

Critical factors affecting the intention for adoption of customer relationship management system: a study of military hospitals in Taiwan

Rai-Fu Chen

Department of Information Management
National Chung Cheng University,
Taiwan
rafuchen@mis.ccu.edu.tw

Fan Chih Yeh

Medical Service Section
Armed Forces Taichung General
Hospital, Taiwan
fan@aftcgh.com.tw

Chung-Feng Liu

Department of Information Management
National Chung Cheng University,
Taiwan
fredliu@mis.ccu.edu.tw

Abstract

In this study, we used survey to investigate the factors affecting the intention of customer relationship management system (CRMs) adoption in military hospitals that have been ranked above regional hospital by hospital accreditation. Those hospitals are considered to be better than community hospitals in information processing and utilization abilities. A total of 385 questionnaires were mailed to medical staffs, administrative staff, and staffs who provide direct service in 7 military hospitals of larger size. The response rate was obtained to be 73.2%. Structural equation modeling (SEM) was then employed to test the proposed model. The results showed that the factors including personal innovativeness of information technology, interpersonal influence, and computer self-efficacy would affect the intention for CRMs adoption. The obtained results also showed that the behavioral intention (BI) of the personnel in the military hospitals toward CRMs adoption is higher when they have more positive attitude (ATT). Besides, the behavioral intention of the personnel in the military hospitals is higher when their perceived ease of use (PEOU) and perceived usefulness (PU) of CRM adoption are higher. Furthermore, it was found that no evidence existed to verify that computer self-efficacy (CSE) positively affects the PU and BI of CRMs adoption, and the findings of this study could be a good reference for the other hospitals for establishing and developing CRM strategies.

Keywords: CRMs, SEM, TAM

1. Introduction

After the implementation of the national healthcare insurance policy, hospitals in Taiwan are facing a lot of managerial challenges on cost reduction and medical quality. To deal with those challenges, many hospitals in Taiwan are aggressively adopting related information technologies (IT) to improve their management efficacy and even to gain competitive advantages than others. For the hospitals in Taiwan, they can be roughly divided into private and public hospitals. For the private hospitals, their budget come from daily operation net incomes and their organization structure are flexible enough to quickly response environment changes. For the public hospitals, their goals are to provide public healthcare for different subjects and their budget come from the global

government budget per year. Therefore, public hospitals often have a restricted organization structure and administration management system which must match the government laws and policies.

Before the implementation of national healthcare insurance policy, public hospitals are key healthcare providers and provide great contributions for patient care. In Taiwan, a military hospital is one kinds of public hospitals which is often considered as a more closed and inflexible organizational structure than others. Its primary objective is to provide better patient care for soldiers and their family dependents and to support medical treatment in war. Because the healthcare insurance policy of Taiwan has allowed soldiers and their family dependents to take medical treatment on other non-military hospitals, those major customers of military hospitals have various choice on the selection of hospitals.

According to the result of a recent study on the management of military hospital, it pointed out that military hospitals have reduced almost sixty percentage of patient number on outpatient after the implementation of the national healthcare insurance policy. Even though military hospitals have provided soldiers and their family dependents with lower medical fees than other hospitals, they still can't reduced the losses of major customers [9]. Gao et al., also make some suggestions on the topics of customers retention and the increase of military hospitals' competitive. They recommended that military hospitals should reexamine their innate responsibilities, limitations and managerial strategies with a proactive attitude in order to reestablish their repudiation and trust of patient. Besides, military hospitals should enrich their medical modalities, enhance medical-related staffs' service level and attitude toward soldiers and their family dependents. Also, the connections with other different hospitals should be well established to provides their customers with better medical quality and convenience when patient care is needed.

The concepts and related technologies of customer relationship management (CRM), that have been well proved to be a good solutions on marketing for the maintaining of old customers and keeping their loyalty, should be adopted in order to provide better patient care and to increase military hospital's internal managerial efficacy. Although CRMs is an important technology for

the improvement of customer relationship management, there is little empirical study about the factors affecting adoption of CRM system on military hospitals. In this paper, we will refer to prior CRM-related results and suggestions from healthcare industry and other industries as the basis of the proposed research framework of this research.

