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A Framework for Implementing IT Service Management in the Field of Pre-hospital Emergency Management with an Integrated Approach COBIT Maturity Model and ITIL Framework

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Introduction: The purpose of this research is to provide an appropriate framework for implementing IT management services in the field of pre-hospital emergencies with an integrated approach of COBIT maturity model and ITIL framework.
Methods: In a qualitative part, experts familiar with the field of pre-hospital emergency and information technology were purposefully selected. In the quantitative phase of the statistical community, we included experts in the field of information technology management who are also experts in the field of emergency, as well as university professors who worked in the field of emergency and senior and middle managers in the field of pre-hospital emergency entered the community. Considering the limitations of the community and the purposefulness of the selection of individuals to enter the community, 915 individuals were selected as a sample. To select a sample in the quantitative section, Morgan table was used. They were selected by simple random method using software. To collect information, we first reviewed the texts and articles in the field of ITIL and COBIT and then the extracted codes in this category were reviewed and an overview of the research was obtained; then, in the qualitative part the interview method and in the quantitative part the researcher-made questionnaire were used. To analyze the data in the qualitative section, we used MAX QDA software to review and categorize the information. Then, in the quantitative section, the researcher-made questionnaire was collected and finally the model was fitted using confirmatory factor analysis.
Results: In the end, it was concluded that the main components such as management, organization, processes, eyes, size, goals of the organization, staff, monitoring and evaluation, support, organization, information architecture and service delivery and their sub-components were the main factors that should be paid special attention in the field of pre-hospital emergency management.
Conclusion: To be more successful in implementing the organization's framework, it must identify the most important problems and then create a controllable domain to implement service support processes in the organization. The selected processes should be strongly and clearly supported by the general management of the organization. A codified and specific plan for implementation should be developed. A coordinated and planned approach for design, implementation should be specified and after the implementation of the mentioned processes. After expressing the output measurement indicators of the processes, the outputs should be measured and based on the changes that exist, these changes should be considered and returned to the planning stage to re-formulate the steps.
Keywords: IT service management, Pre-hospital emergency management, ITIL, COBIT.

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Introduction

The role of information in today's world is so dramatic and complex that the current age is called the age of the explosion of information. On the other hand, the use of information technology in the organizations is also rapidly expanding, and organizations need to use information technology to achieve their goals. Therefore, information flows everywhere and its impact is comprehensive. IT in the era of environmental accelerations and changes is critical to the survival of organizations. Information technology enables the managers to quickly and

easily process information to control and coordinate more complex structures. Additionally, information technology enables the organization and management to function with coherence and rapid feedback (1).

Meanwhile, the use of IT increases the ability of individuals or organizations to communicate more easily, more accurately and less costly; moreover, human error in the organization's information processing network decreases. Nowadays, organizations can transfer the commands and messages without a traditional management structure across the organization through the use of computers and automatically automating part of the organization. In this way, employees have access to a lot of information and they can come to an early conclusion in their work. Information technology has affected various aspects of the organization. It enables the managers to communicate with each other and with employees and get information about the results of each other's work and their employees. The computer system creates a new communication channel that managers can use and become a group. This technology helps the managers eliminate barriers and creates a sort of group feeling between executives and employees that results in the identity of the organization (1).

Information is one of the most important tools of management power. The acquisition of information, in particular information that appears to play a pivotal or strategic role in the organization, can be used to build a power base and also to promote and empower a person in the organization. On the other hand, when administrators equip themselves with more information, those people feel empowered and are more likely to work with productivity, success, and in line with management requirements. By reinforcing others in gaining results, the director actually strengthens his power base. With more information, people tend to experience self-control, personal control and more confidence. Customer satisfaction is one of the internal measures of organizations that shows their orientation towards satisfying customer demands and improving the quality of products and services (2).

Also, as to the ITIL and COBIT framework, the convergence between business and IT makes these frameworks a bridge between technical managers and senior executives. Using ITIL, an organization can create value added that results in competitive benefits, and COBIT can be used to determine the appropriate decision on how the organization operates and operate (3-65). Also, according to the fact that in a few articles, a combination of the ITIL framework and the COBIT maturity model has been implemented, i.e. the integration of IT governance with the management of services in a specific way, the use of Information technology management frameworks in the field of health services is very scanty, which indicates that the importance of this topic in the field of health has been neglected. Discussions with the professors of the field of emergency management and experts in this field can help find a suitable solution to the problem of Emergency management at strategic and tactical levels. IT service management provides a framework for organizing IT operations and enabling the organizations to deliver quality service to meet business needs and adhere to service level agreement. ITIL is a comprehensive set of management processes which provides IT services to users in a complete and specialized manner, while COBIT addresses strategic and general management and governance issues and focuses less on the processes and to the way they are implemented, using ITIL and COBIT frameworks. Business and information technology makes these frameworks a bridge between technical managers and senior managers of the organization. Therefore, the aim of this study was to provide a suitable framework for implementing IT services in the field of pre-hospital emergency management with an integrated approach of COBIT and framework maturity model.

