



Check assumptions and requirements for the implementation of Information Security Management System hospital in Tabriz

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ABSTRACT

Objective: the purpose of this study was to investigate and analyze the assumptions and requirements for the implementation of Information Security Management System (ISMS). **Methodology:** To check assumptions security management system implementation is the population of Tabriz hospitals. Because information security, is considered most hospitals cooperate and only 8 hospitals of Tabriz, as the population of the study. Review the requirements and assumptions are based on the standard ISO / IEC 27001, ISO / IEC 27002 test target setting and ISO 27001 standard questionnaire containing 33 questions in 11 control is used. To analyze the data descriptive and inferential statistical methods were used that implementation of information security management system was confirmed. As well as to identify factors affecting the implementation of information security management system and factor analysis, structural equation model was used PLS smart software that based on its findings indirectly relates to impact the four dimensions of implementation effectiveness of the system. The study findings were presented. **Results:** Using the software, smart-PLS and using structural equation modeling confirmatory factor analysis was performed to measure the test of convergent validity, divergent validity, reliability Security and reliability of observable variables and quality test and measurement model of the 101 comments experts, all the prerequisites and requirements, including information security policy, the organization of information security, asset management, human resources in terms of security, physical and environmental security, communications and operations management, access control, use, development and maintenance, incident management information security, business continuity management and compliance with laws Brpyadh at 99 per cent is forecast in Tabriz hospitals are effective information security management system. **Conclusion:** According to prioritize the factors affecting Brpyadh information security management system, operating (after) the most monitors and agents (after) the supply and implementation of information security management system Brpyadh least affected are in Tabriz hospitals.

1. Introduction

human life from the era of mass production to the age of information and improved communication and evolutionary move towards the information society and knowledge-based world, all the processes and activities economic, cultural, industrial, political and social relations in today's world not only as one of the main sources of assets is considered, but ruled as a tool for effective management of other resources and assets of the funds, manpower and so on, was to prove so important and special value, implementation and management of factors in the country, is of vital importance factors .technology and flexibility in his everyday productivity and business prospects of the correcting your heart be also. Since the foundation of any type of security system, and with its presence in the system regardless of their purpose, could be relevant for managers and officials assured against all types of threats, injuries,

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risks and incidents to be followed basis for maintaining security in the majority of other aspects of security organizations (Dehghan-Nayei and Aghajani, 2010). It is therefore imperative under each condition security available and protected, because security agencies strongly about good management and systematic risk-taking is supposed to be. The security situation is not without risk. Security can be a graduate of an unknown situation, uncertainty and unreliability, he said. this type of system is the non-homogeneous distribution of shrinkage and connected. Obviously a system that is connected to other systems, additional security is at risk. So a more precise definition of security can be provided that the sum of all the techniques, methods, procedures and activities used to maintain the system in an ideal situation among a set of rules in a heterogeneous computing systems, decentralized and interconnected security. The purpose of the rules is that what is legal and what is illegal (Leino-Kilpi and Kuttu, 1995).

1.1 Problem Statement:

The main source of information should be the implementation of Information Security Management and fact shortest definition is data processing. the raw materials that are potentially significant data in order to identify and understanding even analyses , goods, events existence of the degree of reality or in the fantasy world can be found, through research methods, cognitive tools for language, emotions, five, mind and brain and gain experience. Each system is inevitable in this type of information and tools on the one hand and science and business synergies will cause the other hand, the basic requirements to build information security management.

Health care organizations are manufacturers of health data in the context of information systems. Tasks system information are preserve nature of the data in a secure environment in order to provide appropriate and quality services to patients. Given the importance of health data and the need to secure them many national and international organizations to develop standards such as: ISO27000, NAIC, AAMC CPRI, ASTM and HIPAA tried (Moghaddasi and Ayani, 2013).

Note that an information security management system preserve information resources persistency to prtecton the confidentiality, integrity and availability of information organization. These three concepts associated security information tariff patient we have the following (karami, 2013):

- Privacy: a process that ensures that information is accessible only to authorized persons. Confidentiality is achieved through encryption access control techniques.

Correctness and accuracy: ensures that information is accurate and illegal methods to alter the data when receiving exactly the same as when you write. These features influence the patient's safety.

- Availability of information: the possibility to use on-demand information and availability of an organization or individual is allowed. This feature has important to efection care. The overall goal of this study is analysis requirements of the implementation of Information Security Management System hospitals in Tabriz .For this purpose assumptions and requirements for information security system based on the COBIT model, which includes the criteria of organizing planning, acquisition and implementation, delivery and support, monitoring and assessment is based on the standard ISO 27001 and ISO 27002 control in 11 areas studied that include:

- 1-existential security policy
- 2-organizational information security
3. Asset Management
4. Human resources security
5. Physical and environmental security
6. Operations Management and Communication
- 7-control access to information.
- 8 -The development and maintenance of systems
- 9-managing incidents related to information security
- 10-business continuity management
- 11- Accordance with the rules

1.2 The importance and necessity of research:

As one of the most valuable information assets of the organization's most sensitive to delivering timely and appropriate information needed, always a central role. Delete and maintenance of information is a prerequisite for business continuity economic to be unauthorized. Accessing information on the disc, they turned to the problem of unauthorized use of computers and the access by employees of an organization's internet users, or by other factors organizations and companies looking to implement security implementation (Merakou et al., 2001). For can be only pay attention to issues. and not enough technical control also created the proper procedures, the percentage of information security management systems information security topics related to information security mandates Concurrently, after the recent find of issues that, this days has been the focus of all organizations and institutions around the world Despite using a variety of information security management system standards, unfortunately in Iran so far no efforts to implement information security management system implementation there are institutions and organizations that to the current situation Considering the conditions of regional and international political and economic aspects of comprehensive information achieve very high need for extensive research has been slowed because these opportunities using or paid to the security of information systems major obstacle facing the entrance to the community knowledge base will expand information and communication technology using Fortunately, this is definitely it was gradually emerging (Kazemi, 2014).

