

M+K ICCE 2019

International Conference on Computer Applications 2019

Financial Accounting solutions for e-government

2019. 9

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HiperTech





CONTENTS

I

Company general 3

- Company general status
- Major business Records
- Local Financial Roadmap overviews

II

eGov Framework 7

- Framework background
- SW framework concept
- Purpose for e-Government Standard Framework
- e-Government Program Example Screen(3/3)

III

Accounting Solutions 23

- Hierarchical structure of business
- Maintaining the operation of budget accounting for public institutions
- Config. budget accounting solutions
- Existing Portal / Groupware Issues
- Process Flow (Budge, G/W)
- Budget accounting system schematic
- Reasons for Introducing Seoul's Program Budget

IV

Proposal 33

- Project Execution Plan
- Contract US



Chapter

I

Company general

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Company general status



Company Overviews

Established

Founded in 2009 (10 years)

The main task

Public ERP Outsourcing

Employees

60 persons



Major project

Hipertech provides public finance solutions based on SI/SM and business budget consultant.



Consulting

Public financial information portal / budget and financial settlement standardization consulting



System development

Design of budget system based on business budget, accounting



Maintenance

Financial analysis and related system linkage (Bank, electronic payment, contract, etc.)

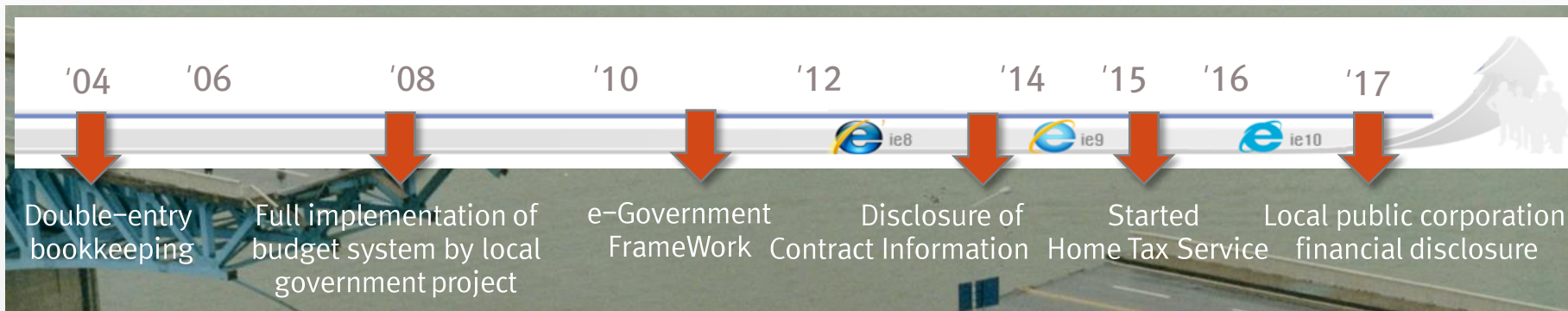
Major business Records



No	Project	Period	Ordering Institution	Remarks
1	Local Education Financial Analysis System	2018.06-2018.12	Korea Educational Development Institute	Carryout
2	Forensic Accounting Research	2017.07-2017.11	Supreme Prosecutors' Office	Carryout
3	Establishment of Management Information Disclosure (Clean Eye) System for Local Public Enterprises	2017.01-2017.12	Korea Regional Information Development Institute	Carryout
4	Local government company and public institution information system maintenance service	2016.01 -	Korea Regional Information Development Institute	Carryout
5	Water Supply Operation System Maintenance Service	2017.01 - 2017.12	Seoul Waterworks Headquarters	Carryout
6	Community homepage construction and operation service	2016.12 - 2017.07	Seoul Community Housing Division	Carryout
7	Personnel salary management system	2016.10 - 2016.12	Korea Trade-Investment Promotion Agency	Carryout
8	Incheon SMART MICE Construction 1st	2016.03 - 2016.09	Incheon Information Industry Promotion Agency	Carryout
9	Information Communication Room Integrated Operation and Maintenance Project (ERP)	2016.02 -	Korea Regional Information Development Institute	Carryout
10	Multi-unit integrated information yard maintenance service	2016.01 -	Seoul Housing Division	Carryout
11	Financial system operation and maintenance	2016.01 -	Seoul Data Center	Carryout
12	Operation system maintenance service	2015.04 - 2016.03	Seoul Waterworks Headquarters	Carryout