Methods

This is a mixed method study that was carried out in 2 phases. In the qualitative phase, the statistical population consisted of experts familiar with the subject of research (university professors and managers of information technology and emergency management); this study was conducted in a non-random and purposeful manner until the theoretical saturation of 25 interviews. In the quantitative study phase, the statistical population included all IT service management experts, university professors, and pre-hospital emergency management who had at least a bachelor's degree and at least 5 years of direct work experience in the field of pre-emergency management, hospital and information technology or had a degree and taught in the fields of information technology management and disaster management .The number of participants who could enter the study was 915 individuals.

The sample size in qualitative studies cannot be calculated before the start of the study and sampling continues until information saturation occurs. In this study, purposeful non-random sampling method was used to collect the data. Targeted sampling selected information-rich individuals or items through which

they could gain a good understanding of the main aim of the study. The sample size of the present study consisted of 25 individuals (6 current and former managers of the country's regional emergency, 4 members of non-profit organizations, 5 senior managers of pre-hospital emergency information technology, 3 professors in the field of disaster health 3 professors of information technology, 4 IT specialists who have worked directly in the field of pre-hospital emergency in order to optimize the programs)

In this regard, reviews have shown that there are 915 people in the field of information technology services management, university professors and pre-hospital emergency management, of whom 271 people were selected as the sample size according to Morgan table.

Before entering the qualitative phase, several texts and articles were studied in the fields of ITIL and COBIT. All written sources including articles, books, and related dissertations were studied and the dimensions and sub-components of the COBIT and ITIL framework were identified and extracted. Finally, it formed the initial framework of the research model and according to the theoretical framework, interview questions were developed to identify more categories and subcategories. Given the basic nature of qualitative research, the decision about the best methods of data collection, e.g. from whom and how the data should be collected and how long it will take, is finally clarified in the field of research and during the study. Therefore, the research proceeds with dynamic design and continuous emergence, and the research team constantly s make feedback decisions.

The method of data collection in this study was semi-structured in-depth interview using open-ended questions. The researcher started collecting information by asking general and open-ended questions. She also dasked exploratory questions such as "Can you explain more?" Or "Give an example?" to gather complete information about the subject of the research. The questionnaire was completed in absentia and in person.

A questionnaire was used to interview the experts, and in a small part, a closed questionnaire was used to quantify the model used. How to score a questionnaire depends on the form (Very low importance=1, low importance=2, medium importance=3, high importance=4, and very high importance=5)

To check the validity in the qualitative part of the content, we asked 5 experts to provide the necessary feedback regarding the tool, according to which the written format and some cases of sentence verbs were corrected. Finally, all 5 people stated that they had the appropriate narration tools. To confirm the validity of content in a quantitative way, w useed Lavshe method which is one of the quantitative methods used to determine the content validity ratio, which has been widely accepted. In the qualitative section, to analyze the data, we used the content analysis approach and MAX QDA software. In this study, open coding and axial coding were used to analyze the data.

Research Process

In the present study, to formulate the theoretical foundations and review the backgrounds related to the research, we analyzed, all articles, scientific sources, books and scientific and valid databases, which finally formed the initial framework of the research model according to the theoretical framework. Interview questions were developed to identify more categories and subcategories.

Step 1: Extraction of basic indicators from theoretical foundations (study of written sources): In the first step, all written sources including articles, books, and related dissertations were studied and the dimensions and sub-components of the Qubit and ITIL framework were identified and extracted. Finally, it formed the initial framework of the research model, and interview questions were developed according to the theoretical framework to identify more categories and subcategories.

Step 2: Grouping and identifying the components of the model: In order to identify the new dimensions and sub-components for the Qubit and ITIL framework, using expert opinions and formulating open-ended interview questions, data were collected and after face-to-face interviews through the content analysis approach, more sub-categories were identified, which led to the formation of a secondary model that shaped the conceptual research model.

Step 3: Identification of the effective indicators in the proposed model: 25 university professors and executives in the study area were selected to implement the Delphi technique. Then, the list of dimensions and sub-components identified from the theoretical literature and opinions of experts was sent to the experts through a questionnaire to perform the Delphi technique.

Step 4: Determination of the relationship between the components and model indices: To quantify the model, a closed questionnaire was set up, the validity of which was evaluated with CVR-CVI indices and its reliability with Cronbach's alpha was confirmed. The data were distributed and analyzed by factor analysis using SPSS-PLS software.