The purpose of this research is to explore the critical factors affecting the intention of CRMs adoption in military hospitals of Taiwan and the current development status of CRMs on military hospitals. The obtained results of this research will not only provide some contributions to further academic research but also make a good reference point to other hospitals that consider the topic of adoption CRMs in the near future.

2. Literature Review

2.1 the definition and characteristics of CRM

The definition of customer relationship management proposed by Kalakota and Robinson indicated that the purpose of CRM is to improve enterprise workflows and processes on activities of selling, marketing, customer services through the usage of software and related technologies (Kalakota & Robinson, 1999) [15]. General speaking, customer relationship management can also be represented as a concept, procedure, or information system (called customer relationship management system, CRMs). As discussed above, customer relationship management consists of service processes and procedures to provide better understanding of customers. In the healthcare industry, their major customers are patients. The customer relationship management of healthcare industries is a patient-oriented service cycle to provide better patient care quality.

Swift (2001) proposed a 4R Model to explain the purpose of customer relationship management by right time, right channel, right offer, and right customer [22]. It means to provide right offer (product/service) to right customer through right channel at the right time. Therefore, for different types of customers, we have to apply various goals and policies for customer management. Besides, the management model and operation processes also need to be integrated to provide customized services on customers. Through the utilization of CRM, it will increase the capabilities to deal with environment changes and even to gain competitive advantages on reducing managerial cost, increasing operation profits, and keeping customer loyalty.

The definition of customer relationship management system (CRMs) of this study focus on the usage of related information technologies to assist the processes of customer related data collection and analysis. And the obtained information, such as personal demographical record, medical record,

admission note, discharge note, transfer report, and examination reports can be used to provide better decision support on customer relationship marketing. By the adoption of CRMs, it is expected that military hospital can increase their profits, reduced managerial cost and even to gain competitive advantages than other hospitals.

2.2 Factors affecting the adoption of information technology

Grover and Goslar (1993) studied the consideration for communication technology adoption in USA enterprises and they found that the adopting process could be divided into three stages: initiation, implementation and adoption [10]. They also figured out three factors could be used to explore the affecting factors of information technology adoption.

2.2.1 Environmental dimension

Many past studies all concede that environment dimensions, such as environment heterogeneity and uncertainty, have influence on speeding up the acceptance for innovation. While the environment is getting changeable and uncertain, enterprises will seek for more IT assistance to make quick response.

2.2.2 Organizational dimension

There are three factors concerned for this dimension. They are organization size, centralization degree, and formalization degree. A larger enterprise usually is more willing to adopt innovation technology. Centralization degree is considered about the decision making process in enterprise. The higher centralization degree usually is harmful for initialing and adopting innovation technology but helpful for implementing. Finally, formalization degree is considered about the standardization degree of operation process. High standardization are helpful for implementation and adoption but harmful for initiation.

2.2.3 Information system factors

The higher maturity of information systems will affect the initiation and implementation of innovation technology but be harmful for adoption.

2.3 Technology Acceptance Model

Davis (1989) [7] adapted the theory of reasoned act (TRA) model and proposed technology acceptance model (TAM) to explore the IT acceptance. TAM and TRA state that an actual behavior is determined by the intention to perform that behavior. Intention, itself, is determined by the individual attitude toward the behavior. TAM indicates both perceived usefulness (PU) and perceived ease of use (PEOU) as key independent variables that determine or affect potential users' attitude (ATT) toward IT intention of use (BI).

