The Modification Information System Model in Indonesian Tax Information System

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ABSTRACT

Purposes: This study was conducted to find empirical evidence on the success of public sector information system, specifically in Indonesian Tax Otority, Directorate General of Taxes. In particular, this research conducted to investigate whether model of trust that proposed by Battacherjee (2002) can be adobted to information system (IS) success model that proposed by Delone and McLean (1992, 2003) smoothly. Nikolaou and McKnight (2006) stated that trusting beliefs, as a component of trust concept.

Design/ Metodology/ Approach: The data were collected by survey questionnaires through email and social media application among Account Representatives (ARs) in DGT. The responses of AR were analyzed using a structural equation modeling with varians approach, partial least square technique to test the hypotheses. Originality of this study can be found in mixing two model in IS that thought deductively related, success model and trust model. The second part is the analysis data with structural equation model (SEM) varians.

Result: The result of this study indicates that mixing the two models can create new model of information system success model with trusting belief as intervening variable latent. All hypothesis indicate significant positifly interrelationship among variable lantent.

Implication: Practical implication of this reseach is desired to be model of information system in DGT so that all tax officer in every layer of tax profession (AR, Tax Auditor even Tax Review) has to fill the information tax relate to tax payer so can be used for all tax officer to relize the potential tax.

Limitation and Future Research: a mount of respondens is few caused by unadequate time for gathering datas. It is suggested for next researchers to do the replicative research with the other working system environment and getting more respondents .

I. INTRODUCTION

1.1. Research Background

Today organizations are expected to show better business performance and maintain competitive advantages through effective use of resources and business process. The key to perform better business process lies in a solid information system (IS) aligned with business processes.

Rapid growth of information systems has led public sector to change their conventional technique by using information system as a tool to replace the old and the rigid systems (Hussein et al., 2007). The new information systems have helped ~~to~~ overcome the problem of inefficient public service and information delivery in the public sector (Seneviratne, 1999). However, current IS literature put a lot more attention to the use of IS for the private sector in achieving the objectives of the company rather than the public sector.

Research on information system success model which become benchmark for many researchers is the one that proposed by DeLone and McLean in 1992 and was updated later in 2003. The DeLone and McLean basic IS success model (1992) suggested six categories of success dimensions, which are system quality, information quality, user satisfaction, use, individual impact, and organizational impact. The updated DeLone and McLean IS success model (2003) addsservice quality dimensionto the basic model and proposed a single benefits construct instead of the separate impacts of the individual and organizational level. Iivari (2005) performed a field study using IS success model developed by DeLone and McLean (1992). His study conducted in a mandatory use of information system at Oulu City Council, Finland. In this study, he measures the "use" dimension by the actual use of the information system because in mandatory use, users do not have other alternative option of information system. He also only analyzes the individual impact of the information system.

Teo et al., (2008) stated that trust has been recognized as a critical variable among the e-commerce and e-loyalty researchers. However, in the context of e-government, there is only few research on trust considered as a key factor for the successful implementation of e-government websites. Nicolaou and McKnight (2006) found that trusting beliefs directly affect intention to use. Trusting beliefs, as a component of trust concept, can be defined that someone believes that other party has valuable attributes, and implies favorable perceptions about the exchanges. This study was not specifically addressed for mandatory environment. Koh et al., (2010) found that if the information presented in a good quality, it will increase the user trust in using such information in performing their duties.

Directorate General of Tax (DGT) as an institution that contributes the largest state revenues is expected to perform better to secure the state revenues. To accommodate the needs, the implementation of Information System is a must to increase productivity and services within optimal time. DGT Portal was built as a means to facilitate the employee in performing their jobs. This portal intended to provide a high quality services in the form of electronic information and applications for employee, taxpayer, other partner agencies of DGT, and other government agencies. The portal also projected to form a community among the staff of the DGT to interact and share information. DGT Portal beneficial for the employee to accelerate and facilitate the distribution of information, both of the units within the DGT or DGT external environment, through the ease of data and information exchange, as well the publishing. DGT portal is also helpful in the Increase of productivity and performance, not only for the employees but also the DGT units within the DGT, in the completing of tasks. Users of information systems are expected that this system can give satisfaction to the users, which is the sense of satisfaction toward the whole system. User satisfaction has been widely used as a useful measure of a mandatory information system success (Koh et al., 2010). However, there has been no study available yet measuring the level of user satisfaction in DGT information system. Since user satisfaction is an important measure for information system success, this study conducted to investigate user satisfaction in DGT Portal.