Step 5: Model implementation: The final model

was designed and fitted (Figure 1).

Interaction of components and indicators of integrated model of COBIT model and ITIL framework in the field of pre-hospital emergency management (Table 1-4):

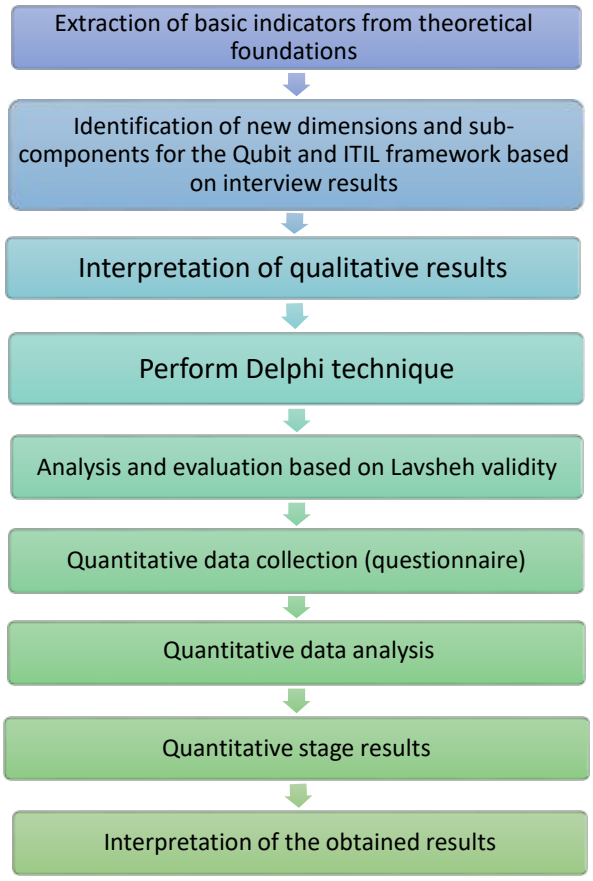

Figure 1: Research implementation steps

Table 1: Codes extracted from ITIL and COBIT studies after removal of duplicate items

The main categories	Selected codes
Management	Facilities Management Performance management Human resources management Data management Configuration management Quality management Managing the affairs of technologists Pay attention to web-based decision making Information needs management Employee management Data-based decision making Expert systems Technology based management Technological decision making Financial Management Proper budgeting Provide reports Attention to crisis management Provide reports Attention to crisis management Outsourcing contracts Decision making procedures
Organization	Technological structure Organizational Structure Internal improvement Organizational Commitment Customer oriented culture Structural flexibility Data structure management Technology localization Improving technology patterns Technology rules Technology ownership Technological culture Systematic thinking
Processes	Information and communication technology processes Replacing old systems with new ones Having a protocol Process Engineering Clarification of work affairs Technology-based processes Technology-based process engineering Communication equipment between employees Relationships between processes Proper execution of processes Development and maintenance of methods Improve work processes Transparency of processes
Vision	Strategic vision Technological orientation Technological perspective Gain technological competitive advantage Pay attention to market needs The rule of technology
Objectives of the organization	Achieve technological competitive advantage Reduce unnecessary costs Manpower awareness Improve organizational procedures Technology Development Customer competitive advantage Technological development Business goals Compatibility with change Compatibility of software with organizational goals Transfer of goals and management orientation Reliability Effectiveness, efficiency Follow and access Needs assessment of technology courses
Staff	Practical exercises Training needs assessment Essential force readiness Staff training Continuation of IT training Speed of adaptation of employees and managers to changes Continued use of information technology Existence of information skills Staff knowledge Appropriate employee behaviors User training Cooperation between specialists Work experience

Monitoring and Evaluation	Technological performance evaluation Monitoring the process of activities internal control Development of indicators and standards Ensuring compliance with external conditions Install GPS on ambulance Customer Surveys Field surveys Daily control of activities Existence of monitoring rooms Monitor network security Performance monitoring schedule Convenient location Periodic control
Support	Technical support Financial Support Prehospital measures Crash support Online support for ambulances Use of equipped ambulance Annual service of devices Create IT unit Development of technological laws Hardware and software support
Organizing	Appropriate communication equipment Paying attention to the division of tasks Calling and sending me in the context of technology Establishing a technology headquarters Technology Committee Separation of tasks Transparency Make it easy to work planning Category of activities Identification of automated solutions Physical separation Create ID for all computers Specific work policies Ways of doing work Category of activities
Information architecture	Information integration Create a knowledge base Data management Create a knowledge base Data continuity Create expert systems Review and expertise of functions Checking systems Follow up the causes of disorders Create a physical network platform flexibility Existence of a portal Existence of a blog Possibility of secure access Convenient to information
Service delivery	Improve customer service Attention to technological satisfaction Increase the quality of services Create new technical services Service guarantee New service needs assessment Outsourcing services Commitment to optimal service Quality assurance procedures

Table of convergent reliability and validity indicators

In the present study, each of the research variables can act as an indicator or dimensions of the second variable (appropriate framework of information technology services by combining COBIT and ITIL framework in the field of pre-hospital emergency), so the second factor analysis has been performed (Table 5).

