PERSONALITY AND COGNITIVE FACTORS IN INFORMATION SYSTEM MIGRATION PROCESS

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ABSTRACT

   This study predicts potential resistance of IT adoption from perspective of cognitive and personality. Research conducted on 30 employees of PT. Berau Coal and 54 employees of PDAM Boyolali who are undergoing the process of migration of ERP and e-billing. Non-probability sampling procedure was using in this research with purposive-judgment techniques. Primary data retrieved through a questionnaire with a closed question format. Hypothesis testing conducted using Partial Least Square with software applications 2.0.M3 version SmartPLS. The results show only the cognitive factors have positively influence on intention to adopt ERP and e-billing. This finding reinforces that the development of IT adoption theory will lead to perceptual factors. Also, this finding indicates that the employees of PT. Beraucoal and PDAM Boyolali have great intentions to use IT in term of ERP and e-billing migration process. Managerial implication and further researches are discussed.

   Keywords: personality factors, cognitive factors, information technology acceptance, ERP and e-billing.

INTRODUCTION

   The development of information system (IS) in business applications showed increased strategic role to win the competition through changing patterns and business models, such as e-commerce or e-business and mobile commerce (Turban, *et al*., 2008). IS has no longer just seen as a necessity but has become a requirement that must be met to improve the competitiveness of the organization. Some companies are encouraged to migrate infor-mation technology (IT) to develop and opti-mize the function and role of IT as a resource in the competition to win business.

   Based on management perspective, the migration process is expected to enhance the role and function of the Information System (IS) as a strategic tool in winning the organization's business competition. There-fore, the migration process is expected to be accepted by all parties in the organization through the involvement and participation and managerial support. However, one of the main problem in the application of IS is the resistance due to the change process directly or indirectly that changes the procedure and pattern of activities which might harm the interests of some parties and requires users to learn new systems. No wonder there are many failures in the IS implementation and the resistance problems caused by low commit-ment and participation of existing stake-holders. One of the main factor that cause resistance, low commitment and participation in IS is behavioral aspects, particularly the

problem of acceptance and adoption of IT (Hartono, 2007).

Empirical study of IT adoption shows that the personality and cognitive factors are strong predictors of IT usage. However, the debate about concept of situational and dispositional is still inconclusive in the area of behavioral IS. McElroy, *et al*. (2007) examined the effects of personality factors and cognitive dispositional to predict intention to use the internet. The results indicated that personality factors are better predictor of internet usage intention than cognitive factors. Meanwhile, Abdillah (2009) compared the predictive effects of personality factors and cognitive situational dispositional on intention to use internet within higher education institutions. The research found that cognitive situational factors as better predictors of internet and problem of construct validity in personality factors. In addition, other empirical studies indicate that dispositional personality factors are not strong predictor of intentions but it is an indirect relationship mediated by situational factors (Weiss & Adler, 1984). Based on two previous studies, it can be conclude that situational and disposisional factors have major impact in IT acceptance theory. However, previous studies mainly use internet as research object thus the empirical findings can not be generalized to other area of IT context. Therefore, it is important to study cognitive and personality factors in specific area of IT adoption.

This study predicts potential resistance of IT adoption from perspective of cognitive and personality in the context of ERP and e-billing system. This study is important because there are limited research to examine cognivite and personality factors in specific area of IS adoption. This research examines cognitive and personality factors as predictors of IT usage because both factors have identified as accelerator of IS migration process and willingness to use new IT (Davis, *et al*., 1989; McElroy, *et al*., 2007; Venkatesh, *et al*., 2003). Both

factors are also indicate as successful indicators of IS migration process (DeLone & McClean, 2003). This research provides explanation the concept of situational and dispositional factors in the area of IS behavioral researches and implication of resistance problems in IS migration process for stakeholder.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Personality

Research in the field of IS that uses the concept of personality started by Zmud (1979) who examined dispositional individual characteristics (personality and cognitive style) of the IS implementation success. Factor personality dimensions measured by cognitive and affective structure of individuals in response to events, people and situations encountered. Personality factors that are believed to strongly influence the success of Management Information System (MIS) is the locus of control, dogmatism, tolerance of ambiguity, extrovert/introvert, need for achievement, risk taking, and the defense evaluative anxiety (Zmud,1979). However, this research usedpersonality facet outside of the IS area and this study has not directly examined personality factorsand cognitive style.

Agarwal & Karahanna (2000) extracted dimensional factor model of personality trait of the Big Five Factor (Costa & McCrae, 1992) in the field of psychology by taking the dimensions of neuroticism (computer anxiety) and openness to experience (personal innovativeness). These personality dimensions associated with the technology acceptance model (TAM) by adding the construct of cognitive absorption. The results showed that personal innovativesness predictssituational cognitive factors, namely perceived usefulness and perceived ease of use.

Thatcher, *et al*. (2007) found that there are three personality traits (internet anxiety,

computer anxiety, and personal innovative-ness) predict intention to use IT. In this study, Thatcher *et al*. (2007) used the term internet anxiety to replace computer anxiety as a dispositional personality. Internet raises emotions which produce interactions with unfamiliar situations or people. Internet usage presents risks, such as the potential for viruses, spyware or an invasion of privacy of the users (user privacy). Therefore, computer anxiety reflects the length of time experience with computers and the internet anxiety reflects the difficulty with which information technology in the context of internet use.

