Effect of Information Waste and Technostress on Users Satisfaction and Productivity (Study on Users of Academic Information System (SIMAK) in STMIK El Rahma Yogyakarta)

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Effect of Information Waste and Technostress on Users Satisfaction and Productivity (Study on Users of Academic Information System (SIMAK) in STMIK El Rahma Yogyakarta)

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Abstract. *The Academic Information System produces information on academic services. The existence of information that is not in accordance with the needs of users and the use of technology that results in users experiencing pressure in work affects user satisfaction and user productivity. The purpose of this study is : 1. To examine the effect of information waste on user satisfaction and productivity. 2. To test the influence of technostress on user satisfaction and productivity. 3. To test the effect of user satisfaction on productivity. Samples in the study amounted to 80 which were distributed to users of STMIK El Rahma Yogyakarta's academic information system (SIMAK), which consisted of all lecturers, employees who used and developed SIMAK and students. The distribution of questionnaires was carried out directly to respondents with paper media. Data Analysis Method using Partial Least Square (PLS) 3.0. The results of the study are as follows: 1. There is a positive and significant influence of information waste on user satisfaction while on productivity there is a positive but not significant effect. 2. There is a positive but not significant effect on Technostress on user satisfaction and productivity. 3. There is a positive but insignificant user satisfaction with productivity*

1.Introduction

The application of information systems (SI) / information technology (IT) in an organization has three main objectives. First, improve work efficiency by automating various processes that manage information. Second, improve management effectiveness by satisfying information needs for decision making. Third, improve competitiveness or improve organizational competitive advantage by changing the style and way of doing business Ward, 2003)[1]. For universities, academic information systems have a significant impact on service. Higher Education Institutions also take an advantage of IT in performing academic services as their main activity. An academic organization has its own unique characteristics, so a form of required IS also has its own characteristics. However, Higher Education in Indonesia has not had a specific model of basic framework yet to build an IS Academic (Maria and Haryani, 2011)[2]. STMIK) El Rahma has built web based academic services (SIMAK) on 2009 (Ardiansyah,2013 p 1)[3].

2.Problem Statement

In reality, the application of information systems actually arises problems that keep away from achieving work efficiency, management effectiveness and strengthening competitiveness. The emerging problems are technical and non-technical.Mustakini (2007) distinguishes failure in the implementation of an information system into two aspects, namely technical aspects and non-technical

aspects. The first is the technical aspect, namely the aspect concerning the system itself which is the quality of the technical information syste Poor technical quality concerns many syntax errors, logical errors, and even information errors. While the second aspect is non-technical aspects related to the perception of users of information systems that cause users to want or are reluctant to use information systems that have been developed[4].

3.Related Works

Previous research on SIMAK has evaluated the quality of the system, the quality of information, the quality of service and maturity of SIMAK towards satisfaction of users. The focus of this researc is more on the use of SIMAK users. Whereas this research is carried out to evaluate further the effect of information and technostress on the satisfaction of users and productivity that is more focused on employees who interact directly with SIMAK (Ardiansyah,2013).

Based on research (Palanisamy, 2001)[5], that user involvement and information waste have an effect on user satisfaction. Information waste is divided into 3 factors: 1. Priority of information systems, 2. Design of management information systems and, 3. Implementation of management information systems. The following is a picture of Palanisamy's research model:

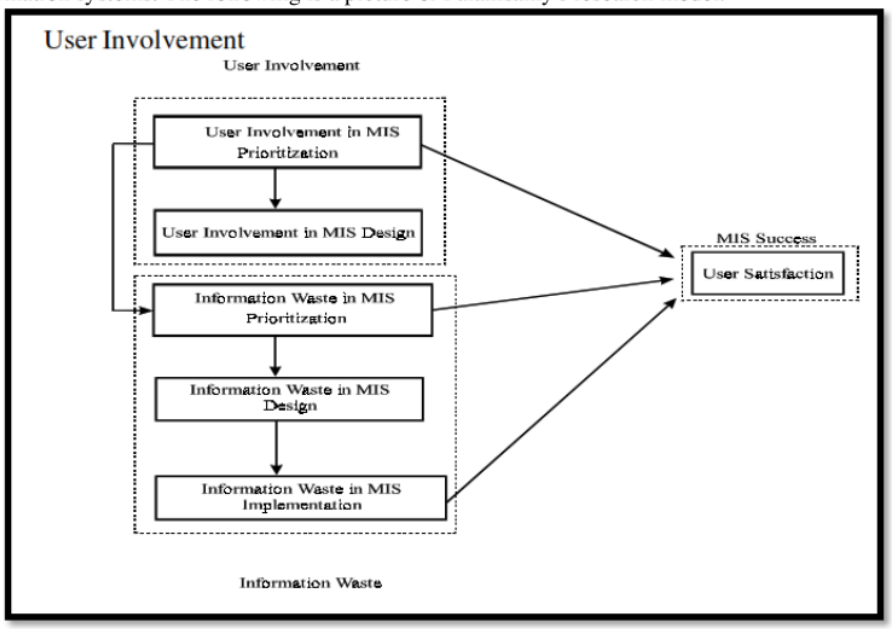

Figure 1. Palanisamy's Research Model *et al*. (2001)

Tarafdar, et. Al (2007)[6] uses the concepts of sociotechnical theory and role theory to explore the effects of stress created by information and computer technology, namely, technostress on the role of stress and individual productivity. The results show three things, namely that technostress increases the stress experienced by individuals in organizations, technostress is inversely proportional to the effect on productivity and failure to manage t impact of stress using computer technology can offset the expected increase in productivity, and a positive relationship between technostress and additions the role of stress as a new concept challenge to analyze the relationship between technology and the role and structure of the organization. The following is figure 2. is Tarafdar's research model, et.al (2007).

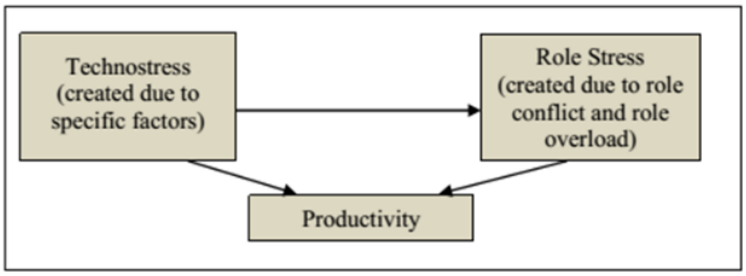

Figure 2. Tarafdar's Research Model, *et al*. (2007)

The researcher was interested in developing the research model of Palanisamy and Tarafdar entitled The Effect of Information Waste and Technostress on User Satisfaction and Productivity. (Study on users of the Academic Information System (SIMAK) STMIK El Rahma Yogyakarta).

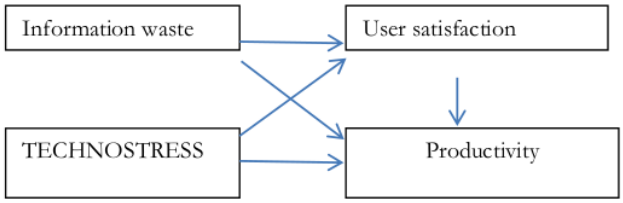

Figure3. Research Model

3.1. Information Waste on Information System Priorities

Information system waste is the output of information systems, the more unwanted, unnecessary or improper input processes and / or businesses that are useless or have the potential to cause information disposal (Palanisamy, 2001, p. 75).

Palanisamy (2001, p. 76) explains that "information system priorities are viewed differently by users, designers, top management and external consultants. Information system users care more about what information systems departments do than they do ". On the other hand, information system staff complained about not having a sense of care about the priority of user interests. The priority of information system staff is given because there are financial advantages in determining information system projects.