Factor load values were desirable in the second-order factor analysis. On the other hand, the value of t corresponding to each factor load was more than its critical value (2.58) at the level of 0.01 and was significant. The coefficient of determination (R2) also measures the relationship between the explained variance of a latent variable and its total value of variance. The value of this coefficient was between zero and 1; the larger the values, the more desirable. The values of 0.19, 0.33, and 0.67 are described as weak, moderate and significant, respectively. The values of R2 were significant and desirable.

The quality of the structural model was calculated by the redundancy index with cross validity (CV Red). The most well-known measure of this ability was the Q2 Stone-Geisler index, according to which the model should predict the indicators of reflex endogenous latent variables. Q2 values above zero indicate that the observed values are well reconstructed, and the model is predictable. In other words, if all the values obtained for the CV Red index are positive considering the endogenously reflected latent variable, it can be said that the structural model is of good redundancy index with cross validity.

Discussion and Conclusion

As to the research findings, it can be stated that due to the need for timely access to the required information when providing emergency services, the pre-hospital emergency information system was established to generate information and support emergency services outside health care institutions (14, 16, 23, 33, 48). Pre-hospital emergency is a vital component of the emergency medical service system. This type of emergency is, in fact, a community-based system that responds to the medical needs of the injured or patients with acute and emergency illnesses outside the health care facilities until they are transferred to a medical center. The activities of this system, as specified in its symbol called the Star of Life, include: responding to emergency telephone calls, dispatching, providing care by trained people at the scene, continuing to provide vehicle care such as ambulance and helicopter, and the transfer of a person to a medical center designated by the Emergency Command Center. This system is also responsible for transferring patients between health care institutions (39, 48, 51).

Table 2: Kalmograph-Smirnov test for data normality

Row	Dimensions	Number	Kalmograph-Smirnov test	Error probability level
1	Management	271	1.68	0.042
2	Organization	271	1.89	0.033
3	Processes	271	1.97	0.013
4	Vision	271	1.79	0.034
5	Objectives of the organization	271	1.93	0.021
6	Staff	271	1.81	0.036
7	Monitoring and Evaluation	271	1.89	0.033
8	Support	271	1.19	0.084
9	Organize	271	1.98	0.021
10	Information architecture	271	1.64	0.092
11	Service delivery	271	1.80	0.034

Table 3: Convergent reliability and validity indices

Variable	Cronbach's alpha coefficients	Combined reliability	Mean variance extracted	Items	Factor load	The value of t	Error probability level	Result
Management	0.941	0.949	0.576	M1	0.873	62.541	0.05	Marker confirmation
				M2	0.668	17.273	0.05	Marker confirmation
				M3	0.803	29.843	0.05	Marker confirmation
				M4	0.798	27.284	0.05	Marker confirmation
				M5	0.798	27.284	0.05	Marker confirmation
				M6	0.625	18.284	0.05	Marker confirmation
				M7	0.761	28.508	0.05	Marker confirmation
				M10	0.760	27.601	0.05	Marker confirmation
				M11	0.687	18.435	0.05	Marker confirmation
				M12	0.602	16.648	0.05	Marker confirmation
				M13	0.873	62.541	0.05	Marker confirmation
				M14	0.760	21.601	0.05	Marker confirmation
				M15	0.873	62.541	0.05	Marker confirmation
				M18	0.714	21.819	0.05	Marker confirmation
Organization	0.912	0.925	0.610	O1	0.670	14.172	0.05	Marker confirmation
				O3	0.647	18.484	0.05	Marker confirmation
				O4	0.794	15.243	0.05	Marker confirmation
				O5	0.659	17.197	0.05	Marker confirmation
				O6	0.766	31.440	0.05	Marker confirmation
				O7	0.885	32.810	0.05	Marker confirmation
				O8	0.671	33.548	0.05	Marker confirmation
				O9	0.751	39.430	0.05	Marker confirmation
				O10	0.721	12.990	0.05	Marker confirmation
Process	0.845	0.887	0.570	P7	0.822	26.488	0.05	Marker confirmation
				P8	0.762	19.166	0.05	Marker confirmation
				P9	0.695	16.247	0.05	Marker confirmation
				P10	0.848	53.538	0.05	Marker confirmation
				P11	0.785	18.104	0.05	Marker confirmation
				P13	0.589	11.102	0.05	Marker confirmation
Vision	0.899	0.926	0.**717**	C1	0.923	109.386	0.05	Marker confirmation
				C2	0.705	27.858	0.05	Marker confirmation
				C3	0.863	39.266	0.05	Marker confirmation
				C4	0.799	42.050	0.05	Marker confirmation
				C6	0.923	109.386	0.05	Marker confirmation