II. THEORETICAL BACKGROUND

Indonesian Directorate General of Taxes (DGT) started the first phase of tax reform in 2002 and ended in 2008. One focus of the tax reform is the improvement of information technology (IT)-based business processes to create good governance. These tax reforms expect to improve taxpayer compliance, increase public confidence in tax administration, and improve employee productivity. Later, in 2009, DGT started the second phase of tax reform and will be ended in 2014. Related to its information system, DGT tried to develop the integrated information system and improve the quality and the integrity of the database.

Research in the field of information systems has been widely applied in e-commerce, where its use is voluntary. However, for government segment, where its use is mandatory, only a few researches have been done in this sector. This study focuses on the use of information systems in the DGT, which refers specifically to the activities in which employees use information systems to help facilitate their daily work through the use of DGT portal.

2.1. Information System Success Model

Many researchers have investigated information systems based on theoretical aspects. However, the well-known and widely accepted is the information system success model proposed by DeLone and McLean (1992). Since they found the model, many researchers try to extend or to test the model based on empirical research. Their information system model of success consisting of six major categories of information system success, which are: 1) System Quality, 2) Information Quality, 3) Use, 4) User satisfaction, 5) Individual impact, and 6) Organizational impact.

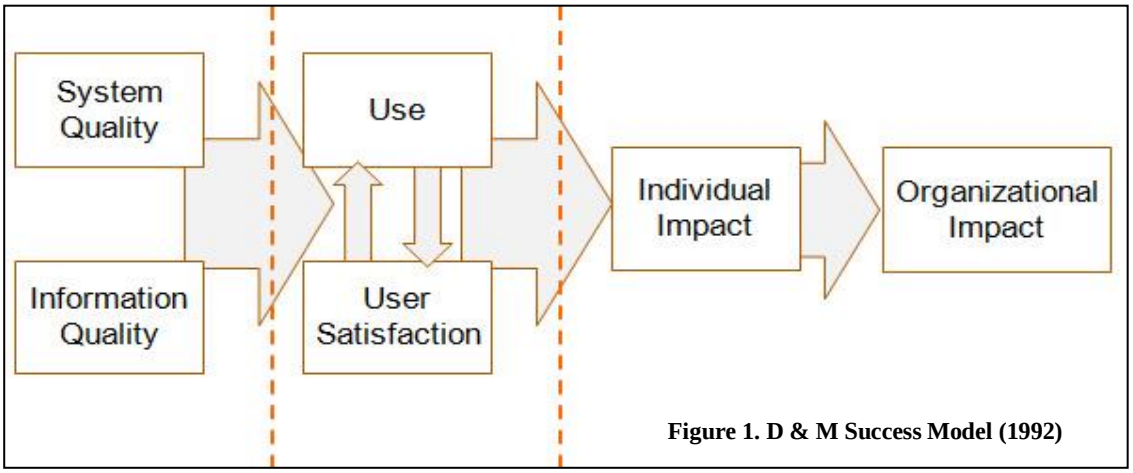

Figure 1. D & M Success Model (1992)

This model suggested that system quality and information quality consistently marked its impact at various levels of information system output. During their use of the information system, users may be satisfied or not satisfied with the information system. Later, the information system use will bring benefit to the users, which in turn will benefit the organization.

DeLone and McLean updated this model ten years later (2003) based on criticism, empirical findings, and information system development. The updated model proposed "service quality" as a new dimension of information system success model. The latest model also introduce "intention to use" as an alternative to the "use" dimension. In this model, they proposed that the impact on individual and organization level should be merged, resulting in a single construct, which is "net benefits".