McElroy, *et al*. (2007) pulled back the research model using the dimensions of personality and cognitive factors to the basic theory in the field of psychology. Personality factors measured using a five-dimensional model of personality (Big Five Factor: Openness to experience, conscientiousness, extraversion, agreeableness and neuroticism) and cognitive factors measured by using a model of MBTI cognitive style (Costa, *et al*., 1992). The research objective was to compare the influence of both personality and cognitive factors and the use of the internet with computer anxiety, self-efficacy and gender as control variables. The results indicated that personality factors are better predictors than cognitive style. However, MBTI is not considered an appropriate tool to measure cognitive style if it is associated with personality in the context of internet use. McCrae & Costa (1989) claims that the MBTI has a weakness in measuring cognitive style in personality perspective. MBTI shows the limitations and weaknesses of the validity of the construct reliability of the data while still achieved in this model.

Buchanan, *et al*. (2005) examined the influence of personality factors by using the International Personality Item Pool (IPIP) instrument (Goldberg, 1990). There are three reasons for use of IPIP instrument. First, some previous research showed that the IPIP instrument was better than Big Five Factor-

Costa & McCrae for measuring personality (Costa & McCrae, 1992). Second, the IPIP was available for free without paying a license as instruments. Third, the IPIP consists of 50 items while Big Five has 240 questions. The results indicate that IPIP has better validity and reliability than Big Five.

Yi, *et al*. (2006) stated that individual characteristics and personality as predictors of cognitive factors, such as perceived ease of use and perceived usefulness. Landers & Lounsbury (2006) found that agreeableness was a predictor of internet use but do not like to interact in a long time, especially if he finds difficulties in its use. Therefore, this character is expected as a predictor of perceived utility and efficacy of IT users.

Based on these statements, hypotheses which are developed in this research are:

H1a: Agreeableness affects user's perceived ease of use in IT migration process.

H1b: Agreeableness affects user's self efficacy in IT migration process.

Venkatesh (2000) stated that the individual characteristics and personality factors are antecedent cognitive factors (i.e. perceived ease of use, perceived usefulness and self efficacy) in predicting intention and IT usage behavior. Landers & Lounsbury (2006) found that conscientiousness was a disciplined character, assertive and tend to use IT for productive activities, such as search for journal articles and publications. Instead, these characters avoid the use of IT things that are not productive, such as the chat room.

Based on this, then the hypotheses developed in this research are:

H2a: Conscientiousness affects user's perceived ease of use in IT migration process.

H2b: Conscientiousness affects user's self-efficacy in IT migration process.

Extraversion tends to use IT for the benefit of socialization, such as chat rooms for a

variety of information with virtual communities (Amiel & Sargent, 2004) and assume that IT is useful facilities for fun and happiness. Venkatesh (2000) stated that this character has a self-efficacy in using IT for the sake of socializing and fun.

Based on these explanations is the hypotheses which are built in this research are:

H3a: Extraversion affects user's perceived usefulness in IT migration process.

H3b: Extraversion affect user's self-efficacy on IT migration process.

IT Neuroticism tend to avoid socializing but for the sake of using it to meet personal pleasure, are like playing online and search for identity in a virtual community (Amiel & Sargent, 2004). Venkatesh (2000) stated that perceived usefulness and self-efficacy of IT usage was influenced by feelings of fear or anxiety. That is, individual who has a neurotic character will affect his functionality and level of self efficacy to use IT.

Based on these explanations, the hypotheses which are built in this research are:

H4a: Neuroticism affects user's perceived ease of use in IT migration process.

H4b: Neuroticism self efficacy affects users of IT migration process.

Openness to experience tends to use IT to seek new ideas (Tuten & Bosnjak, 2001). These characters have a high desire to explore IT, positive perceptions and self efficacy in using IT (Venkatesh, 2000).

Based on these explanations, the hypotheses which are built in this research are:

H5a: Openness to experience affects users' perceived ease of use in IT migration process.

H5b: Openness to experience affects users' self-efficacy in IT migration process.

Cognitive Factors

Cognitive is a term used in cognitive psychology to describe a form of thought or perception of the individual or the tendency to use perceptual and information events in solving problems. The cognitive psychology learn how people think, feel, learn, remember, make decisions, and how people process (perceive, interpret, store and retrieve) data in the memory of the brain (Hartono, 2007).

The development of cognitive concepts in IS begun when mainstream behavioral research appeared in the 1960's. Ackoff (1960) initiated by doing a case study to explore causes of IS failure. The study has stimulated the following research although this study failed to find the cause of the system failure, but it has indicated a link user attitudes and behavior toward the success of the IS system.

Schultz & Slevin (1975) proposed attitude dimension to the use IS. Dimension consists of performance, interpersonal, change, purpose, support or rejection, clients or researchers and interests. The results found the influence of user's perception of the IS use on IS success. This research model was then used in many subsequent studies to examine the influence of beliefs, attitudes (cognitive perception) and the intention to use IS.

In the same year, Fishbein & Ajzen (1975) proposed theory that explained the sequential process and causal relationships between constructs that influence the behavior of IS use. This theory assumes that human behavior is driven by intentions, attitudes and beliefs are influenced by subjective norm to do something consciously. This theory became the basic model of behavior that adapted by many researchers in the IS area. The theory is known as the theory of reasoned action (TRA).

