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Analysis of the Impact of Government Information Operation on Emergency Management Information System Application

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Abstract

This study used qualitative and quantitative validation to explore a combination of research methods. Using correlation analysis, principal component analysis and hierarchical multiple regression analysis of the 293 samples were analyzed for government departments within Emergency Management Information System (EMIS) applications, five-impact factor model analysis is conducted including Management factors within the organization, the supplier of the product technology standard, the external technical environment factors and the information technology sector to support service capabilities of government departments within EMIS applications have a significant impact.

Keywords: Emergency Management Information Sysytem; Information System; Government Information Operation

1. Introduction

With the global political and economic integration, government management and service functions become more electronic, automation, and paperless. Emergency Management Information System (EMIS) is rapidly developed in a number of countries especially in developed countries. Using the Internet technology to improve government organization; reorganizing the public process and management; changing management functions of government agencies; improving work quality and efficiency; had a

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profound impact in establishing an efficient, well-coordinated, and standardized administrative system [1]. EMIS plays an important role in promoting national government reform, improving government efficiency, enhancing the effectiveness of the role of government work.

2. Literature Review

Dependent variable of this study, "EMIS success" index system is a measure of DeLone and MeLena information systems based on the successful model to determine the evaluation system used to measure six dimensions: system quality, information quality, personal influence, organizational the impact of user satisfaction and system usage, etc., and relative to the general information system has its unique composition of the description.

This study first in order to implement the impact factors for ERP-based, coupled with the sector-specific patterns and other factors applicable to adjustments proposed by the government sector-specific factors, to form the hypothesis of this study. If these elements with the common law, then the Chinese management style, management system have determined that we will have some special "element" [2]

ERP implementation in the study were, Holland [3] believes that the successful implementation of ERP require enterprises to process-oriented, and all departments must follow the same, unified processes, ERP's real benefits can only be obtained from the organizational change. Therefore, the implementation of the ERP is a business project (business project), rather than the technical project (technology project). Holland ERP system implementation critical success factors include strategic factors and tactical factors at two levels, the former also includes senior management support, the development of the will (business vision), the project timetable (project schedule), "remains" system (legacy system) , ERP implementation strategy; the latter, including user participation (client consultation), staff (personnel), user acceptance (client acceptance), monitoring and feedback, communication, questions (trouble shooting), ERP, and software configuration (configuration). Estsve [4] that, ERP project failure rate is high, mainly due to the project manager is usually too concerned about the technical and financial issues, while ignoring the non-technical issues (non-technical issues). Therefore, Estsve from four dimensions to describe the ERP system implementation of the impact factors: strategic, tactical, organizational and technical.

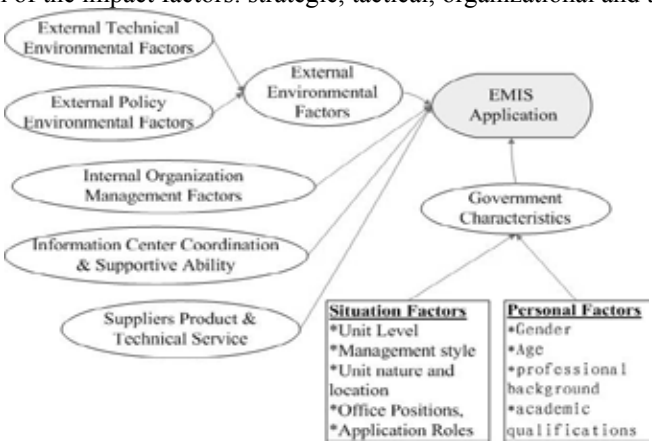

Fig. 1. Impact Model of Government Information Operation to EMIS

Business-critical success factors in the study were the theory, because the basic characteristics of different companies to key success factors will affect the importance of cognitive [5,6], so when "internal end-users," that is, each the basic characteristics of government departments are not at the same time, it

will affect their applications for EMIS the importance of understanding impact factors. And different government departments at all impact factors for the importance of awareness because of their different basic characteristics which are different. A description of the basic characteristics of government departments from situational factors such as unit information, unit information and other members of the six basic characteristics and individual factors, five personal characteristics information [7] and so the two aspects can be further subdivided into 11 Information:

Situational factors include: the unit level, management style, the nature and location of the units, offices, positions, application roles;

Personal factors include: the application of age, gender, age, professional background, academic qualifications.

These two factors have directly affected the degree of importance of key success factors of knowledge, thereby affecting the various impact factors play a role in the actual performance. As Fig.1. bellowing shows the five-impact factors of Government Information Operation to EMIS application, and the situation and personal factors also make impacts to EMIS application.

3. Methodology

In this study, research methodology of the interview (Interview) and survey (Questionnaire) a combination of research (Survey Research). Questionnaires used in this study included five measurement scales and 11 basic features, which included a total of six parts, a total of 60 issues tested need 15-20 minutes to complete.

The first part of the records in which the body of the basic characteristics of the sample, the second and third part is the main body of the questionnaire, including "the success of EMIS applications," Measurement of a total of six questions [8] and the measurement of critical success factors. The key success factors of the measurement is divided into four parts of a total of 43 issues: the measurement of external environmental factors [9], internal organization and management of measurement[10], information technology departments of the business understanding, organization and coordination and support services capacity measurements [10,11] and suppliers of product technology level of measurement [12].

