Understanding Executive Information Systems Implementation: an Empirical Study of EIS Success Factors

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Abstract
There has been rapid growth in the number of implementations of Executive Information Systems (EIS). However, the success rate of these systems has not been great. To minimize the risk of failed implementations, studies of theories and success factors for EIS implementation are recommended. This paper focuses on testing a model of successful EIS implementation and identifies success factors.

An empirical study of mature EIS in large organizations in Australia was conducted. The path analyses of this model revealed that both EIS team communication skills and user attitude towards the EIS directly influenced EIS implementation. Both user computer experience and user involvement indirectly influenced EIS implementation. Findings from this study provide a better understanding for practitioners in developing effective information systems and provide a basis for future research in IS implementation.

1. Introduction
An EIS is defined as a computerised system that serves information needs of top executives. It provides executives with easy access to internal and external information that is relevant to their critical success factors [42].

Recently, it was predicted that the US market for EIS would grow by 25% to 30% for the following three to five years [11]. Despite the growth of EIS use, its failure has occurred in both large corporations and government enterprises [26,35]. An understanding of EIS development and the factors which contribute to its success is not well established within the IS literature.

The success rate of EIS implementation is low, due to the lack of executive sponsors, political resistance, inexperienced development staff, mismanaging user expectations and data [35, 31]. To improve the success rate, knowledge of factors that contribute to EIS success would be useful. The results of this research will increase the understanding of the process of EIS implementation, the characteristics of its success factors and their relationships. EIS stakeholders, including project managers, developers, support teams and users, will be able to use the findings of this research as guidelines for the implementation of EIS to improve productivity, effectiveness and predict user acceptance.

The objectives of this study are to test and refine a conceptual model of implementation success. This model hypothesises relationships between six predictor variables and EIS implementation success. For example, EIS implementation success was measured by user satisfaction with information quality, system quality and service quality. A survey of EIS users in Australian organisations was employed and path analysis was examined to test the relationships of the variables in the research model.

2. Research background
Kappelman and McLean [23] proposed the Behavioral-Attitudinal Theory of information system success. They hypothesised that IS success is indirectly influenced by user participation in information system implementation and mediated by user involvement. In this research, the BAT model is applied as the core of the research model which explains the relationships between user participation, user involvement and system success.

The model of user participation, user involvement and system use was developed and empirically tested by Hartwick and Barki [17]. This model is based on the theory of Reasoned Action [3]. The model hypothesises that "system use" is influenced by user participation and mediated by the psychological constructs of user involvement, as well as by user attitude towards the system and its use, the subjective norm concerning system use and intention to use the system.
Figure 1. A conceptual model of EIS implementation success.

The research model, shown in Figure 1, was derived from the Behavioral-Attitudinal Theory [23], the model of user participation, user involvement and system use [17] and IS success model [13]. Further it was derived from IS/DSS/EIS implementation research [1,2,10,18,21,31,35,38,44].

The research model is comprised of six predictor variables and one criterion variable. Three of the predictor variables are exogenous variables that are not influenced by other variables in the model. The exogenous variables are user computer experience, EIS team business skills, and EIS team communication skills. Endogenous predictor variables which moderate the effects of other variables in the model include user participation, user involvement and user attitude towards the EIS. The criterion variable is EIS implementation success (measuring as user satisfaction with information quality, system quality, and service quality). Each variable is defined as follows.

User computer experience refers to exposure to computer technology. It also refers to the utilisation of computer systems by user and can be measured by variables such as number of years experience using systems.

EIS staff business skills are defined as the business background of the EIS development team. The critical business skills for IS staff are concerned with applying IT to serve the organisational goals, deploying IT effectively to meet strategic business objectives, analysing business problems, and integrating existing and new business applications [36]. EIS staff communication skills are defined as the skills of the EIS development team in interaction between users and developers. The development team needs skills to communicate with executive users during system analysis, design and development including determination of system objectives, identification of information requirements and prototyping. User participation is defined as a set of operations and activities performed by users or their representatives during the IS development process [5] and activities during the system implementation [23]. User involvement is referred to as “a psychological stage of the individual, and defined as the importance and personal relevance of a system to a user” [17, p.441]. According to Fishbein and Ajzen [16], attitude is defined as the effect that one feels for or against some object or behavior. In this research user attitude towards the EIS refers to his feeling that the system is either good or bad.