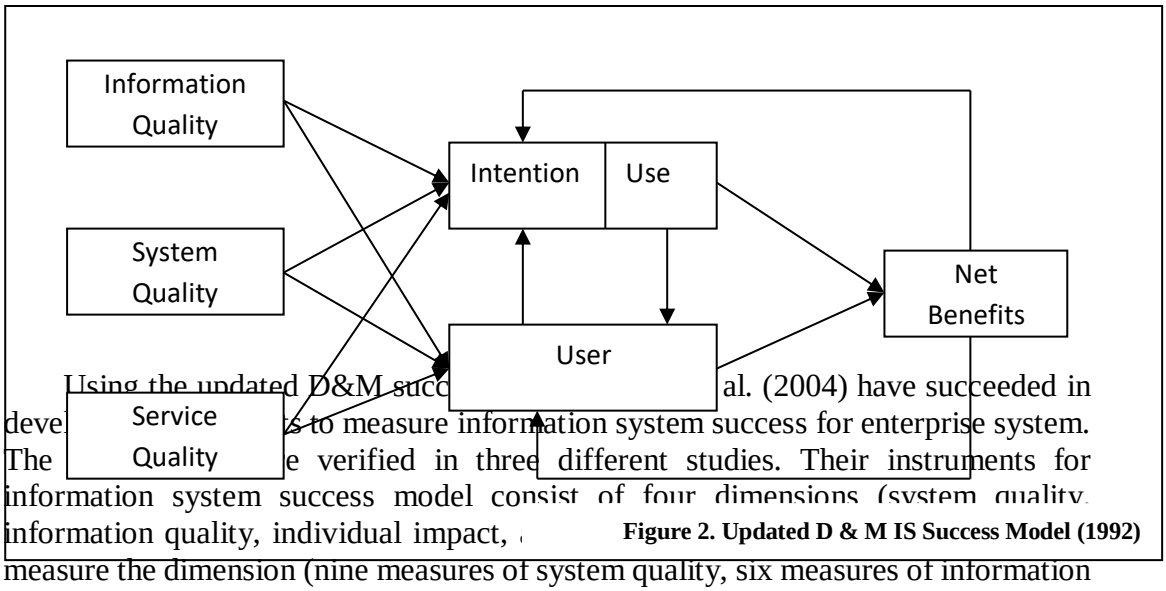

Figure 2. Updated D & M IS Success Model (1992)

Using the updated D&M succ al. (2004) have succeeded in deve s to measure information system success for enterprise system. The e verified in three different studies. Their instruments for information system success model consist of four dimensions (system quality, information quality, individual impact, measure the dimension (nine measures of system quality, six measures of information

quality, four measures of individual impact, and eight measures of organizational impact). This particular instrument to measure IS success is distinctive because this instrument captures the multidimensional and intricate nature of IS success by measuring four primary success dimensions and by using minimum fourmeasurement for a dimension.

Most research in information system applied in e-commerce, only a few studies done in public sector. Iivari (2005) conducted a field study of a mandatory information system in his attempt to tests the model of information system success proposed by Delone and McLean. In his study, he did not include the "service quality" dimension on the grounds that the presence of "service quality" in the updated of DeLone and McLean (2003) model indicates information system functions or organizations rather than information system application. However, DeLone and McLean (2003) stated that as the emergence of end user computing, an information system cannot be separated from its information system organizations with its role are as an information and service provider.

2.2. Trusting Beliefs

Bhattacherjee (2002) on his research about individual trust in online firms stated that trust, as a research concept, has been observed in several social science disciplines, including e-commerce. Mayer et al. (1995), as cited by Bhattacherjee, proposed that a party (trustor) expects that other party (trustee) has beneficial characteristics, and trustor willing to expose to trustee actions. In online environment, consumers (users) act as the trustor and online firms act as the trustee. Nikolaou and McKnight (2006) stated that trusting beliefs, as a component of trust concept, means one believes that other party has valuable characteristics, such as honest, benevolent, and competent.

There have been a number of studies emphasizing the importance of trust in online environment. In online environment, where the interactions characterized by uncertainty, anonymity, lack of control, and possible opportunism, trust considered as important component (Hoffman et al., 1999). Theo et al., (2008) found that in general, trust has been found to be related to three success variables, which are behavioral intention, satisfaction, and perception of information system attributes. They believe that trust plays as a main role to reduce people's perception of uncertainty and risk. Therefore, trust is an important antecedent of involvement in online relations and businesses.

Bhattacherjee (2002) found that there are three dimensions of trust, which are trustee's ability, benevolence, and integrity. Ability can be defined as trustor's perception of trustee's capabilities and knowledge leading to the expected behavior (Mayer et al., 1995). In building trust, ability and integrity must be present together. Integrity refers to the trustor's perception that the trustee will follow to a set of principles or rules of exchange acceptable to the trustor during and after the exchange (Mayer et al., 1995).

Drawing from prior research, Bhattacherjee (2002) proposes such a network by postulating users' familiarity with trustess as a determinant and willingness to transact as a consequence of user trust in online firms (see Figure 3). Mayer et al (1995), McKnight et al (2001, 1998) and others posit such beliefs to result in corresponding trusting intentions (the intent to engage in trusting behaviors).