Local Financial Roadmap overviews



Double-entry bookkeeping	Establishment of local public enterprise budget accounting system	Distribution of local financial management system		Opened local public information management system	Opening of management information system of local government	Local public company operation maintenance
Double entry for public institutional budgeting • CoA system creation	• Budget Management via the Internet • Application management online	Budget Management via the Internet • Application management online • Business budget system Accrual Doubled Bookkeeping National distribution		• Disclosure of local public company management • Financial Analysis of Local Public Enterprises	Seoul Performing Organization ERP, Group Wear System	• SOE Budget Accounting
00' program budget system introduced	Seoul Fund Management System	08' Clean Financial System	08' Distribution of local financial management system nationwide	2010' Standard ERP System	2014 Seoul Contract Information Integrated Management System	15' Seoul Metropolitan Waterworks Project Budget Accounting Management System established and operated
• Reorganized Seoul's business budget system • Introduce Seoul's performance budget	• Issue and repayment management of local bonds and bonds • Deposit Management	Business / Expenditure Information Disclosure • Total Business Financial Hub Management	• Project budget system • Accrual Doubled Bookkeeping	• Project budget system • Accrual Doubles Bookkeeping • Electronic payment connection • electronic evidence	E-contract record Public Procurement Service Integrate affiliated with affiliated companies	• 전자정부프레임워크 기반의 사업예산회계시스템 • 조달청 연계 • 시금고(은행)연계



