+1,5σ)</td>
<td>Good</td>
</tr>
<tr>
<td>5</td>
<td>(μ+1,5σ) &lt; mean</td>
<td>Very good</td>
</tr>
</tbody>
</table>

**RESEARCH RESULT AND DISCUSSION**

**Data Description**

The research was conducted in East Java province, a province in the eastern part of Java Island, Indonesia. Its area is 47,922 km², and its population is 19,172,610 Male, and 19,674,951 Woman. East Java also includes Madura Island, Bawean Island, Kangean Island and a number of small islands in the Java Sea and Indian Ocean (BPS Provinsi Jawa Timur, 2015).

East Java Province is administratively comprised of 29 districts and 9 cities, making East Java as the province with the highest number of districts/cities in Indonesia, and has the highest number of universities in Indonesia which are 558 universities (Forlap.dikti, 2016). Questionnaires were sent to 200 colleges through work email addresses and individuals. A total of 164 universities sent back answers that have been filled by respondents with complete (3 respondents), so the data obtained as much as 164 x 3 = 492.
Overview of Top Management Support Support, The top management support variables are measured using 10 questions, as for the frequency distribution results as in Table 2.

Table 2 Distribution of Rescountable answer scores on Top Management Support Variables

<table>
<thead>
<tr>
<th>Item</th>
<th>1 (STS)</th>
<th>2 (TS)</th>
<th>3 (CS)</th>
<th>4 (S)</th>
<th>5 (SS)</th>
<th>Mean skala</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMP1</td>
<td>8</td>
<td>1.6 58</td>
<td>11.8</td>
<td>14.5</td>
<td>29.5</td>
<td>19.6 39.8</td>
</tr>
<tr>
<td>DMP2</td>
<td>6</td>
<td>1.2 65</td>
<td>13.2</td>
<td>12.8</td>
<td>26.0</td>
<td>20.7 42.1</td>
</tr>
<tr>
<td>DMP3</td>
<td>7</td>
<td>1.4 67</td>
<td>13.6</td>
<td>12.2</td>
<td>24.8</td>
<td>21.6 43.9</td>
</tr>
<tr>
<td>DMP4</td>
<td>8</td>
<td>1.6 64</td>
<td>13.12</td>
<td>6.2</td>
<td>25.4</td>
<td>21.6 43.9</td>
</tr>
<tr>
<td>DMP5</td>
<td>6</td>
<td>1.2 49</td>
<td>10.13</td>
<td>4.5</td>
<td>27.2</td>
<td>19.6 39.4</td>
</tr>
<tr>
<td>DMP6</td>
<td>8</td>
<td>1.6 48</td>
<td>9.8</td>
<td>14.0</td>
<td>28.5</td>
<td>20.7 42.1</td>
</tr>
<tr>
<td>DMP7</td>
<td>7</td>
<td>3.5 50</td>
<td>10.2</td>
<td>13.2</td>
<td>26.8</td>
<td>20.7 41.3</td>
</tr>
<tr>
<td>DMP8</td>
<td>7</td>
<td>3.5 56</td>
<td>11.4</td>
<td>11.9</td>
<td>24.2</td>
<td>20.7 40.9</td>
</tr>
<tr>
<td>DMP9</td>
<td>9</td>
<td>1.8 41</td>
<td>8.3</td>
<td>13.0</td>
<td>26.4</td>
<td>20.7 40.7</td>
</tr>
<tr>
<td>DMP1</td>
<td>0</td>
<td>2.6 35</td>
<td>7.1</td>
<td>11.7</td>
<td>23.8</td>
<td>21.7 43.1</td>
</tr>
</tbody>
</table>

Source: Primary Data is processed (March, 2016)

Table 2 shows the distribution of respondents 'scores, and the mean mean of respondents' answers with values ranging from 3.60 (manajamen supports the availability of human resources required) up to 3.77 (the management provides the budget for system development).