**EIS implementation success**

In previous research, system success has been measured in the terms of system quality, system usage, user behavior and attitudes, and user satisfaction [34]. The most cited IS success model was developed by DeLone and McLean [13]. It introduced six surrogate measures of IS success: system quality, information quality, user satisfaction, system use, individual impact and organizational impact.

According to DeLone and McLean [13] system quality is the measurement of the quality of information
processing while information quality is the measurement of the quality of output from information systems. System use refers to recipient consumption of an information system while user satisfaction is the user response to the use of output of an information system. Individual impact is the effect the information has on the user’s behavior including improving personal or departmental performance, and organizational impact refers to the effect of information on organizational performance.

There are reasons for not using the three measures of the IS success model [13]—system use, personnel impact and organizational impact—in this study. There are some tangible and intangible benefits that do not lend themselves to identification and calculation for cost or benefits [21]. Consistent with this, a majority of the firms did not use cost/benefits analysis in EIS assessment [43]. In other words, the benefits, and the impact of EIS on the individual and the organization, are difficult to assess. Another measure of IS success, system use, is not a good measure because the system use can be high in a poor system when use is mandatory.

The three most commonly used measures in the IS success model, system quality, information quality, and user satisfaction were employed in this study. As noted, the IS success model emphasised on product quality [30]. To increase the effectiveness of the measures used in this research, service quality was used in this study. Then, user satisfaction was coupled with system quality, information quality and service quality to result in multi-attribute measures. These three selected measures were user satisfaction with system quality, information quality, and service quality.

3. Methodology

The research was designed to be an explanatory, cross sectional, statistical, mail survey. The survey study investigated Australian organizations that had achieved a mature stage of EIS implementation. Respondents to the survey were EIS users, and the survey focused on situational characteristics and the measurement of variables such as computer experience, participation, involvement and attitude. The respondents were requested to assess the EIS staff on characteristics such as business skills and communication skills. It was hypothesised that these characteristics would affect the success of the implementation. For this purpose, the success of the EIS implementation was measured by user satisfaction with system quality, information quality and service quality.

3.1 Sample characteristics

The EIS studied were all mature systems with a mean system life of 28.6 months. Use of the EIS was reported between zero and forty hours per week with a mean time of use of 5.9 hours per week. The majority of the EIS users were middle managers (44.20%) who used EIS in their business activities. The other respondents included operational management (21.10%), senior management (15.4%), business analysts (7.70%) and others (11.65%). The functional environment of EIS user respondents differed; the majority of respondents were in finance (34.60%), followed by those in marketing (28.90%) and information systems (19.20%).

3.2 Operationalization of constructs

The background information section was designed to obtain information on the user’s position, functional areas, and the time and frequency of their EIS usage. This section was adapted from a questionnaire used in past study [42].

The user satisfaction with EIS section was designed to measure satisfaction with EIS information, system quality, and service quality. Feelings of satisfaction with EIS information and system quality were measured on 7-point semantic differential scales, with 1 = strongly disagree, and 7 = strongly agree. These scales were adapted from Bergeron’s [8] and Swanson’s [38] studies. Satisfaction with the level of EIS support (the quality of EIS support provided by the EIS staff) was also measured on eight 7-point scales adapted from Bergeron, Rivard and De Serr’s [9] instrument. Bergeron et al. [9] reported high Cronbach alphas (0.89, 0.83 and 0.94, respectively) for all of the three measurements, which indicated high internal consistency for all three questionnaires.

The EIS staff characteristic section was designed to gather data on the EIS team business background and communication skills. To measure staff characteristics, two 7-point differential scales, adapted from Bailey and Pearson [4], were used. The reliability of these questionnaires was tested by the same researchers and found to be very high (above 0.9).

User computer experience was measured by a five-item scale where a score of ‘1’ was recorded when the respondent chose a type of experience; otherwise, a score of zero was recorded. The questionnaires were adapted from Thong and Yap [39]. As the Cronbach alpha coefficient was determined by the same researchers, the coefficient of 0.62 meets Nunnally’s guideline [39] of 0.6 and above for newly developed research variables, suggesting that the research instruments are sufficiently reliable to use here.
User participation was measured by a seven-item scale adapted from Torkzadeh and Doll [40]. Six items were taken from Torkzadeh and Doll’s [40] questionnaires, and one item was developed to provide more information about determining user needs during maintenance. The content of this measurement section is the same as the former, although the scales are different. The items were rated on 7-point semantic differential scale, while Torkzadeh and Doll used 5-point scales.