Chapter



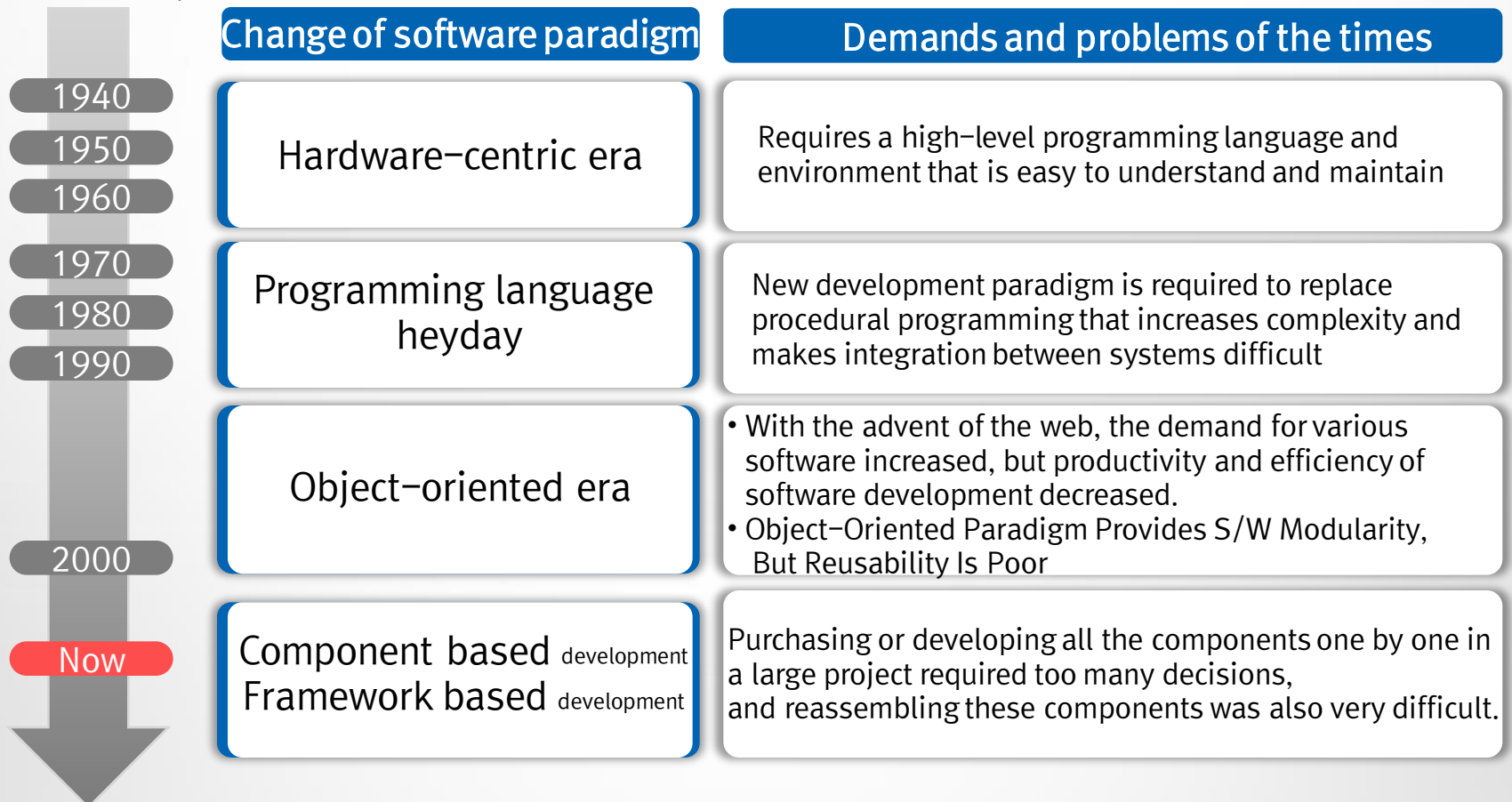
eGovFrame

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HiperTech

Framework background

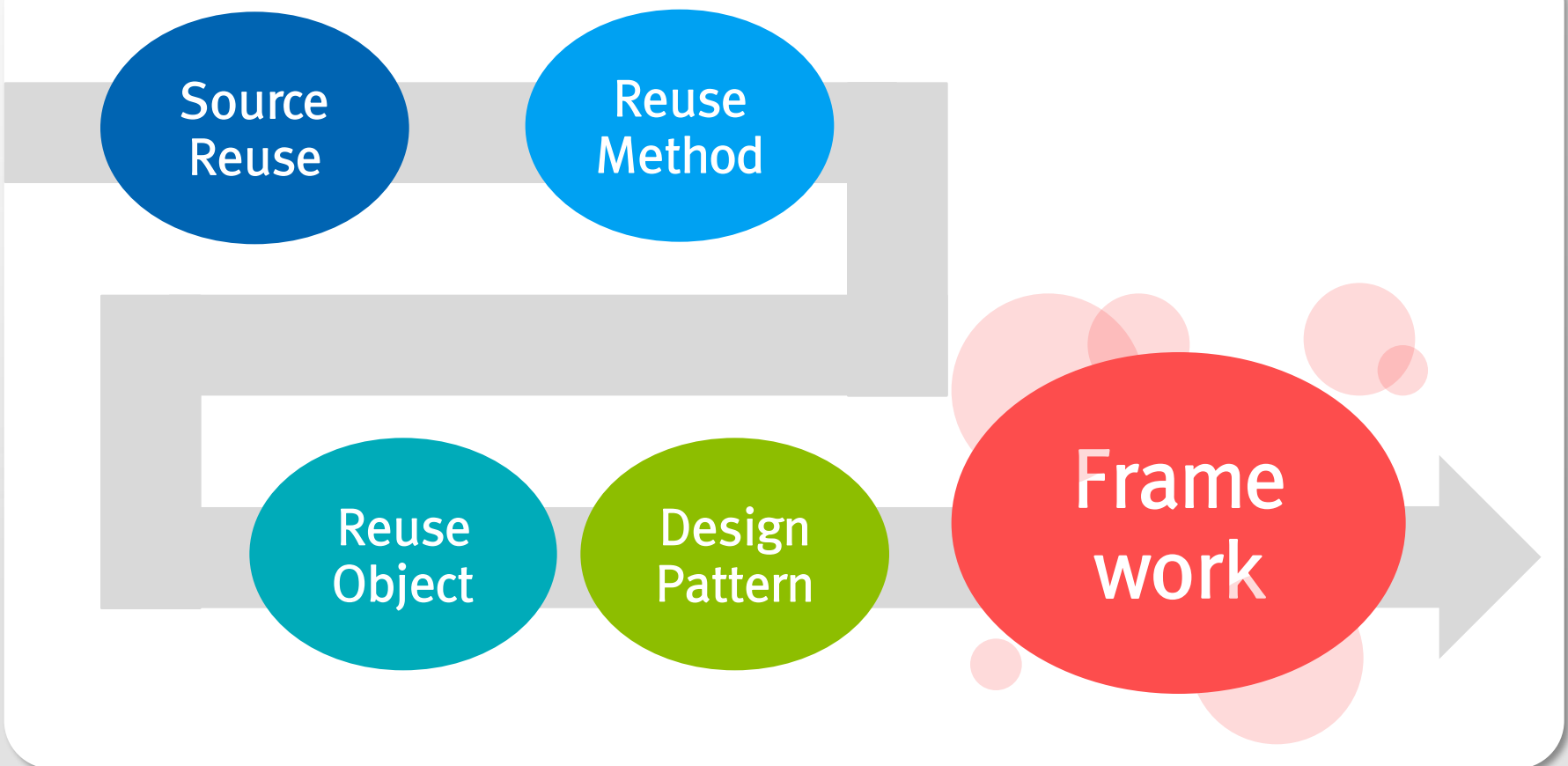
The **software paradigm** has changed rapidly in response to changing demands of the times, and ultimately the direction of change has been focused on **maximizing reusability**.



