

INTRA-AND INTERGOVERNMENTAL INFORMATION SYSTEM TO MANAGE INFORMATION IN URBAN RENEWAL PROJECT

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ABSTRACT: In general, the early stage of urban renewal such as preparing a master plan and processing administrative works including planning permission are conducted by local governments in Korea. The local governments need to review the status of projects that are undergone in other local governments' territories. However, no integrated information system to manage information to this end at the level of nation exists in Korea. If the system would be developed, it may support central government to obtain information on required resources at the national level. In addition, local governments can gain guidance on the process and recognize potential problematic situations from others experience. The system should include functions to collect data on project summary, cost and schedule of projects according to local governments. The expected effects from using the information system are as following. First, information generated from project practice become more credible on account of management at the national level. Because the authorized party such as system administrative agents of governments are responsible for collecting and managing data. Second, the unified information system with no regard to the place where projects progresses reduces the efforts for accumulating reference data for aiding local governments decision making by providing appropriate information timely. Also, enhanced information accessibility for stakeholders make the project process clear. Finally, oversight management is enforced with visualization technology adopted in the system, presenting master plan and mass model including information on usage by floors and progressing information graphically. Ultimately, potential challenges can be anticipated by considering records accumulated from other local governments' projects. This paper presents concept, functionalities, and architecture of information system enabling to manage data from individual projects and aggregate those for oversight management for local and central governments. As a part of systems analysis, general requirements of briefing system for governments and necessary data fields to this end are identified.

Keywords: Urban Renewal Project; Information System; Web-based Briefing System

1. INTRODUCTION

Recently, urban renewal project is proceeded with mainly new town or new section of a city under the slogan of redevelopment of depressed down town.[1] Due to the nature of the urban-renewal project, it is required long period, government funds and rational arbitration. Negotiations among central government and local autonomous entities are acutely required not to overheat the efforts to promote the project among local autonomous entities. Particularly, since urban renewal project is carried forward by each local autonomous entity, administrative problem, which requires cooperation among governments, such as waste of resources, interest conflict, and non-economical scale. In order to solve these problems and support to open door among the government and local autonomous entities, this paper

suggests solutions based on information technology. In recent information technology has affected to working environment and structure of an organization in many aspects.[2]

Especially, using inter-organizational information system (ISO), enterprises usually depend on building a cooperative system with partner in order to promote their position in the society.[3] Information sharing maintains important meaning to public sector, particularly the central government and local autonomous entities, to answer the purpose of efficient use in government funds. While establishing schema for urban renewal project, a local autonomous entity can refer to the information of others' project. Information sharing maintains important meaning to the public sector encompassing central government and local autonomous entities in terms of improvement of productivity and efficiency.[4]

The central government should support them as a mediator. Hence, gathering information of domestic urban renewal projects at national level, this paper proposes an information system which supports information sharing among central government, local autonomous entities and various interest parties.

2. LITERATURES ON INFORMATION SYSTEMS FOR GOVERNMENTS AND URBAN RENEWAL

Knowledge and information that are competitive edge in the knowledge information society. And now, all countries are actively seeking to build e-government. West[5] defined e-government as providing citizens with digitalized governmental information through the Web. In case of intra-governmental systems, they are required to be tied with each other smoothly. In addition, the interoperability of the information among systems is necessary. Despite of those requirements, most governmental information systems have been designed on their own business purpose and requirement, which have leded difficulty on data and service integration.[6] Kook[6] suggested grid system to solve the problem. Grid System was proposed to support the interoperability among information systems operated dependently.[6] Gugliotta[7] suggested an web-based system composed of three hierarchical component systems which are user interaction, middle ware, and web service.

Zhu[8] brought a subject of the overlapping function problem between application and multiple information system to provide public services for city officials, citizens, and tourists. He proposed a service-oriented city portal framework to integrate and develop applications and multi information system. After comprehending many problems of city plan.

Yaakup[9] utilized Geographical Information System(GIS) to improve a city plan and quality of management.

Culshaw[10] developed Web-based Environmental Information System to support city planning and environmental problems. Utilizing its facilities, this system supported local autonomous entities' 3 major functions, pre-planning enquiries, development control decision, and strategic planning.

Choi et al[11] suggested multiple information system to support urban renewal. Domestic multiple information system that was related to an urban renewal was separated to planning business support information system and planning analysis support information system. But, the these information systems are limited to administration and civil complaint. Kim[12] proposed conceptual model of intelligent Program Management Information System(i-PgMIS) which supports decision making among interest parties, and manages data produced during entire life cycle of urban renewal at program level. This information system is under development named as R&D. Data produced in each urban renewal can be managed by utilizing i-PgMIS, but more researches and studies will be

required about data collecting at national level.