Hospitals due to specific types of clients, sharing and transmission of information are of particular importance. This special groups according to the specific type of database. Tabriz hospitals of the issues and problems raised HIS program is no exception and it is essential that investment in security information management and comprehensive planning to do. In this study, the analysis and assumptions and information security management system requirements and standards required in a multi-Tabriz examine it

1.3 The main objectives:

The purpose of this study was to investigate and analyze the assumptions requirements of Tabriz Hospital Information Security Management System implementation. For this purpose the requirements of information security management system based on the COBIT model, which includes organizing projection criteria, providing implementation, support and supervision are analyzed Survey placed (Woogara, 2005).

1.4 Detailed objectives

1. Determine the status of Tabriz hospitals in terms of security policy 2. Determine the status of Tabriz hospitals in terms of organizing three information security. 4. Determine the status of Tabriz hospitals in terms of the status of Tabriz hospitals in terms of asset management, human resources security, physical security and environmental terms 6. 5. Determine the status of hospitals in Tabriz Tabriz hospitals in terms of determining the status of Tabriz hospitals in terms of control 7. Management Operations access to information 8. Determining the status of Tabriz hospital care in terms of maintenance and development of information systems 9. Determining the status of Tabriz hospitals in terms of management of information security incidents involving 10 hospitals in Tabriz status in terms of business continuity management 11. Determine the status of Tabriz hospitals in terms of match

1.5 Framework of the study:

The need for a frame of reference prepared for the development and management of internal control and appropriate levels of IT security is in the last. Most large IT organizations and institutions as one of the most valuable assets is set. Successful organizations realize that the real value of these assets, to the interests of its stakeholders can use it. To ensure the accessibility of information technology, risk management and control information associated with it, are now considered as key factors in corporate governance. This value, risk and control constitute the core of IT governance. For breakthrough management and control and management of IT monitoring and evaluation of the performance of the organization, COBIT is used as the reference framework. Activities basis for directing the activities of the IT Based on COBIT are:

- App organizing plan
- accessing Implementation
- Supported, of course
- Monitoring and Evaluation

1.6 The importance and necessity of research:

As one of the most valuable information assets of the organizations most sensitive and accessing to delivering timely and appropriate information needed, always a central role and be Organizational fate. Keeping and maintenance of information is a prerequisite for business continuity institution be economic trade processing to information from unauthorized (Kuzu et al., 2006). Disk accessing, unauthorized use of computers has become a problem and the access by employees of an organization's internet users, or by other factors organizations and companies are looking to implement security factors. For being security implementation is only due to technical issues. and not enough control and standardization also created the proper procedures, the percentage of using information security management systems information security topics related to information security mandates Concurrently, after the recent find of issues that, these days, regional and international political and economic conditions facet of the need for extensive research has been very high comprehensive information on the opportunities using slowed or paid to the security of information systems major hurdle facing the development of information and communication technology using was the entrance to the community knowledge base will Fortunately, this definitely is gradually emerging (Kazemi, 2014).

Hospitals due to specific types of clients, sharing and transmission of information are of particular importance. This special groups according to the specific type of database. In this study, the analysis and assumptions and information security management system requirements and standards required in a multi-Tabriz examine it.

2. Materials and methods

2.1 Analytical model

2.2 Methodology

In order to study the method, the total activities that can be done to reach the target and research are activities that researchers use them to discover rules and reality. Research methods are the means for achieving the reality. In each study, the researcher tries to select the most appropriate method and the method that is more accurate than other methods and rules and facts to explore the relationships between variables .the objectives, nature and case studies, theoretical framework and conceptual model, using appropriate research methods is essential. It describes, in this chapter for experimental testing, process research methods, variables, population and sample, data collection tools, reliability and validity of the tools and methods used in the paper and then discuss data analysis (Zulfikar and Ulsoy, 2001).

Due to the nature of the present study is cross sectional descriptive study (survey type) is. Data collection, research type survey. Considering the results of the research can be used in several hospitals in Tabriz subjected to testing theoretical concepts will be discussed objectively it can also be applied.

2.3 Independent variable:

In this study, the implementation of information security management system are considered as independent variable. Because the model has dimensions

as the original model will be considered later.

2.4 Dependent variable:

Research study, prerequisites and requirements for the implementation of Information Security Management System consists of: Despite security policy, security organization 1. 2. 3. 4. Asset management, human resources security, physical security and environmental 5. 6. 7. Operations Manager to control access to information and communication 8-maintenance and development of information systems 9. Continuity Management Business 10-match rules 11. Information security incident management as dependent variables. And because the model has dimensions research is to be considered

2.5 Data were collected

Every phenomenon in terms of quantitative and qualitative features that awareness of these features is dependent on the nature and how to achieve them. The aim of the research such as descriptive or explanatory, access to information about the changes. The main ways to collect data include the following: the use of information and evidence, observation, interviews and questionnaires (Araby and Nabiallah Dehgan, 2011).

3. Discussion and results

3.1 Data were collected:

Every phenomenon in terms of quantitative and qualitative features that awareness of these features is dependent on the nature and how to achieve them. The aim of the research such as descriptive or explanatory, access to information about the changes. The main ways to collect data include the following: the use of information and evidence, observation, interviews and questionnaires (Araby and Nabiallah Dehgan, 2011; Mallik, 1997).

3.2 Questionnaire

The purpose of the questionnaire given information about the specified group or community being studied. One of the important reasons for the use of a questionnaire which provides the possibility of studying large samples. Quality questionnaire and applicable in obtaining correct information is very important (Araby and Nabiallah Dehgan, 2011).

