A DERIVATION OF THE FACTORS FOR RISK MANAGEMENT IN THE U-CITY CONSTRUCTION INDUSTRY

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ABSTRACT: The u-City project proceeds through combining urban development with IT technology. The u-City project has more risks because it has more complexity and diversity compared with normal urban development. Therefore, the u-City project needs a comprehensive risk management system which can control risk factors quantitatively. The current study proposes a risk management process which recognizes possible risk factors in the planning phases, shows the method of risk analysis by the calculation of risk index, and calculates risk level to find core risk factors beforehand.

***Keywords**: u-City, Risk Management, Risk Factor, Project Planning Phase*

1. INTRODUCTION

u-City (Ubiquitous City) is the next generation IT city which improves convenience, quality of life, and a systematic city management system by combining IT infrastructure and ubiquitous services with city space. The u-City project has more complexity and diversity compared to existing city development plans because the u-City project is enhanced with advanced IT technology. For this reason, there are more risks, so it is necessary to create the Risk Management System of the u-City project which can control risks systematically. Each of the planning steps has a diversity of risks which will affect the success of projects, however, the risk has not been studied adequately to give conclusive results. Therefore, risk management can analyze the various risks by quantitative analysis which is necessary for systematic risks management in this case. In this study, we propose risk management in the planning steps for a successful u-City project and its maintenance.

2. u-City risk analysis in the planning steps.

2-1. Definition and steps of the risk management PMI (Project Management Institute)[1] said '...risk management is the process for the analysis, the classification, and the correspondence. And, it is the management method which minimizes bad influences and maximizes good influences.

2-2. Distinguishing the u-City planning steps

Kang [2] reported that the u-City project does not analyze risks in the planning steps, and thus the project is not systematized.

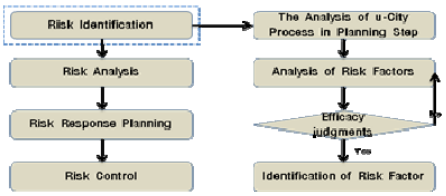

Fig. 1: The Method of Risk Identification

To systematize the project, it is necessary to analyze the existing urban development plan, because the u-City project is one of the urban development projects.

Table 1: Risk Factors of u-City Planning

Division	Risk Factor
u-City Planning Step Project Risk	The human ownership
	Propriety of company composition
	Absence of a management organization
	Conflict with the persons concerned
	Absence of the specialist
	Uncertain responsibility
	Technology
	Absence of the technology standard
	Understanding of technical parts
	Lack of operating expense
	Absence of business model
	Insufficiency of finances
	Error of setting facility size
	Propriety of each facility plan
	Propriety of project fulfillment
	Propriety of project period
	Investigation of project expenses plan
	Transparency of the management of project finances
	Funding and risk of advanced redemption
	Overlapping investments
	Lack of clarity in estimation validity
	Insufficiency of the service demand analysis
	Concerns postulated by the client about the project
	Preparation for possible grievances about the location Address grievances
	Lack of facilities in the region
	The clarity of approval and permission
	Risk of land purchase
	Ownership
	Preparing for environment/safety

In the study, we deducted the risk factors through the USP (Ubiquitous Strategy Plan) analysis of Woonjung in Paju, and Pangyo in Seonngnam. The analysis was to distinguish the risk factors of project:

3. The estimation of the risk factors.

3-1. The risk stratification

There are many risk factors in the planning steps of the u-City project. What is needed is a grouping of factors which has a high correlation with each other by factorial analysis through the average of risk factors for the efficient estimation of risk.

3-2. The risk estimation through risk index

ICAK (International Construction Association of Korea)[3] said that the probability impact (PI) method is part of the quantitative analysis through which occurs probability and level of influence, but the PI method has a limit in that it attributes various risk aspects to only probability and strength. We estimated the risk rate, and status, by the PI method. Then, we analyzed the risk index via the estimation of weight which is calculated by risk rate and status. The level of risk is selected by calculating the risk index. The priority of risk is determined through previous processes and can be managed preferentially.

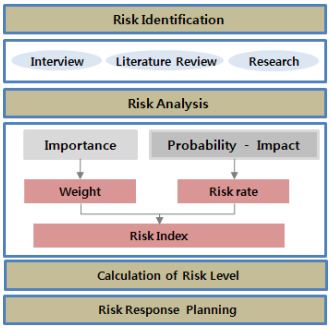

Fig. 2 The Process of the Risk Management

4. Conclusion

The current study proposed the process of risk management which can apprehend core risk factors beforehand. It recognized the possible factors in the u-City planning steps, and shows the method through the

calculation of the risk index, and calculation of the risk level. The study has the limitation in which it cannot be applied to different types of projects, and other steps, without initial planning. However, efficient management and proper response can be created through quantitative study of risk factors.

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