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Factors Affecting Work Performance when using Information Technology Applications

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Abstract

To research factors that affect employee work efficiency when using IT applications, the author uses qualitative and quantitative research methods. Through the investigation of 221 survey questionnaires, subjects are officers and employees working at the Air Defense Technical Institute - Air Force; then synthesize and process data on SPSS software. The results show that the factor Satisfaction impacts Work Performance and the factors of Service

Quality, Information Quality, and System Quality impact User Satisfaction. Service quality is the factor that has the greatest influence on user satisfaction (Beta = 0.445 and Sig. = 0.000). Satisfaction has a significant impact on work performance. Institute of Technology Air Defense - The Air Force needs to build a capable support team to improve service quality and user satisfaction, thereby improving the work efficiency of officers.

Keywords: Work Efficiency, Information System, Information Technology Application

1. Introduction

Participating in the digital transformation plan, the Air Defense Technical Institute - Air Force strives to find solutions to deploy and use information systems to improve the work efficiency of officers and employees (referred to as employees) are using Information Technology (IT) applications at the unit. The article aims to determine the factors and levels that affect employee work efficiency when using IT applications at the unit, with the item paper after:

Propose a model of factors affecting employee work efficiency when using IT applications and explain the model;

Form a survey questionnaire based on the proposed model for the collection target who are employees at the unit;

Test the model and determine the influence of factors on employee work efficiency when using IT applications at the unit;

Propose measures to improve employee work efficiency when using IT applications at the unit.

To achieve the proposed research goals, the author conducted a survey for a target group of officials and employees using information technology applications working at the Air Defense Technical Institute - Air Force. These are people who directly use and interact with the unit's information system infrastructure, so these are suitable, interesting, and feasible subjects for research data.

2. Research Overview

A system is a set of elements organized and “*linked together into*” a unified whole to perform one or more certain functions or goals.

Job performance is an important concept in human resource management and organizational studies. It is often defined as the achievement of goals and standards set by the organization (Eisele *et al.*, 2011)^[7] and is evaluated by “*comparing the results achieved with previously set goals*”, after an employee's work experience.

Satisfaction is often measured through evaluation of the user experience, work performance, and convenience of the system. The “*satisfaction*” of information system users can influence their continued use of the system and contribute to the overall success of the project or organization. Mason added that the method of evaluating the effectiveness of information systems can be used to identify different aspects to “*measure the degree of impact*” on the output.

3. Research Hypothesis

Based on DeLone's model, the author proposes the following research hypotheses:

Hypothesis 1: Perception of Information Quality has a positive impact on User Satisfaction. Information quality is a reflection of the output of an information system such as accuracy, timeliness, and completeness, which is assessed to affect satisfaction.

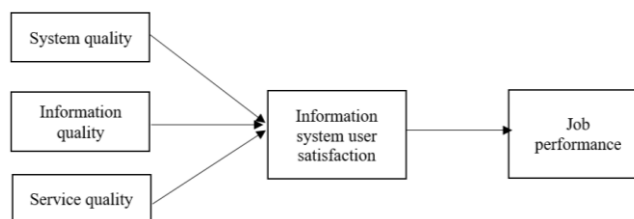
Hypothesis 2: Perception of System Quality has a positive influence on User Satisfaction. System quality is a factor that refers to technical capabilities such as ease of use, response time, reliability, and system availability.

Hypothesis 3: Perception of Service Quality has a positive impact on User Satisfaction. Service quality is an important variable to measure from the perspective of the difference between perceptions and expectations. In information technology applications, service quality is related to users' "satisfaction" through their experiences (Wang *et al.*, 2008; Teo *et al.*, 2008) [16, 11].

Hypothesis 4: User satisfaction has a positive effect on Work Performance. Effectiveness is the most important measure of success when evaluating an information system because it is reflected through the benefits obtained from use.

IDEA Usage intention is a behavioral and attitudinal aspect of employees and is difficult to measure. The use of IT applications to serve the professional work of staff at the Air Defense Technical Institute - Air Force is an "order" (Nam, 2019) that must be followed. Therefore, within the scope of

this research, the author proposes not to use the factor "Intention to use" of employees as in DeLone's original model.