3.2 Information Waste on Information System Design

Furthermore, information waste related to information system design is caused by (a) users do not understand what they need (b) users understand their needs but cannot explain and (c) information technology is not able to understand needs clearly (Palanisamy, 2001, p.77)

3.3. Information waste on the implementation of information systems

The implementation of information systems is also a cause of waste when innovation is compatible with existing systems, as stated by Palanisamy(2001, p.77),"compatibility is defined as" the degree to which innovation is considered consistent with existing values, past experiences and potential needs "(Rogers, 1983) . When developing information systems becomes incompatible with existing hardware and software, the system is less useful. Surveys using the Decision Support System (DSS) in Taiwan show that organizations not using DSS are caused by organizations lacking DSS technology (Ching-Cha et al. 1992). The development of a Personal Computer-based Data Base Management System (DBMS) which has been user-friendly for the past ten years has replaced the DBMS based on mainframe company information systems. However, only 5 percent of respondents

surveyed used a PC-based DBMS, and 60 percent used a mainframe-based DBMS namely. IDMS and DB2 (Boston, 1997) because most existing information systems are based on mainframes. While user satisfaction with mainframe-based systems continues to increase, some organizations are shifting to using UNIX and Windows NT servers because of an increase in computing costs using mainframes.

3.4. Technostress

The term technostress was created in 1984 by clinical psychologist Craig Brod, who described it as a modern disease caused by a person's inability to cope with or handle computer information technology in a healthy way. Increased stress in a computerized work environment is caused by a heavier workload (Aborg and Billing, 2003). In the organizational context, the factor that causes technostress is the effort of individuals to strive to keep abreast of computer technology developments and related changes in physical, social, and cognitive needs in their use. Results from Technostress such as dissatisfaction, fatigue, anxiety, and forced labor, lead to negative effects on individual productivity (Nelson and Kletke, 1990). Research conducted by (Tarafdar, *et.al*. 2007) produces analysis and instruments regarding technostress. Technostress reduces individual productivity at work.

The technostress condition includes 5 (five) things, that end users face stress related to the use of computer technology in their organizations are: 1. Technological overload (Techno-overload), describes a situation where the use of computer technology forces users to work faster and longer. 2. Technological invasion, describes the invasive effect of using computer technology in terms of creating a situation where the user can potentially be contacted at any time. 3. Technological complexity, illustrates cases where the complexity associated with using computer technology makes users feel their skills are inadequate forcing them to spend time and effort in learning and understanding various aspects of using computer technology. 4. Techno-Insecurity, related to situations where users feel threatened about losing their jobs with automation resulting from the use of new computer technology or because other people have a better understanding of the use of computer technology. 5. Techno-uncertainty, referring to the context in which continuous changes to computer technology and computer technology upgrades upset users and created uncertainty for them because they were worried that they would continually learn and educate themselves with the use of new computer technology.

3.5 User Satisfaction

Doll and Torkzadeh (1988, p. 261)[7] End User Computer Satisfaction (EUCS), that is, end-user satisfaction is conceptualized as the tendency of someone who interacts directly with certain computer applications. End-user satisfaction can be evaluated both in terms of the role of the main user and the secondary user.

3.6. Productivity

Research conducted by Cooper, et al. (2001)[8] found that one of the factors that impose stress is technology. The consequences of stress include low productivity, workplace dissatisfaction, lack of work involvement, and poor job performance.

4.Methodology

All exogenous and endogenous variables in this study are latent variables. Latent variables are abstract concepts that cannot be measured directly, but are determined or formed by several indicators that are in accordance with their definition. Indicators valuable in this research basic on Palanisamy et.al 2001, Tarafdar et.al 2007, Torkzadeh and Doll (1999)[9].

This research includes explanatory research with a quantitative approach. Explanatory research is research that seeks to explain causal relationships between variables through testing hypotheses. Quantitative research is basically an observation that involves a certain characteristic, in the form of calculations, numbers or quantities. This quantitative research is based on the calculation

of percentages, averages, chi squares, and also other statistical calculations. (Moleong, in Hasibuan, 2007, h 126)[10].

The research data is taken from primary data sources. Primary data, according to Umar (2005 p. 99)[11] is data obtained from the first source of either individuals or individuals that is usually done by researchers. Primary data in this study is the results obtained from answers given by respondents through questionnaires given by researchers to respondents.