Adams et al., (1992) [1] recommended that TAM can be used as a determinant to understand the adoption and diffusion of technology in organization or among

organizations. Therefore, in this study, we use TAM to explore the factors affecting the intention for CRMs adoption. Although a number of external variables were introduced into TAM as suggested by Davis (1989)[7], Davis et al., (1989) [8] called for further research to consider the role of additional external variables that will affect PU and PEOU. Despite the great success of this widely applied theoretical model, mixed results of these external variables were found in the IS field. According to a survey proposed by Lee et al., [16], it pointed out that the most frequently introduced external variables are system quality (e.g, Igbaria et al., 1995b [14]), training (e.g, Igbaria et al., 1995a [13]), compatibility, computer anxiety, self-efficacy, enjoyment, computing support, and experience (e.g, Chau, 1996 [6]).

Because the CRMs is an innovation technology for the military hospital user, we put emphasize on the factors of personal innovativeness, interpersonal influence and computer self-efficacy affecting individual user perceived ease of use and perceived usefulness on then intention for new technology adoption. Although prior studies [2, 3, 12, 21, 24, 25] showed that those three factors affect the individual user's intention on technology usage, it may have different results coming from different technology used. An evidence showed in Lee et al., [16] study indicated that "TAM has been applied to different technologies (e.g. word processors, email, WWW, GSS, Hospital Information Systems) under different situations (e.g. time and culture) and different subjects (e.g. undergraduate students, MBAs, and knowledge workers), leading its proponents to believe in its robustness". The results of prior studies about personal innovativeness, interpersonal influence and computer self-efficacy are described in section 3.3. Besides, those three factors have not been studied as a whole before. Therefore, in this study, we use personal innovativeness, interpersonal influence and computer self-efficacy as key factors to explore the relationships among those three factors and user behavioral intentional. The obtained results can also make a complementary explanatory to the previously study on environmental, organizational, and information system factors to new technology adoption.

3. Research methodologies

3.1 Research problem and objectives

Soldiers and their family dependents are major customers of military hospitals. To deal with the challenges after the implementation of the national healthcare insurance policy, military hospitals should adopt more aggressively strategies on the utilization of available resources in order to overcome their inheritance limitations and to provide better quality of patient care.

Because the adoption of CRMs is time-consuming and needs to be well planned, there is litter research on CRMs adoption for military hospitals even to healthcare industry. Consequently, this study is important for military hospitals to understand the critical factors of customer relationship management. The obtained results of this study can also provide additional insights to complement the findings from prior research in healthcare industries.

The research problem of this study can be described as "What are the important critical factors affecting the intention of military hospitals in Taiwan should take into consideration before and during the adoption of customer relationship management system?" Besides, the research objectives include the following items:

1. To study the factors that will affect the intention of adoption of customer relationship management in the military hospitals.
2. To validate the theory of technology acceptance on customer relationship management system of military hospitals and to provides healthcare industry with suggestions for practical operation and academic study.

3.2 Research model

The major purpose of this study is to explore the factors affecting the military hospital users' intention on CRMs adoption and to understand the casual model among those factors. To satisfy this objectives, the technology acceptance model is used as the basis of our research model. Besides, some constructs about individual technology tendency also be considered in this model. Therefore, the proposed model's constructs to measure military hospital users' intention consist of personal innovativeness, interpersonal influence, computer self-efficacy, perceived usefulness, perceived ease of use, attitude, and behavioral intention. In those mentioned seven constructs, the first three constructs often be seen as independent variables and the other four constructs are dependent variables for individual user's technology acceptance on some researches. In this study, we agree with such relationships among them and especially put emphasizes on personal innovativeness construct, interpersonal influence construct and computer self-efficacy construct external to technology acceptance model and further investigate their impacts on the CRM adoption. Thus, the proposed research model is depicted as Figure 1 and the casual relationships among them need to be further tested.