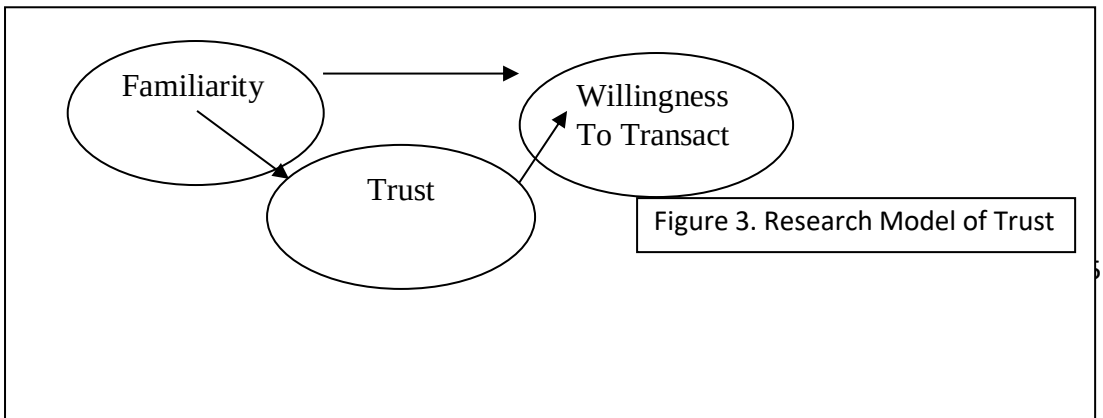

Figure 3. Research Model of Trust

2.3. Trusting Beliefs in Government

Government information system directed to improve the access and distribution of all features of government services and operations for the benefit of citizens, businesses, employees and other stakeholders (Srivastava et al., 2007).

Thesuccess of a government information system is influenced by the users' trust in the information entity. The government–employee relationship plays a central role in the creation of trust in government information system. Therefore, if the governments able to deliver the service effectively, users of government information system are more likely to believe that the government information system will be able to serve their needs (Theo et al., 2008).

2.4. Research Model and Hypotheses Development

The model in this study is a replication model that was adopted from Iivari (2005) who test the DeLone and McLean information success model (1992) in public sector. He conducted a field study of a mandatory information system by excluding the "service quality" dimension because "service quality" in the updated model reflects information system organization rather than information system application. The result shows that system quality and information quality are significant predictors of user satisfaction, but not the actual use. User satisfaction was found as a significant predictor of individual impact, while system use was found to be insignificant predictor of individual impact. Based on the result, this study will exclude the "use" dimension because from Iivari (2005) explanation, mandatory nature of the system may lead to the negative finding.

In addition, this study adds trusting believe as mediating variable from user satisfaction to individual impact (see figure 3). Trust is conceptualized in terms of trustor's beliefs in the trustee's ability, benevolence and integrity. This reseach try to make nature equality between familiarity in Model of Trust with User Satisfaction in IS Succes Model. User satisfaction is probably the most widely used single measure of IS success. The reasons for this because "satisfaction" has a high degree of face validity. It is hard to deny the success of a system which its users say that they like (Delone and McLean, 1992). It means higher of usefulness become higher of familiarity.

Otherwise, Willingness to Transaction will be held if individu feel that he will can get some advantages of it. Individual impact is the effect of information on the behavior of the recipent. However, "Impact" could also be an indication that an information system has given the user a better understanding of the decision context, has improved his or her decision making productivity, has produced a change in user activity, or has changed the decision maker's perception of the importance or usefulness of the information system (Delone and McLean, 1992).