Framework background

Development Direction of Reuse Method

In order to maximize reuse and support productivity, scalability, performance, and effective maintenance, the reuse approach has evolved as follows, and ultimately a framework emerges:



Framework background

Development Direction of Reuse Method

Source reuse

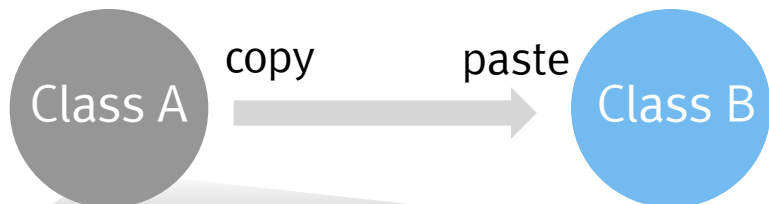
Reuse method

Reuse object

Design pattern

Framework

If you've coded a similar problem in the past with a rudimentary re-use, or if you've found a similar example from another source, copy it



```
GregorianCalendar date =  
(GregorianCalendar)Calendar.getInstance();  
SimpleDateFormat df = new SimpleDateFormat("yyyymmdd");  
String sdate = df.format(date);
```

For example, if you had coded to convert "Date" to "String" in class A, you would need the same logic in class B, so you could copy that part in class A.

Issues

Later, when the JDK version changed to provide an improved interface that provided the same functionality, you would need to change both the A and B classes using this SimpleDateFormat.

Framework background

Development Direction of Reuse Method

Source reuse

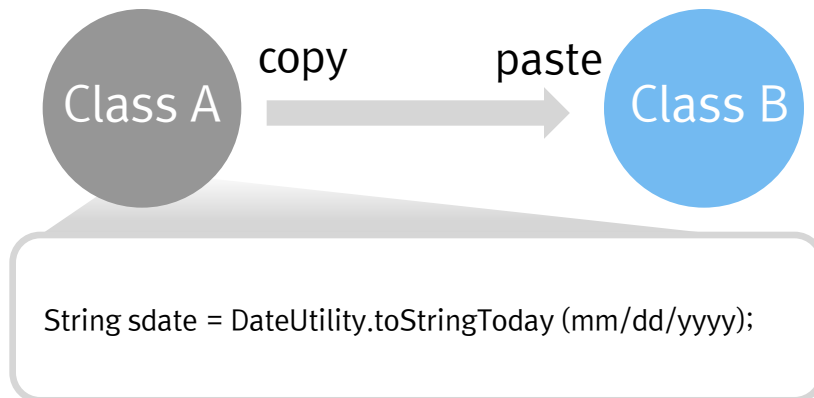
Reuse method

Reuse object

Design pattern

Framework

As a way to avoid copying and pasting the same code from multiple classes, reusing and reusing frequently used functions as libraries.



When similar functions are gathered and defined in one class, they are composed of method libraries, and the libraries can be imported and reused.

If you want to change JDK contents or provide improved functions in the future, you only need to modify the methods.

Issues

The method reuse method can be useful in the same workspace, but if the workspaces are different, maintenance can be complicated if you use the methods in different workspaces to use **specific function methods**.

Framework background

Framework background

Source reuse

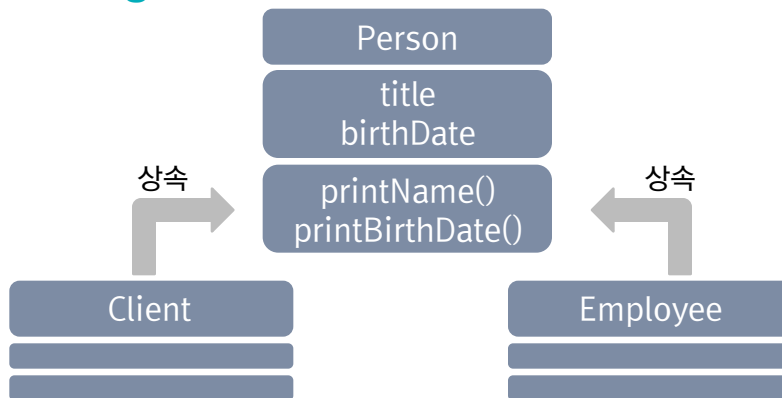
Reuse method

Reuse object

Design pattern

Framework

The previous reuse schemes are common among developers of other languages as well as non-Java. A new reuse approach in object-oriented languages like Java is reuse through classes



When the contents of `printBirthDate ()` of Person class is changed, `printBirthDate ()` used in Client and Employee that inherits it is also changed automatically.

```

Public String printBirthDate(string format){
return DateUtility.toStringDate(birthDate, format);
}
  
```

Issues

This vertical reuse is useful when analyzing only structural objects, but requires a different approach when looking at [situational problems](#).