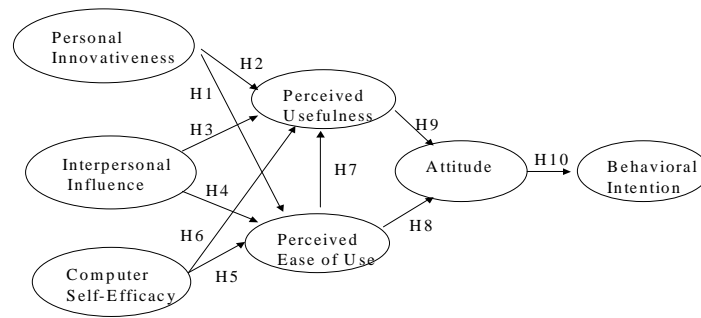


Figure 1: Research Model

The hypotheses of this study can be illustrated as follows:

H1 The military hospital users' personal innovativeness considers that the CRM is easy of use and then affects the intention of CRM adoption

H2 The military hospital users' personal innovativeness considers that the CRM is useful and then affects the intention of CRM adoption

H3 The military hospital users are affected by the interpersonal influence and the CRM is considered to be useful and further affects users' attitude and behavior intention

H4 The military hospital users are affected by the interpersonal influence and the CRM is considered to be easy of use and further affects users' attitude and behavior intention

H5 The military hospital users who have higher computer self-efficacy positively affect the perceived ease of use of CRM and indirect affect the attitude and behavior intention of CRM adoption

H6 The military hospital users who have higher computer self-efficacy positively affect the perceived usefulness of CRM and indirect affect the attitude and behavioral intention of CRM adoption

H7 The military hospital users perceive that perceived ease of use of CRM positively affect perceived usefulness of CRM and acceptance of this technology

H8 The military hospital users perceive that perceived usefulness of CRM positively affect attitude and behavioral intention of CRM

H9 The military hospital users' CRM adoption has positively correlation with the attitude of CRM adoption

H10 The military hospital users' attitude toward CRM adoption positively affect the behavioral intention on its adoption

3.3 Measurement

Multi-items were used for measuring this research. Each item is measured by a seven-point likert scale. The selected items in the instrument for each constructs were adapted from prior researches to ensure its content validity. Besides, the semantic and wording of each item has been revised in order to meet our research purpose. Table 1 summarized the operational definitions of construct and sources of questionnaire items.

In this study, behavior intention (BI) is defined as the user likelihood to use CRMs and was measured by three items adapted from Taylor & Todd (1995) [24] and Bhattacharjee (2000) [3]. Attitude (ATT) is defined as individual preferences or interests through the use of CRMs and was measured by three items adapted from Taylor & Todd (1995) [24] and Bhattacharjee (2000) [3]. Perceived usefulness (PU) is defined as the military hospital users' perception on CRMs, it is useful than old marketing channel and is affected by behavior intention and outcome evaluation. The PU is measured by three items adapted from Hu et al. (1999) [12]. There are a totally six items to measure PU because it is affected by behavior intention and outcome evaluation. Perceived ease of use (PEOU) is the degree that CRMs is ease to be used and learned. The PEOU is measured by six items adapted from Venkatesh & Davis (1996)[25] and Hu et al. (1999) [12].

Computer self-efficacy (CSE) is defined as the user's ability to finish a specific job on computer by himself and was measured by three items adapted from Taylor & Todd (1995) [24] and Bhattacharjee (2000) [3]. In this study, we assume CSE will affect the behavioral intention and perceived usefulness. Personal innovativeness (PI) is defined as the acceptable degree on innovative technology of CRMs and was measured by five items adapted from Agarwal & Prasad (1998)[2] and Rogers (1995)[21]. The PI in TAM can be explained as personal innovativeness in information technology (PIIT). Interpersonal influence (II) is defined as the usage of technology of military hospital user is affected by other person. Because individual user is bounded rationale, his/her behavior is affect by others. The II can be measured by three items

adapted from Bhattacharje (2000) [3].