The first question is the management support the availability of adequate hardware, from 492 respondents there are 8 respondents (1.6%) who stated strongly disagree, 58 respondents (11.8%) who states disagree, 145 respondents (29.5%) Which states quite agree, 196 respondents (39.8%) agreed, and 85 respondents (17.3%) who stated strongly agree. The average score is 3.59 on a scale of 5, or above a sufficiently agreeable value, indicating that the respondent agrees that the management supports adequate hardware availability.

The second question is the management support the availability of adequate software, from 492 respondents there are 6 respondents (1,2%) who states strongly disagree, 65 respondents (13.2%) who stated
disagree, 128 respondents (26%) stated Quite agree, 207 respondents (42.1%) states agree, and 86 respondents (17.5%) who stated strongly agree. The average score is 3.61 on a scale of 5, or above a sufficiently agreeable value, indicating that the respondent agrees that the management supports the availability of adequate software.

The third question is the management support the availability of adequate human resources, from 492 respondents there are 7 respondents (1.4%) who states strongly disagree, 67 respondents (13.6%) who states disagree, 122 respondents (24.8%) Which states quite agree, 216 respondents (43.9%) states agree, and 80 respondents (16.3%) who stated strongly agree. The average score is 3.60 on a scale of 5, or above a sufficiently agreeable value, indicating that the respondent agrees that the management supports adequate human resources availability.

The fourth question is the management side facilitates the development of the system, from 492 respondents there are 8 respondents (1.6%) who stated strongly disagree, 64 respondents (13%) stated disagree, 125 respondents (25.4%) stated enough Agreed, 216 respondents (43.9%) agreed, and 79 respondents (16.31%) who stated strongly agree. The average score is 3.59 on a scale of 5, or above a sufficiently agreeable value, indicating that the respondent agrees that the management facilitates the development of the system.

The fifth question is that the management facilitates in solving problems in the system, from 492 respondents there are 6 respondents (1.2%) who stated strongly disagree, 49 respondents (10%) stated disagree, 134 respondents (27.2%) who Stated quite agree, 194 respondents (39.4%) agreed, and 109 respondents (22.2%) who stated strongly agree. The average score is 3.71 on a scale of 5, or above a sufficiently agreeable value, indicating that the respondent agrees that the management is facilitating the settlement of the problem in the ERP system.

The sixth question is that the management often do informal relationships with employees, from 492 respondents there are 8 respondents (1.6%) who stated strongly disagree, 48 respondents (9.8%) who stated disagree, 140 respondents (28.5% ) Stated quite agree, 207 respondents (42.1%) stated agree, and 88 respondents (17.9%) who stated strongly agree. The average score is 3.64 on a scale of 5, or above a sufficiently agreeable value, indicating that the respondent agrees that the management often has an informal relationship with the employee.

The seventh question is that the management know enough knowledge about the ERP system, from 492 respondents there are 17 respondents (3.5%) who stated strongly disagree, 50 respondents (10.2%) stated disagree, 132 respondents (26.8% %) Stated quite agree, 203 respondents (41.3%) agreed, and 90 respondents (18.3%) who stated
strongly agree. The average score is 3.61 on a scale of 5, or above a sufficiently agreeable value, indicating that the respondent agrees that the management has sufficient knowledge of the ERP system.

The eighth question is that the management has the idea of innovation of ERP system development, from 492 respondents there are 17 respondents (3.5%) who stated strongly disagree, 56 respondents (11.4%) stated disagree, 119 respondents (24.2%) Stated quite agree, 201 respondents (40.9%) stated agree, and 99 respondents (20.1%) who stated strongly agree. The average score is 3.63 on a scale of 5, or above a sufficiently agreeable value, indicating that the respondent agrees that the management has the idea of innovating the development of an ERP system.

The ninth question is that management provides the budget for the training, from 492 respondents there are 9 respondents (1.8%) who stated strongly disagree, 41 respondents (8.3%) who stated disagree, 130 respondents (26.4%) who Stated quite agree, 200 respondents (40.7%) agreed, and 112 respondents (22.8%) who stated strongly agree. The average score is 3.74 on a scale of 5, or above a sufficiently agreeable value, indicating that the respondent agrees that the management provides the budget for the training.