TRA itself criticized by Triandis (1980) that the assumptions can not be used in any situation or condition. Basically people do not always voluntarily behave, sometimes people act emotionally or forced to act (involuntary).

Therefore, according to Triandis (1980) TRA should separate aspects of cognitive and affective dimensions of attitudes. Davis (1989) developed a model by extending the TRA constructs (i.e. belief) with the perceived ease of use and perceived usefulness. TAM is considered more parsimony in explaining the behavior of IS use and supported by most empirical research. However, TAM model separates the belief as cognitive aspect and attitude as affective.

This study use cognitive factors from TAM, namely perceived usefulness, perceived ease of use and self-efficacy (Bandura, 1982; Compeau & Higgins, 1995a, b; Hsu & Chiu, 2004). The selected constructs are based on several reasons. First, TAM is a useful behavioral model to explain why many information systems failure. TAM is considered as one of model that consists of psychological or behavioral factors. Second, TAM is developed by strong theoretical basis. Third, TAM has been supported by a lot of empirical research and concluded that TAM is anapropriate model to explain individual usage of IS. In fact, TAM is more robust than TRA and the TPB. Fourth, self-efficacy has been widely used in research as a cognitive construct that affects individual use of IS.

Perceived Usefulness

Perceived usefulness is level of personal belief in using a technology that will improve their performance (Davis, *et al*., 1989). Perceived usefulness is also a perceived belief about decision-making process. If someone believes in system then he will use it. Conversely, if someone was believed that the system less useful information he would not use it.

Previous studies have shown that perceived usefulness positive effect on use of IS (Davis, *et al.,* 1989; Igbaria, *et al.,* 1996). Perceived usefulness is the most powerful construct to influence attitudes, interests and behavior of technology than other constructs.

Venkatesh, *et al.* (2003) examined the influence of perceived usefulnesson IT usage behavior between men and women. The results showed that perceived usefulness influence was stronger for men than women. This result shows that men judge more on the aspects of IT utilization compared to women, so that this perception will influence the attitude of men in the use of IT.

Gardner & Amoroso (2004) developed extended TAM by adding external variables to examine the acceptability internet technology. Four external variables are gender, experience, complexity and volunteerism. The results showed that men tend to have higher perceived utility than women. In contrast, women tend to have higher perceived ease of use than men.

Taylor and Todd (1995) combined TPB decomposition model by adding the age as external variables in the acceptance of technology. The results showed a younger was more influential on the attitude variables (cognitive) on the use of IS. In contrast, older was more influential on perceived control variables. Implications of these findings indicate that the dimensions of cognitive factors are more variable at a young age, while the perceived control variables are more variable at old age.

Based on the explanation above, the proposed hypotheses are:

H6: Perceived usefulness affects user intention in IT migration process.

Perceived Ease of Use

Davis, *et al.* (1989) defined perceived ease of use as individual confidence level when using a particular system is not required effort. Although the size of the business assumed everyone is different, but to avoid rejection of the developed system, IS is built to easily apply to users without considered burdensome. Perceived ease of use is one factor in the TAM model has been examined in the study. Davis,

et al. (1989) found that perceived ease of use could explain why a person used IS and how users accepted new developed IS. Based on the explanation above, the proposed hypotheses are:

H7: Perceived ease of use has positively influence on user intention to participate in the IT migration process.

Furthermore, Davis, *et al.* (1989), Venkatesh, *et al.* (2003), and Yi, *et al.* (2006) found that perceived ease of use is one of strong predictor of perceived usefulness. Based on these explanations, the hypothesis which is built in this research is:

H8: Perceived ease of use positively influence on user's perceived usefulness in IT migration process.

Self-Efficacy

Self-efficacy is defined as individual confidence in ability to perform an action and persistence to deal with obstacles to achieving the performance of a behavior (Hartono, 2007). Self-efficacy is an aspect of human psychology changes in response to different treatments, such as when individuals face different task complexity then his self-efficacy will also be different (Bandura, 1982).

Results from many studies show that self-efficacy influenced intention to use IT, computer anxiety (Agarwal, *et al*., 2000), the adoption of high-tech products (Hill, *et al*., 1987) and the intention to innovate (Burkhat & Brass, 1990). Venkantesh (2000) found that self-efficacy is one of a strong predictors on perceived usefulness.
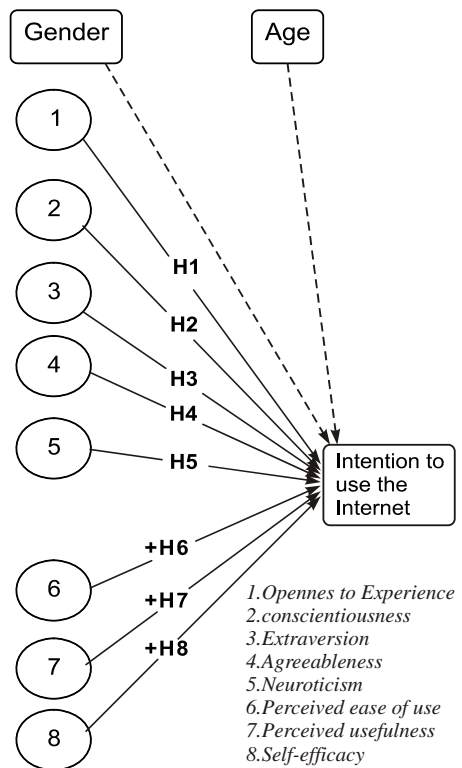
Based on the explanation above, the proposed hypotheses are:

H9: Self-efficacy positively affects perceived usefulness in IT migration process.