Objectives of the organization	0.897	0.915	0.520	G1	0.672	15.306	0.05	Marker confirmation
				G2	0.677	12.077	0.05	Marker confirmation
				G3	0.693	13.627	0.05	Marker confirmation
				G7	0.688	22.384	0.05	Marker confirmation
				G8	0.822	66.533	0.05	Marker confirmation
				G9	0.787	27.702	0.05	Marker confirmation
				G12	0.788	35.664	0.05	Marker confirmation
				G13	0.610	14.020	0.05	Marker confirmation
				G14	0.705	21.111	0.05	Marker confirmation
				G15	0.744	21.390	0.05	Marker confirmation
Staff	0.931	0.944	0.637	E1	0.956	186.637	0.05	Marker confirmation
				E2	0.956	186.637	0.05	Marker confirmation
				E4	0.956	186.637	0.05	Marker confirmation
				E5	0.598	19.579	0.05	Marker confirmation
				E6	0.956	186.637	0.05	Marker confirmation
				E7	0.725	20.776	0.05	Marker confirmation
				E10	0.748	24.714	0.05	Marker confirmation
				E11	0.664	16.516	0.05	Marker confirmation
				E12	0.617	13.408	0.05	Marker confirmation
				E13	0.675	17.398	0.05	Marker confirmation
Monitoring and Evaluation	0.979	0.985	0.90	N4	0.996	23.202	0.05	Marker confirmation
				N6	0.996	23.202	0.05	Marker confirmation
				N7	0.633	20.681	0.05	Marker confirmation
				N9	0.990	23.202	0.05	Marker confirmation
				N12	0.996	23.202	0.05	Marker confirmation
				N13	0.996	23.202	0.05	Marker confirmation
				N14	0.996	23.202	0.05	Marker confirmation
Support	0.926	0.941	0.668	S1	0.738	24.313	0.05	Marker confirmation
				S2	0.711	11.789	0.05	Marker confirmation
				S3	0.936	120.784	0.05	Marker confirmation
				S5	0.936	120.784	0.05	Marker confirmation
				S7	0.936	120.784	0.05	Marker confirmation
				S8	0.691	18.065	0.05	Marker confirmation
				S10	0.806	21.983	0.05	Marker confirmation
				S11	0.739	11.789	0.05	Marker confirmation
Organize	0.929	0.942	0.674	SA1	0.715	13.383	0.05	Marker confirmation
				SA2	0.921	76.638	0.05	Marker confirmation
				SA3	0.724	22.223	0.05	Marker confirmation
				SA5	0.839	37.169	0.05	Marker confirmation
				SA6	0.847	34.304	0.05	Marker confirmation
				SA7	0.798	24.277	0.05	Marker confirmation
				SA8	0.775	23.132	0.05	Marker confirmation
				SA10	0.921	76.638	0.05	Marker confirmation
Information architecture	0.961	0.967	0.751	ME1	0.821	42.327	0.05	Marker confirmation
				ME2	0.821	42.327	0.05	Marker confirmation
				ME5	0.950	181.183	0.05	Marker confirmation
				ME7	0.798	36.735	0.05	Marker confirmation
				ME9	0.950	181.183	0.05	Marker confirmation
				ME11	0.701	19.840	0.05	Marker confirmation
				ME12	0.905	181.183	0.05	Marker confirmation
				ME13	0.725	20.951	0.05	Marker confirmation
				ME17	0.950	181.183	0.05	Marker confirmation
				ME19	0.950	181.183	0.05	Marker confirmation

Providing services	0.871	0.899	0.529	K1	0.782	20.505	0.05	Marker confirmation
				K2	0.674	14.898	0.05	Marker confirmation
				K3	0.739	17.028	0.05	Marker confirmation
				K4	0.785	32.512	0.05	Marker confirmation
				K5	0.622	15.127	0.05	Marker confirmation
				K6	0.753	24.306	0.05	Marker confirmation
				K7	0.789	21.359	0.05	Marker confirmation
				K8	0.654	18.162	0.05	Marker confirmation

