Analysis of Use E-Filing Information System Directorate General of Tax Using HOT Fit Method on Human Variables

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ABSTRACT

Tax is a contribution from people to the state that must be done either as an individual or an organization. Use of information technology on the taxation system in Indonesia one of them is an electronic tax reporting system called E-Filing. E-Filing information system is a system for submitting electronic notification letters. This system is online and real time that can be accessed via internet on Directorate General of Tax website. The research aims to analyze benefits for users that using E-Filing information system Directorate General of Taxation. This analysis will use HOT Fit method which has an important component consisting of Human, Organization, Technology and relationship suitability as a determinant of success using an information system (Net Benefit). Data collection will use a questionnaire with a Likert scale. The analysis technique will use Structural Equation Modeling (SEM) and the data analyzed using the SmartPLS 3 application.

Keywords: Information System, Website, E-Filing, HOT Fit, SEM, SmartPLS, Likert Scale.

1. INTRODUCTION

Tax is a contribution from people to the state that must be done either as an individual or an organization. Tax is useful for state development that impact in people's welfare. The largest state revenue is obtained from tax revenue. People who are already taxpayers are obliged to report a notification Letter. Awareness of taxpayers are very important to increase the contribution of state revenue. Based on Law No. 28 of 2007 in article 3 explains that each taxpayer must fill out a notification letter correctly, completely and clearly in Indonesian by using Latin letters, Arabic numerals, Rupiah units, and signing and submitting them to the office of Directorate General of Tax where the taxpayer is registered or confirmed or other places determined by director general of tax [1].

In increasing contribution of tax revenue, Directorate General of Tax as an institution that manages tax is required to always adjust needs of existing society by facilitating tax reporting services for the community. The existence of these demands made Directorate General of Tax innovate in reform of information technology-based tax systems. Use of information technology on the taxation system in Indonesia, one of which is marked by creation of an electronic tax reporting system called E-Filing.

Directorate General of Tax efforts to encourage use of technology to improve tax administration services also produced good results. The number of Notification submitted through E-Filing in 2017 reached 70%, a significant increase compared to previous year which only reached 59%. For this reason, Directorate General of Tax will continue to improve ease of administration, especially electronic services, such as E-Filing and increase capacity and capability of technology system infrastructure and quality of taxation database [2].

In some previous studies such as research of Erlirianto, et al., (2016), Alam, et al., (2016) [3], Yusof and Arifin (2016) [4], the HOT Fit method is widely used for evaluation of Management Information Systems (MIS) in health sector. Other studies evaluate MIS using HOT Fit method in the field of government as in evaluation of regional property MIS studied by Erimalata (2016) [5] and employment licenses examined by Rozanda and Masriana (2017) [6]. System evaluation using HOT Fit method has been done a lot because it provides results on how far benefits of a system to users are evaluated in terms of users that is human, organization or environment and technology. This study focuses on evaluating the E-Filing information system which is a public system where evaluation is carried out on users of E-Filing information system. The HOT Fit method combines the elements of human, organization, technology, and the suitability of benefit relationship. This method can provide analysis results of information quality, system performance, social influence and facility conditions. Human component assesses information systems in terms of system usage and user satisfaction, organizational components namely organizational structure and environment, technology components assess information systems from system
quality, information quality and service quality. Based on discussion, the HOT Fit method is applied as an E-Filing information system analysis method to find out benefits for users after using the E-Filing information system owned by Directorate General of Tax. In previous research mentioned earlier, the SPSS application was used as processing of research data. There have not been many studies using the SmartPLS application as in Rozanda and Masriana (2017) research [6]. SmartPLS can describe suitability of relationship between human, organizational and technological elements that are in accordance with the HOT Fit model. Therefore, this study will use SmartPLS as a research data processing. E-Filing evaluation results using the HOT Fit method are expected to provide an evaluation in use of the E-Filing information system.

2. BASIC THEORY

Yusof et al. (2006) [7] provide a new framework that can be used to evaluate an information system called Human Organization Technology (HOT) Fit Model. This model places important components in the information system namely Human, Organization, Technology and suitability of relationship (Net Benefit). HOT Fit Model was originally developed from the incorporation of IS Success Model [8] and ITOrganization Fit Model proposed by Scott-Morton (1991) in Yusof et al (2006) [7] as a framework for evaluating Health Information System (HIS). IS Success Model is used to identify factors, dimensions and measurement indicators, while the ITOrganization Fit Model identifies relationship and suitability of concepts between human, technological and organizational factors. This model in Yusof and Yusuff's (2013) study [9] was used to measure use of information systems in public sector, namely measuring success of the Malaysian Government's e-government called Project Monitoring System (PMS). Yusof and Yusuff (2013) [9] suggested that human, technological and organizational factors are important components in use of information systems, where impact of the system is evaluated through overall Net Benefits.