Source: Model applied from research by DeLone & McLean (2003) [13]

Fig 1: Proposed research model

3. Research Methods

To form measurement scales from research hypotheses, the author inherits and synthesizes previous research using quantitative methods; Under the guidance of a group of experts, conduct quantitative research with the found scales; through methods check Determine Cronbach's Alpha, fraction exploratory factor analysis with KMO test and Bartlett's Test to evaluate the scales; Finally, test the theoretical model using correlation analysis and regression analysis.

4. Research Results

❖ Regression analysis between independent variable and intermediate variable:

Table 1: Results of regression analysis between the independent variable and intermediate variable

Model	Unstandardized regression coefficients		Standardized regression coefficients	t	Sig	Collaborative value	
	B	Std. Error	Beta			Tolerance	VIF
Constant	1.011	0.274		3.693	0.000		
System quality	0.162	0.047	0.193	3.434	0.001	0.874	1.144
Information quality	0.197	0.063	0.180	3.134	0.002	0.841	1.189
Service quality	0.446	0.058	0.445	7.630	0.000	0.816	1.225

Dependent variable: Satisfaction

Source: Author's calculation results, 2024

The results from the table show that there are 03 variables (System quality, Information Quality, and Service quality) with a Sig coefficient of less than 0.05 that affect the intermediate variable Satisfaction. Besides, the VIF coefficients of the variables all have values less than 10, so multicollinearity will not occur. The Beta indexes of the variables have values greater than 0, so the independent variables all have a positive impact on the intermediate variable.

The specific standardized linear regression equation is as follows:

$$\text{Satisfaction} = 0.193 * \text{System quality} + 0.180 * \text{Information quality} + 0.445 * \text{Service quality}$$

❖ Regression analysis between the mediating variable and dependent variable

Table 2: Results of regression analysis between mediator and dependent variable

Model	Unstandardized regression coefficients		Standardized regression coefficients	t	Sig
	B	Std. Error	Beta		
Constant	2.773	0.239		11.594	0.000
Satisfaction	0.399	0.058	0.424	6.921	0.000

Dependent variable: Job performance

Source: Author's calculation results, 2024

The results show that the variable "Satisfaction" with Sig coefficient < 0.05 has an influence on the variable "Work efficiency". Besides, the VIF coefficients of the variables all have values less than 10, so multicollinearity will not occur. The Beta indexes of the variables have values greater than 0,

so the variable "Satisfaction" has a positive impact on work efficiency.

The specific standardized linear regression equation is as follows:

Work efficiency = 0.424 * Satisfaction

5. Conclusion

The results show that all hypotheses are supported and the level of significant influence of factors on employee work efficiency when using IT applications at the Air Defense Technical Institute - Air Force, specifically as follows:

First, service quality is the factor that has the biggest impact on employee satisfaction, showing that they are most concerned with the support of the information system operations team. In the process of using IT applications, employees may encounter obstacles due to personal qualifications and software limitations caused problems when they used it when they couldn't handle it. Therefore, the unit needs to build a support team to improve user experience. The results of this study are also similar to previous studies (Quan, 2020; Hue, 2018) ^[6, 8] in terms of influencing factors and the importance of factors.

Second, system quality and information quality are also shown to be a factor that has a positive impact on satisfaction, thereby indirectly affecting work efficiency. This is also a notable aspect for unit leaders to focus on maintaining the stability of the information system and perfecting the reliability of the information and the system.

Finally, information system user satisfaction has a strong impact on work efficiency, showing a strong connection between user perception and work efficiency. This implies that when employees using IT applications are satisfied with the information system they tend to perform their work more effectively.

Regarding limitations of the study: The study used the survey method to only take samples at the Air Defense Technical Institute - Air Force, so limitations in generality cannot be avoided. In fact, military units are large-scale, diverse, and distributed throughout the country. Although, of course, dense the situation in the field requires high discipline and absolute confidentiality, while the author's influence on relevant units in the area is limited, so it is not possible to survey a variety of collected samples. Therefore, new research in the future can expand research in other units in Vietnam.

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