Table 1: Operational Definition of Questionnaire Constructs

Construct	# of Item	Measurement Scale	Source of Items	Operational Definition
Perceived Usefulness	6	7-point likert scale	Hu et al.,(1999) [12]	The CRM is useful than old marketing channel
Perceived ease of use	6	7-point likert r scale	Venkatesh & Davis (1996); Hu et al., (1999) [25, 12]	The degree shows that CRM is ease to be used and learned
Personal Innovativeness	3	7-point likert scale	Agarwal & Prasad (1998); Rogers(1995) [2, 21]	the acceptance degree on innovative technology of CRM
Interpersonal Influence	5	7-point likert scale	Bhattacharjee(2000) [3]	The usage of technology of military hospital user is affected by other
Computer Self-efficacy	3	7-point likert scale	Taylor and Todd (1995); Bhattacharjee(2000) [24, 3]	The ability to finish a specific job on computer by himself
Attitude	3	7-point likert scale	Taylor and Todd (1995); Bhattacharjee(2000) [24, 3]	individual preferences or interests through the use of CRM
Behavioral Intention	3	7-point likert scale	Taylor and Todd (1995); Bhattacharjee (2000) [24, 3]	The direct affecting factor on individual behavior to use CRM

4. Data collection

4.1 Objectives of the questionnaire

The purpose of this research is to identify critical factors affecting the intention for CRMs adoption of military hospitals in Taiwan. The objectives of the questionnaire used in this research are to collect appropriate data for testing the significance of hypotheses proposed. The respondents include administrative staffs, medical staffs and staffs providing direct patient service. Because those military hospitals' users may have different experiences and perceptions on the CRMs, it may cause a measurement error on the CRM. In this study, we set a common CRMs type to reduce such perceptual difference on the technology.

This stage is to form research questionnaires and sent them to qualified users of military hospitals. The initial questionnaire was developed based on the findings from related literatures. In order to improve the reliability and validity of this instrument, a panel of experts (including seven academic and practitioners) was formed to revise the initial questionnaire on each question and to

make necessary changes.

The questionnaire is composed of two sections. The first section is used to collect basic data on the respondents who answer questionnaire. The section is actually the major part of this questionnaire. This section intends to collect data related to users' perception for the adoption of CRMs of military hospitals. The seven-point likert scale is used to measure the users' intention on each item. The score of 1-point means that user very disagreement with the item and 7-point represents very agreement with the item.

4.2 A sample of the survey

According to the web content of medical affair bureau ministry of national defense (http://mab.mnd.gov.tw/military_hospital.htm), there is a total of 15 military hospitals including 1 medical center hospital, 6 region hospitals and 8 community hospitals. This study exclude the 8 community hospitals because their very small scale and limited information capability. This survey was sent to 385 hospital users that deal with customer affairs of military hospitals, and follow-up telephone conversation were conducted with the

management center of each hospital in order to increase the response rate of the data collected.

5. Data Analysis and discussion of findings

5.1 Data Analysis

385 questionnaires were mailed to medical staffs, administrative staffs and staffs providing direct patient service of 7 military hospitals with larger scale. A total of 282 valid survey responses were included in this study, and the resulting response rate was 73.2%. To ensure the full representation of samples, this study takes a chi-square test to demonstrate their homogeneity. Therefore, the unreturned questionnaires will not create an impact in the accuracy of the research findings. Because there are more female managers than male ones, the female respondent was 70.3% of the total respondents and the male respondent was 29.7%. Most of the respondents' work experience was more than 5 years, they occupied 73.2% of total respondents. There was 16% respondents' work experience great than 20 years and 41.5% respondents were management level of military hospital.

5.2 Reliability and validity analysis

The research instrument needed to be assessed for its reliability as well as construct validity before the data analysis. Cronbach's coefficient α was computed for each variable to test its reliability. A value of 0.7 or larger is accepted for exploratory study. While the value is lower than 0.35, it should be abandoned [11]. Table 2 indicates that cronbach's α values range from 0.770 to 0.965, therefore, all constructs have acceptable reliability.