H10: Self-efficacy positively affects user's intention to participate in the IT migration process.

RESEARCH METHOD

This research is descriptive-confirmatory research. The empirical model proposed in this research developed from prior research of Abdillah (2009) whose examined the direct effect of dipositional personality factors and situational cognitive factors on the intention to use the internet (see following figure 1).

1.Opennes to Experience
2.conscientiousness
3.Extraversion
4.Agreeableness
5.Neuroticism
6.Perceived ease of use
7.Perceived usefulness
8.Self-efficacy

Source: Abdillah (2009)

**Figure 1.** Theoritical Model from Prior Research

This research re-examines the relationship between personality factors and cognitive factor on intention use IT in term of ERP and e-billing migration process. According prior research of Abdillah (2009) which did not find the direct effect of Dispositional Personality Factors on intention to use the internet, this study argues that personality as dispositional

factors have indirect effect on intention. Individual personality will be reflecting individual characteristics of belief and attitude toward IT. And then, these belief and attitude will be reflecting individual intention to use IT. However, individual intention to use IT will be different, depend on individual characteristics such as agreeableness has positive attitude toward IT but only use IT in short time, meanwhile conscientiousness only use IT if they perceive IT has positive benefit for them. The differences of individual characteristics, belief and attitude toward IT will predict different intention to use IT. The following is empirical research model examined in this study.

The *perceived usefulness* and the *perceived ease of use* construct are measured by the likert scale, starting from point 1 as a strongly disagree to point 5 as strongly agree, which is measured through six questions adopted from Davis, *et al.* (1989). *Self-efficacy* is also assessed with the likert scale, starting from point 1 as strongly disagree to point 5 as strongly agree, which is assessed through five questions adopted from Hsu & Chiu (2004). The *dispositional personality* is measured by using the *Five Factor Personality* instrument from the IPIP as cited by Goldberg (1990) which consist of five dimensions; *the openness to experience, the conscientiousness, the extraversion, the agreeableness,* and *the neuroticism*. Each dimension is assessed through the likert scale starting from point 1 as strongly disagree, to point 5 as strongly agree. Whereas *the intention to use the internet* is measured through the likert scale as strongly disagree to point 5 as strongly agree by
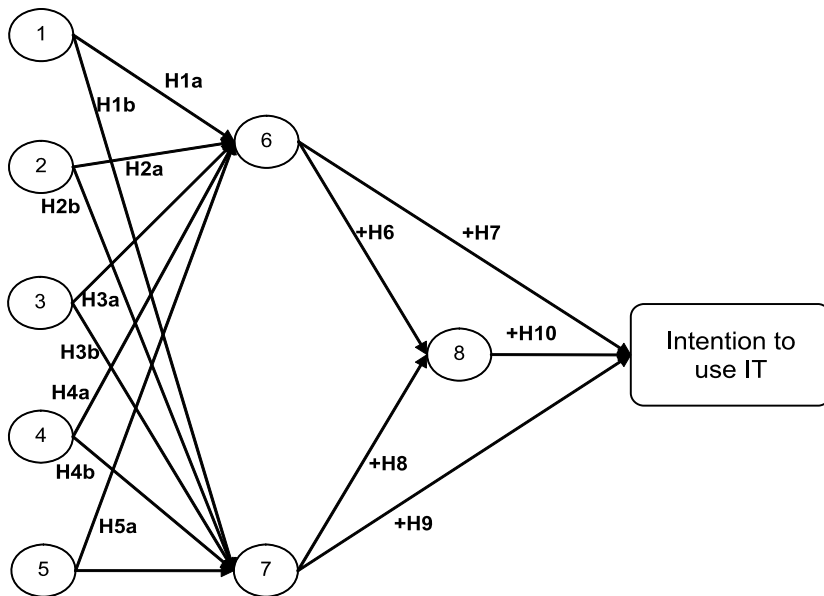
Sources: Adapted from Abdillah (2009)

1. *Openness to Experience*   5. *Neuroticism*
2. *Consciousness*   6. *Perceived ease of use*
3. *Extraversion*   7. *Self-efficacy*
4. *Agreeableness*   8. *Perceived usefulness*

Figure 2. Empirical Research Model

adapting three questions based on Davies, *et al*. (1989).

Population in this study is employees of PT. Beraucoal and PDAM Boyolali who are being migrated into the ERP and e-billing system. We use the non-probability with convenience sampling technique because not all employees can be reached as research sample regarding on organizational rules. This research employs primary data drawn at cross-sectional during July-October 2009. Data collected through the questionnaire as much as 84 the number of samples taken with the structure of closed questions.

This research conducts measurement model for construct validity and internal consistency of reliability, namely convergent, discriminant validity, Cronbach's alpha and Composite Reliability. Statistical data analysis uses Partial Least Squares method with applications SmartPLS ver. 2.0.M3.