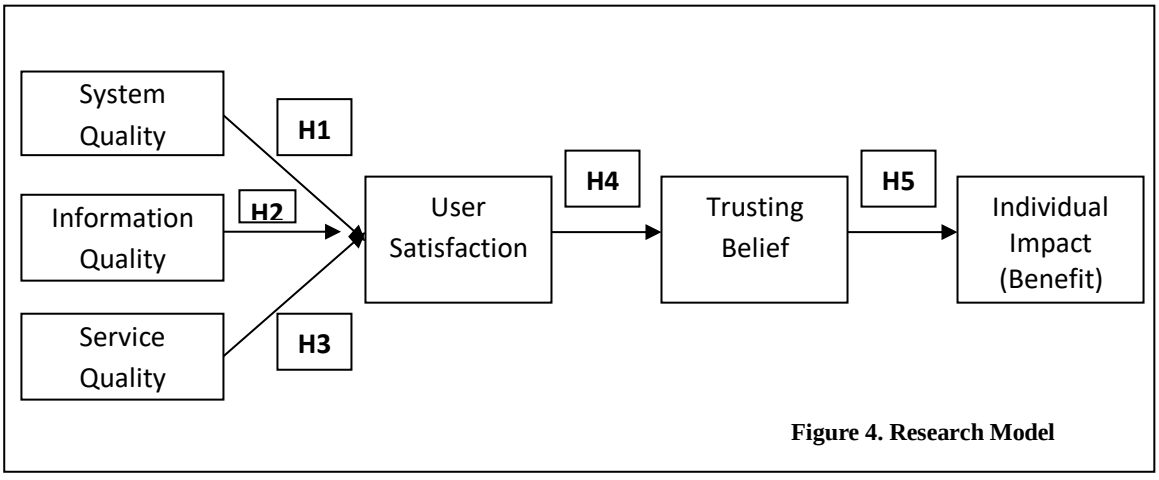

Figure 4. Research Model

2.4.1. System Quality and User Satisfaction

System quality is a major component of the Delone and McLean ISmodel which have been empirically tested by many researchers. System quality illustrates the capability of an information system to deliver information to its users. Petter et al., (2008) defined system quality as the desirable characteristics of an information system, such as ease of use, system flexibility, system features, sophistication, and response time. Several IS researchers have suggested user satisfaction as a success measure for their empirical IS research (Eindor and Segev, 1978; Hamilton and Chervany, 1981). Emperical study has done by Seddon and Kiew (1994) that resulted the relationship between system quality and user satisfaction.

H1: System quality will positively affect user satisfaction

2.4.2. Information Quality and User Satisfaction

Petter et al., (2008) defined information quality as the desirable characteristics of the system outputs, such as management reports and Web pages. Theo et al., (2008) stated that Information quality indicates user's valuation of whether the information on the information system is accurate, valid, and timely. Several IS researchers have suggested user satisfaction as a success measure for their empirical IS research (Eindor and Segev, 1978; Hamilton and Chervany, 1981).Emperical study has done by Seddon and Kiew (1994) that resulted the relationship between information quality and user satisfaction.

H2: Information quality will positively affect user satisfaction

2.4.3. Service Quality and User Satisfaction

Service quality is defined as the quality of the support system that users receive from the IS department and IT support personnel (Petter et al., 2008). For example: responsiveness, accuracy, reliability, technical competence, and empathy of the personnel staff. In the information system working environment, system support is crucial because they would likely seek help in using the system in their daily operations

SERVQUAL has been widely used as a measure of service quality in information system, adapted from the marketing research. Based on Parasuraman et al. (1985), there were ten original SERVQUAL dimensions, but later in 1988, these ten dimensions were combined into five components, which are reliability, responsiveness, assurance, empathy, and tangibles. Delone and McLean (2003) agree that SERVQUAL metric needs continued development and validition, we nevertheless believe that "service quality", properly measured, deserves to be added to "system quality" and "information quality" as components of IS Success.

H3: Service quality will positively affect user satisfaction

2.4.4. User Satisfaction and Trusting Beliefs

Bhattacherjee(2002) had discuss that model of trust described relationship between familiarity, meant user satisfaction, with trust.User satisfaction is a widely recognized predictor of trust in the literature (Gefen,2000; Luhmann et al., 1988). Zahedi and Song (2008) found that the relationship between satisfaction and trust has been studied in a number of areas, including job satisfaction, loyalty in e-banking, and customer relationship management.

H4: User Satisfaction will positively affect Trusting Beliefs

2.4.5. Usersatisfaction and Individual Impact

Individual impact is the effect information on the behavior of the recipent. Impact could also be an indication that an information system has given the user a better understanding of the decition context has improeved his or her decision making productivitiy, has produced a change in user activity, or has changed the decision

maker's preception of the importance or usefulness of information system. McKnight (1998) conclude that relational perspective fails to explain initial trust or the formation of trust before any transaction has taken place.

Goodhue (1986) in Iivari (2005) defines information system satisfactoriness as the individual belief in the relation or fit between job requirements and information functionality, and information system satisfaction as the relation between the information system intrinsic benefits use and the needs of the individual. Iivari and Ervasti (1994) propose that the link between user satisfaction and information system effectiveness can be established directly without the intervening variable of use. Positive relationship between user satisfaction and individual impact will be clear if there is a match between system capabilities and users expectations from the system.

Other studies were done by Seddon and Kiew (1994), Etezadi-Amoli and Farhoomand, 1996, Igbaria and Tan (1997), Guimaraes and Igbaria (1997); Yuthas and Young (1998), Torkzadeh and Doll (1999) that resulted positive significant relationship between user satisfaction and individual impacts.

H5: User satisfactionwill positively affect individual impact

III. RESEARCH METHOD

3.1. Population and Sample

The model of this study will be conducted in Indonesian Directorate General of Taxes (DGT). Populations of this study are all the employee of DGT who use DGT information system, Portal DJP, as a tool to enhance employee performance in completing their daily tasks.