Table 4: Divergent validity matrix by Fornell-Larker method

	Management	Organization	Processes	Vision	Objectives of the organization	Staff	Monitoring and Evaluation	Support	Organize	Information architecture	Providing services
Management	0.**759**										
Organization	0.72	0.78									
Processes	0.**69**	0.**71**	0.**75**								
Vision	0.61	0.63	0.67	0.85							
Objectives of the organization	0.66	0.69	0.71	0.84	0.72						
Staff	0.**58**	0.**70**	0.**79**	0.**74**	0.**65**	0.**80**					
Monitoring and Evaluation	0.**60**	0.**66**	0.**76**	0.**69**	0.**72**	0.**72**	0.**95**				
Support	0.**64**	0.63	0.78	0.62	0.75	0.78	0.69	0.82			
Organize	0.**58**	0.**71**	0.**73**	0.**62**	0.**69**	0.**76**	0.**69**	0.**81**	0.**82**		
Information architecture	0.58	0.59	0.69	0.64	0.64	0.70	0.64	0.73	0.73	0.87	
Providing services	0.**65**	0.**71**	0.**69**	0.**65**	0.**69**	0.**72**	0.**65**	0.**69**	0.70	0.71	0.73

Table 5: Results of the second-order confirmatory factor analysis for research variables

Structure	Factor load	T value	The significance level	R^2
Management	0.791	26.730	0.01	0.626
Organization	0.847	33.982	0.01	0.718
Processes	0.896	65.936	0.01	0.803
Vision	0.804	43.454	0.01	0.646
Objectives of the organization	0.899	79.566	0.01	0.809
Staff	0.891	75.691	0.01	0.794
Monitoring and Evaluation	0.845	40.256	0.01	0.714
Support	0.913	72.952	0.01	0.834
Organize	0.875	45.643	0.01	0.765
Information architecture	0.841	46.649	0.01	0.707
Providing services	0.853	42.107	0.01	0.727

Table 6: Redundancy index with cross validity

Variable	Crossover validity redundancy index (CV Red)
Management	0.353
Organization	0.350
Processes	0.448
Vision	0.452
Objectives of the organization	0.406
Staff	0.501
Monitoring and Evaluation	0.644
Support	0.539
Organize	0.511
Information architecture	0.520
Providing services	0.370

Based on these activities and the scope of operations, pre-hospital emergency and timely and prompt response to emergencies ensure the provision of quality pre-hospital care and provide the basis for further treatment by other departments. In fact, pre-hospital emergencies act as gateways for emergencies in the field of emergency care and improve the outcome of treatment for patients.

One of the effective factors in this field is the existence of necessary information and access to them at the time of service. In this regard, the pre-hospital emergency information system can provide information from the moment of notification of an emergency situation until the completion of a mission, i.e. until the patient is delivered to a medical center; also, this system provides this information to support emergency services and increase coordination for better patient management. As a result, medical emergencies are considered as an information-related specialty, so that fast access to accurate information at minimal cost is essential for better care of patients. Evaluation of emergency medical activities is severely limited due to the dispersion and problems of data and information collection. Obviously, with the advancement of knowledge and technology, the only effective way to achieve the goal of preventing the occurrence or reduction of complications of such accidents is the use of integrated and comprehensive pre-hospital information systems (3, 7, 62, 66).

A prehospital information system should be designed first to support patient care and second to report what is needed for other purposes. Hence, this is also true in medical emergencies. In the field of medical emergencies, the task of the information system is to establish effective communication links and proper planning, so that it provides the necessary ground for the prompt and timely action of emergency medical services, and this system saves lives. People in the community work to prevent disabilities (40, 41, 48).

Regarding the establishment of IT services management in the field of pre-hospital emergency management, there are various models, and the COBIT maturity model and ITIL framework as the most well-known models can be suitable tools. The COBIT framework is a high-level process model that organizes a wide range of IT activities in 34 processes and provides a single structure for implementing, understanding, and evaluating performance, IT risks and capabilities with the primary goal of meeting business needs (4, 12, 18).

The ITIL framework is also a set of methods related to IT service management. IT service management refers to a cycle that begins with identifying the customers' needs and continues until that need is met in the form of IT service delivery. Therefore, COBIT and ITIL are both valuable combinations that help the organization a lot in IT management in line with business (65).

ITIL provides guidelines for implementing service management processes, and COBIT assists the organization in aligning the ITIL processes with business goals and needs. COBIT also provides an effective mechanism for managing and measuring the progress of ITIL processes as well as their continuous improvement in the organization (4, 18, 22, 65).

Therefore, the COBIT framework provides management and governance solutions under the control of IT processes, achieving organizational goals, monitoring the performance of each process, and modeling it. Therefore, with the implementation of COBIT in the organization, the success and effectiveness of ITIL implementation will be improved. In the present study, the combination of the above-mentioned two models has been considered. Finally, after combining these two frameworks, 11 components were identified (18, 24).