DATA ANALYSIS AND DISCUSSION

Research Sample

Unit of analysis in this study are employees of PT. Beraucoal and PDAM Boyolali. Of the 150 questionnaires distributed through informants and enumerators directly to the respondents, 85 returned questionnaires and 84 that can be processed further because 1 ques-

Table 1. The characteristics of the 84 samples in the study

Age	Frequency	Percentage	Sex	Frequency	Percentage
17	1	1.19	Male	55	65.48
19	4	4.76	Female	29	34.52
20	4	4.76			
22	1	1.19			
23	1	1.19			
24	1	1.19			
25	2	2.38			
26	1	1.19			
27	1	1.19			
29	3	3.57			
30	10	11.90			
31	3	3.57			
32	1	1.19			
33	1	1.19			
36	3	3.57			
37	9	10.71			
39	7	8.33			
40	15	17.86			
41	4	4.76			
42	6	7.14			
45	1	1.19			
47	1	1.19			
49	1	1.19			
51	2	2.38			
54	1	1.19			
Total	84	100		84	100

Sources: Processed data, 2009

tionnaire filled out by the respondent (Table 1).

Based on frequency distribution, it shows that most respondents are adults in the productive age category. This became the basis for determining personality and cognitive characteristics of respondents in the adult life cycle. Meanwhile, gender distribution shows the proportion of men more than women. This is in accordance with the characteristics of companies that are carried out by more dominant males, so conclusions on the perceptions respondents can not be generalized based on gender.

This research uses a technique Partial Least Square (PLS) with the asisstance of applications Smart PLS 2.0.M3 version. To analyze the proposed model, the author uses 27 questions with interval scale. Here are the results of statistical analysis using PLS technique.

Measurement Model

The measurement model of PLS technique consist of construct validity and reliability test (Figure2).

Construct Validity

Construct validity consist of convergent validity and discriminant validity. Convergent validity assessed by factor loading (correlation between item score/component scores with construct scores) indicators that measure these constructs. In this study there were 9 constructs with each construct has 3 indicators. Based on the results of the measurement model test, the majority of construction attain the validity test (loading scores> 0.7), except for the construct of Conscientiousness, Openness to experince and Extraversion have reduced one indicator for each. Based on these results it can be concluded that the proposed model of personality and cognitive attain convergent validity test.
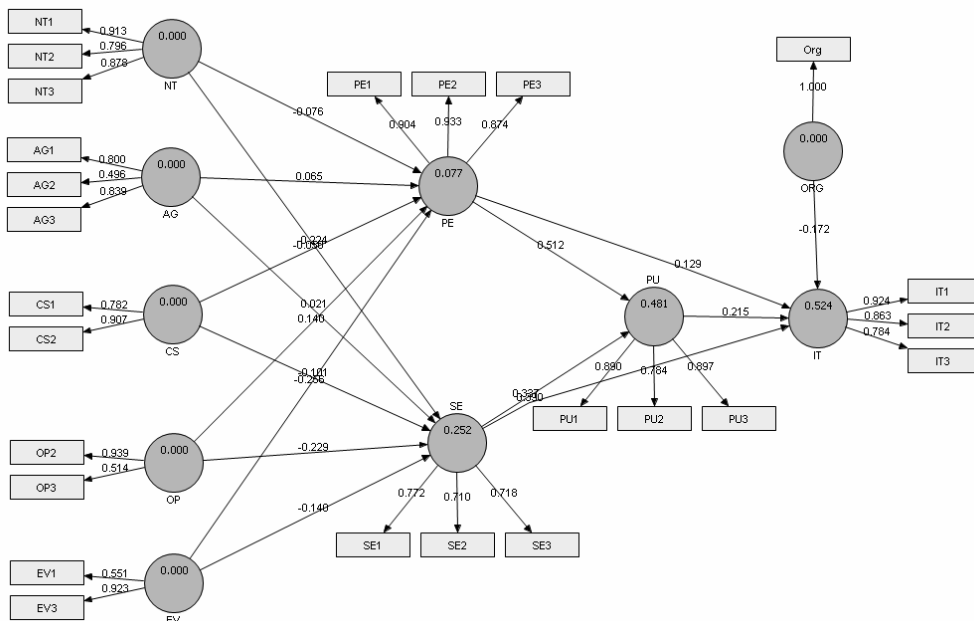
Figure 3. Output Measurement Model

Discriminant validity is assessed by measuring the construct cross-loading. The following table shows the correlation between the constructs in the model with the indicator. Indicators of all constructs showed a strong correlation with its construct compared to the other constructs. Another method used to assess discriminant validity is by comparing the square root of average variance Extracted (AVE) for each construct with the correlations between constructs in the model. The model has sufficient discriminant validity if the root of AVE for each construct is greater than the correlation between constructs with other constructs in the model. The correlation value indicators and latent variables can be seen in the following table 2.

Based on cross-loading table above, it can be concluded that the proposed model of personality and cognitive constructs have attained the discriminant validity.

Reliability

Reliability indicates the stability and internal consistency of the instrument (Cooper & Schindler, 2006; Hair, *et al*., 2006). Reliability can be measured by the value of Cronbach's alpha and Composite Reability. Rule of thumb value of alpha or Composite Reliability must be greater than the value of 0.7 although 0.6 is acceptable on exploratory study (Hair, *et al*., 2006). The construct reliability results can be seen in the following table 3.