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In this study, both primary and secondary data have started to collect data, secondary data through library studies, reference books and publications, organization and use of the documents have been obtained from the Internet. Preliminary data, obtained through field studies and questionnaires. Questionnaire consisted of a cover letter to explain the purpose of the study and invited to participate drummer and specialized research plus two general questions follows: first the general questions reflect the demographic characteristics of respondents such as education, age, positions and years of service. The second category specific questions in order to examine the requirements have been set. In specific questions to check prerequisites and requirements for the implementation of Information Security Management System standard has been developed includes 33 items. Mentioned in the questionnaire, respondents' view (managers and professionals) about information security policy has 3 items 1-3 questionnaire), organization of information security has 3 items (questions 4-6), asset management has 3 items (questions 7-9), human resources security has 3 items (questions 10-12), physical security and environment 3 items (questions 13-15), communication management and operation of 3 items (questions 16-18), access control has 3 items (questions 19-21), use, develop and maintain systems with 3 items (questions 22-24), management of information security incidents has 3 items (questions 25-27), business continuity management 3 items (questions 28-30) and roles match 3 items (questions 31-33) Likert spectrum (from very low to very high) measures.

3.3 Validity

The concept of validity or accreditation answer to the question that gauges the extent to attribute to measure. No knowledge of data validity cannot be measured accurately.

Types validity include content validity, criterion validity and construct validity. In the narrative structures relevant to the content is a credit to check the ingredients depend on it. If the question of the questionnaire special attributes and skills that they have measured the researchers plan to test the validity of the content. To ensure content validity, must act in situations of the tool so that the question is done of the constituent instruments of the selected content. The validity were used two fermans CVR and CVI in the study.

A) index the content validity ratio (CVR): This indicator is designed by Lavshh ().each of the questions asked on the basis of the whole are classified two-part Likert "is it beneficial" and "not beneficial". Then, based on the following formula, the content validity ratio is calculated:

$$CVR = \frac{\text{The number of experts who have chosen - benefit option}}{\text{The total number of specialists}} \quad (1)$$

Based on the number of experts who have evaluated your questions, minimum acceptable CVR should be based on the following table. CVR less than the amount calculated for the questions to be asked regarding the number of expert evaluators, should be excluded from the trial because based on content validity, content validity cannot agree.

Table 3-1. CV minimum acceptable score based on the number of experts transition

CV minimum acceptable score based on the number of experts transition					
the amount of CVR	The number of specialists	the amount of CVR	The number of specialists	the amount of CVR	The number of specialists
0.37	25	0.59	11	0.99	5
0.33	30	0.56	12	0.99	6
0.31	35	0.54	13	0.99	7
0.29	40	0.51	14	0.75	8
		0.49	15	0.78	9
		0.42	20	0.62	10

Table 3-2 usefulness of any

$CVR_1 = \frac{9-5}{5} = 0.8$	$CVR_9 = \frac{10-5}{5} = 1$	$CVR_{17} = \frac{9-5}{5} = 0.8$	$CVR_{25} = \frac{9-5}{5} = 0.8$
$CVR_2 = \frac{9-5}{5} = 0.8$	$CVR_{10} = \frac{10-5}{5} = 1$	$CVR_{18} = \frac{9-5}{5} = 0.8$	$CVR_{26} = \frac{9-5}{5} = 0.8$
$CVR_3 = \frac{10-5}{5} = 1$	$CVR_{11} = \frac{9-5}{5} = 0.8$	$CVR_{19} = \frac{10-5}{5} = 1$	$CVR_{27} = \frac{9-5}{5} = 0.8$
$CVR_4 = \frac{9-5}{5} = 0.8$	$CVR_{12} = \frac{9-5}{5} = 0.8$	$CVR_{20} = \frac{10-5}{5} = 1$	$CVR_{28} = \frac{9-5}{5} = 0.8$
$CVR_5 = \frac{9-5}{5} = 0.8$	$CVR_{13} = \frac{9-5}{5} = 0.8$	$CVR_{21} = \frac{10-5}{5} = 1$	$CVR_{29} = \frac{9-5}{5} = 0.8$
$CVR_6 = \frac{9-5}{5} = 0.8$	$CVR_{14} = \frac{9-5}{5} = 0.8$	$CVR_{22} = \frac{9-5}{5} = 0.8$	$CVR_{30} = \frac{9-5}{5} = 0.8$
$CVR_7 = \frac{9-5}{5} = 0.8$	$CVR_{15} = \frac{9-5}{5} = 0.8$	$CVR_{23} = \frac{9-5}{5} = 0.8$	$CVR_{31} = \frac{9-5}{5} = 0.8$
$CVR_8 = \frac{9-5}{5} = 0.8$	$CVR_{16} = \frac{9-5}{5} = 0.8$	$CVR_{24} = \frac{9-5}{5} = 0.8$	$CVR_{32} = \frac{9-5}{5} = 0.8$
$CVR_{33} = \frac{9-5}{5} = 0.8$			

According to data 3-1V3-2 table and the number of experts selected for this study, 10 people, CVR should be Tasval top is 62/0, so were all the questions.

B) Content validity index (CVI): To evaluate content validity index of Waltz and Basel is used. That specialists "relevance", "clarity" and "simplicity" of each item on a 4-point Likert their profile. Experts relevance of each item of their choice from 1 "not relevant", 2 "somewhat concerned", 3 "relevant" to 4 "very concerned" classifications. Simple items respectively from 1 "not easy", 2 "relatively simple", 3 "simple" to 4 "of the simple" and clear the items in the order of 1 "not clear", 2 "relatively it is clear", 3 "obvious" to 4 "clearly linked" to be determined.

The number of specialists who have items 3 and 4 score

$$CVI = \frac{\text{The number of specialists who have items 3 and 4 score}}{\text{The number of specialists}} \quad (2)$$

The minimum acceptable value for the index equal to 79/0 CVI and CVI If the item is less than 79/0 that the items must be removed.