3. SYSTEM CONCEPT AND ANALYSIS

3.1 Requirement analysis

Integrating data obtained from not only ongoing urban renewal project but completed one, Inter-and Intra-government information system should provide necessary information to local autonomous entities and interest parties. Required function for the system can be defined as Table 1

Table 1 Requirement

Requirement	Description
Project Status	Location tracking service Locating national urban renewal projects visually, and supporting the progress of the projects Inquiry into a progress Pertinent business have to be inquired in terms of outline, overall condition, organization charts, current stage, working expense, duration, schedule, achievement and visual information.
Introduction of urban renewal	Supporting information about urban renewal project to help various interest parties' understanding. Demonstrating each procedure, type, and methods
Total Status of Local Government	By integrating the progresses of each local autonomous entity's project, supporting the other local autonomous or interest parties. Visualizing each local autonomous entity's supply of housing and total area in comparison with earlier scheme.
Legislation Check	Legislation related to urban renewal can be searched.

3.2 System concept

There was precedent for establishing national level system which manages the progress and information of urban-renewal projects. By linking to Inter-and intra-governmental system, data from program portal system is integrated by each divisional business or local autonomous entity. i-PgMIS consists as Figure 1.

i-PgMIS consist of Program portal system, participant's system and Web-based Briefing system. On a local autonomous entity's side, participant's system integrates data and manages Program portal system which processes batch job with more than single project. Web based Briefing System pertains to inter-and intra-government system. Namely, data of all Program portal system can be integrated and briefed trough this system.

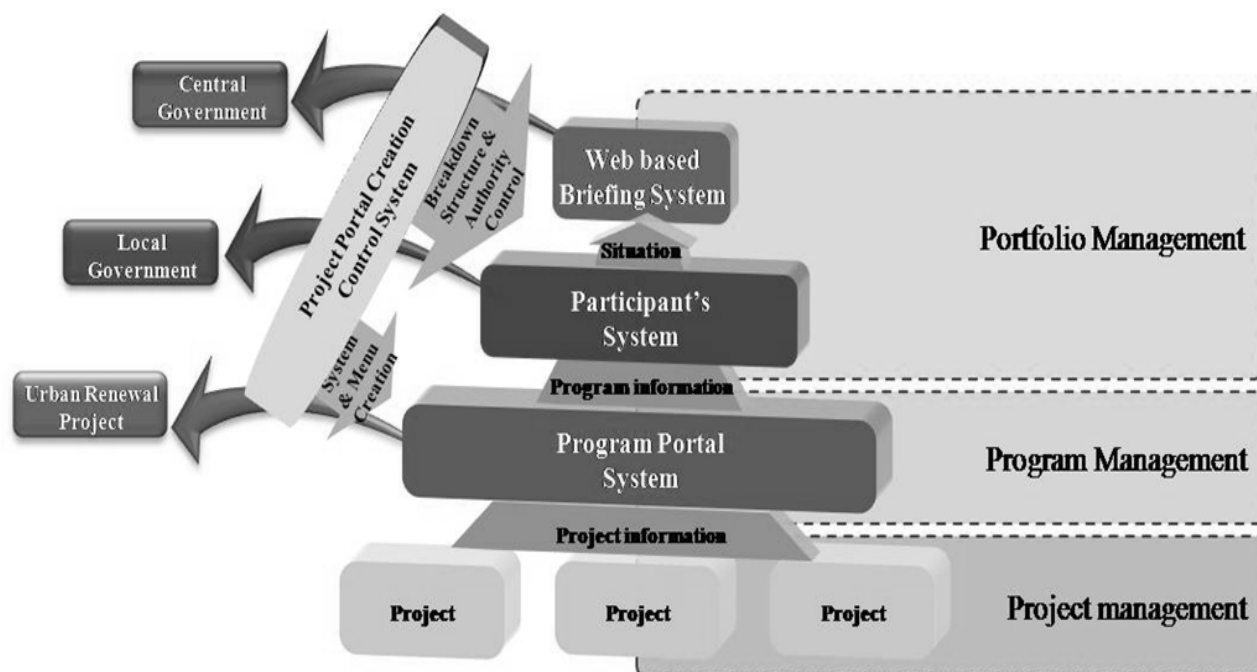


Figure 1 The composition of i-PgMIS

Also, i-PgMIS is described in 3 steps, project management, program management and portfolio management. Portfolio management is a group which manages organization efficiently to answer the aim. Urban renewal project should be managed at the level of program which consist many individual projects. Therefore, program portal system should manage the project synthetically from project level to program level. In the same manner, web based briefing system and participant's system can be described as portfolio management that manages each program portal system on program. Portfolio management is a group, which is aimed at strategic target, to manage an organization efficiently. To manage programs by grouping to portfolio is aimed at answering organization's specific purpose with reports or statistics which synthesize programs in terms of organization itself.[13] The central government should integrates information of entire urban renewal project in order to provide it to local autonomous entities at the beginning of the planning. Therefore, Participant's System and Web based Briefing System are classified to portfolio management level.