Based on the table, it can be concluded

Table 2. Cross-Loading

	AG	CS	EV	IT	NT	OP	ORG	PE	PU	SE
AG1	0.80	0.22	0.31	-0.03	0.26	0.49	0.23	-0.07	-0.04	-0.16
AG2	0.50	0.10	0.15	0.00	0.11	0.22	0.09	0.05	0.11	0.01
AG3	0.84	0.03	0.15	0.09	0.17	0.22	0.13	0.10	0.10	-0.15
CS1	0.06	0.78	0.21	-0.22	0.27	0.23	0.34	-0.11	-0.13	-0.16
CS2	0.17	0.91	0.17	-0.01	0.25	0.32	0.27	-0.03	-0.05	-0.28
EV1	0.29	0.42	0.55	-0.09	0.41	0.46	0.39	0.04	0.07	-0.25
EV3	0.19	0.06	0.92	-0.31	0.41	0.31	0.45	-0.29	-0.21	-0.32
IT1	0.00	-0.13	-0.32	0.92	-0.26	-0.18	-0.54	0.44	0.59	0.67
IT2	0.05	-0.03	-0.22	0.86	-0.19	-0.18	-0.41	0.41	0.46	0.48
IT3	0.09	-0.11	-0.21	0.78	-0.27	-0.11	-0.46	0.24	0.36	0.49
NT1	0.25	0.28	0.40	-0.20	0.91	0.24	0.61	-0.10	-0.24	-0.34
NT2	0.34	0.08	0.44	-0.17	0.80	0.29	0.57	-0.15	-0.19	-0.27
NT3	0.11	0.37	0.46	-0.32	0.88	0.31	0.66	-0.16	-0.29	-0.39
OP2	0.46	0.28	0.41	-0.16	0.32	0.94	0.40	-0.02	-0.07	-0.38
OP3	0.06	0.25	0.23	-0.12	0.13	0.51	0.23	0.08	0.26	-0.15
Org	0.22	0.35	0.54	-0.55	0.72	0.43	1.00	-0.30	-0.43	-0.65
PE1	0.06	-0.12	-0.14	0.37	-0.18	0.04	-0.25	0.90	0.53	0.23
PE2	-0.08	-0.09	-0.23	0.40	-0.13	-0.03	-0.31	0.93	0.63	0.34
PE3	0.11	0.03	-0.24	0.40	-0.11	0.03	-0.25	0.87	0.50	0.25
PU1	0.03	-0.11	-0.15	0.50	-0.22	0.06	-0.38	0.56	0.89	0.36
PU2	-0.06	-0.02	-0.12	0.42	-0.29	0.03	-0.38	0.42	0.78	0.47
PU3	0.12	-0.11	-0.11	0.52	-0.24	-0.02	-0.35	0.60	0.90	0.45
SE1	-0.19	-0.18	-0.33	0.41	-0.30	-0.27	-0.44	0.28	0.36	0.77
SE2	-0.12	-0.19	-0.28	0.44	-0.36	-0.36	-0.51	0.22	0.38	0.71
SE3	-0.11	-0.22	-0.21	0.57	-0.21	-0.22	-0.46	0.18	0.35	0.72

Sources: Processed data, 2009.

that the all indicators used in this study attained the reliability test.

Structural Model

PLS evaluated structural model using R-square for the dependent variable and the value of the path coefficients (β) for the independent variables and then assessed the significance based on t-values of each path.

The structural model results can be seen in the figure 4 below.

Table 3. Cronbach's Alpha and Composite Realibility

	Cronbachs Alpha	Composite Reliability
Agreeableness	0.652424	0.763617
Conscientiousness	0.618796	0.834892
Extraversion	0.314398	0.719759
Intention	0.821919	0.893881
Neuroticism	0.830298	0.897804
Openness to experience	0.313897	0.711548
Perceived ease of use	0.887986	0.930624
Perceived usefulness	0.819946	0.893233
Self-efficacy	0.571511	0.77787

Sources: Processed data, 2009.
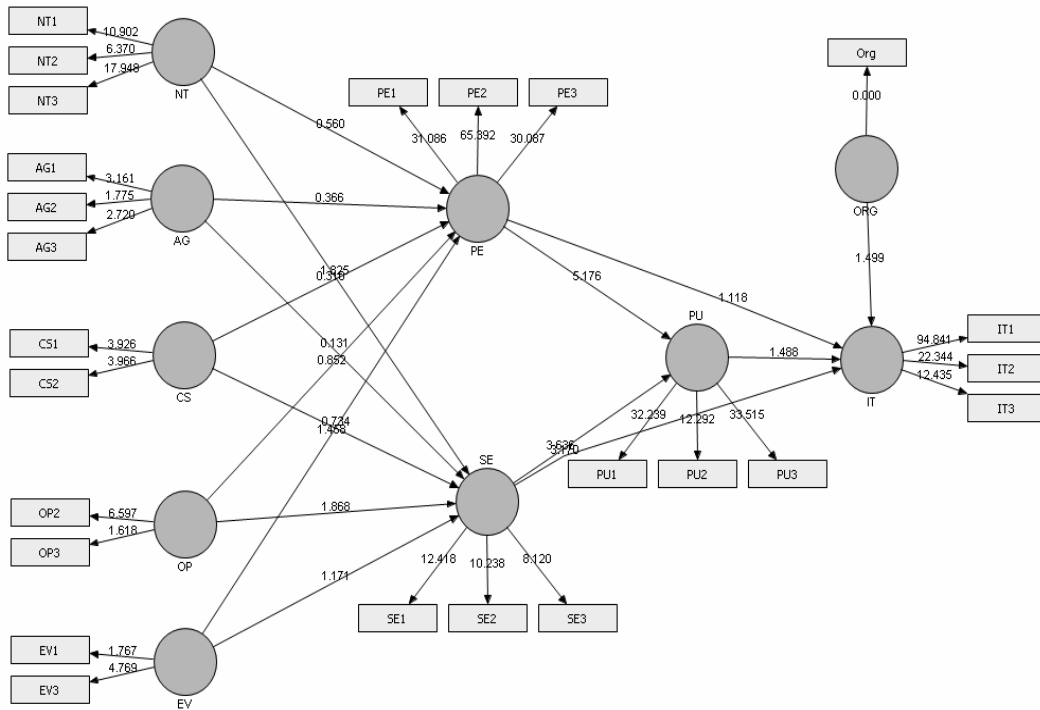
Figure 4. Output of Structural Model