Table 3 -3 relevance of each item

$CVI_1 = \frac{10}{10}$	$CVI_8 = \frac{9}{10}$	$CVI_{15} = \frac{8}{10}$	$CVI_{22} = \frac{9}{10}$	$CVI_{29} = \frac{9}{10}$
$CVI_2 = \frac{9}{10}$	$CVI_9 = \frac{8}{10}$	$CVI_{16} = \frac{8}{10}$	$CVI_{23} = \frac{9}{10}$	$CVI_{30} = \frac{9}{10}$
$CVI_3 = \frac{9}{10}$	$CVI_{10} = \frac{9}{10}$	$CVI_{17} = \frac{8}{10}$	$CVI_{24} = \frac{10}{10}$	$CVI_{31} = \frac{10}{10}$
$CVI_4 = \frac{8}{10}$	$CVI_{11} = \frac{8}{10}$	$CVI_{18} = \frac{9}{10}$	$CVI_{25} = \frac{9}{10}$	$CVI_{32} = \frac{9}{10}$
$CVI_5 = \frac{9}{10}$	$CVI_{12} = \frac{9}{10}$	$CVI_{19} = \frac{8}{10}$	$CVI_{26} = \frac{8}{10}$	$CVI_{33} = \frac{8}{10}$
$CVI_6 = \frac{9}{10}$	$CVI_{13} = \frac{10}{10}$	$CVI_{20} = \frac{8}{10}$	$CVI_{27} = \frac{9}{10}$	
$CVI_7 = \frac{9}{10}$	$CVI_{14} = \frac{9}{10}$	$CVI_{21} = \frac{8}{10}$	$CVI_{28} = \frac{8}{10}$	

According to Jdvl3-3 all the items on 79/0 CVI indicators have relevance for later.

Table 3-4 simplicity of any

$CVI_1 = \frac{9}{10}$	$CVI_8 = \frac{9}{10}$	$CVI_{15} = \frac{9}{10}$	$CVI_{22} = \frac{9}{10}$	$CVI_{29} = \frac{8}{10}$
$CVI_2 = \frac{9}{10}$	$CVI_9 = \frac{8}{10}$	$CVI_{16} = \frac{9}{10}$	$CVI_{23} = \frac{9}{10}$	$CVI_{30} = \frac{9}{10}$
$CVI_3 = \frac{9}{10}$	$CVI_{10} = \frac{9}{10}$	$CVI_{17} = \frac{8}{10}$	$CVI_{24} = \frac{9}{10}$	$CVI_{31} = \frac{9}{10}$
$CVI_4 = \frac{9}{10}$	$CVI_{11} = \frac{9}{10}$	$CVI_{18} = \frac{9}{10}$	$CVI_{25} = \frac{9}{10}$	$CVI_{32} = \frac{9}{10}$
$CVI_5 = \frac{9}{10}$	$CVI_{12} = \frac{10}{10}$	$CVI_{19} = \frac{9}{10}$	$CVI_{26} = \frac{9}{10}$	$CVI_{33} = \frac{9}{10}$
$CVI_6 = \frac{9}{10}$	$CVI_{13} = \frac{9}{10}$	$CVI_{20} = \frac{8}{10}$	$CVI_{27} = \frac{9}{10}$	
$CVI_7 = \frac{8}{10}$	$CVI_{14} = \frac{9}{10}$	$CVI_{21} = \frac{8}{10}$	$CVI_{28} = \frac{8}{10}$	

Table 3-5 clear of any

$CVI_1 = \frac{8}{10}$	$CVI_8 = \frac{9}{10}$	$CVI_{15} = \frac{9}{10}$	$CVI_{22} = \frac{9}{10}$	$CVI_{29} = \frac{9}{10}$
$CVI_2 = \frac{9}{10}$	$CVI_9 = \frac{8}{10}$	$CVI_{16} = \frac{8}{10}$	$CVI_{23} = \frac{9}{10}$	$CVI_{30} = \frac{9}{10}$
$CVI_3 = \frac{9}{10}$	$CVI_{10} = \frac{9}{10}$	$CVI_{17} = \frac{8}{10}$	$CVI_{24} = \frac{8}{10}$	$CVI_{31} = \frac{10}{10}$
$CVI_4 = \frac{8}{10}$	$CVI_{11} = \frac{8}{10}$	$CVI_{18} = \frac{9}{10}$	$CVI_{25} = \frac{9}{10}$	$CVI_{32} = \frac{9}{10}$
$CVI_5 = \frac{9}{10}$	$CVI_{12} = \frac{9}{10}$	$CVI_{19} = \frac{9}{10}$	$CVI_{26} = \frac{9}{10}$	$CVI_{33} = \frac{9}{10}$
$CVI_6 = \frac{9}{10}$	$CVI_{13} = \frac{9}{10}$	$CVI_{20} = \frac{8}{10}$	$CVI_{27} = \frac{9}{10}$	
$CVI_7 = \frac{8}{10}$	$CVI_{14} = \frac{9}{10}$	$CVI_{21} = \frac{9}{10}$	$CVI_{28} = \frac{8}{10}$	

According to the findings of validity indicators CVI, CVR concluded that this study is a content validity. For the validity of structures, used confirmatory factor analyze. Researchers are preparing a model assumes relatively little empirical data based on several parameters, describing explain or justify. This information is pre-experimental model data structure that can be in the form of a theory or hypothesis, a classification scheme for certain of the items in compliance form and content of objective, empirically determined conditions or knowledge gained from previous studies about the wide is. Verification procedures to determine that the data are synchronized or not a given factor structure. Confirmatory factor analysis using PLS software for the structural prerequisites for the implementation of the ISMS

Table 3-6 Outer Loadings loadings

	develope.c	k.access	legaly	m.business	m.daraei	m.event	m.operation	policy	s.human	s. hysical	sazmandehi
bc1_1				0.854160							
bc2_1				0.880386							
bc3_1				0.790180							
ca1_1		0.806628									
ca2_1		0.838499									
ca3_1		0.863215									
dms1_1	0.859943										
dms2_1	0.848968										
dms3_1	0.872959										
ll_1			0.814123								
l2_1			0.896947								
l3_1			0.841914								
ma1_1				0.797405							
ma2_1				0.815671							
ma3_1				0.774589							
mei1_1					0.806971						
mei2_1					0.836870						
mei3_1					0.803993						
moc1_1							0.838606				
moc2_1							0.845851				
moc3_1							0.869376				
os1_1											0.840833
os2_1											0.852303
os3_1											0.787408
p1_1								0.828107			
p2_1								0.843002			
p3_1								0.813563			
sh1_1									0.795717		
sh2_1									0.864975		
sh3_1									0.780566		
sph1_1										0.854389	
sph2_1										0.787176	
sph3_1										0.809724	

As the results in Table 3-6 outer loading is specified, all factor loadings are greater than 0.3. So all items have a positive effect on the implementation of information security management systems are desirable so their validity in estimating the factors and requirements in their information security management system implementation.