Framework background

Development Direction of Reuse Method

Source reuse

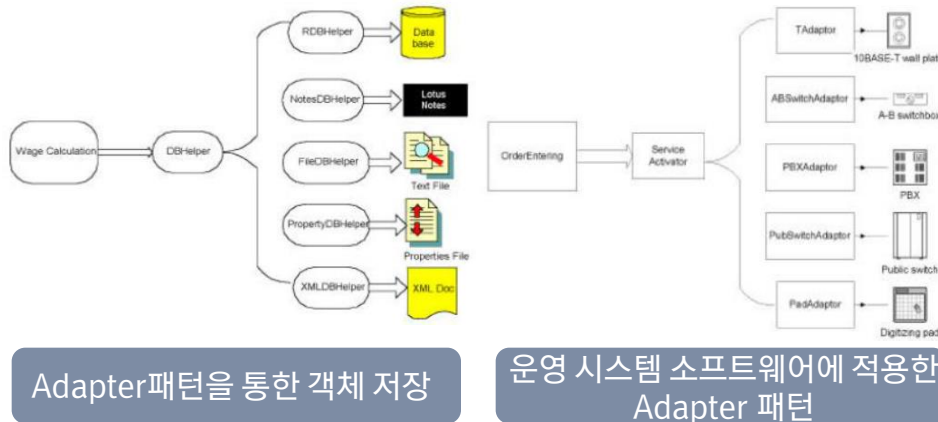
Reuse method

Reuse object

Design pattern

Framework

For example, when creating a human resources management system, how do you make sure that the mediator that stores the structured objects is not fixed as a relational DB but sometimes stored as text files, XML, etc.? If the reuse method of a class focuses on the vertical reuse of an object, the design pattern is a reuse method that solves the above situational problem.



- Design patterns represent generalized solutions to common logic problems.
- In other words, reuse of solution or reuse of mechanism rather than reuse of class.
- Rather than the class itself, a constant pattern is used that analyzes a given situation and abstracts and resolves common conditions in that situation. Just play a similar role under the same pattern

Issues

The design pattern only solves a partial problem of the system from the point of view of the whole application.

Framework background

Development Direction of Reuse Method

Source reuse

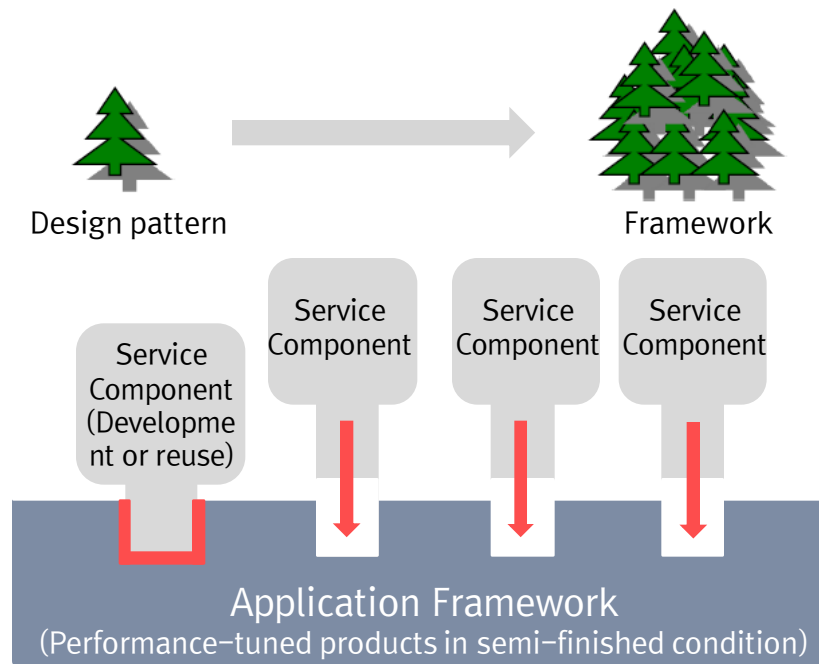
Reuse method

Reuse object

Design pattern

Framework

If it is a negotiated design pattern or mechanism to see how to solve a given situation problem, then the design pattern that considers how to organize the entire program is the framework.



