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The Empirical Analysis Model on Critical Success Factors for Emergency Management Engineering Information System

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Abstract

This study used a sample of 293 government workers from Guangdong Province of Peoples Republic of China. Based on Delone and McLean's IS success model, we constructed the scale for evaluating Emergency Management Engineering Information System (EMEIS) success. We also examined impacts of five critical success factors (i.e. internal organization management, quality of product and technology of suppliers, external technical environment, the external policy environment, and coordination and supportive ability of information center) on EMEIS. It was found that these five critical success factors are significantly related. It was also found from Pearson correlation coefficients that all but external policy environment are statistically related with EMEIS. It is found that the model was statistically significant. Since the correlation among independent variables, it was found that internal organization management, external policy environment are final significant variables. Finally, some managerial implications of our findings are proposed in order to improve the EMEIS inner government departments in China.

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Key words: Emergency Management Engineering, Emergency Management Engineering Information System (EMEIS) Application, Critical Success Factors (CSFs)

1. Introduction

Emergency Management Engineering Information System (EMEIS) in many developed countries has entered a relatively mature development period. In contrast, China is lagging behind in either progress or research. We can clearly see that the increasing investment in construction of EMEIS in many parts of China, but these projects did not produce a corresponding efficiency or effectiveness. Furthermore they brought more new problems. Over the years, people spent more time in building EMEIS projects and less attention to the research in application process. In fact, only the successful application of EMEIS can truly demonstrate the practical significance of EMEIS and its goals. Application is the last stage and, thus, will determine the success of eEMEIS and its progress.

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This study was conducted on different government departments to assess success on EMEIS application process. Various influencing critical success factors were examined. Case studies, detailed field interviews, and questionnaire survey were applied to this research. We tried to explore the critical success factors model for EMEIS. We hope our results can guide all levels of government departments to promote EMEIS and to provide practical guidance and recommendations to EMEIS application practice. The study also hopes to provide the Government with EMEIS measurement and policies that will serve as a basis to further develop and promote EMEIS application.

2. Review of Literature

EMEIS can be defined as that government agencies using modern information and communication technology to integrate management and services through web technology to achieve optimization of the re-structure and re-organization of government work processes^[15]. It is through the Internet information technology, use of modern science and technology, to achieve goals of government performance improvement: First, we must facilitate public participation and the government management, and keep government information open to the public. Secondly, to provide various types of high-quality government services and ensure citizens, social organizations and other institutions get access to public information and services conveniently. Thirdly is to improve administrative efficiency and enhance the competitiveness of the government^[18]. From the review, we can see that the most important focus of EMEIS is to enhance government performance. This study was focusing on establishing an evaluation system for EMEIS.

In the field of evaluate application of information system the landmark work was done by American scholars DeLone and McLean. In 1992 they proposed a six-dimension information system success model: i.e. system quality, information quality, system use, user satisfaction, personal influence and organizational impact. Eleven years later, they further improved the model by adding a new dimension: i.e. service quality^[3]. They also combined personal influence and organizational influence and merged them into a single new dimension, net benefits. However, because China has a different political system the concern of EMEIS was placed on effectiveness instead of benefits.

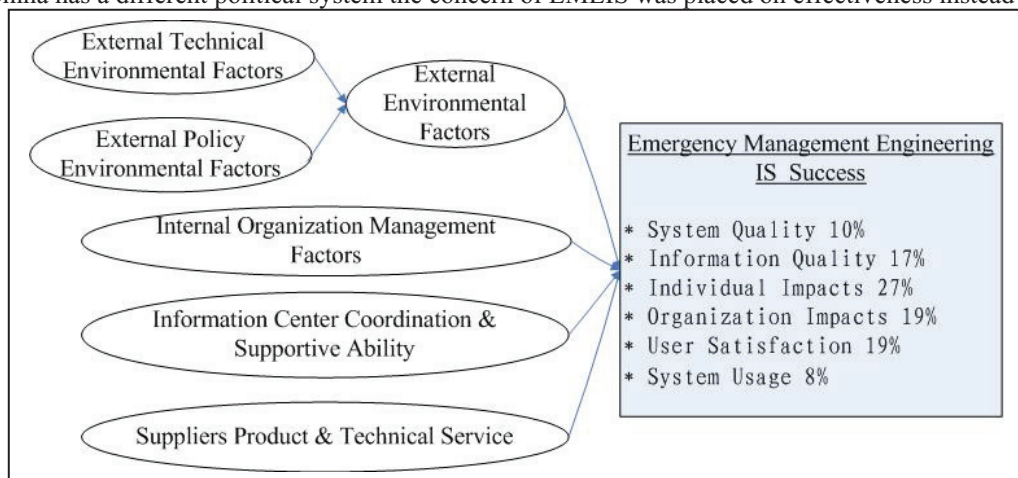


Fig. 1. Critical Success Factors Model for EMEIS

The dependent variable of this study, the success of EMEIS, is based on the successful model developed by DeLone and McLean. The assessment system used six dimensions: system quality, information quality, individual impact, organizational impact, user satisfaction and system usage^[2]. Through the interview of 16 experts, we assign certain weights to every dimension.

By reviewing researches of successful model in ERP implementation, e-commerce and E-Government, this paper proposes a critical success factors model for EMEIS. Please see Figure 1 for Critical Success Factors Model for EMEIS.

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