In terms of validity analysis, principle components technique was used to extract seven eigenvalues, which are greater than one, being adopted to evaluate the measurement of efficiency. Although there are six factors that their eigenvalue greater than 1, the eigenvalue of attitude variable is less than 1 (only 0.867) and doesn't meet the criteria for factor selection. Because the attitude factor is well accepted by technology acceptance model, in this study, it is reserved for further analysis. Therefore, those seven eigenvalues can be used to explain 79.737% of variation. In addition, the varimax method of orthogonal rotation is used to rotate the factors for explanations. The value of factor loading on all variables are greater than 0.5 except for the item of B34 (only 0.422). Because prior study on attitude is often measured by those three items(B31, B33, B34), the B34 is reserved for further study. Therefore, it provides a strong evidence to explain why this study has a higher validity.

The variables adopted in the seven dimensions of this research all use the scale developed by prior researches, therefore, they are highly validated. Besides, the description and semantics of individual item has been revised to meet the requirements of this research. The items of the survey questionnaire also be improved by the panel of experts. To ensure content validity of this study, a pretest and pilot test was employed for 15 EMBA students with hospital experiences.

Table 2: Factor Loading and Reliability Results

Factor	Items	Item Factor Loading	Eigenvalues	Cronbach's Alpha	Accumulate % of Variance
1. Perceived Usefulness	B1	.806	13.859	0.965	47.791
	B2	.880			
	B3	.876			
	B4	.862			
	B5	.822			
	B6	.825			
2. Perceived Ease of Use	B7	.814	2.785	0.938	57.394
	B8	.824			
	B9	.764			
	B10	.663			
	B11	.675			
	B12	.729			
3. Interpersonal Influence	B20	.692	1.883	0.902	63.887
	B21	.771			
	B22	.755			
	B23	.817			
	B24	.574			
4.Behavior	B25	.742	1.205	0.910	73.135

	B26	.849			
	B27	.796			
5. Compute self-efficacy	B44	.832	1.477	0.866	68.978
	B45	.869			
	B46	.812			
6. Personal Innovativeness	B13	.667	1.048	0.839	76.748
	B14	.677			
	B16	.804			
7. Attitude	B31	.799	0.867	0.770	79.737
	B33	.666			
	B34	.422			

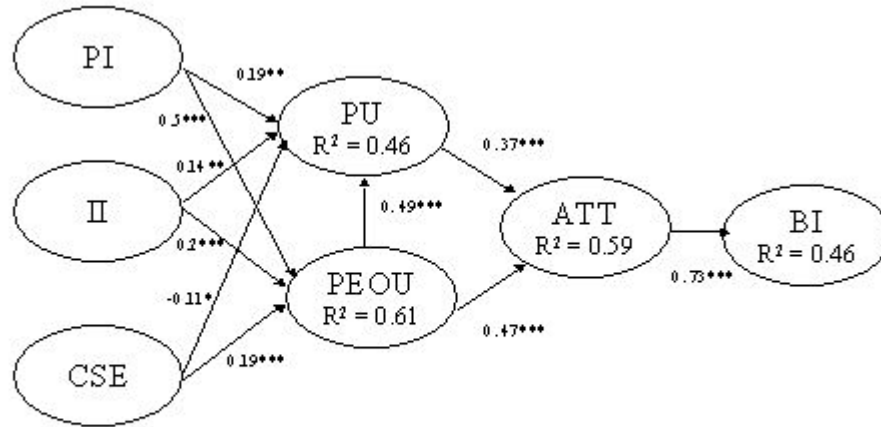
5.3 LISREL model and hypotheses testing

The study data was analyzed using LISREL to the analysis of linear structural equations, incorporating both latent and manifest variables. In this study, we expect to understand relationships of computer self-efficacy (CSE) dimension to behavioral intention (BI), personal innovativeness (PI) dimension to behavioral intention (BI), and interpersonal influence (II) dimension to behavioral intention (BI). We further test the hypotheses of the causal model between those three external variable to perceived usefulness (PU), perceived ease of use (PEOU), attitude (ATT), and behavioral intention (BI).