- A framework is a design and implementation framework for an application that integrates a partial solution, such as a design pattern, in a holistic perspective. When a framework is prepared, such as a basic design template for an architectural designer, the reuse of the system in application development can increase, further reducing development time and resources.
- The framework helps build a system by creating and inserting necessary service components for each domain based on semi-finished performance-tuned products. This extends the reusability of existing components and ensures performance.

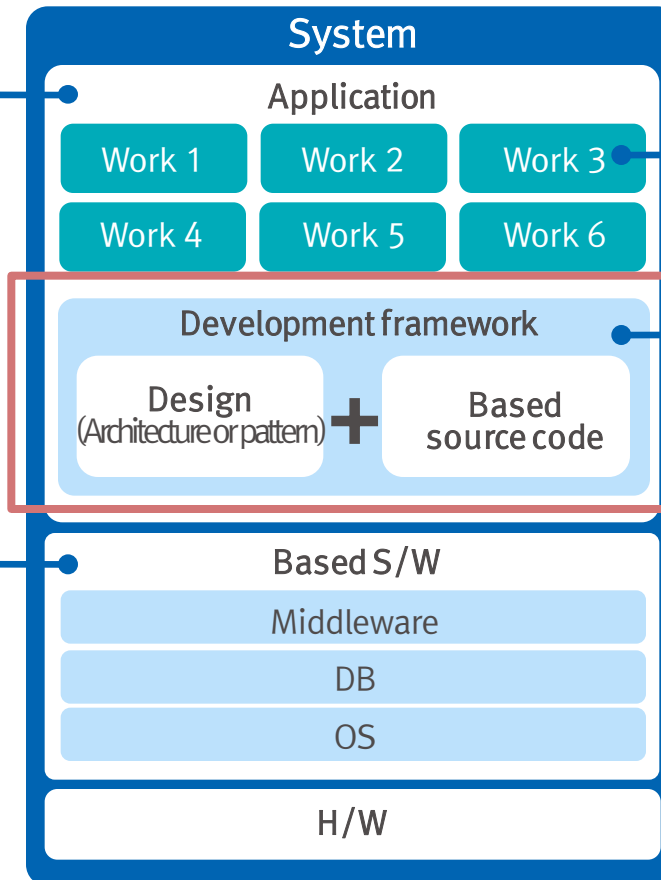
SW framework concept

SW framework definition

A collection of reusable design patterns and source codes to help develop applications

The business functions to be implemented in each project are developed using the design and source code provided by the development framework.

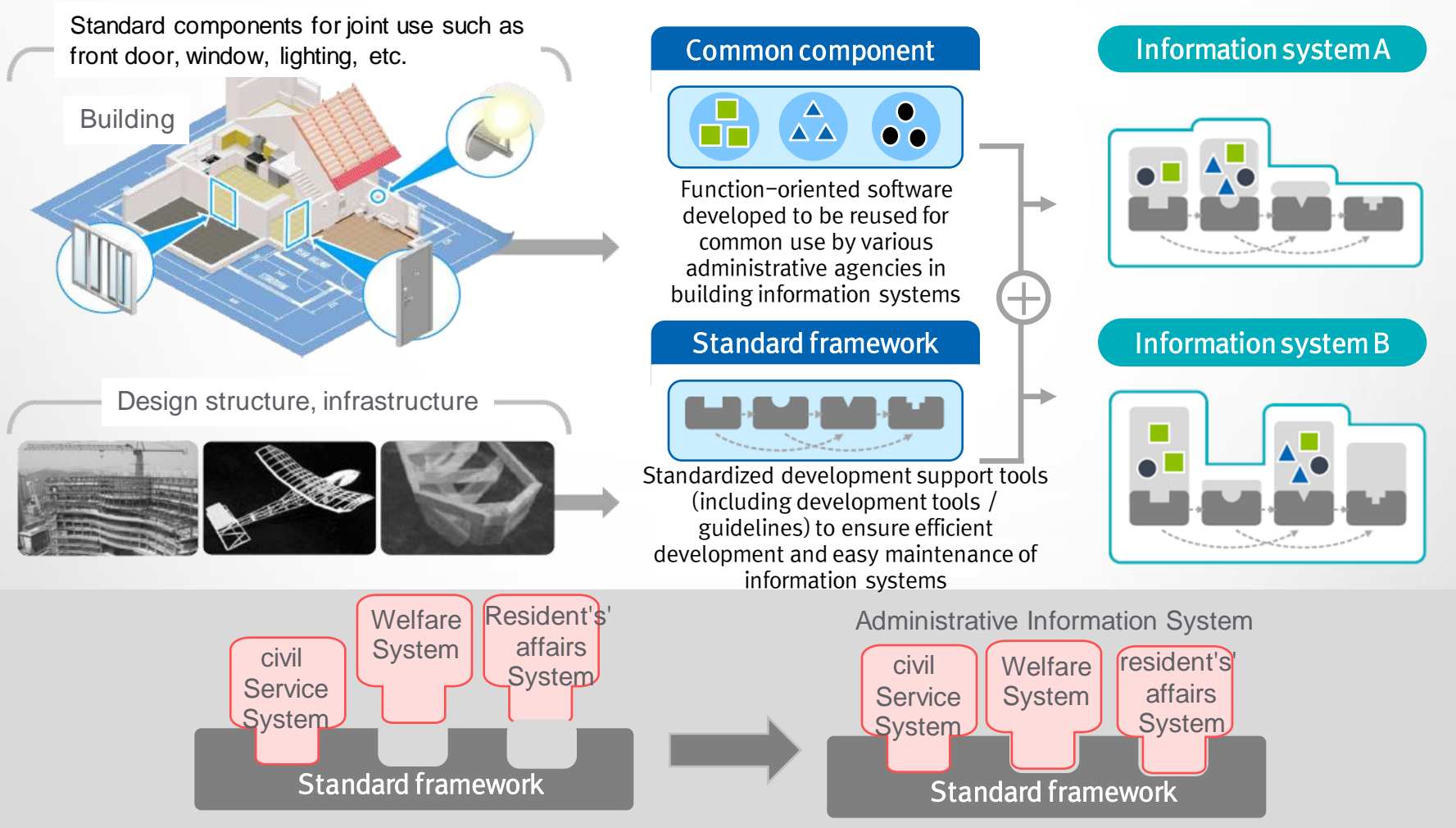
SW running at the bottom of the application to run the application (e.g. Oracle DB, Unix, etc.)