Reliability or credibility is measurement tool of the technical reliability. This decision deals measurement tool mentioned concept that lives up to what extent the same conditions gives the same results. The reliability coefficient is confidence of zero (no relation) to +1 (a perfect relationship). Reliability coefficient indicates the extent gauges stable characteristics or features variable subjects and his temporary measures. For calculating the reliability of the instrument is used to measure various ways (Bazarghan, 2008).

There are two ways to reliability: Cronbach's alpha and composite reliability (reliability structure)

The study is used to measure the reliability of composite reliability.

Table 3-7 reliability research

	Composite Reliability		Composite Reliability
develope.c	0.895524	s.human	0.855165
isms	0.950966	s.physical	0.857969
k.access	0.874720	sazmandehi	0.866674
legaly	0.887780	tamin	0.848010
m.business	0.879789	tarahi	0.903945
m.daraei	0.838401	policy	0.867651
m.event	0.856727	poshtibani	0.904305
m.operation	0.887654	nezarat	0.881047

7/0 indicates high levels of internal consistency is reflective measurement models.

7/0 <CR> 6/0 is sufficient for exploratory research

$9/0 < CR > 7/0$ for the stage of maturity.

According to the results Jdv13-7: Because the amount is more than 7.0, then the reliability of the questionnaire used in the study, is confirmed. In other words, the model has internal consistency.

3.4 Community sample

Vashyayy individuals who have at least one common trait, the population of the Dhnd.agr number of population is restricted to a limited population say. Community and in this study, including all managers and information security and IT experts and users of Tabriz hospital information system, which includes 101 individuals

As the results in Table 3-6 is specified, all factor loadings are greater than 3/0. So all items have a positive effect on the implementation of information security management systems are desirable so their validity in estimating the factors and requirements in their information security management system implementation.

In this chapter, questionnaire research data organized, summarized and presented in these process data both in terms of conceptual and empirical aspects refining and various statistical techniques to derive significant role and generalizations are responsible. In this chapter the analysis of data obtained in the process and methods developed in Chapter III. Therefore, to understand Byshtnmvnh statistical, demographic characteristics using the tables in the form of education, gender, age, position and years of service is described, then specific data resulting from the "questionnaire" is checked using statistics and structural equation modeling, to test prerequisites is presented. In this chapter the data that have been obtained through questionnaires collected, investigated and analyzed in two takes. The first part describes the statistical sample responses to questions, frequency distribution tables were used and the percentage of replies to questions and general inquiries embody to show statistical data, is sent Aznmvdarhay column and the second and inferential statistics for check the prerequisites for the implementation of information security management system implementation in order to analyze exploratory and confirmatory factor model is used.

3.5 Models, structural equation modeling

3.5.1 -Mdl Measure

3.5.1.1 Structural –Mdl

Structural model: a model in which the relationships between latent variables are considered and measured, the internal model is called. Measurement model: a model in which the relationships between observable and latent variables were considered and measured. Structural equation model, the measurement model Dvkarbrdasasy: first, the role of confirmatory factor analysis, secondly, its role in the structural model and discover hidden relationships between variables.

test criteria for measuring the reflection

3.5.1.2 Reliability test (Validity Test)

The validity of the tests (Reliability Test)

Measures reflective quality test

Measures of Reliability Test reflection: alpha alpha, composite reliability and validity of collective

3.5.1.3 Measures validity 1-16 Reflection:

Abzartyyyn validity or reliability of the statements or question whether the same concept used questionnaire that measures Pzhvhshgrmvrđ plans or not? Reflective assess the validity of the measurement model consisting of the following:

- 1) convergent validity (AVE)
- 2) validity (test Barrzy Yafvrml -Lakr)

To test the reliability and validity as well as reflective quality test model tests should be done in 3 steps 1-17 or introduce joint reliability

If reflective measurement model, homogeneous model will factor was the absolute time of any observable variables corresponding to Mtghyrpnhan it has a minimum 7/0. Some suggested eliminating variables visible reflective measurement models that the factor loadings under 4/0 and the level of significance to be meaningful.