Both user involvement and user attitude towards the system were adapted from Barki and Hartwick’s study [5], using a nine- and a four-item instrument, respectively. All items were measured on 7-point scales. In addition, the measurements of user involvement included personal relevance (e.g. unimportant/important, means nothing to me/means a lot to me). The measurement of user attitude towards the system included user feelings concerning the EIS system (e.g. useful/useless, terrible/terrific). The reliability of user involvement and attitude towards the system were tested and yielded Cronbach alpha of 0.93 and 0.99, respectively [5].

The appropriateness of the above six predictor variables and three surrogate measures of EIS implementation success were tested in a pilot study. The participants in the pilot study, who included three EIS project managers and six EIS users from three public and private organisations. They agreed that the questionnaires represented the constructs. The results from pilot study were excluded from data analysis of the survey.

### 3.3 Data collection

Many attempts were made to achieve a high response rate. There were two rounds of data collection. In the first round large organizations in Australia that had a mature EIS were invited to participate, however, a low response rate resulted. In the second round, the EIS industry was specifically targeted via EIS vendors who distributed the survey. A total of 55 questionnaires from 17 organisations who used EIS were received. Three incomplete EIS user questionnaires were discarded because of missing data. Fifty-two useable EIS user questionnaires were discarded and of these 27 had an EIS [27]. In Canada, Bergeron et al. [10] collected data from 38 EIS users. Watson et al. [42] received 112 responses in their survey in the US, of which 50 respondents had an EIS. In other studies performed in the US, Nord and Nord [28] received 152 responses and only 47 of these had an EIS. Rainer and Watson [31] interviewed 48 EIS developers. In the survey by Watson et al. [43], 60 responses were received and 43 of the respondents had an EIS. Based on these examples, and considering the comparative size of commerce in Australia, the number of participants gained in this research was a satisfactory result.

### 3.4 Data analysis

SPSS for Microsoft Windows was used to analyse the data from the survey. Given the small size of the sample, the two main statistical tools used were Pearson Product Moment Correlation (PPM) and path analyses with 0.05 as the level of statistical significance. PPM was used to test the relationships between the three measures of EIS implementation success (user satisfaction with information quality, system quality and service quality) and six predictor variables (EIS team business skills, EIS team communication skills, user computer experience, user participation, user involvement and user attitude towards the EIS). Path analyses were carried out to investigate the influences of predictor variables on the success of EIS directly and indirectly, and to identify which variables were the most important in explaining the success of EIS. They were performed using stepwise regression analysis [29].

According to the conceptual model (Figure 1), the variables of user computer experience, EIS team business skills and EIS team communication skills are the exogenous variables that are not influenced by other variables of the model, while the remaining variables are endogenous. The predictor variables entered into the regression equation consisted of user participation, user attitude towards the EIS, user involvement, user computer experience, EIS team business skills, and EIS team communication skills. In order to test the path model, as depicted in Figure 1, a series of multiple regression analyses was performed to calculate the hypothesised direct and indirect path coefficients. The path coefficients are the beta values (β) from the regression equations, and these are accepted if they are significant at the 0.05 level. In this study, the path coefficients of the model were calculated using the following steps.

1. Regress the criterion variable on all predictor variables.
2. Regress user attitude towards the EIS on user computer experience, EIS team business skills,
EIS team communication skills, user participation, and user involvement.
3. Regress user involvement on user computer experience, EIS team business skills, EIS team communication skills and user participation.
4. Regress user participation on user computer experience, EIS team business skills, and EIS team communication skills.

The outcomes of the path analysis are shown diagrammatically in the path model of successful EIS implementation (Figure 2). The direct paths, indirect paths, and interrelationship between predictor variables in the three models are described in the following section.