Automation system (e.g. HR management system, etc.) to meet specific business requirements

A structure that constitutes a specific technology or application. It is a recycling asset that defines design and foundation source code that is used repeatedly in development projects.

SW framework concept



Purpose for e-Government Standard Framework



E-Government Service Quality Improvement and Information Investment Efficiency

Increasing National Informatization Investment Efficiency

Secure competitiveness of small and medium companies

Providing a foundational environment for advanced national informatization

Improved reuse of common components

Common component and standard framework development

Activate standard framework

Need to build and apply next generation e-government common component and standard framework

Common component redundancy for each business

Promotion of individual informatization projects by institution / project

Optimized / Standardized Common Development Foundation Requirements

Decreased fair competition due to specific company dependency and waste of budget when changing business

Lack of development standard reduces interoperability and reusability between systems

Application of e-Gov. Standard Framework



introduction review

Standard system requirements required review framework

- Server platform for installing and operating Java Virtual Machine (JVM)
- No restrictions are placed on WAS and DBMS complying with J2EE, JDBC specifications
- Optimized for JDK 1.8 and above. Not applicable to NET environment (Requires standard framework environment 2.7 for JDK 1.5) (For JDK 1.6, standard framework execution environment 3.1 is required.) (Requires standard framework environment 3.5 for JDK 1.7)
- Applicable in principle to Java-based web application deployment projects

Establishing a business plan

Establishing a Business Plan for the Introduction of Standard Framework

- Understanding Standard Framework Concepts (Using standard framework portal data)
- Reflects the business plan related to the introduction of standard frameworks
- Choose a common reusable component and adjust the budget
- Establishing a plan to secure manpower for standard framework experience

introduction review

Establishing strategies for applying standard frameworks

- Target Architecture Design with HW/SW, etc.
- Verification of target architecture through proof of concept (POC)
- UML Design Based on Standard Framework Execution Environment
- Standard Framework Regular Training for Developers and SW Architects