The LISREL analysis of the path model developed in this study shows reasonably fit for the structural model (see Figure 2, $\chi^2/\text{d.f} = 2.55$, GFI = 0.85, AGFI= 0.81, RMSR=0.075, NFI= 0.87, NNFI= 0.81). The explanatory power of the model for individual construct was examined using R^2 for PU, PEOU, ATT and BI are 46%, 61%, 59%, and 46% respectively. Although the H6 ($b = -0.11$) hypothesis is statistical significance ($P < 0.1$), it is not supported by data because it has a negative value. In other words, the influence of CSE on PU is not supported. However, other hypotheses was significantly supported by the data. The results of hypotheses testing are summarized in Table 3. The overall goodness of fit of the proposed structural model (GFI=0.85) is slightly lower than the

commonly cited threshold: GFI > 0.9 [11]. Prior study [5] show that a GFI value of 0.85 or larger is acceptable for exploratory study. Besides, the values of AGFI, NNFI, CFI and RMSEA show good results better than commonly cited thresholds. Therefore, our proposed model may represent a reasonable goodness of fit as an exploratory study. The results of hypotheses testing show that personal innovativeness positively influence attitude and attitude positively affect behavioral intention. The overall structural model also demonstrate that the key factors affecting the intention of CRM adoption to military hospital users are influenced by the three external variables of computer self-efficacy, personal innovativeness, and interpersonal influence.

In sum, the results of this study can be explained as follows. First, the obtained results also showed that the behavioral intention (BI) of the personnel in the military hospitals toward CRM adoption is higher when they have more positive attitude (ATT). Besides, the behavioral intention of the personnel in the military hospitals is higher when their perceived ease of use (PEOU) and perceived usefulness (PU) of CRM adoption are higher. Furthermore, it was found that no evidence existed to verify that computer self-efficacy (CSE) positively affects the PU and BI of CRM adoption



Chi-Square = 926.19 Degrees of Freedom = 363 GFI= 0.85 AGFI= 0.81 RMSEA = 0.075
 *P<0.1 **P<0.05 ***P<0.01

Figure 2: LISREL Model

Table 3: Hypotheses testing results

H _a	Relationships	Results
H1	PI → PEOU	Supported (P<0.01)
H2	PI → PU	Supported (P<0.05)
H3	II → PU	Supported (P<0.05)
H4	II → PEOU	Supported (P<0.01)
H5	CSE → PEOU	Supported (P<0.01)
H6	CSE → PU	Not supported due to it has a negative value (P<0.1)
H7	PEOU → PU	Supported (P<0.01)
H8	PEOU → ATT	Supported (P<0.01)
H9	PU → ATT	Supported (P<0.01)
H10	ATT → BI	Supported (P<0.01)

5.4 Discussion

This study further confirmed the conclusions from most prior TAM's researches of applying other IT (H7, H8, H9, H10). The obtained results of this study implied that it is suitable to apply TAM in the military hospital user's intention for CRMs adoption. The authors found that PU has no direct impact on BI but has significant affect ATT, therefore, the effect of PU to BI is mediated by ATT. Besides, both PEOU(b=0.47) and PU(0.37) have significant positively impact on ATT for CRMs adoption. The effect of PEOU on ATT comes from direct and indirect effect. The indirect effect of PEOU (b=0.37) on ATT is mediated by PU.

Roger (1983) indicated that the process of innovation adoption and expansion is affected by personal innovativeness, supervisor personal influence, and innovation characteristics [20]. In this study, those three factors have direct effects on the military hospital users' attitude for CRMs adoption and positive ATT will lead to the increasing of BI. Besides, the PI positively impacts PEOU and PU and indirectly affects military hospital

users' attitude (ATT) and behavioral intention (BI). The possible explanation is that users' innovation intention for technology adoption often increase the ease of use and usefulness of CRMs. Therefore, it further generates positive attitude on technology, then accept and adopt this technology. According to Szajna's research, it pointed out that individual's internal motivation has affect the adoption in the early stage of technology usage [23]. Therefore, it shows that PI affects individual's ATT and BI of technology.

