

BUSINESS MODELS FOR CONVERGENCE OF CONSTRUCTION AND INFORMATION TECHNOLOGY -A SENARIO PLANNING-BASED APPROACH

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ABSTRACT: Currently, the construction industry, which is already both high-innovated and sophisticated, is searching for new solutions in accordance with the incorporation of information technology. The objective is to create a high value construction industry through convergence with IT technology. However, there is no business model which is practical, profitable and marketable. Also, valid pre-research for development and study have not been carried out. Therefore, in this paper, we suggest a direction for investigation, applying the scenario planning method which is one of the methods of future study in order to develop a useful business model where construction and IT are integrated.

Keywords: *Scenario Planning, Cross-Impact, Business Model, IT Convergence*

1. INTRODUCTION

As a part of an effort to solve the problems such as saturation of market and slowdown of growth rate, we can see that recent construction industry in Korea is trying to change it into a new higher value-added business as trying to fuse IT of information age. For instance it has been achieved, and it has been actively developing, targeting to the expected convergence technology in 2018 [1].

However, for a Construction-IT business model to effectively activate a developed IT-convergence technology has to be developed. The reason for this lack is because the application of IT technology is extremely limited in the field of direct application within the construction process. u-City means that IT is built into the actual construction materials and process. The recent skills which are commercialized and developed have very low profitability and effectiveness in the real world and the effects for entire construction projects are very weak.

In this research, methods of business model development will be presented which can make immediate increases in productivity and efficiency in the field, through the

analysis of trends of the Scenario Planning Process and Cross-Impact.

2. Direction of business model development via comparative analysis of the future methodology

Construction-IT convergence is the new business of the future and will make a new market, very different from the existing business system. Based on the recognition of the growing complexity between science, technology, and society is being complicated, we decide to develop a study which could make predictions using strategic thinking about how to proceed, and how the future will 'look' from simple forecasting, using the methodology of a potential business model, found in this paper [2].

There are various ways of future-prediction such as Delphi, Futures wheel, Environmental Scanning, Cross-Impact Analysis, Scenario, and Road mapping, making it is difficult to distinct some of them.

In this research, we apply GFO report of Europe Foresight Monitoring Network [3] that analyzes the future-

study of the international world: EU, Trans-Europe, North America, Asia, Africa, Oceania.

According to the report, the potential use of the using the method globally for future study is summarized in ten parts. Among the elements, we analyze the merits, demerits, and characteristics among the appropriate elements for this research.

Table.1 Features, Merits and Demerits among the future methodologies by comparison

Element	Quantitative	Qualitative	Normative	Exploratory	Merit	Demerit
Cross Impact Analysis	○			○	•Comprehensible •Combination is effective	•The multiple elements for conditional probability •Ineffective because of correlation error.
Scenario	○	○	○	○	•Alternative future via long term strategy. •Adaptability in changing environment	•Limited predictability
Delphi Technique		○	○	○	•Reliable contents qualified as unreliable statics •Objective approach	•Collection rate and time inefficiencies •Exclusionary politics
SWOT Analysis		○		○	•Clarity of internal and external aspects •Succinct analysis equals easy identification	•Cause-effect is unclear •Possibility of arbitrary interpretation

3. Conclusion

As a comparative result of the methodology of future-study, Scenario Planning is appropriate for quantitative, qualitative, normative, and exploratory characteristics. Also, it is the most commonly used methodology worldwide. In the case of Cross-Impact, it is useful as a method to analyze interrelationships and characteristics from other fields. It is also well-known for useful methods to analyze or survey the data, quantitatively, and it is commonly used with Scenario Planning when we look into the method for future study that domestic and international research institutions use. Therefore, the Construction-IT convergence needs a long-term strategy and plan, and it uses scenario planning as a proper research methodology which is adequate to apply for developing business model of construction project that are greatly affected to change of outer environment.

In order to effectively analyze conduct interviews and to carry out surveys, Cross-Impact Analysis is applied. Plus,

other skills can be selectively used which are partly needed in the process of developing.

The methods to develop a profitable Construction-IT Convergence Business model, under current conditions, are below, Fig. 1 .

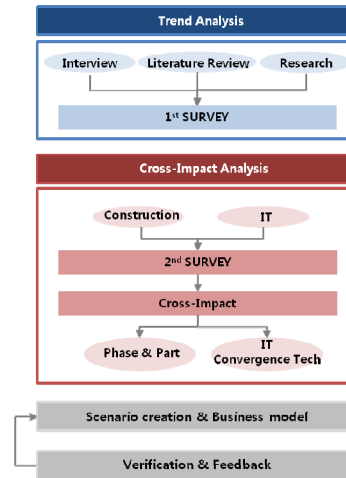


Fig. 1 Suggestion of research direction about construction and IT convergence business model development

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