

# Application of Port Logistics Information using E-government Standard Framework

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**Abstract** Governments try to perform a national information management effectively introducing standardized e-government system. However, there were many problems such as a duplication of development, an interoperability and so on, because every developer built an information system using different standard frameworks. In this study, we suggest a solution to design and apply Port Logistics Info System using e-government standard framework.

**Key Words** : E-government, Standard Framework, Port Logistics Information System.

## 1 Introduction

Now all ministries have a duplicated development of systems and interoperability problems. Because they have developed and managed their own information system for their needs and policies[1]. To solve this problem, it is discussed to build the systems based on standard framework. E-government standard framework, a standard form of developing framework to apply in public works, improves the code management of application softwares, quality and reuse[2].

In this study, we suggest a solution to solve the problem of the information interoperability and the management codes by applying e-government information system model to port logistics information system. For this, we analyze the components of e-government standard framework and suggest a design solution to build port logistics information system using the standard framework's execution, management, developing environment and so on.

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## 2 E-government Standard Framework

### 2.1 E-government standard framework

Standard framework designs the code in advance that standardizes necessity functions to develop information systems and the developers add and assemble the functions. So standard framework completes the whole system efficiently. The standard framework is a basic module that supports the development of application software effectively by providing prepared necessity functions and structures for developing information systems. You can design the information system efficiently and quickly by adding the necessary functions and designing the basic functions to inherit from the standard framework.

In Korea, After the standard framework portal system has been opened since June, 2009, It has been adapted to 219 public and private information businesses until April, 2012. It sets the record of about 171,000 downloads in the shortest time among Korea free softwares. Total 2,792 people learned standard framework and it is spread more widely than expected[3].

Fig. 1 is the concept of e-government standard framework. Developing information systems with standard framework reduce a cost to reuse the components and ease to replace by modularizing each service.

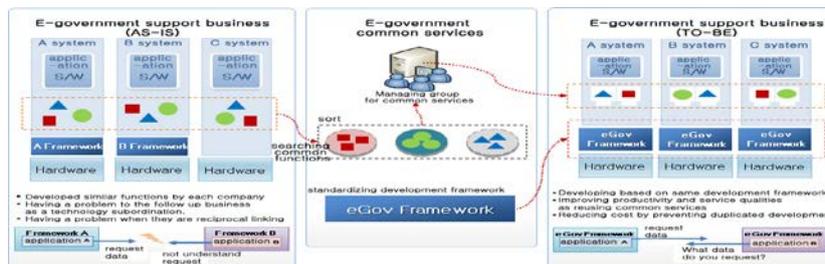


Fig. 1 The concept of e-government standard framework

Moreover, you can accomplish with minimal changing influence between modules and can be given a modeling environment based on Eclipse. In the cost aspect, you can reduce the developing and maintenance costs by using standard framework government which provides free[4].

Standard framework is made up of these things as fig. 2 ; executing environment, developing environment, operating environment and managing environment. First, executing environment is common modules to need to execute the task program e-government develops and the application program to support the server program and data developing when you develop the task programs

Developing environment provides an environment the developing e-government task program needs, data development tool, auto testing tool, code testing tool, templet project making tool and so on. Operating environment contains monitoring system and administration system to operate the services operated in executing environment. Managing

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environment is modules that distribute the development frameworks and the common components to each development project and manage them.

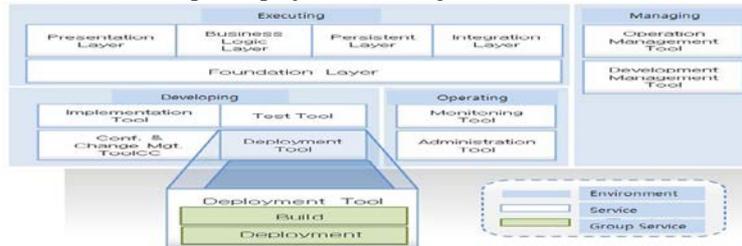


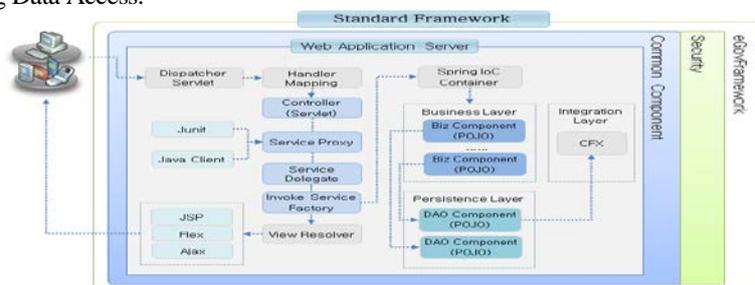
Fig. 2 Overview of standard framework

### 3 Designing Port Logistics Information System Based on Standard Framework

In the chapter 3, we suggest a solution to design Port Logistics Info Systems based on standard framework. The info systems based on standard framework provide the base to connect the information registered on different databases easily such as vessel information, a status of vessel permits, information of loading and unloading, information of shipping flows and integrated logistics report.

This study with standard framework use Java as a implementing tool in the developing environment, JUnit as a testing tool, Maven as a build tool and Hudson as a configuration managing tool to distribute the auto build base on Subversion. In the operating environment, Agent is executed in the monitoring system, based on the setting such as schedule, logging and so on. When agent is executed, it gathers the system information and the program logs and shows the information to operator with graphs and charts.

The executing environment is made up of these things; screen layer, task layer, integration and connection layer and common base layer. It provides 34 services but we use 7 services in the study. Screen layer defines data type used in task layer and changes in/out parameter properly. Task layer separates Process Control, Business logic and task flow and handles task flow with outer setting such as XML. Data layer sets to be able to make the task logic using not SQL but object by using the mapping functions between object model and relational database. Also, It can allow to access to various database using Data Access.





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This diagram doesn't indicate the connections among the objects. However, It shows the clear messages' order and describe real-time detail and complicated scenario easily. If users request a information check. It confirms whether the process is executed before and requests the controller. After service is confirmed, the program looks up the request data. The result is returned and showed on the monitor.

## 4 Results

This study proposed the solution to design Port Logistics Info System using e-government standard framework. By designing Port Logistics Info System using e-government standard framework, It reduced human and material resources and is able to maintain the convenience of the making source codes, avoiding duplication, reuse, compatibility of frameworks and consistency of the development ways.

In the developing web applications based on e-government standard framework, the challenges are that persistent improving and sophisticating of softwares are more important than early technology developing. If the information system doesn't take a timeliness on the rapidly changing environment, the technologies in the whole task of the public information will decline quickly. Therefore, the studies of standard framework will be consistently expanded to maintain the national competitiveness.

## References

1. Youn-Gyou Kook<sup>1</sup>, Joon Lee<sup>1</sup> and Jae-Soo Kim<sup>1</sup> : e-Government Grid System for Information Interoperability, Journal of the Korea Academia-Industrial cooperation Society, pp 3660-3662, (2009)
2. Im Chol Hong, Jun Man Sung, Lee Bong OK, Kim Young Woo, Lee Young Kon : A Study of Implementing e-Government Development Framework for Improving the Interoperability and Reusability, Spring Academy in Korea Society of IT Services, pp2, (2009)
3. e-Government Unit, e-Government interoperability Framework (e-GIF), version 6.1, <http://www.govtalk.gov.uk/>, Cabinet Office e-Government Unit, 2005.
4. <http://www.egovframe.go.kr/>