To assess the significance of model paths between constructs in the structural model visits from t-value paths between constructs. Following the path coefficients indicated by the value of t the construction.

Structural model results show that only the cognitive constructs influence intention to IT whereas personality constructs have no effect. Thus, only five hypotheses are supported, namely the influence of perceived ease of use on intentions, percevid eease of use on perceived usefulness, self-efficacy to intentions, self-efficacy to perceived usefulness and perceived ease of use.

Theoretically there are several hypotheses that are consistent, such as personality factors can not be mediated by cognitive factors but should be a direct predictor of IT intention (Abdillah, 2009; McElroy, *et al.*, 2007). This means that research findings have been confirmed previous studies and debates about the concept of personality. In addition, only the cognitive constructs that influence adoption intentions so that it can be concluded that the migration of IT is risky and costly demands of rationality, as measured by perceptions of ease, usefulness and self-efficacy in the process of cognition.

Table 4. Structural Model

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (|O/STERR|)
AG -> IT	0.025382	0.020668	0.095106	0.095106	0.266881
AG -> PE	0.065284	0.046598	0.183182	0.183182	0.356391
AG -> PU	0.04055	0.033791	0.126123	0.126123	0.321511
AG -> SE	0.021179	0.023314	0.152066	0.152066	0.139278
CS -> IT	-0.05852	-0.068204	0.095009	0.095009	0.615921
CS -> PE	-0.0502	-0.06227	0.159089	0.159089	0.315567
CS -> PU	-0.05959	-0.06892	0.11847	0.11847	0.502964
CS -> SE	-0.10055	-0.117868	0.134362	0.134362	0.748353
EV -> IT	-0.12584	-0.119677	0.092782	0.092782	1.356247
EV -> PE	-0.25628	-0.22771	0.180537	0.180537	1.41952
EV -> PU	-0.17826	-0.16318	0.120748	0.120748	1.476302
EV -> SE	-0.13974	-0.145856	0.126772	0.126772	1.102322
NT -> IT	-0.12186	-0.114293	0.072999	0.072999	1.669306
NT -> PE	-0.07586	-0.066733	0.131125	0.131125	0.578556
NT -> PU	-0.11439	-0.109321	0.091702	0.091702	1.247402
NT -> SE	-0.22417	-0.213318	0.116563	0.116563	1.923202
OP -> IT	-0.07237	-0.074968	0.099059	0.099059	0.73058
OP -> PE	0.140307	0.125747	0.159983	0.159983	0.877014
OP -> PU	-0.00529	-0.010253	0.120473	0.120473	0.043892
OP -> SE	-0.22871	-0.237165	0.13505	0.13505	1.693517
ORG -> IT	-0.17235	-0.182129	0.116836	0.116836	1.475131
PE -> IT	0.23864	0.236187	0.113909	0.113909	2.095004
PE -> PU	0.511774	0.510644	0.100512	0.100512	5.091658
PU -> IT	0.214666	0.209874	0.123963	0.123963	1.731692
SE -> IT	0.462829	0.464897	0.11271	0.11271	4.106355
SE -> PU	0.337081	0.343488	0.093348	0.093348	3.611004

Sources: Processed data, 2009.

In general, the R^2 for measuring variations in the dependent variable changes caused by the independent variables showed a fairly good indication, which is 0.52 or 52 percent of the variation of the dependent variable, can be explained by variations of independent variables. However, R^2 is not a single parameter model for estimation of significance the most important is the consistency of the results with the existing theories. Thus it can be conclude that proposed model is able to explain the phenomenon of IS migration process from the cognitive and personality aspects.

Discussion

This study examines relationship between personality and cognitive factors on the intention to use IT in term of IT migration. The results shows only cognitive factors (perceived usefulness, perceived ease of use, and self-efficacy) have positive relationship on intention to use IT. It is indicated from t-value of structural model examination.

Theoretically, this finding is in line with the statement of Robey (1983) who predicted the development trend of IT adoption theory was more directed at the cognitive constructs. It can be seen in the many theoretical models developed, such as TAM, TPB and UTAUT. This finding also confirms previous studies that found cognitive factors were the established predictor of intentions (Abdillah, 2009; Davis, *et al*., 1989; Venkatesh, *et al*., 2003).