The HOT Fit method in Figure 1 will be processed using one of the SEM models. In general, people use Structural Equation Modeling (SEM) to focus more on latent constructs in question, namely abstract psychological variables, such as "intelligence" or "attitude towards the brand" compared to manifest variables (indicators) used to measure these constructs. Measurement is considered difficult and prone to errors. With the error of modeling measurements that can occur explicitly, SEM users try to reduce estimates that cannot be used for relationship between latent constructs. Finally, SEM allows multiple measurements to be associated with a single latent construct.

SEM includes measurement of covariance matrix structure or also referred to as "covariance structure analysis". Once the model parameters have been estimated, the model produced by covariance matrix can then be compared with a covariance matrix derived from empirical data. If both matrices are consistent with each other, then the structural equation model can be considered an acceptable explanation for relationships between these measurements.
One of advantages SEM in Figure 2 is ability to create construct models as latent variable or variables that are not measured directly, but estimated in the model of measured variables, which are assumed to have a relationship with these variables, latent variables. This allows the model maker to explicitly know the non-reliability of a measurement in a model in which the theory allows structural relations between latent variables that are precisely made a model [12].

3. RESEARCH METHOD

Stages to get results of benefits analysis of forwarding the E-Filing information system in research framework which consists of stage problem identification, literature study, data collection, and method selection. The research framework can be seen in Figure 3.

In this study using analytical techniques for questionnaire data with SEM using the SmartPLS application. This application is widely used to analyze component-based SEM. SmartPLS is an alternative technique for variance-based SEM. This application was developed by the German Institute of Hamburg and can be downloaded free on the website www.smartpls.com. Partial Least Square (PLS) is an alternative method of analysis with Structural Equation Modeling (SEM) based on variance. Advantage of this method is that it does not require assumptions and can be estimated with a relatively small sample size. The tools used are SmartPLS 3 application specifically designed to estimate structural equations on a variance basis. Following is a display of the SmartPLS 3 application [13].

4. DISCUSSION

Questionnaire data that has been filled by 30 respondents was collected in the processing of Microsoft Excel data that was formed into CSV files (Comma-Limit Value). This CSV file is intended so that data can be imported or included in the SmartPLS 3 application. Questionnaire data containing indicators of the HOT Fit method variable will be localized in code form (Table 1) to facilitate data processing in SmartPLS 3.

Table 1: Questionnaire Data on CSV File

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Fig. 3. Research Framework Analysis of Benefits the E-Filing Information System on Human Variables

The SmartPLS 3 application will generate a hypothesis from the HOT Fit method. Analysis will show benefits the E-Filing information system on human variables. The data calculation process using the SmartPLS 3 application is shown in Figure 4.
The values contained in columns in Table 1 are values measured using a Likert scale. Values consist of points 1, 2, 3, and 4. Value 1 for assessment strongly disagrees with statement, value 2 for assessment disagrees with statement, value 3 for assessment agrees with statement, and value 4 for assessment strongly agrees with statement.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Element</th>
<th>Indicator</th>
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<tbody>
<tr>
<td>Human System Use</td>
<td></td>
<td>The use of E-Filing facilitates the process of finding information</td>
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<td></td>
<td></td>
<td>Using E-Filing helps your daily work</td>
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<tr>
<td></td>
<td></td>
<td>The use of E-Filing can help in decision making</td>
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<td></td>
<td></td>
<td>Users have expertise in using E-Filing information systems</td>
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<tr>
<td></td>
<td></td>
<td>Highly dependent on E-Filing in carrying out your work</td>
</tr>
<tr>
<td>User Satisfaction</td>
<td></td>
<td>Facilities and features in E-Filing are in accordance with needs</td>
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<tr>
<td></td>
<td></td>
<td>Users are not satisfied and need to develop and improve E-Filing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All features and functions that exist on E-Filing have been running as needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The resulting information is accurate according to needs</td>
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<tr>
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<td>Users are satisfied with the appearance of the E-Filing information system</td>
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<td></td>
<td>Overall E-Filing is in line with your expectations in helping your daily tasks</td>
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<tr>
<td></td>
<td>Easy to use</td>
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</table>

First step to start analysis of the E-Filing questionnaire data using SmartPLS 3 is to connect the latent variable with the indicator and connect the latent variables themselves. Indicator data will appear in the indicator working folder when data is successfully imported. Indicators that are connected to the same latent variable will be joined in 1 latent variable as an example, the selected indicator is PS1, PS2, PS3, PS4, and PS5 drawn / dragged into the worksheet, the latent variable will appear with 5 indicators. The indicator has same latent variable, the system user. The latent variables that are red are not yet connected to each other. The latent variables that have been connected to each other will change to blue so that each variable and indicator can be analyzed according to specified scheme.