3.3 System usage scenario

As described in Figure 2, program portal system follows defined processes, and is provided menu for works by procedure. In addition, the other system modules such as cost management system can be mounted in the form of a platform and can be implemented independently. Shared

and integrated with detail system, data obtained in the process are saved in the same data base. Linked with data described in Table 2, the integrated data are shown in the project status.

Table 2 Data list

Data	Description
Summary	Inquiry into the outline
Organization chart	Linking to organization structure information
Present process	Visualizing present progress
Cost status	Linking to a working expense information which is compared with scheme
Duration status	Linking to progress information which is compared with scheme.
Progress schedule	Linking to schedule information.
Performance result	Linking to index of measured achievement by present.
Photo	Linking to picture of present status.

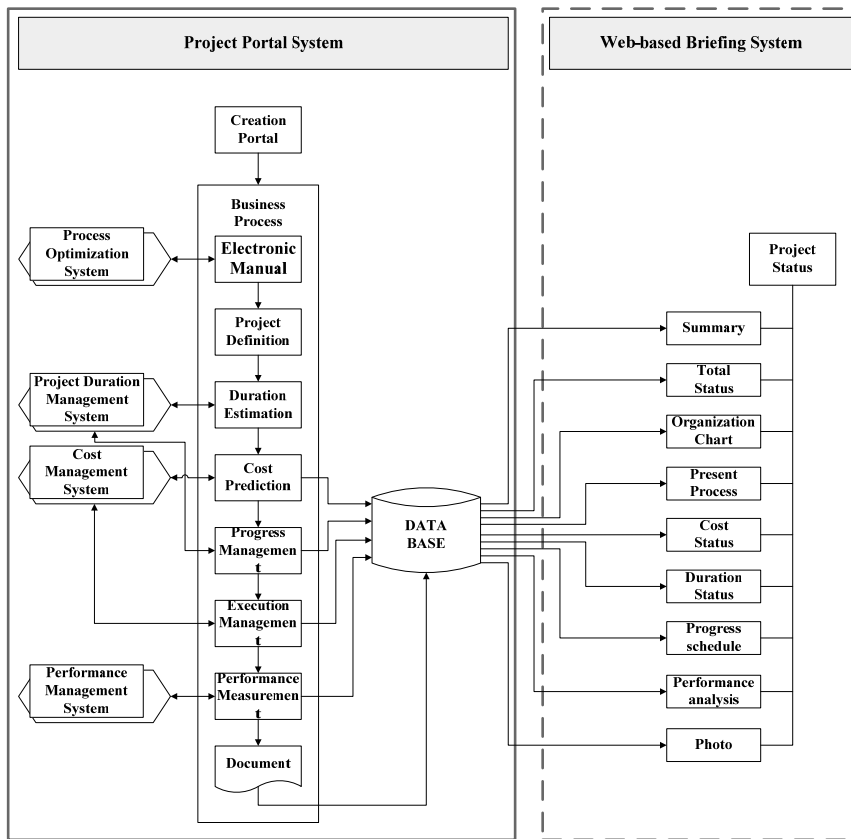


Figure 2 System Usage Scenario

4. INTRA-AND INTER GOVERNMENT INFORMATION SYSTEM DEVELOPMENT

Web-based Briefing System provides visual service such as progress, progress of each local autonomous entity and

relative legislation information, and also provides bulletin board to help communication among interest parties. Figure 2 describes main page of Web-based Briefing System which shows a list of the national urban-renewal projects and indicates a location on Google Earth.



Figure 3 Main Menu of Web-based Briefing System

4.1 Projects status

Web-based Briefing System can provide divisional progress information. Progress of entire project can be checked by integrating data from each division of program portal system. Schema of each division can be checked at once, and organization chart of participants is also shown. Since each subprojects follow working procedure, work in

progress can be inquired through this system. This system also informs cost breakdown and achievement in comparison to the scheme. These results are visualized to graph and bar-charts, which helps users' understanding more intuitively. This system also lets users to check up each divisional schedule and measured performance index by each process.