The population of this study was the users of the Academic Information System (SIMAK) at STMIK El Rahma Yogyakarta. The sample selection method is purposive sampling method, which is a sampling method based on certain criteria (Sekaran, 2003)[12]. The population in this study was the staff of the academic section consisting of Assistant Chief 1, Head of Study Program, Lecturers and Employees of Academic Affairs at STMIK El Rahma Yogyakarta.

Questionnaires were given to SIMAK users. The sampling method used is a non-random sampling method. Non-random sampling is carried out if all elements of the population do not necessarily have the same opportunity to be selected as members of the sample, for example there are parts of the population that are deliberately not used as members of the sample representing the population.

4.1.Research Empiric Model

The empirical model is a model used to test hypotheses using data. The coefficients in the empirical model show a causal relationship between variables. These causal relationships show the hypotheses to be tested.

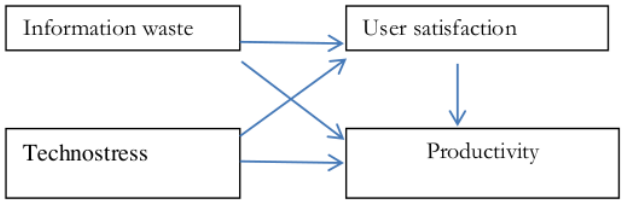

Figure 4. Research Empiric Model

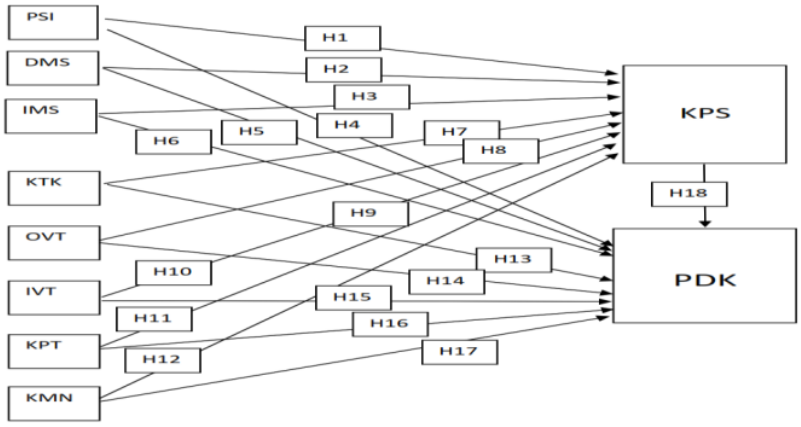

Figure 5. Hypotheses Model

4.2.Research Model Testing

Evaluation of the PLS model is done by evaluating the outer model and inner model. The path analysis model of all latent variables in PLS consists of three sets of relationships:

1. Inner model that specifies the relationship between latent variables (structural model)

2. Outer model that specifies the relationship between a latent variable and an indicator or measurement model (measurement model)
3. Weight relation in which the value of the case of latent variables can be estimated (Ghozali, 2008)[13].

5. Results and Discussion

5.1.Measurement Model Testing (Outer Model)

Based on the construct validity test, using SmartPLS 3.0 software (Jogiyanto and Abdillah,2009)[12], the results of the first outer loading still have a value of loading factors below 0.7, namely PSI 1, PSI 2, PSI 3, PSI 4, PSI 5, DMS 2, DMS 5, DMS 7, IMS 1, IMS 6, IMS 7, KPT 2, KPT 3, OVT 1, OVT 2, OVT 4, IVT 2, KMN 1 so that it must be dropped / removed from the model because it is not yet valid. After the item items dropped / deleted shows that all indicators used in the study have a loading factor value above 0.70 so that all indicators are so valid, as in Figure 6 below.