HOT Fit method analysis has a direct and alternating path that connects variables with each other. The SmartPLS 3 application cannot make a back and forth pathway in 1 lane, so analysis will be carried out using 2 lane schemes. The first scheme is the scheme with connecting path between the latent variables with the arrow pointing to the right and the second path scheme, the scheme with connecting path between the latent variables and the arrow pointing to the left.

There are 3 analysis criteria for PLS, namely the outer model analysis, inner model analysis, and hypothesis testing. Outer model analysis is carried out to ensure that the measurement used is feasible to be used as a measurement (valid and reliable). Inner model analysis is done to ensure that structural models are built robustly and accurately. The analysis process for each scheme created can be done quickly by selecting Calculate contained in the menu bar. The choice of analysis used in the study is the PLS algorithm for analyzing the scheme in terms of outer and inner models and bootstrapping to analyze the scheme in terms of hypothesis testing.

PLS algorithm has two parameters, namely maximum iterations and stop criterion. Maximum iterations are parameters that represent the maximum number of iterations that will be used to calculate PLS results. It is recommended that the number of iterations listed is large enough (for example, 300 iterations) to ensure that the algorithm does not stop in the middle of process because the maximum number of iterations is reached but because the stop criterion parameter. Another parameter, stop criterion, is the PLS algorithm parameter that stops when changes in the outer weight between two consecutive iterations are smaller than the value of this stop criterion (or the maximum iteration number is reached). The value listed must be small. Setting the parameters for maximum iterations and stop criterion for research in accordance with default settings of the application is maximum iterations using 300 and stop criterion using 7.
The relationship scheme between latent variables that are formed is also carried out hypothesis testing. Hypothesis testing on the SmartPLS 3 application is done by bootstrapping. In bootstrapping, subsamples parameters in the study use default value of the application, which is 500. In bootstrapping, subsamples are made with randomly taken observations (with replacements) from the original data set. Stability of the results obtained is influenced by a large number of subsample (for example, 500) however, the larger number of bootstrapping subsamples will increase computation time. Bootstrapping can be run by selecting the start calculation button. Description of the next analysis process will be divided into two according to direction of the right and left arrows.

The scheme to be analyzed in advance is a scheme with the right arrow path latent variable. It was explained earlier that PLS algorithm will provide analysis results including analysis of the outer model and inner model. Outer model will analyze outside of the scheme, which specifies relationship between the latent variable and the indicator. Inner model will analyze the inner part of scheme that is relationship between latent variables is also value of the latent variable itself. Calculated values using the PLS algorithm will appear on the path (path coefficients and loading factors) and endogenous variables in the scheme. An endogenous variable is a variable that has the direction of an arrow in the variable.

Analysis of the outer model requires a reduction in some indicators that have a factor loading value below 0.7. Value of the loading factor is strongly recommended > 0.7 for confirmatory research. But the value stretched 0.6 - 0.7 is still acceptable for exploratory research. Results of the PLS algorithm still have a loading factor value < 0.6 so the indicator that has a value smaller than 0.6 needs to be removed because it will affect the AVE value. Indicators that are below the standard loading factor values are indicators KS3, KL1, PS4, KP1, KP2, SO2, SO4, and SO5. A total of 8 indicators will be removed from the PLS model relationship. The schematic display after several indicators are omitted and recalculated is shown in Figure 5.

Bootstrapping calculations generate hypotheses by specifying the values of T-Statistics and P Values. Hypothesis testing uses the T-Statistics criteria > T-table and the probability value (P Values). T-table seen in table t with alpha 5% t-table value is 1.96 and using alpha 5% then the value for P Values must be < 0.05. Figure 6 is result of the bootstrapping command calculation.

Results of data analysis were determined from hypothesis testing with 2 criteria consisting of T-Statistics > T-Tables with standard values used by T-Tables which are 1.96 and following criteria were determined from standard value of P Values < 0.05. These criteria are fulfilled so it can be interpreted that the hypothesis can be declared acceptable and has a positive effect. Figure 7 hypothesis with path to the right scheme:
Following is the result of data analysis from hypothesis testing:

H1: The path of relationship between latent variables of user satisfaction and benefits has a T-Statistics 2.31112 value and P Values value of 0.02123, that the T-Statistics value is greater than the T-Table value with a significant level of 95% is 1.96 and the value of P Values is fulfilled with a value below 0.05, means that the hypothesis is accepted and there is a positive influence between user satisfaction (KP) on benefits (M).