This study uses purposive sampling method as a tool to ensure that only certain samples that have been determined by researcher will be taken as samples. The criteria of the samples are as follows:

(1) Samples are a tax officer who served as an Account Representative;

(2) Interactions made to the DGT portal are performed at least once within a week Account Representative taken as a sample because, as the frontier in tax collection, they rely heavily on DGT information systems in their daily task.

Data that will be used in this study is primary data that contain measurements of variables that will be tested. A questionnaire will be distributed using seven-point Likert Scale and distributed through the email and social media applications.

3.2. Measurements

The questionnaire is based on measures from Seddon (1997) as used by Theo et al., (2008) in his study about mandatory use of information system and will be translated into Indonesian. Related to trusting belief, measures that will be used is from Bhattacherjee (2002) which consist of seven item trust scale that exhibits the dimensions of ability, benevolence, and integrity.

Seddon and Kiew (1997) defined system quality is related to the existence of problem in the system, ease of use, speed of reply in interactive system, documentation, and quality and credibility of the program code. Theo et al., (2008) adopt system quality measurement from Seddon and Kiew (1997) which consist of six items measurement. Therefore, this study will use measures from Theo et al., (2008) to collect system quality measurement. The measurements can be seen as follows.

Information quality is related with such issues as the timeliness, accuracy, relevance, and format of information generated by an information system (Seddon and Kiew, 1997). Theo et al., (2008) adopt information quality measurement from Seddon and Kiew (1997) which consist of nine items measurement.Based on that, this study

will use measures from Theo (2008) to collect system quality measurement. The measurements can be seen as follows.

Theo et al., (2008) stated that e-government web site can be seen as a service agency with an information technology interface that provides services online. The government officer who's in charge for the e-government web sites are part of these services, including updating information, answering questions, providing feedback, and handling applications. Therefore, service quality of an e-government web site should include the overall service delivered by the government agency through the web site.This study will use measurements from Theo et al. (2008) to collect service quality measurement. The measurements can be viewed as follows.

Trusting beliefs means that the other party has the beneficial characteristics, such as ability or competence, benevolence, and integrity. Bhattacherjee (2002) on his effort to validate trust construct, found six items trust scale that describes acceptable levels of reliability, convergent validity, discriminant validity, and nomological validity.Therefore, this study will use measures from Bhattacherjee (2002) to collect trusting beliefs measurement. The measurements can be viewed as follows.

User satisfaction in this study is defined as the level of satisfaction of user in using information system. Four items from Seddon and Kiew (1997) are used to operationalize user satisfaction. The measurements can be viewed as follows.

Individual impact related to the users work performance measured by six item proposed by Davis (1989). Iivari (2005) adopt individual impact measurement from Davis (1989) study, with an adaptation of the six-item instument for perceived usefulness.

3.3. Data Analysis

Data analysis in this study will be conducted using Structural Equation Model (SEM) with varian approach, Partial Least Square (PLS). PLS is powerfull analysis method and frequently called soft modelling cause omitting ordinary least squares assumptions such as normality data and mulitcoloniarity problem among latent variables (Wold, 1985).

Wold (1985) built PLS in order to test weak theory and weak data such as a few of datas or normality data problem. PLS not only can modify interlationship among latent variable but also confirm theory (Chin and Newsted, 1999). Besides having a few of samples, this study try to test new model with submitting trusting believe so the using of PLS is proper.

In order to test the hypoteses with PLS, there are two evaluation, outer model and inner model, have to be passed through. Outer model consists of two testing, validity and reliability otherwise inner model is R square for dependent construct and t significant among constructs in construct model.

IV. RESULT

4.1. Data Analysis

Data that have been collected will be analyzed to test the hypotheses. Descriptive statistics will be presented first before further analysis results. To test the theoretical model, SEM will be performed to analyze the data by using SMART-PLS computer program. The first step that needs to perform before further analysis using SEM is to test the validity and reliability for outer model and R square for innermodel evaluation. This test then followed by testing the model.

4.1.1. Outer Model Evaluation

4.1.1.2. Convergent Validity

Chin (1998), (2010) and Hair et al. (2011), (2012) concluded that the rule of thumb of this validity is exceeds 0,50 for confirmantory or exploratory research. This researh results the value of average variance extracted between 0,602 (minimum) and 0,888 (maximum). All figures can be seen in table below

Items	Value
Benefit	0,857
Information	0,725
Satisfaction	0,888
Service	0,778
Sistem	0,602
Trusting Belief	0,751

4.1.1.3. Discriminant Validity

The other analysis of outer model validity is discriminantvalidity test.Chin, 1998; 2010; Hair et al. 2011; 2012 suggest that the rule of thumb this analysis with using cross loading which exceeds 0,70 for every variables. All loading factor values of this researchare more than 0,70 and the can be seenin figure 4.1.