4. Results

The means, standard deviations and range of responses for the variables in the model of successful EIS implementation were calculated. The EIS studied were all mature systems, with a mean system life of 28.6 months. Use of the EIS was reported to be between zero and forty hours per week, with a mean time of use of 5.9 hours per week. Participant rating of EIS implementation success yielded similar results across all three surrogates used in this research with a mean rating of 4.6 for satisfaction with information quality, 4.6 for system quality, and 5.1 for service quality. These three measurements indicate a positive user satisfaction with the EIS provided in their companies.

A number of predictor variables reported values above the mean of 4.00 (EIS team business skills, 4.2; EIS team communication skills, 4.5; user computer experience, 5.0; user attitude towards the EIS, 5.3; and user involvement, 5.7). User participation, however, was rated with a mean of 3.8, which is below the scale midpoint. Given the type of scale used, this would indicate a low degree of participation with the EIS implementation.

To identify the relationships between the three surrogate measurements of user satisfaction with information quality, with system quality, with service quality, and EIS implementation success, Pearson product-moment correlation analysis was used. Table 1 presents the computed correlation coefficients and indicates that the three surrogate variables are positively and significantly related to each other and to the EIS implementation success.

The results of Pearson Product Moment Correlation (PPM) from Table 2 shows that five of the predictor variables (EIS team business skills, EIS team communication skills, user participation, user involvement and user attitude towards the EIS) are significantly related to all four criterion variables. However, user computer experience is not positively related to any of the four criterion variables. Among the six predictor variables, EIS team communication skills and user attitude towards the EIS show the strongest correlation with each of the four criterion variables.

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Information quality</th>
<th>(2) System quality</th>
<th>(3) Service quality</th>
<th>(4) EIS implementation success</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Information quality</td>
<td>1.00</td>
<td>0.66***</td>
<td>0.53***</td>
<td>0.88***</td>
</tr>
<tr>
<td>(2) System quality</td>
<td>1.00</td>
<td>0.33*</td>
<td>0.81***</td>
<td></td>
</tr>
<tr>
<td>(3) Service quality</td>
<td>1.00</td>
<td>0.77**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) EIS implementation</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant at *p<0.05, **p<0.01, ***p<0.001.

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Information quality</th>
<th>System quality</th>
<th>Service quality</th>
<th>EIS success</th>
</tr>
</thead>
<tbody>
<tr>
<td>User computer experience</td>
<td>-0.06</td>
<td>0.10</td>
<td>0.02</td>
<td>0.04</td>
</tr>
<tr>
<td>EIS team business skills</td>
<td>0.45**</td>
<td>0.43**</td>
<td>0.25</td>
<td>0.45**</td>
</tr>
<tr>
<td>EIS team communication skills</td>
<td>0.63***</td>
<td>0.64***</td>
<td>0.53***</td>
<td>0.72***</td>
</tr>
<tr>
<td>User participation</td>
<td>0.26</td>
<td>0.40**</td>
<td>0.25</td>
<td>0.37**</td>
</tr>
<tr>
<td>User involvement</td>
<td>0.42**</td>
<td>0.43**</td>
<td>0.12</td>
<td>0.39**</td>
</tr>
<tr>
<td>User attitude towards the EIS</td>
<td>0.71***</td>
<td>0.80***</td>
<td>0.39**</td>
<td>0.77***</td>
</tr>
</tbody>
</table>

Significant at *p <0.05, **p<0.01, ***p<0.001
According to results from multiple regression, the power of six predictor variables in explaining variance of EIS implementation success ($R^2=0.69$, $p<0.001$) is significant. Thus, the $R^2$ index shows that EIS implementation success is predicted by the six predictor variables.

The results from path analysis are illustrated in Figure 2. The conceptual model of successful EIS implementation is the core model on which testing is performed. The model indicates that user computer experience, EIS team communication skills and user attitude towards the EIS play important roles in explaining the success of an EIS implementation.

EIS team communication skills and user attitude towards the EIS directly influence the perception of EIS implementation success ($\beta=0.42$; $\beta=0.50$, respectively). Thus, the higher the communication skills of the EIS team and the more positive the user attitude towards the EIS, the more successful the EIS is perceived to be.