The tenth question is that management provides budget for ERP system development, from 492 respondents there are 13 respondents (2.6%) who stated strongly disagree, 35 respondents (7.1%) stated disagreed, 117 respondents (23.8%) Stated quite agree, 212 respondents (43.1%) stated agree, and 115 respondents (23.4%) who stated strongly agree. The average score is 3.77 on a scale of 5, or above a sufficiently agreeable value, indicating that the respondent agrees that the management provides the budget for the development of the ERP system.

The top management support variables consist of 10 questions with minimum, maximum, and mean respondent values as table 4.

Table 3. Minimum Value, Maximum Value and Mean Respondent's Answer to Top Management Support Variables (N=492)

<table>
<thead>
<tr>
<th>Top Management Support Variables (N = 492)</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMP</td>
<td>492</td>
<td>20.00</td>
<td>48.00</td>
<td>36.5142</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>492</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 shows that the respondent’s answer to the 10 questions to measure the top management support variables obtained the minimum value is 20, and the maximum value is 48, and the mean value is 36.51. The mean value will be analyzed to determine the reflection of the mean
value into 5 (five) predetermined categories. Each category is calculated using a predetermined formula, taking into account the value of the maximum drinking range, the width of the spreading distance, the theoretical mean, and the deviation unit.

The minimum ranges can be known: number of questions multiplied by one (minimum range), and number of questions multiplied by five (maximum range). Mathematically the minimum span value = 10 x 1 = 10, and the maximum range = 10 x 5 = 50. So the wide spacing distance is the maximum range minus the minimum span, ie = 50 - 10 = 40.

The theoretical mean (μ) is calculated by the formula: (number of questions) multiplied (sum of item question scores) divided (the respondent's answer category), thus μ = 10 x (1 + 2 + 3 + 4 + 5) / 5 = 30. Unit Deviation (σ) is calculated by using the formula: (broad spacing distance) divided (six parts), thus σ = 40/6 = 6.67. The result of categorization calculation can be explained as table 4.

<table>
<thead>
<tr>
<th>No.</th>
<th>Formula</th>
<th>Result</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>mean ≤ (μ-1,5σ)</td>
<td>Mean ≤ 19,99</td>
<td>Very Good</td>
</tr>
<tr>
<td>2</td>
<td>(μ-1,5σ) &lt; mean ≤ (μ-0,5σ)</td>
<td>19,99 &lt; mean ≤ 26,66</td>
<td>Not Good</td>
</tr>
<tr>
<td>3</td>
<td>(μ-0,5σ) &lt; mean ≤ (μ+0,5σ)</td>
<td>26,66 &lt; mean ≤ 33,33</td>
<td>Good Enough</td>
</tr>
<tr>
<td>4</td>
<td>(μ+0,5σ) &lt; mean ≤ (μ+1,5σ)</td>
<td>33,33 &lt; mean ≤ 40,01</td>
<td>Good</td>
</tr>
<tr>
<td>5</td>
<td>(μ+1,5σ) &lt; mean</td>
<td>40,01 &lt; mean</td>
<td>Very good</td>
</tr>
</tbody>
</table>

Source: Primary data processed (March, 2016)

The mean value for the user satisfaction variable as Table 4.23 is 36.51, the value falls within the category range 33.33 < mean ≤ 40.01, so it can be explained that respondent's perception towards the top management support variable on the implementation of ERP of Higher Education in East Java is good.

CONCLUSION

Top management support in the implementation of college ERP in East Java in general is good. The form of management support that has the greatest mean value is the availability of budget is sebesaar 3.77. This suggests that the availability of budget provided by management is imperative, and has the strongest influence over other top management
support indicators. The results of the analysis prove that the support of
top management strengthens the influence of system quality on use in the
implementation of college ERP in East Java. So it can be concluded that
the inconsistency of previous research results about the effect of system
quality on use influenced other variables, and one of the other variables
that is the support of top management. Top management support in the
implementation of college ERP in East Java strengthens the influence of
system quality on user satisfaction. This may explain that the
inconsistency of previous research results about the effect of system
quality on user satisfaction is influenced by other variables, and one of the
other variables is top management support.

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