4.1.2. Inner Model Evaluation

4.1.2.2. Reliability Testing

The most common technique to measure the reliability of a scale is by computing the alpha coefficient (Cronbach's Alpha) of internal consistency. Cronbach's Alpha value considered as a good criterion for a reliable scale if the coefficient of Cronbach's Alpha greater than 0.60. From the table above, Cronbach's Alpha of the construct range between 0.873 and 0.966. This value indicates that this research model has a good reliability because each construct has a value of more than 0.60.

Items	Value
Benefit	0,966
Information	0,952
Satisfaction	0,958
Service	0,943
Sistem	0,873
Trusting Belief	0,934

The other technique to measure the reliability of a scale is by computing the composite reliability. The rule of thumb for this test that the value should be greater than 0,60 for exploratory research. This research resultsvalue between 0,899 and 0,973 so this indicates that the model is reliable.

Items	Value
Benefit	0,973
Information	0,960
Satisfaction	0,969
Service	0,955
Sistem	0,899
Trusting Belief	0,948

4.2. Result

After all the analysis regarding to the validity and reliability of the model has been tested and showed an acceptable level, the next stage is to test the hypotheses.

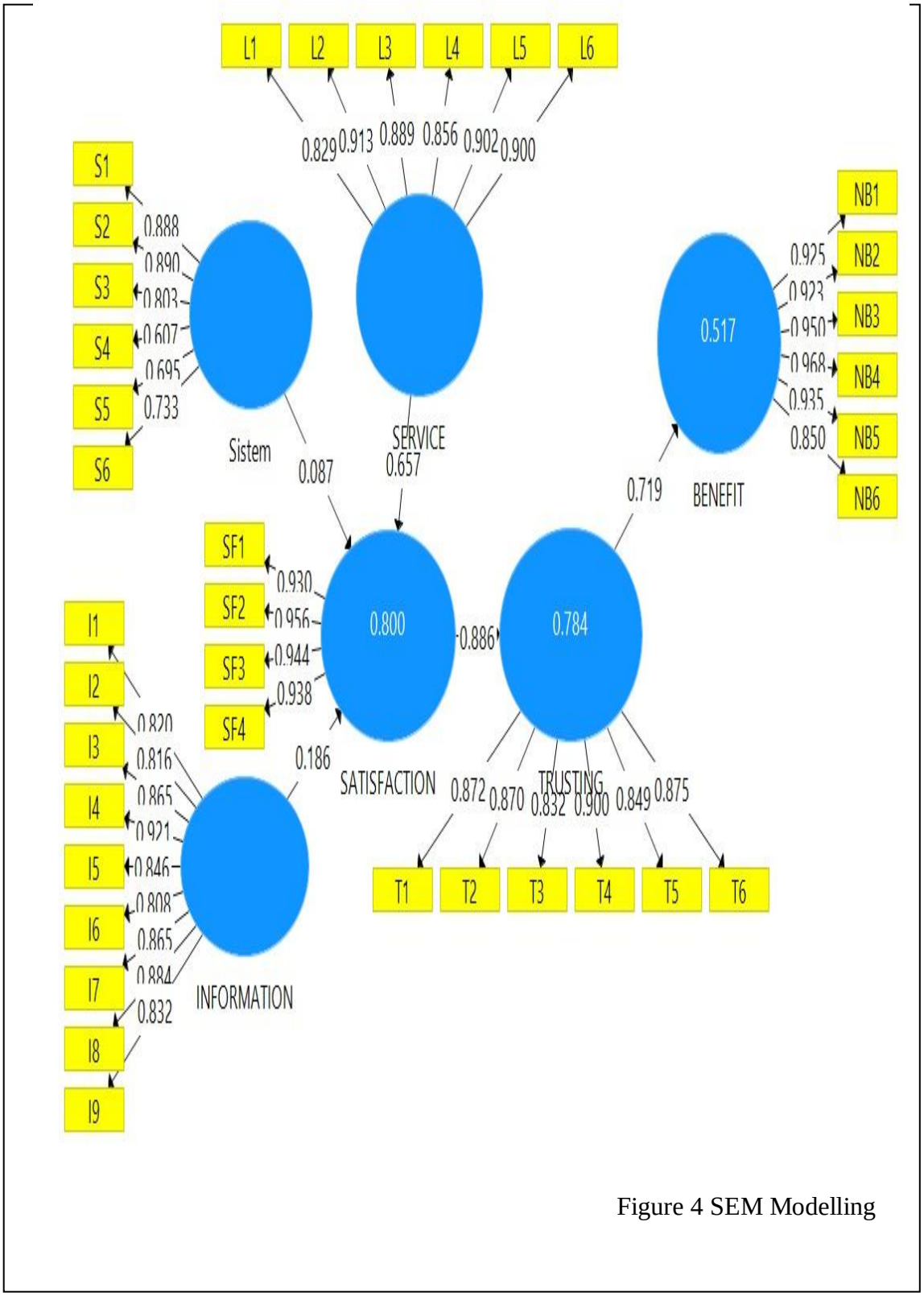

Figure 4 SEM Modelling

The overall hypotheses testing result can be shown in the table below,

	Original ...	Sample ...	Standard...	T Statistic...	P Values
INFORMATION -> BENEFIT	0.739	0.734	0.094	7.901	0.000
SATISFACTION -> BENEFIT	0.818	0.817	0.127	6.435	0.000
SATISFACTION -> INFORMATION	0.871	0.869	0.039	22.156	0.000
SERVICE -> BENEFIT	0.752	0.752	0.131	5.753	0.000
SERVICE -> INFORMATION	0.942	0.941	0.023	40.634	0.000
SERVICE -> SATISFACTION	0.933	0.932	0.028	33.781	0.000
Sistem -> BENEFIT	0.496	0.509	0.144	3.432	0.001
Sistem -> INFORMATION	0.684	0.693	0.061	11.164	0.000
Sistem -> SATISFACTION	0.712	0.714	0.069	10.345	0.000
Sistem -> SERVICE	0.746	0.748	0.064	11.653	0.000
TRUSTING -> BENEFIT	0.753	0.751	0.137	5.510	0.000
TRUSTING -> INFORMATION	0.895	0.892	0.048	18.606	0.000
TRUSTING -> SATISFACTION	0.931	0.931	0.027	34.074	0.000
TRUSTING -> SERVICE	0.956	0.955	0.022	43.350	0.000
TRUSTING -> Sistem	0.642	0.647	0.080	7.985	0.000

Figure 5 T Test

From figure 4 and 5 result of the hypotheses testing shows that H1, H2, H3, H4, H5 are supported. The relationship among latent variables have been prooved significant possitively. The significant relationship can be seen in figure 4.2. with P Values < 0,05. Possitive way relationhipin this study can be found in figure 4.1. with focussing at path coefficient. This study try to create new model with combine IS success model with model of trus that suggested by Bhattacherjee (2002) in mandatory information system scope. The using of PLS is proper because of the limited data and new theory that was existed.