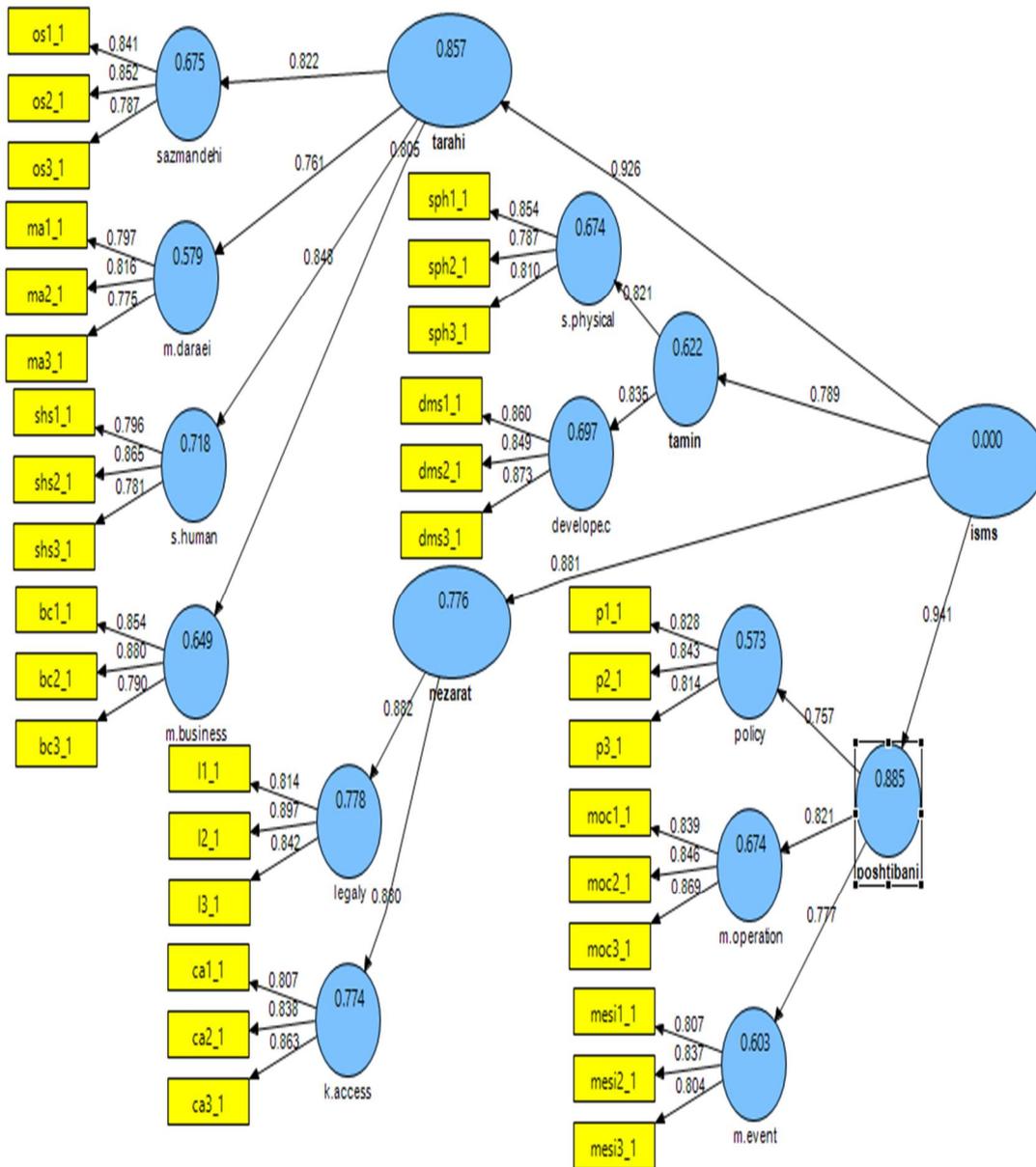


Figure 4-1. Path, external loads

According to Figure 4-1, the numbers shown between latent variables (circles) and observable variables (rectangles) external loads or external weights according to the model that represents these two variable becomes visible and hidden they called measurement model. Coefficients between latent variables are called regression coefficients or weight path and model that contains only variables are hidden and observable variables which are removed, according to the structural model.