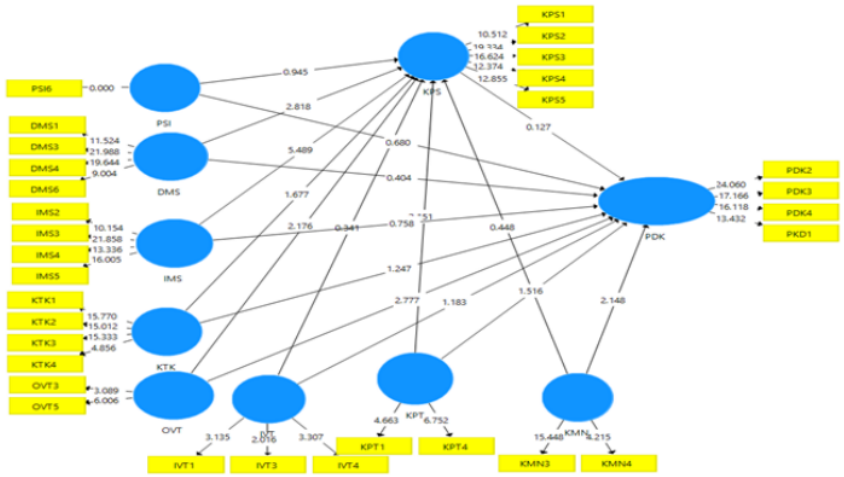

Figure 6. Output Measurement Model

5.2.Structural Model Testing (Inner Model)

In table 1 shows that the value of R-Square for the User Satisfaction variable is 0.80 which means that the Customer Satisfaction variable is explained by the Information and Technostress Waste variable of 80% and the remaining 20% is explained by other variables outside of this study. The value of R-Square for Productivity variables is 0.43, which means that the Productivity variable is explained by the Information Waste variable, Technostress and User Satisfaction of 43% and the remaining 57% is explained by other variables outside of this study.

Table 1. R Square

Matrix | R Square

	R Square
KPS	0.802
PDK	0.435

5.3.Hypothesis Testing Results

The results of the calculation of variable relationships with PLS 3.0 software are as follows:

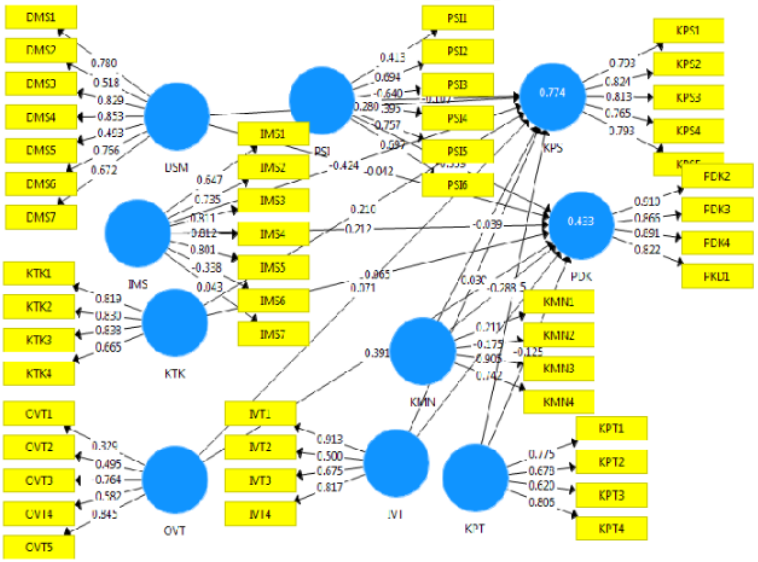

Figure 7. Research Results Model

The relationship between the variables as proposed by the hypothesis can be explained as follows:

Testing Hypothesis 1 aims to determine whether there is a positive relationship between Information Waste on Information System Priorities (PSI) on User Satisfaction (KPS) Academic Information System (SIMAK) STMIK El Rahma Yogyakarta. From the results of data processing it was found that the value of the path coefficient between Information Waste on Information System Priority (PSI) was 0.080 with a t-satistic value of 0.910. At the 0.05 level of significance (t-statistics> t-table 1.64) then hypothesis 1 which states that Information Waste on Information System Priorities (PSI) has an effect on User Satisfaction (KPS) is supported and significant.