V. Limitation and Future Research

5.1. Limitation

In substance, there is consistent result with previous study about theoretical of IS success and trust model. The limitation of this study is about a few samples are gathered. This problem exists because unadeguate time for taking research and the low awareness of research in indonesian society.

5.2. Future Research

Suggesting for future research is gathering more samples than this study and using the other work environment. The result of this study cannot be generelized, so it is suggested to take research in the other public even private sector.

VI. Implication and Discusstion

6.1. Implication

Theoretical implication of this studyis new approach of Information success model within trust belief as new attribute. The new model can be derived from the mixing of two models, they are the success of information system model (Delone and McLean, 1992; 2003) and model of trust from Battacherjee (2002). It is suggested for the future research to test this new information success model with the other working environment.

Practical implication of this study is useful for DGT (tax otority in Indonesia). The result of this study describes that the most important of trusting belief of the AR to execute the tax potency.thisreseach is desired to be model of information system in DGT so that all tax officer in every layer of tax profession (AR, Tax Auditor even Tax Review) has to fill the information tax relate to tax payer so can be used for all tax officer to relize the potential tax.

6.2. Discussion

The compound of two models are signifikan finding in contributing new empirical evidents. This study try to take analogy of familiarity in model of trust (Bhattacherjee, 2002) with intention to use in IS Model (Delon and McLean, 1992; 2003). Then willingness to transaction in model of trsut is same meaning with net benefit in IS Model cause of someone will get to transaction if he has gotten the benefit.

Although in the public sector like DGT has a mandatory sistem but the changing era can insist the development system itself. The intention to use system is depend on functional using of human. User friendly system can create the trusting believe to use it and then getting the benefit more.

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