The results of the analysis yield indirect paths between user computer experience, EIS team communication skills, and EIS implementation success. The first indirect path consists of the path from user computer experience to user attitude towards the EIS ($\beta=-0.23$) and from user attitude towards the EIS to EIS implementation success ($\beta=0.50$). The second indirect path is from EIS team communication skills to user involvement ($\beta=0.35$), from user involvement to user attitude towards the EIS ($\beta=0.40$) and from user attitude towards the EIS to success ($\beta=0.50$). The third indirect path is from EIS team communication skills to user attitude towards the EIS ($\beta=0.53$) and from attitude towards EIS to EIS implementation success ($\beta=0.50$).

Results from the PPM correlation (Table 2) show that EIS team business skills are significantly related to EIS implementation success. However, when the joint influence of user computer experience, EIS team communication skills, user participation and user attitude towards the EIS have been partialled out via multiple regression analysis, this zero-order correlation became non-significant. Thus EIS team business skills do not directly influence successful EIS implementation.

According to this path analysis, EIS team communication skills influence the perception of EIS implementation success both directly and indirectly through both user involvement and the user attitude towards the EIS. Thus, the higher the communication skills of the EIS team, the higher the user involvement and the more positive the user attitude towards the EIS, then the more successful the EIS is perceived to be. Moreover, EIS implementation success is negatively influenced indirectly by user computer experience operating through user attitude towards the EIS. The more computer experience the user has, the greater the tendency to have a negative attitude towards the EIS. However, the more positive the user attitude toward the EIS, the more successful the EIS is perceived to be.
There are five relationships among the variables in the model. The user attitude towards the EIS is directly influenced by EIS team communication skills ($\beta=0.53$), user involvement ($\beta=0.40$), and user computer experience ($\beta=0.23$). User participation and user involvement are directly influenced by EIS team communication skills ($\beta=0.52$, $\beta=0.35$, respectively).

User attitude towards the EIS and EIS team communication skills are the two most important predictors of EIS implementation success (Figure 2). These two predictor variables help to explain the criterion variable, successful EIS implementation. Additionally, EIS team communication skills is a powerful predictor because it also influences the other three predictor variables of user participation, user involvement and user attitude towards the EIS.

Based on these results, EIS team communication skills emerges as the most powerful single predictor of EIS implementation success.

5. Discussion

User computer experience has been reported to (i) influence DSS implementation success [1,20], (ii) relate to computer usage [19] and (iii) affect both DSS use and user satisfaction [6]. However, the results from this research indicate that user computer experience is not significantly related to EIS implementation success. These results support the conclusion by Bergeron et al. [10] that user experience with computers is not a significant determinant of EIS utilisation.

Results also reveal that user computer experience is negatively related to user attitude towards the EIS. A possible explanation of this finding may lie with the fact that users with more computer literacy have higher expectations of the system than others and thus may react negatively to the delivered EIS system when it does not meet these expectations.

EIS team business skills are expected to positively influence EIS implementation success [2,7]. In this research, EIS team business skills is reported as having no significant relationship with EIS implementation success. However, the results are not significant, and the EIS development team should note that the business skills of system analysts are one of the success factors which contribute to IS development success [36].

EIS team communication skills are found to be significantly related to EIS implementation success. These findings support previous research which suggests that the ability of staff to communicate with users is strongly correlated with user satisfaction with system development [25] and IS development success [15,22,24,36,41]. This research provides further evidence that EIS team communication skills are an important factor which contributes to a successful EIS implementation.

The EIS team with high communication skills tends to result in improved overall EIS implementation success. Thus, communication skills play a key role in the implementation process of an EIS. This role includes introducing a new system to users, working with users during determination of information requirements and prototyping, responding to users’ requests, and negotiating political resistance to an EIS.

Results from the path analyses show that EIS team communication skills also influence user participation. This evidence supports previous studies. Effective communication plays a facilitating role for user participation, helping in managing conflicts in system development [33], facilitating the exchange of information in system requirements, and influencing system development success [25,41].

In brief, EIS team communication skills directly influence user participation, user involvement, user attitude towards the EIS and EIS implementation success. EIS team communication skills indirectly improve user attitude towards the EIS and EIS implementation success.

The path analysis of EIS implementation success reveals that user participation does not significantly influence EIS implementation success. These findings corroborate previous findings in computer user training which have shown no relationship between (1) user participation and system usage and (2) user participation and user satisfaction [40].