After examining the dimensions, we found that the goals of the organization have the highest average among the other dimensions; that is, from the respondents' point of view, the most attention should be paid to the goals of the organization. In order to reduce the unnecessary costs of the pre-hospital emergency organization, we need to identify all the overhead costs of the organization and avoid the costs without having a proper justification plan. As to establishment of IT services framework Awareness in this regard and about the usefulness and reason for its implementation, we held several meetings with employees. In this regard, it should be specified exactly what process is performed by whom and how; and who is responsible for this process, should seek to provide solutions for the development of technology and infrastructure in line with the goals of the organization. For this, first the goals of the organization and the vision of the organization should be considered and technological projects in this direction should have a special advantage. Before justifying the employees, it would be better for senior managers to support such projects because if the senior management of the organization does not seek to optimize the structure and processes using appropriate frameworks in the field of information technology, the specified plans and frameworks will not have proper consistency and correlation. As to the item of adaptation to change, it should be stated

that in the field of pre-hospital emergency, always the changes and requests of the macro-health field, the ability to change the infrastructure, and the way things are done in the shortest possible time using information technology should be considered. It has a second dimension with the highest mean. i.e. the employees, which indicates that from the point of view of respondents, the appropriate framework for information technology services should also pay special attention to the dimension of employees; that is, it is an appropriate framework so that before any implementation we should first pay attention to the readiness of its human resources in various fields and acceptance of information technology services; also, in order to prepare human resources in this regard, it should consider appropriate training through needs assessments at the beginning. There should be a proper and effective relationship between specialists and implementers with ordinary employees, and also it should seek to record the knowledge and work experience of the people in the organization that this work experience and knowledge can be used to recur errors in the organization and return the errors and problems. The next component that has the highest score and should be given special attention is the monitoring and evaluating component, which indicates that the discussion of developing indicators and standards, as well as monitoring the process of activities and daily control of activities and performance evaluation Technologically, as well as the establishment of monitoring rooms and monitoring the security of infrastructure and network are of great importance and should also have a written and periodic program to discuss control in all aspects (18, 22, 29, 35).

In terms of management, it is necessary to manage the emergency center to factors such as facilities management, performance management, human resource management, data management, configuration management, quality management, technology affairs management, web-based decision making, information needs management, employee management, data-based decision making, expert systems, technology-based management, technological decision-making, financial management, appropriate budgeting, reporting, crisis management, reporting, crisis management, outsourcing and Decision-making procedures. It should be noted that all these sub-factors should be considered at the management level in order to ensure the existence of the necessary managerial support to implement the service management system (37, 43, 44, 52, 56, 67).

In the dimension of organization, factors such as technological structure, organizational structure, internal improvement, organizational commitment, customer-oriented culture, structural flexibility, data structure management, technology localization, improving technology patterns, technology laws, technology ownership, technological culture and systems thinking should be noted. It can be said that the most important part is the implementation of information technology services management system because in an organization, the appropriate structure and culture of using information and communication technology should be considered by the emergency center, leading to improvement in management of IT services (7, 15, 16, 18).

In the dimension of processes, factors such as ICT processes, replacement of old systems with new ones, having a protocol, process engineering, job transparency, technology-based processes, technology-based process engineering, communication equipment between employees, communication between processes, proper execution of processes, development and maintenance of methods, improvement of work processes, and transparency of processes should be considered. This dimension focuses on how information flows and determines the necessary activities in the use of IT services management. It supports a kind of executive and operational part of the system, and it is important to institutionalize how to use and train the employees (5, 10, 18, 55, 65).

In terms of perspective, factors such as strategic perspective, technological orientation, technological perspective, gaining technological competitive advantage, attention to market needs and technological dominance are considered, which shows that pre-hospital emergency centers should function through strategic planning. He paid more attention to the category of information technology and achieved the goals set in the form of the desired system (55, 56).

In terms of organizational goals, factors such as achieving technological competitive advantage, reducing unnecessary costs, manpower awareness, improving organizational procedures, technology development, customer competitive advantage, technological development, business goals, adaptation to change, software compatibility with organizational goals, transfer of goals and management orientation, reliability, effectiveness, efficiency and adherence and accessibility should be taken into account by the centers; the following factors will cause the prehospital center to gain a competitive advantage in the long run and somehow lead to improvement of

your performance (37, 38, 43, 44, 52).

In terms of monitoring and evaluation, factors such as technological performance evaluation, monitoring of activities, internal control, development of indicators and standards, ensuring compliance with external conditions, installation of GPS on ambulances, customer surveys, field surveys, daily control of activities, existence of monitoring rooms, network security monitoring, performance monitoring schedule, proper location and periodic control) should be considered; this category is one of the most important categories identified that control the behavior of the system during execution and after execution. by receiving the necessary feedback, we can improve the behavior of the system (21, 22, 24, 47, 57).