The II was found to have significantly positive impacts on PU and PEOU in the proposed study and indirectly affect the military hospital users' ATT and BI for CRMs adoption. Roger (1995) considered that the interpersonal relationship among users can accelerate the information sharing among them and obtain more extra information about technologies innovation [21]. Therefore, other users' opinion on new technology will positive affect someone's attitude toward the technology. The result of this study is consistent with prior study.

The obtained results of this research show that CSE positively affects the PEOU and indirectly impacts the

military hospital users' ATT and BI. Prior researches [17, 18, 19] indicated that capabilities of oneself are critical factors affecting behavior, efficiency, and strategies of learning. That is, when user's skills and capabilities are higher, the technology is considered to be ease of use. It is consistent with our findings. On the other hand, CSE negatively affects the military hospital users' ATT and impacts their BI. The CSE is found to have negatively impact on PU in the proposed study, which is inconsistent with prior study [25]. It means users who master on their capability may have negative attitude on the adoption of new technology.

6. Conclusions and limitations

Several research objectives for CRM adoption of military hospitals are completed in this study and indicates that the consideration for CRM adoption in military hospitals is similar to past researches. It also shows somewhat different from other industries while validating the TAM suitability in military hospitals.

6.1 Innovation technology characteristics affecting the acceptance of CRM in military hospitals

The result indicates that innovation technology characteristics are affecting individual's attitude toward usage and behavioral intention for CRM adoption in military hospitals. Rogers [20, 21] indicated that the process of innovation adoption and diffusion are affected in three aspects: personal innovativeness, supervisor personal influence and innovation characteristics. This study found the same result and showed positive attitude will directly affect person's follow-up behavior intention.

The analysis of the survey result shows that the personal innovativeness and interpersonal influence of users in military hospitals are affecting perceived ease of use and perceived usefulness significantly, and heighten their attitude and behavioral intention indirectly for the CRMs adoption. This result also shows a quite difference from people's impression on military, which strategies and policies are usually closed and conservative. Staffs of military hospitals have known the necessary to adopt new concept, such as CRMs, to compete against other hospitals, or they will lose their market share gradually.

On the other hand, interpersonal influence is an important factors, too. Successful experience of using CRMs, comparisons between peers, or others' appreciation also play driven force for the adoption of CRM in military hospitals.

6.2 Computer self-efficacy affecting the acceptance of CRM in military hospitals

The result of this study also shows that computer self-efficacy of users in military hospitals is positively and significantly affecting the perceived ease of use, and indirectly influencing the attitude and behavioral intention for CRMs adoption. It means that computer knowledge

and ability of users are also regarded as important motivation to new technology usage. Besides, this study demonstrates a interest phenomenon that computer self-efficacy are negatively affecting user's "attitude to use" toward the acceptance of new technology, such as CRMs. It also indicates that users in military hospitals perhaps are overconfident on their IT abilities and to look down on using innovation technology.

6.3 Validating the suitability of TAM in military organizations

From the result of this empirical study, we proved and indicated again that "perceived usefulness" and "perceived ease of use" are positively affecting users' "attitude toward using" of CRM adoption in military hospitals. It means that TAM is still suitable for studying the topic of technology acceptance in military organizations. People in military hospitals regard CRMs as a useful IT to improve working performance and retain customers (soldiers and their family dependents) relationship, so they intend to adopt CRM in their hospitals.

6.4 limitations

Although the response rate of this study is relative higher than general empirical studies, this study still has some limitations. First, there are many kinds of military organizations which are with various properties. So it needs more and stronger evidence to infer this result to other military organizations, even to other official departments.

Second, the overall goodness of fit of the proposed structural model ($GFI = 0.85$) is slightly lower less the commonly cited threshold ($GFI > 0.9$) [11]. Though most published studies in leading MIS journals seldom show excellent fit values in all the indices [4], a GFI value of 0.85 or larger is acceptable for an exploratory study [5]. Therefore, the proposed model in this paper may present a reasonable goodness of fit as an exploratory study.

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