In this study, the "judge sample (Judgment sampling)" subjective sampling method [13]. That is, the researchers according to their knowledge structure and research purposes subjective determination of the sample process.

A total of about 800 copies of a questionnaire, and a total of 403 questionnaires were recovered, the recovery rate to achieve the desired size by 50%.

Questionnaire recovered for all samples to judge, and number, the validity of the selection of the questionnaire, the questionnaire on problems one by one to make the appropriate treatment. Finally an effective response rate was 73%. The electronic edition of 196 copies, the paper version of 97 copies. Questionnaire information on the effective uniform coding and entry, the formation of basic information.

This study sample recovery in the government sector, coverage is relatively ideal, the basic line of the original sample design, to better meet the "judge sample" requirements. Measurement items of all reliability testing, Cronbacha α coefficient of 0.950 is greater than 0.9; each a study of dimensions of the Cronbach's α coefficients were larger than 0.8, with a very good internal consistency reliability. The success of EMIS applications and the Cronbach's α coefficient is 0.780, greater than 0.7, but also within the scope of acceptable [14]. This study a total of 43 projects, all samples of the KMO value of 0.910, Bartlett's test of sphericity chi-square value of 8223.147 (degrees of freedom for the 903), reach a very significant level, indicating that the sample data suitable for factor analysis.

Table 1. 24 Key Impact Factors of Government Information Operation to EMIS

Impact Factors	Dimensions	No.	Specifications
Internal Organization Management Factors	End-users intention: Top Leader Focus	1	Unit authorized by the Government is responsible for e-government program
		2	Sufficient funding is provided to ensure the implementation of e-government program
		3	"Top leader" focuses on application, has provided adequate funding and resources
	End-users' intention	4	Top leader attends e-government program himself
		5	Units leaders attend e-government program theirselves
		6	Staff uses actively
		7	Staff supports e-government program
		8	Staff works coordinating with each other
	CIO Resource Coordination Abililty	9	CIO's administration and coordination ability
	Information Center's Project Manager's Ability	10	Project manager's administrative operations and system requirement analysis ability
Suppliers' Product & Technical Service	Suppliers Technical Service	11	A high level of technology suppliers
	Suppliers Project Manager's Ability	12	Suppliers' project manager has extensive project experience
		13	Suppliers' project manager communication and coordination ability
	Products Business Matching	14	Software has high flexibility, can facilitate the adjustment process and develop new features
	Government Information Resources Integration	15	System has high security
		16	Subsystem enables multiple business information resource integration
		17	Subsystem enables multiple business information resource integration
External Technical Environmental Factors	Application Technical Environment	18	The level of development and application of e-commerce
		19	Business of e-government public services and willingness to accept
		20	Citizens of e-government public services and willingness to accept
Information Center Coordination & Supportive Ability	Information Center's Supportive Ability	21	Information center's engineers to provide on-call support services
		22	Information canter's engineers are skilled, on-site problem-solving ability
External Policy Environmental Factors	Policies, Regulations and System's Security System	23	Sound policies and regulations or normative systems that use system
		24	Administrative system in the vertical business systems and dependencies between the Government Management Platform named "Fragmentation"

First, all four study dimensions 14 research project on the 43 dimensions, using factor analysis method in the "principal component analysis," Extraction of six main factors, a "four most orthogonal" spin Later, hypothetical question 43, the preferred re-projects, so impact factors model for a more focused and streamlined. Will hardly ever the main factors of the 17 items removed, the last remaining 24 projects. In this way, applications of EMIS study of impact factors from the study before the hypothetical four dimensions of the 14 research project on the 43 dimensions to streamline the focus to this dimension of 11 research project on the top 24, which are decrypted in table 1.

24 questions on this project, according to characteristic value is greater than or equal to a principal factor extraction, and a "four largest orthogonal" rotation, select the value of a higher load factor, namely to retain "factor loading" 0.5 "and" Factor Load "-0.5" corresponds to the project, we constructed a clear impact factors for EMIS applications five factor structure model". As Table I show at last.

4. Suggestion

The top leader's supports and main users' usage in management factors in organization, the product and technology level of venders, the social e-business development and the public use intention, and the ability of information center, are the 5 impact factors of EMIS application. Especially the top leader's supports and main users' usage, the external policy environment is the most important.

During the procedure of e-government application, the end user, information center and the venders are the main three actors, as well as the different three levels of use namely executive level, management level and making-decision level, they are impacted interactively.

The level of branches and its management style, the different department style, the application role, and the individual specialty will impact the effect. Then the individual gender, age, school level and the experience in using information system have little impact on EMIS applications.

The external policy environment factors could affect the effect. To formulate a sound policy, regulations, or standard systems use system in order to protect the network in the world of virtual government coordinated operations to ensure that online virtual world of classified information security and non-disclosure, so that can really be applied together. On the contrary, the reality prevailing in the government among the "fragmentation" phenomenon then he will have a negative impact applications.

In addition, information technology sector capacity is a very important factor, but the internal management with the information technology sector capacity is very high, so once the control of the internal management of information technology departments is difficult to show out.

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