Testing Hypothesis 2 aims to determine whether there is a positive relationship between Information Waste on Information System Design (DMS) on User Satisfaction (KPS) Academic Information System (SIMAK) STMIK El Rahma Yogyakarta. From the results of data processing, it was found that the value of the path coefficient between Information Waste in Information System Design (DMS) was -0,300 with a statistical value of 2,990. At the 0.05 level of significance (t-statistics> t-table 1.64) then hypothesis 2 which states that Information Waste in Information System Design (DMS) has an effect on User Satisfaction (KPS) is supported and significant.

Testing Hypothesis 3 aims to find out whether there is a positive relationship between Information Waste on Information System Implementation (IMS) on User Satisfaction (KPS) Academic Information System (SIMAK) STMIK El Rahma Yogyakarta. From the results of data processing, it was found that the value of the path coefficient between Information Waste on Information System Implementation (IMS) was -0.529 with a t-statistical value of 5.341. At the 0.05 significance level (t-statistics> t-table 1.64) then hypothesis 3 which states that Information Waste on Information System Implementation (IMS) has an effect on User Satisfaction (KPS) is supported and significant.

Testing Hypothesis 4 aims to determine whether there is a positive relationship between Information Waste on the Priority of Academic Information System (PSI) on Productivity (PDK). From the results of data processing it was found that the value of the path coefficient between Information Waste on Information System Priority (PSI) was 0.095 with a t-satistic value of 0.731. At the 0.05 level of significance (t-statistics> t-table 1.64) then hypothesis 4 which states that Information Waste on Information System Priorities (PSI) has an effect on Productivity (PDK) is supported but not significant.

Testing Hypothesis 5 aims to find out whether there is a positive relationship between Information Waste in Academic Information System Design (DMS) on Productivity (PDK). From the results of data processing, it was found that the value of the path coefficient between Information Waste in Information System Design (DMS) was -0.081 with a t-value of 0.400. At the 0.05 level of significance (t-statistics> t-table 1.64) then hypothesis 5 which states that Information Waste in Information System Design (DMS) has an effect on Productivity (PDK) is supported but not significant.

Hypothesis 6 testing aims to find out whether there is a positive relationship between Waste Information on the Implementation of Academic Information Systems (IMS) on Productivity (PDK). From the results of data processing, it was found that the value of the path coefficient between Information Waste on Information System Implementation (IMS) was 0.171 with a t-statistical value of 0.746. At the 0.05 level of significance (t-statistics> t-table 1.64) then hypothesis 6 which states that Information Waste on Information System Implementation (IMS) has an effect on Productivity (PDK) is supported but not significant.

Testing Hypothesis 7 aims to determine whether there is a positive relationship between Technostress because of Technology Uncertainty (CEC) on User Satisfaction (KPS) Academic Information System (SIMAK) STMIK El Rahma Yogyakarta. From the results of data processing, it was found that the path coefficient value between Technostress because of Technology Uncertainty (CEC) was 0.219 with a t-statistical value of 1.536. At the 0.05 level of significance (t-statistic> t-table 1.64) then hypothesis 7 which states that Technostress because of Technology Uncertainty (CEC) has an effect on User Satisfaction (KPS) is supported but not significant.

Hypothesis 8 testing aims to find out whether there is a positive relationship between Technostress because of Overload Technology (OVT) on User Satisfaction (KPS) Academic Information System (SIMAK) STMIK El Rahma Yogyakarta. From the results of data processing, it was found that the path coefficient value between Technostress because of Overload Technology (OVT) was 0.162 with a t-satistic value of 2.258. At the 0.05 significance level (t-statistics> t-table 1.64) then hypothesis 8 which states that Technostress because of Overload Technology (OVT) has an effect on User Satisfaction (KPS) is supported and significant.