Additionally, in the case of mandatory users, it is reported that there are no relationships among user participation, user involvement, user attitude towards system and system use. However, for voluntary users, system use is influenced by user participation and is mediated by user involvement [17]. Similarly, the relationship between user participation in system development and IS success is inconsistent; it can be either significant or non significant [12,21]. According to Senn [37,p. 35], “user involvement (participation) in the system development process does not guarantee IS implementation success. Its absence does not automatically doom a project to failure”.

Users who participate in system development more or less than expected are less satisfied with the outcome of system development [14]. The level of user participation is one determinant of user satisfaction with IS. To increase user participation among voluntary users, user participation expectations should be managed.

The findings from the descriptive statistics show that user participation in EIS implementation is below the
mid point of four on the 7-point semantic scale. The low degree of user participation may have resulted from conflict between developers and users during system development [33]. User participation will be effective if users can influence the development process. The degree of participation will be decreased if user input is ignored. Conversely, the degree of participation will be enhanced if developers accept user input.

In summary, it is suggested that user participation does not influence the EIS implementation success. Further, the level of user participation in EIS implementation is low. Managing user expectations regarding participation may be important.

The results from this research show a significant relationship between user attitude and user involvement. This finding supports Hartwick and Barki’s study [17] that user involvement influences user attitude towards the system among voluntary users. Thus, the higher the level of user involvement in the system, the higher the extent to which they will have a positive attitude towards the system. Further, the indirect influence of user involvement on EIS implementation success is statistically significant. Systems with high levels of user involvement seem to have more successful EIS implementation.

The study of user attitude towards the EIS indicate that EIS implementation success is significantly influenced by user attitude. This finding supports those obtained from previous studies [32,38,44] which showed that user attitude toward a system relates to system use. Users who believe that the system is good, important, and personally relevant, would be expected to use the system and would be satisfied with the system. Positive user attitude towards the EIS tends to result in greater user satisfaction with information quality, system quality and overall EIS implementation success. To boost up user attitude towards the EIS system, the development team should introduce tangible and intangible benefits of the system to users before and after system implementation. This will enhance user satisfaction with the system and lead to EIS implementation success.

Based on the above findings, the results indicate that user participation and user involvement do not influence EIS implementation success directly. This supports the Hartwick and Barki study [17] that user participation and user involvement do not influence system use for mandatory users. Instead, the important factors that affect system success are user attitude towards the EIS and EIS team communication skills. This research shows that the EIS team communication skills play a key role in the implementation process of the EIS.

6. Conclusions

Important findings from this research are summarised and presented as follows.

1. User computer experience and user involvement do not directly influence EIS implementation success.
2. User computer experience has a negative effect on user attitude towards an EIS.
3. User participation and user involvement are two distinct constructs that do not directly influence EIS implementation success.
4. EIS team communication skills directly influence user participation.
5. User involvement directly influences user attitude towards the EIS.
6. EIS implementation success is both directly and indirectly influenced by EIS team communication skills, being mediated by user involvement and/or user attitude towards the EIS.
7. User attitude towards the EIS directly influences EIS implementation success.

Future research can extend the model presented in this research by identifying which action type of communication (instrumental, strategic and communicative action) should be used in each stage of IS development including system analysis, identifying information requirements, system design, prototyping, and evaluation. With results identifying these behaviors, project managers will be more appropriately equipped to use the right communication type as a constructive tool in their works within project teams. It is expected that this research provides good reasons for both stimulating and improving the effectiveness and efficiency of the IS development process.

When compared to previous research reviews, the relationships between user participation, user involvement and system success are inconsistent [12,21]. In this research, both user participation and user involvement were found to be unrelated. Likewise user participation was unrelated to EIS implementation success. This contradicts some assumptions derived from BAT [23]. This research should be replicated empirically using random sampling with a larger data size and in a different country from Australia in order to confirm the successful EIS implementation model.

In summary, the significant finding from this research is that both EIS team communication skills and user attitude towards EIS positively influence EIS implementation success. Good EIS team communication skills and a positive user attitude towards EIS are essential in EIS implementation. In addition, effective EIS staff-user communication is required in system
design and development. This action results in enhancing user participation and user involvement, increasing understanding, decreasing user resistance to the system, enhancing positive user attitude towards the EIS, and enhancing the possibility of a successful EIS implementation.

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Tables and survey questionnaires are available from author (fsciang@ku.ac.th).

8. References