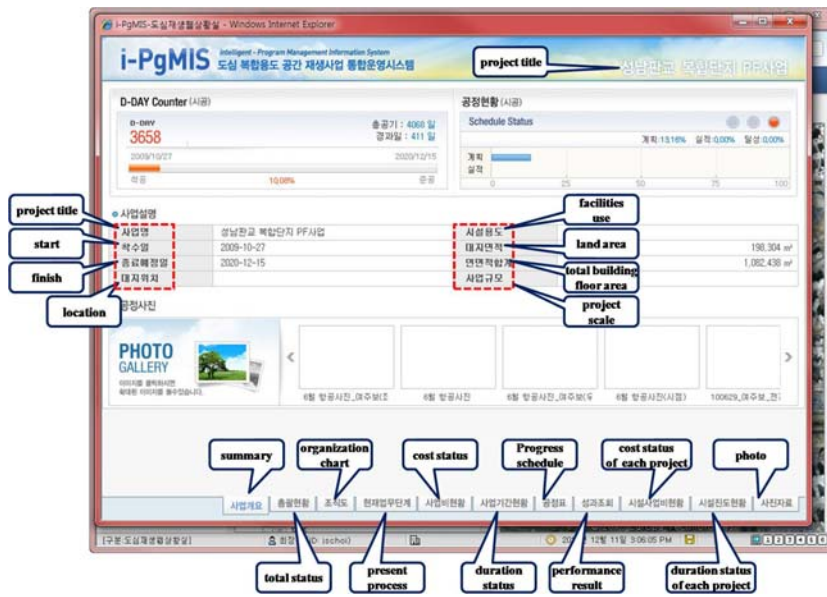


Figure 4 Project Status

4.2 Total Status of Local Government

With each local autonomous entity as a unit, this system lets users to inquiry about total floor area and housing supply of ongoing business in comparison with scheme.

4.3 Legislation check

Relative legislation and ordinance are searched on this system to help interest parties' understanding.

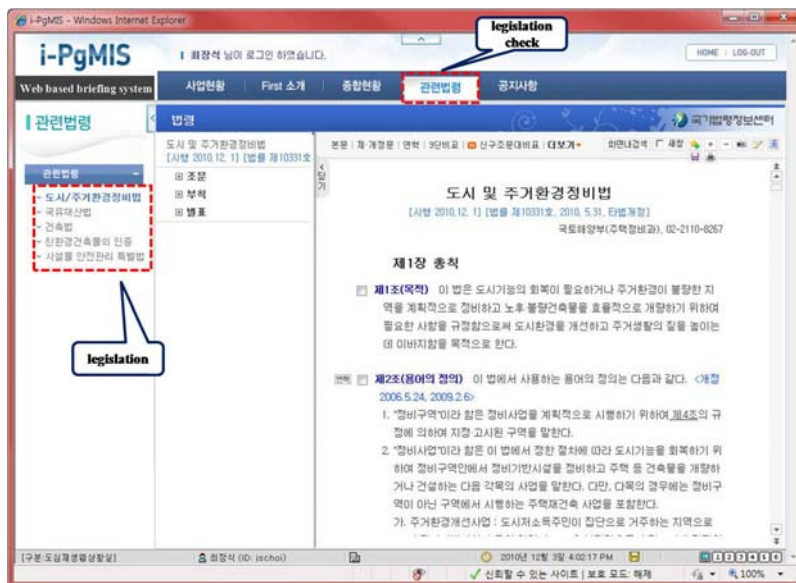


Figure 5 Legislation check

5. EXPECTED EFFECT

The followings are expected effectiveness of developing Web-based Briefing System. Firstly, information of urban renewal project is improved by managed at national level. Secondly, not limited to certain local autonomous entity, integrated information management reduced time and effort required to gather information. Namely, ease of access to information reduces the time and economic loss to gather massive information. Thirdly, because various interest parties can easily access to information through this system, urban renewal project is verified its fairness. Fourthly, through visual function of this system, information associated to each step of the process can be searched efficiently.

Lastly, referring to the similar project searched in this system, a local autonomous entity can avoid try and error.

6. CONCLUSION

Focusing on information sharing of urban renewal project among the central government, local autonomous entities and the interest parties, this paper explains the necessity and concept of the system and developed a system answering the requirement. Expected effects of this system are as follows: improvement on the level of confidence of information, reduction of timing and economic loss which are required for information gathering by an each local autonomous entity, ease to assess to information, and increase of efficiency by visual function. The system proposed in this paper is going to be verified through Test Bed and expanding field application and developed into utility one.

ACKNOWLEDGEMENTS

This research was supported by a grant (07 Urban Renaissance B03) from High-Tech Urban Development Program funded by the Ministry of Land, Transport & Maritime Affairs of the Korean Government.

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