In terms of support, factors such as technical support, financial support, pre-hospital measures, disaster support, online support for ambulance, use of equipped ambulance, annual service of devices, creation of information technology unit, development of technological rules and hardware support and software should be noted. According to experts, it can be considered that any system that is implemented in the emergency center needs technical support and that technical and engineering units and net will play an important role in this area; it seems that inspections and preventive notes in this category increase the probability of the success of the system (5, 51, 65).

In terms of organizing, factors such as appropriate communication equipment, attention to division of tasks, calling and dispatch in the context of technology, creation of technology headquarters, technology committee, segregation of duties, work transparency, ease of work, planning, categorization of activities, identification, automated solutions, physical separation, creation of identity cards for all computers, specific work policies, work methods and classification of activities were identified. In this regard, it can be said that all the equipment used in the programs should be used in an organized away and there should be some kind of coordination between them; this will improve the performance of the system (16, 52).

In the field of information architecture, factors such as information integration, knowledge base creation, data management, knowledge base creation, data integration, creation of expert systems, review and expertise of functions, checking systems, tracking the causes of disorders, creating a physical environment, network, flexibility, portal, blog, secure access to information, easy access to information and needs assessment of technology courses will play an important role in the establishment of the system, which in a way has the task of maintaining information system data. The title of the brain of the system is identified and specialized, and appropriate human resources should be used in this dimension (9, 10, 13).

Finally, in terms of service delivery, factors such as improving customer service, paying attention to technological satisfaction, increasing service quality, creating new technical services, service guarantee, new service needs assessment, service outsourcing, commitment to desirable services and quality assurance procedures are considered. It should be noted that the main purpose of the system is to increase the quality of services and patient satisfaction, which in this category is necessary to increase the quality of services in the context of information and communication technologies to pay attention to customer satisfaction (26).

Practical Suggestions

Considering that the goals of the organization have the highest average among the other dimensions; that is, from the respondents' point of view, the most attention should be paid to the goals of the organization, i.e. in implementing the IT services framework, the unnecessary expenses of the emergency organization should be detected; in order to do so, all the overhead expenses of the organization should be identified and the expenses should be avoided without having a proper justification plan.

It is suggested that before implementing the IT services framework, we should be fully aware of this and hold several meetings with the staff about its usefulness and the reason for its implementation.

It is suggested that the procedures of the organization should be identified and after that the processes should be corrected. i.e. we need to specify exactly what process is performed by whom and how, and also who is responsible for this process.

It is suggested that technological projects that are in line with the goals and vision of the organization should have a special advantage.

It is suggested that we should pay attention to the readiness of its human resources in various fields and acceptance of information technology services and hold appropriate trainings and courses.

It is suggested that at the beginning of the work, appropriate educational needs assessments should be considered for each person based on his/her ability and capacity.

It is suggested that the management should seek

to record the knowledge and work experience of the people in the organization; which with the work experience and knowledge, we can use the occurrence of re-errors in the organization and return the errors and problems.

It is suggested that we should set up monitoring rooms and monitor the security of infrastructure and network in order to monitor the process of activities and daily control of activities and evaluation of technological performance.

It seems that the most important step in establishing a system is to formulate the right strategies. These strategies should be defined and formulated in three categories of executive level strategy, middle strategy and task level strategy and should be clearly informed. Also, to perform tasks in any specific task, people who have sufficient expertise in that field should be used. Also, alignment mechanisms should be followed more seriously. In particular, we need to use knowledge sharing software in an operational rather than ceremonial way.

It is suggested that more attention should be paid to purposeful and effective human relations between and within the organization to fulfill the mission of pre-hospital centers. In addition, integrated and continuous information technology training courses should be held in these centers to motivate and develop services.

It is suggested that to successfully establish the management of IT services, they should periodically pay attention to the issue of evaluating the system performance and correct the system behavior according to the appropriate indicators and receive feedback.

It is recommended that they should use specialized and experienced people in activities such as creating and maintaining a database, which will increase the speed of access to information and sufficient accuracy.

It is suggested that all work processes should be carried out in accordance with the principles of information technology and we need eliminate manual and paper-based activities and somehow automate the work process; the employees should use the system as users.

It is suggested that patients should be interviewed as to the services delivered, and if there are problems, they should be removed because the main purpose of the system is patients' satisfaction.

Research Limitations

The results were for the study community only and could not be generalized to other communities.

The inferential statistics section of the research (presented model) may have undergone minor or major changes over time and changes in attitudes and conditions, so the results cannot be generalized to the future and is in fact the proposed model for the current situation.

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