H2: The path of relationship between latent variables system use and user satisfaction has a T-Statistics value of 1.59431 and a P value of Values 0.11150, that the T-Statistics value is smaller than the T-Table value with a significant level of 95% is 1.96 and the value of P Values is not fulfilled with the value above 0.05, meaning that the hypothesis is rejected and does not have a positive effect between system use (PS) on user satisfaction (KP).

H3: The path of relationship between latent variables system use and the benefits has a T-Statistics value of 2.68220 and a P value of Values 0.00756, that the T-Statistics value is greater than the T-Table value with a significant level of 95% is 1.96 and the value of P Values is fulfilled with a value below 0.05, means the hypothesis is accepted and there is a positive influence between system use (PS) on benefits (M).

The next analysis is done by analyzing data with path scheme to the left, so that the HOT Fit method can be analyzed with the entire path. The steps taken are same as analyzing data with path scheme to the right, which begins with creating a latent variable that is connected to the other latent variables, but with a different path to the left.

This path with scheme towards the left does not involve variable elements of system quality and service quality. This variable element in the HOT Fit method does not have a path that leads to the variable elements of system quality and service quality being endogenous variables. The analysis can follow as previous step, with 3 stages consisting of analysis the outer model, inner model analysis, and hypothesis testing. First analysis is the inner model analysis stage by looking at the outer loading value of the latent variable path with an indicator that has a value below 0.6 to do an invalid indicator reduction.

Path values between latent variables with indicators that have values below 0.6 are PS4, KP1, KP2, SO1, SO2, SO4, SO5. These indicators will be removed from the path and the PLS algorithm calculation process is done again. Results of the PLS algorithm calculation with indicator reduction can be seen in Figure 8 below.

The next test is to test hypothesis in the SmartPLS 3 application by running bootstrapping command. Bootstrapping command has settings and keeps following previous steps without making changes, according to the bootstrapping settings of the SmartPLS application 3. Subsamples settings use a value of 500 and the other settings are not changed.

Bootstrapping calculations generate hypotheses by specifying the values of T-Statistics and P Values. Hypothesis testing uses the T-Statistics criteria > T-table and the probability value (P Values). T-table seen in table t with alpha 5% t-table value is 1.96 and using alpha 5% then the value for P Values must be < 0.05. Figure 9 is result of the bootstrapping command calculation.
Results of data analysis with path scheme to the left are same as results of data analysis with path scheme to the right, using 2 criteria consisting of T-Statistic values > T-Tables with standard values used T-Tables are 1.96 and the subsequent criteria are determined by the value standard P Values < 0.05. These criteria are fulfilled so it can be interpreted that the hypothesis can be declared acceptable and has a positive effect. Figure 10 hypothesis with path scheme to the left:

Followings is the result of data analysis from hypothesis testing:

H4: The path of relationship between latent variable user satisfaction with quality information has a T-Statistics value of 0.1229138031 and P Values of 0.90222472049, that the T-Statistics value is smaller than the T-Table value with a significant level of 95% is 1.96 and the value of P Values is not fulfilled with the value above 0.05, meaning that the hypothesis is rejected and there is no positive effect between user satisfaction (KP) on information quality (KI).

H5: The path of relationship between latent variable of user satisfaction with system use has a T-Statistics value of 0.15961982976 and the P Values value is 0.87324501304, that the T-Statistics value is smaller than the T-Table value with a significant level of 95% is 1.96 and the value of P Values is not fulfilled with the value above 0.05, meaning that the hypothesis is rejected and does not have a positive effect between system use (PS) on information quality (KI).

5. CONCLUSIONS

Analysis of use E-Filing information system Directorate General of Tax by using the HOT Fit method results in a conclusion on use of E-Filing information system in human variables. The conclusion can be drawn from results seen in testing the hypothesis with the T-Statistics value greater than the T-Table value at 95% significant level is 1.96 and P Values value is fulfilled with a value below 0.05 which means that the hypothesis is accepted and there is a positive influence. Effect of the E-Filing information system on users the human component of system use and user satisfaction can be seen in results of the hypothesis testing found in relationship between system use and benefits (H3) with T-Statistics value of 2.68220 and P value of 0.00756 and relationships user satisfaction to benefit (H1) with T-Statistics value of 2.31112 and P Values of 0.02123 that the hypothesis is accepted and there is a positive influence. The conclusion shows that using E-Filing information system for users is quite useful to use and users feel quite satisfied in utilizing the E-Filing information system after using it.

The results of study in form of an analysis use of E-Filing information system need to be studied more deeply, namely seeing other supporting factors such as internal employees of Directorate General of Tax and using more respondents who also use the E-Filing information system. Proposed for further research can directly interview several internal employees of Directorate General of Tax to find out more information on the E-Filing information system and can use more respondents to get more accurate analysis results.
REFERENCES