Other interesting finding from this research is unsupported of personality factors hypotheses. Trait theory is the appropriate concept to explain the concept of personality. Personality is a part of trait theories which shows the stability of the individual thought, attitudes and behavior patterns. These constructs are widely used in behavioral science but the dispositional factors have tendency of less construct validity (Abdillah, 2009). In addition, along with the development of empirical studies of trait theory, the nature of the trait can be divided dispositional and situational. Dispositional trait reflects consistency and persistency of the individual existing character when respond toward an object or event and reflection of behavior exhibited. In contrast, situational traits reflect a change in the individual character when respond toward something and behave. This debate increasingly becomes marginalized trait theory in behavioral science. Although a lot of literature try to confirm this differences, however the debate never end, even when the concept was adapted to behavioral information system.

Mitchell (1979) explained that the marginality of trait factors - as one of the foundations of the theory of motivation, attitude and leadership - because the strong influence of situational factors in term of causality compared to trait. That is, predictors of behavior are not only determined by the permanent character of the individual but also by situational factors, even the comparative magnitude of these two factors indicate the influence of situational factors influence greater than the trait. Furthermore, Weiss & Adler (1984) stated that trait factors should not only as an independent variable but it can be a mediating variable, dependent variable or moderating variable. However, there are many other factors that cause the marginality of trait factor in empirical research.

George (1992) stated that the debate over the nature dispositional or situational trait can be explained through an evolutionary process of trait factors. Individual characters could directly affect behavior but these effects can also be mediated by situational factors. Thus, the specific context of a permanent character allows person changes to appropriate context in shaping behavior. Moreover, George (1992) suggested that research on trait factors should develop based on strong theory and research design should able to explain the problem and research phenomenon.

In addition, the development and debate of trait factors also occur regarding to measurement issues and its application in the real

world. One of the main issues is practical validity and realiabity. For example, the Five-Factor Model (FFM) or Big Five Personality Factor established by Costa, *et al.* (1992) is one of the most popular instruments and commercially used by many researchers and psychologists. Meta-analysis study conducted by Salgado (1997) showed that five dimensions of the FFM trait, namely Agreeableness, Conscientiousness, Neuroticism, Openness to Experience and Extraversion, has different effects on individual performance and it has lower validity and reliability compared to narrow instrument (Ashton, 1998), such as International Personality Item Pool (IPIP) (Goldberg, 1990). Buchanan, *et al.* (2005) compared validity and reliability between Big Five Personality Factor-Costa and IPIP and found that narrow instrument has higher validity and reliability than the broader instrument. For that, researchers should be more critical while using personality instruments. Based on these explanations, it can be concluded that the use of a trait variable in the adoption studies is still relevant but potential of measurement bias regarding validity and reliability issues should be concerned by researchers.

This research also find that cognitive factors (perceived usefulness, ease of use and self-efficacy) have positive relationship on intention to IT adoption. It can be concluded that the employees of PT. Beraucoal and PDAM Boyolali have intention to use IT then it is expected that the ERP and e-billing migration process would not being constrained.

In line with research findings, it appears that cognitive factors have more influence on intention to use IT than personality factors. These results indicate that the use of IT decisions more influenced by aspects of rationality than permanent aspects of the individual character. So that, corporations and local government should feel confident that the IS migration decision will be success as long as IS control and management system is running well.

CONCLUSIONS AND RECOMMENDATIONS

This study examines the relationship of personality and cognitive factors on the intention to use IT. Personality factors are measured by openness to experience, conscientiousness, extraversion, agreeableness and neuroticism, whereas cognitive factors measured by perceived ease of use, perceived usefulness and self-efficacy. The results shows that only the cognitive factors that positively relationship on intention to use IT. These results theoretically support the statement that the development of IT adoption theory tends to lead to perceptual factors (Robey, 1983). Although IS adoption theories assume that rationality and volunteerism predict the use of IT but in practice, the organization requires employees who use IT based on perceived benefits and ease of use (Davis, 1989).

Eventhough this study does not find relationship personality factors on intention to use IT, hovewer personality factors still one of predictor of attitude and intention use use IT (Mitchell, 1979; Weiss & Adler, 1984; George, 1992). Marginality of personality factors can be caused by inadequate theory and research design, particularly measurement issues of construct validity and internal consistency. For future research, it should be more cautious while using personality instruments. Based on these explanations, it can be concluded that the use of a trait variable in the adoption studies is still relevant but potential of measurement bias regarding validity and reliability issues should be concerned by researchers.

This finding indicates that employees of PT. Beraucoal and PDAM Boyolali have positive attitude (perceived usefulness, perceived ease of use, and self-efficacy) toward intention to use IT. It is expected that employees will not be resistance in ERP and e-billing migration process as long as they perceive that ERP and e-billing have positive impact to them, they ease to use, and they perceive able

to use it. Therefore, corporations and local government should feel confident on IS migration process but still consider IS control and management system is running well.

However, this study has several limitations. First, this study used a limited number of observations (i.e. 84 respondents) that potentially produce sampling biased. Second, although the researchers used two research subjects with two types of IT migration process but the number of observations lead to unbalanced variant and potentially comparison bias. Third, study examined IT adoption model in the context of the ERP and e-billing migration process. Regarding to IT uniqueness, this study can only be interpreted in the context of ERP and e-billing, not for other IT's. Therefore, this study suggest for further researches that should use a lot of observations by increasing the response rate, equal sample size for comparison among group, and generalized this results to other IT contexts appropriately.

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