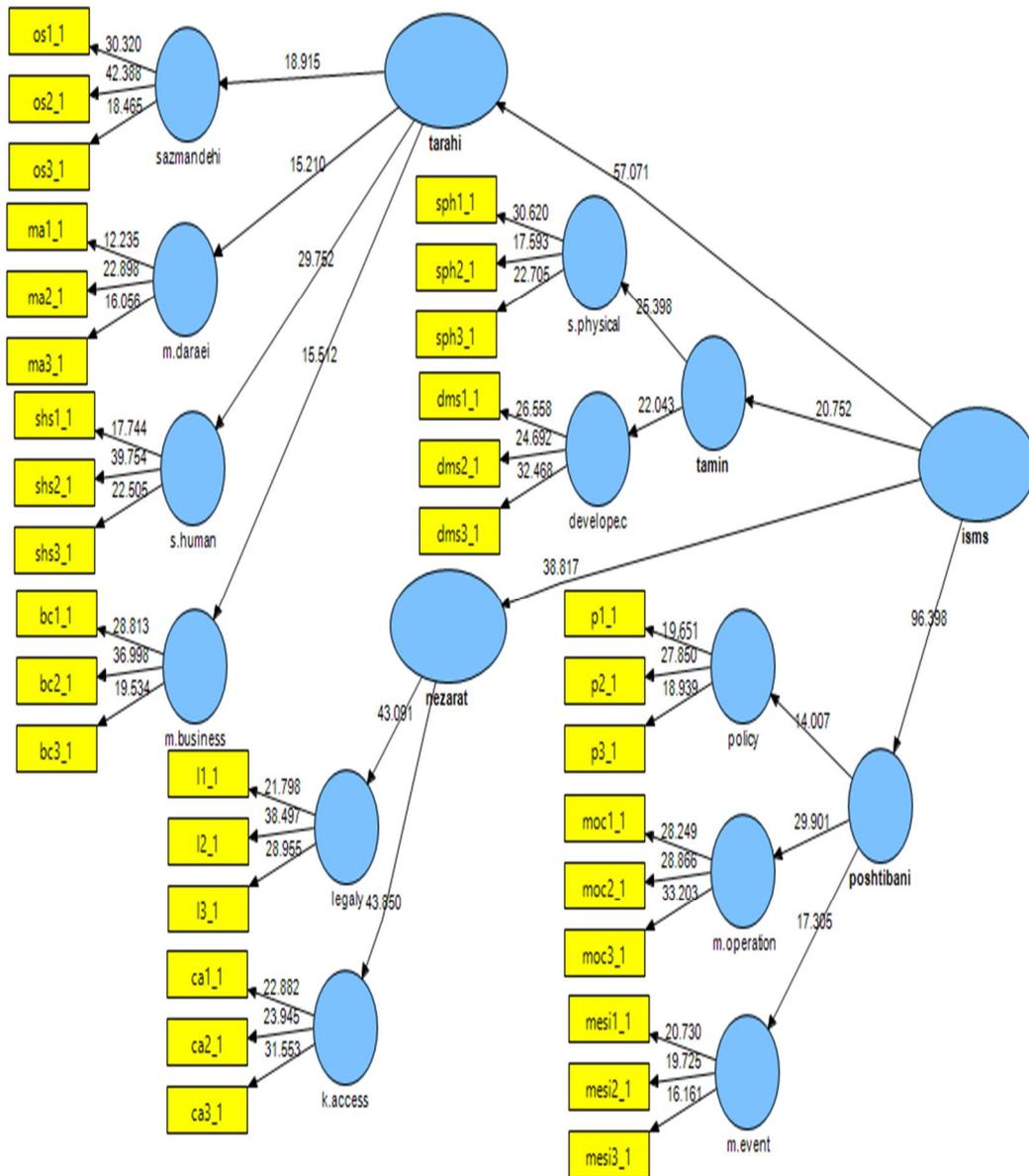


Figure 4-2. Is a significant factor loadings

According to Figure 4-2, the values of T or significant coefficients on the model graphics software on the arrows in the main view will be created. T values should be at 90 percent larger than 64/1, greater than 96/1 95% confidence level and a confidence level of 99% is larger than 56/2. According to the results of Shk14-3, t values are greater than 56/2 at 99% significance of each factor loadings have been met.

3.6 Diagnostic validity or divergent

3.6.1 Diagnostic validity represents the wide Yabar

Table divergent 4-30Rvayy

According to the results presented in Table 4-30 loading any observable variables on the latent variable related to the variable loadings at least 1/0 more visible the hidden Brmtghyrhay Dygrast after the diagnostic validity of its structural level.

4. Conclusion

Questionnaire validity, content validity using the form CVI, CVR and narratives about the structure and reliability combined with optimum reliability. Community and in this study, including all managers and information security and IT experts and users of Tabriz hospital information system which may ultimately include 111 Nfrbvd but after the removal of some questions and the sample was reduced to 101 people.

Due to the nature of the analytical study of research (survey type) is application, he said.

Based on field studies and analysis of questionnaire respondents, 56 persons died, 45 of the respondents were female. 8 persons as well as respondents under 25 years, 48 patients between 35–25 years, 45–35 years and 13 Azpaskhgyvan 32 people between age greater than 45 years. Also, 3% of respondents have doctorate degrees, 25 graduate students, 57 undergraduate and 16 this diploma.

A Security Manager Nfrazpaskhgyvan, 4 Director / Head of IT, IT Nfkarshnas 29, an information security management Mshavrsystem, 66 Nfkarbran hospital information system.

5 Azpaskhgyvan less than 5 years, 32 between 5 and 10 years, 13 between 10 and 15 years and 21 for more than 15 years of service with 73 Nfrazpaskhgyvan less than 2 years, 23 patients between 2 to 5 years, 5 patients between 5 to 8 years project implementation experience with information security management system. 72 persons respondents low volume projects, 26 medium-size projects, three people who attended the ISMS project was great.

Using the software, smart-PLS and using structural equation modeling confirmatory factor analysis was performed to measure the test of convergent validity, divergent validity, reliability Security and reliability of observable variables and quality test and measurement model of the 101 comments experts, all the prerequisites and requirements, including information security policy, the organization of information security, asset management, human resources in terms of security, physical and environmental security, communications and operations management, access control, use, development and maintenance, incident management information security, business continuity management and compliance with laws Brpyadh at 99 per cent is forecast in Tabriz hospitals are effective information security management system.

According to prioritize the factors affecting Brpyadh information security management system, operating (after) the most monitors and agents (after) the supply and implementation of information security management system Brpyadh least affected are in Tabriz hospitals.