Testing Hypothesis 9 aims to determine whether there is a positive relationship between Technostress due to Technology Invasion (IVT) on User Satisfaction (KPS) Academic Information System (SIMAK) STMIK El Rahma Yogyakarta. From the results of data processing it was found that the path coefficient value between Technostress due to Technology Invasion (IVT) was 0.021 with a t-satistic value of 0.345. At the 0.05 level of significance (t-statistics> t-table 1.64) then hypothesis 9 which states that Technostress due to Invasion of Technology (IVT) has an effect on User Satisfaction (KPS) is supported but not significant.

Testing Hypothesis 10 aims to find out whether there is a positive relationship between Technostress because of the Complexity of Technology (KPT) for User Satisfaction (KPS) Academic Information System (SIMAK) STMIK El Rahma Yogyakarta. From the results of data processing, it

was found that the path coefficient value between Technostress because of Technology Complexity (KPT) was 0.134 with a t-satistic value of 1.983. At the 0.05 level of significance (t-statistics> t-table 1.64) then hypothesis 10 which states that Technostress because of Technology Complexity (KPT) influences User Satisfaction (KPS) is supported and significant.

Testing Hypothesis 11 aims to determine whether there is a positive relationship between Technostress because of Technological Insecurity (KMN) on User Satisfaction (KPS) Academic Information System (SIMAK) STMIK El Rahma Yogyakarta. From the results of data processing it was found that the path coefficient value between Technostress because of Technology Insecurity (KMN) was equal to -0.035 with a t-statistical value of 0.426. At the 0.05 level of significance (t-statistics> t-table 1.64) then hypothesis 11 which states that Technostress because of Technological Insecurity (KMN) has an effect on User Satisfaction (KPS) is determined

6. Conclusions and Suggestions

6.1.Conclusions

a. Regarding the effect of Information Waste on SIMAK User Satisfaction. Information Waste on Information System Priorities (PSI), Information System Design (DMS) and Information System Implementation (IMS) has an effect on User Satisfaction (KPS).
b. Regarding the effect of Information Waste on Productivity. Information Waste on Information System Priorities (PSI), Information System Design (DMS) and Information System Implementation (IMS) have an effect on Productivity (PDK) but are not significant.
c. Regarding the influence of Technostress on SIMAK User Satisfaction. Technostress due to Technology Uncertainty (CEC), Overload Technology (OVT), Technology Invasion (IVT), Technology Complexity (KPT), Technology Insecurity (KMN) have an effect on User Satisfaction (KPS) but are not significant .
d. Regarding the influence of Technostress on Productivity. Technostress because the Technology Uncertainty (CEC) has an effect on Productivity (PDK) is supported but not significant. Technostress due to Overload Technology (OVT), Technology Invasion (IVT), Technology Complexity (KPT), Technology Insecurity (KMN) has an effect on Productivity (PDK) supported and significant.
e. Regarding the influence of SIMAK User Satisfaction on Productivity, the results of the study indicate that Use Satisfaction (KPS) has an effect on Productivity (PDK) which is supported but not significant.

6.2.Suggestions

a. The results of this study can be used to provide information about Information Waste because Priority Information System Development Factors, Information System Design and Information System Implementation affect User Satisfaction, so the development of information systems must consider these factors in order to achieve user satisfaction.
b. While Information Waste has no significant effect on Productivity for the wearer. It can be understood that Information System Priority, Design and Implementation of Information Systems does not encourage work productivity, so information system development policy makers must think of ways to increase productivity beyond the information waste factor.
c. Technostress because of Overload Technology (OVT) and Technology Complexity (KPT) has an effect on User Satisfaction (KPS), so information system developers should pay attention to simplicity and ease of use in the development of information systems. Whereas Technostress caused by Technology Uncertainty (CEC), Technology Invasion (IVT), Technology Insecurity (KMN) has an effect but not significantly on User Satisfaction. Development of information systems can increase user satisfaction by paying attention to these factors.
d. Technostress has a significant effect on productivity, especially on the factors of Overload Technology (OVT), Technology Invasion (IVT), Technology Complexity (KPT), Technology

Insecurity (KMN) so that the development of information systems takes into account these factors to increase employee productivity. While the Technology Uncertainty factor has no significant effect. Information system developers can make other factors to increase employee productivity.

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