Table 3-8. Factors affecting Brpyadh information security management system

	develope.c	isms	k.access	legaly	m.business	m.daraei	m.event	m.operation	nezarat	policy	poshtbani	s.human	s.physical	sazmandehi	tamin	tarahi
bc1_1	0.384944	0.650037	0.539406	0.492933	0.854148	0.412175	0.500822	0.388810	0.585858	0.267367	0.473963	0.495768	0.388987	0.493808	0.468379	0.702618
bc2_1	0.225487	0.586996	0.477615	0.366815	0.880386	0.359961	0.479054	0.369312	0.479049	0.212331	0.434756	0.502809	0.368375	0.490193	0.357569	0.696313
bc3_1	0.200041	0.572769	0.479882	0.426309	0.790192	0.346021	0.514311	0.411928	0.514221	0.189805	0.459027	0.505442	0.332017	0.391994	0.320652	0.633854
ca1_1	0.478852	0.643121	0.806629	0.449835	0.471300	0.473462	0.446994	0.451167	0.711808	0.366758	0.518107	0.454327	0.380470	0.375779	0.520361	0.546714
ca2_1	0.428733	0.668936	0.838504	0.460475	0.542295	0.429595	0.478836	0.428941	0.736200	0.321253	0.503314	0.488329	0.452474	0.484814	0.531879	0.602548
ca3_1	0.499223	0.709907	0.863210	0.473193	0.473761	0.468595	0.540362	0.468238	0.758104	0.373947	0.565944	0.416641	0.540494	0.559023	0.627795	0.592649
dms1_1	0.859944	0.520838	0.513957	0.397565	0.340368	0.444951	0.330232	0.187129	0.517199	0.321826	0.337832	0.258012	0.342122	0.262045	0.732332	0.398378
dms2_1	0.848956	0.416033	0.423306	0.280100	0.154033	0.186801	0.305917	0.194689	0.399030	0.327899	0.333675	0.220038	0.255776	0.213835	0.671153	0.240067
dms3_1	0.872969	0.541181	0.505611	0.316862	0.329486	0.303469	0.424341	0.333275	0.466504	0.392498	0.466901	0.304016	0.353172	0.268404	0.747206	0.372573
fi1_1	0.439532	0.617197	0.477888	0.814101	0.417328	0.397409	0.537731	0.345295	0.734362	0.404474	0.521734	0.378086	0.287970	0.453138	0.441443	0.508908
fi2_1	0.348770	0.668522	0.472296	0.896951	0.462782	0.446196	0.557404	0.510546	0.778797	0.371792	0.590013	0.423465	0.400579	0.450105	0.452122	0.550382
fi3_1	0.199405	0.615626	0.459073	0.841930	0.418347	0.473202	0.417746	0.453558	0.739437	0.311697	0.486620	0.445492	0.336027	0.553130	0.322662	0.583301
ma1_1	0.311714	0.567181	0.444865	0.392192	0.440812	0.797403	0.315166	0.435879	0.475092	0.315807	0.438992	0.356238	0.387553	0.412775	0.422922	0.606332
ma2_1	0.250572	0.572997	0.432352	0.364914	0.328949	0.815675	0.355044	0.464783	0.452334	0.317103	0.468570	0.500587	0.390788	0.441472	0.385959	0.630944
ma3_1	0.315312	0.579412	0.428095	0.479820	0.287003	0.774587	0.373815	0.442201	0.515453	0.306024	0.462181	0.471099	0.426579	0.376858	0.447257	0.577748
mesi1_1	0.361839	0.660596	0.486011	0.579771	0.490573	0.353136	0.804652	0.464054	0.605484	0.399031	0.678565	0.487035	0.395643	0.475742	0.457080	0.561625
mesi2_1	0.299923	0.606354	0.471535	0.465062	0.424587	0.423176	0.838063	0.372211	0.531911	0.345200	0.630034	0.417718	0.353550	0.458341	0.394874	0.532731
mesi3_1	0.345404	0.619648	0.473868	0.403274	0.525193	0.295507	0.805243	0.416223	0.497813	0.428634	0.667620	0.504753	0.362173	0.441815	0.427148	0.551478
moc1_1	0.163923	0.651229	0.441301	0.473730	0.351188	0.509228	0.410776	0.841158	0.519619	0.399535	0.688813	0.562400	0.539955	0.507865	0.421312	0.594607
moc2_1	0.257290	0.660326	0.436953	0.439357	0.400435	0.401044	0.447689	0.847819	0.497495	0.477166	0.735434	0.551924	0.521376	0.518878	0.467383	0.580145
moc3_1	0.287975	0.704634	0.494127	0.401644	0.425887	0.529294	0.451383	0.865018	0.508371	0.408275	0.719435	0.573145	0.602879	0.597969	0.535175	0.656299
os1_1	0.186463	0.672823	0.472775	0.517337	0.501722	0.420780	0.421287	0.582951	0.562116	0.434740	0.592897	0.548615	0.464711	0.840835	0.390498	0.719701
os2_1	0.418866	0.714513	0.559945	0.489216	0.431029	0.500303	0.572963	0.531644	0.595609	0.401436	0.617352	0.480542	0.494229	0.852290	0.550547	0.702381
os3_1	0.097054	0.547886	0.365405	0.397970	0.420617	0.353320	0.396328	0.457209	0.433485	0.343181	0.491574	0.403587	0.380187	0.787421	0.285277	0.611332
p1_1	0.385568	0.527627	0.348161	0.414518	0.198458	0.337229	0.396069	0.423597	0.433220	0.832344	0.665206	0.405148	0.239290	0.334141	0.379477	0.392664
p2_1	0.282508	0.574967	0.393988	0.347018	0.268036	0.361307	0.382608	0.455504	0.420602	0.838345	0.677461	0.402167	0.464856	0.488961	0.449248	0.469975
p3_1	0.338364	0.491531	0.307316	0.294928	0.192975	0.276339	0.416607	0.371263	0.341804	0.814201	0.642641	0.360947	0.313941	0.360819	0.393932	0.368159
shs1_1	0.287183	0.591268	0.412080	0.435225	0.409299	0.435637	0.438675	0.498345	0.480929	0.377242	0.539304	0.795724	0.299754	0.382911	0.354360	0.627095
shs2_1	0.311172	0.669182	0.403986	0.436748	0.557031	0.474973	0.516470	0.497050	0.477211	0.439814	0.594281	0.864974	0.420572	0.496970	0.440837	0.743209
shs3_1	0.145803	0.640712	0.507624	0.323354	0.475583	0.446895	0.451377	0.619806	0.471149	0.329508	0.580030	0.780561	0.522805	0.531269	0.400127	0.693812
sph1_1	0.345309	0.637475	0.464110	0.333426	0.389562	0.401287	0.364224	0.607314	0.452687	0.353476	0.549798	0.493543	0.854386	0.526977	0.719204	0.560862
sph2_1	0.296368	0.577817	0.433916	0.415762	0.330531	0.444770	0.397729	0.492401	0.482430	0.329307	0.502702	0.360777	0.787170	0.359739	0.649832	0.458931
sph3_1	0.262986	0.555550	0.448722	0.236834	0.336214	0.391254	0.355407	0.491367	0.388744	0.324046	0.483055	0.396580	0.809733	0.436009	0.641575	0.48124

4.1 Suggestions for Future Research

1. Given that in this study, only 8 were studied Tabriz. Next, the researchers recommended such a review in both public and private hospitals do to Bamqays-h the results of several studies in the field of reliability and confidence in the use of the results achieved.
2. Comparative study of organizations, including hospitals that have attempted to establish information security management system and review results prior to the implementation of the deployment and offer suggestions to improve performance
3. According to the study, structural equation modeling and analysis PLS is used to factors such as other researchers suggested Dygrazjmlh techniques AHP, TOPSIS and other software and structural equation such as LISREL, AMOS,....

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