Establishing a business plan

Application of Standard Framework and Framework-based Development

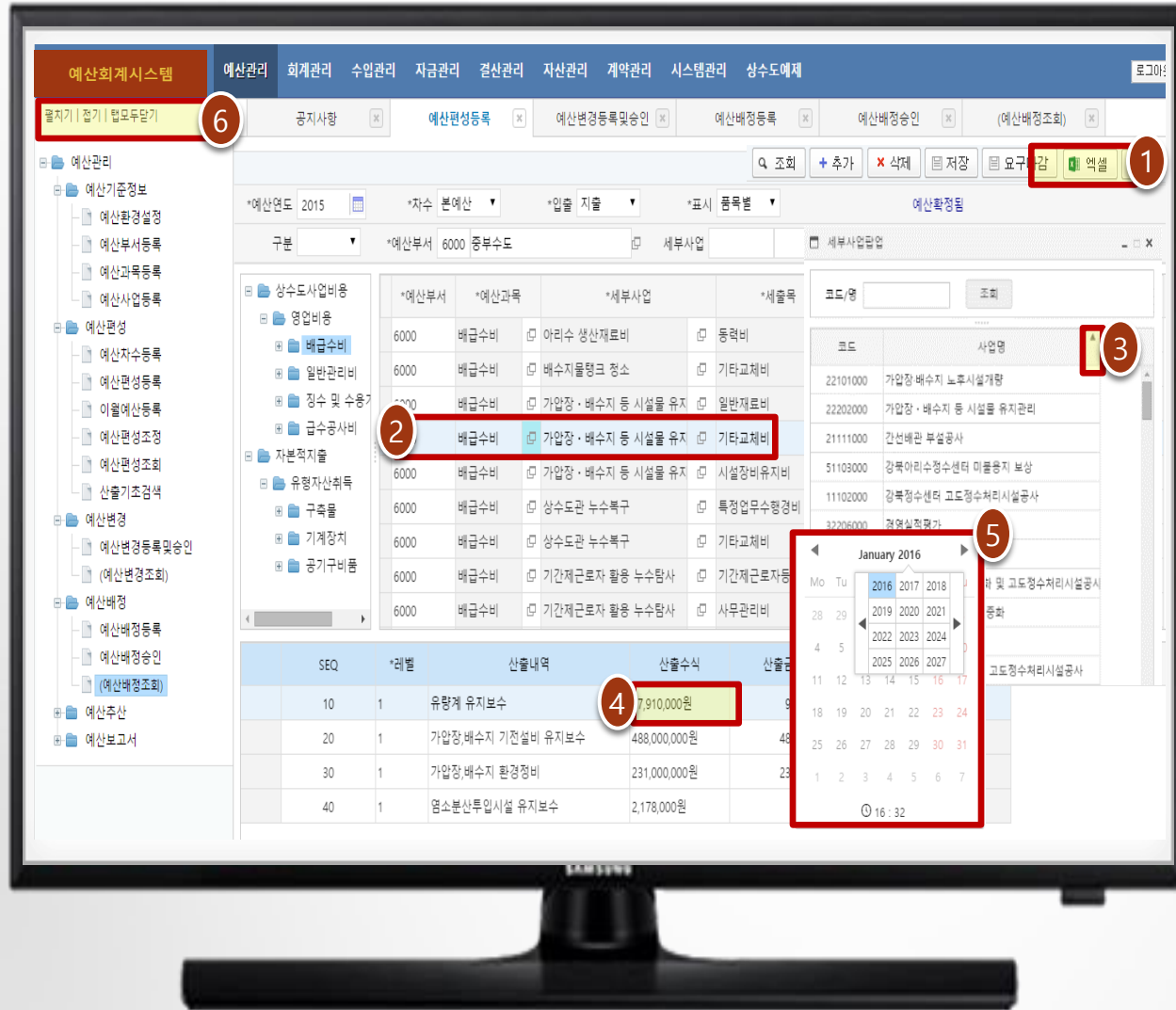
- Setting up the deployment environment such as WAS, DB, configuration management, etc.
- Installing and setting up the standard frameworks execution environment and development environment
- Customize framework templates (create templates that work with UI tools)
- Establishing a standard framework architecture and development guide (including development standards)



e-Gov. Reference

Administrative	User-tailored Public Use of Administrative Information	Resident	Community Service Integration
Rail	Building a System for the Use of Korea	Disaster prevention	119 Report Service Expansion
Education	Chungnam University History Information System	a numerical statement	Administrative Data Integration Management System
medical attention	Execution Information Integration Management System	Road	Road Construction Interaction Card Long-Term System
national defense	Defense Integrated Cost Management System	Welfare	Emergency safety idol for the elderly living alone
customs duties	Global Logistics Trade Information Network	Insurance	Health Insurance Balance Cost Portal System
the farming industry	Imported Beef Distribution Tracking System	Forest	Development of National Forest Information Base
Land	Korea Land Information System	Broadcasting	Broadcasting and Communications Information System
local administration	Integration of Songpa District Information Service	Patent	Building 3G Patents Net
Information and communication	Building a pan-government cloud code	The prosecution	A project to reorganize the homepage of the Supreme Public Prosecutors' Office
documentary material	2010 Record Information Service	Port	Incheon Port U Complex
an industrial estate	Spread of factory establishment online support system	Distribution	Global Advanced Port Logistics
imperial taxes	National Tax Service ITSM Enhancement	Culture	Next Generation National Library
Physical Education	Personnel/Mobile Situation Management of Incheon Asian Games	an annual pension	Private pension-linked benefit information system

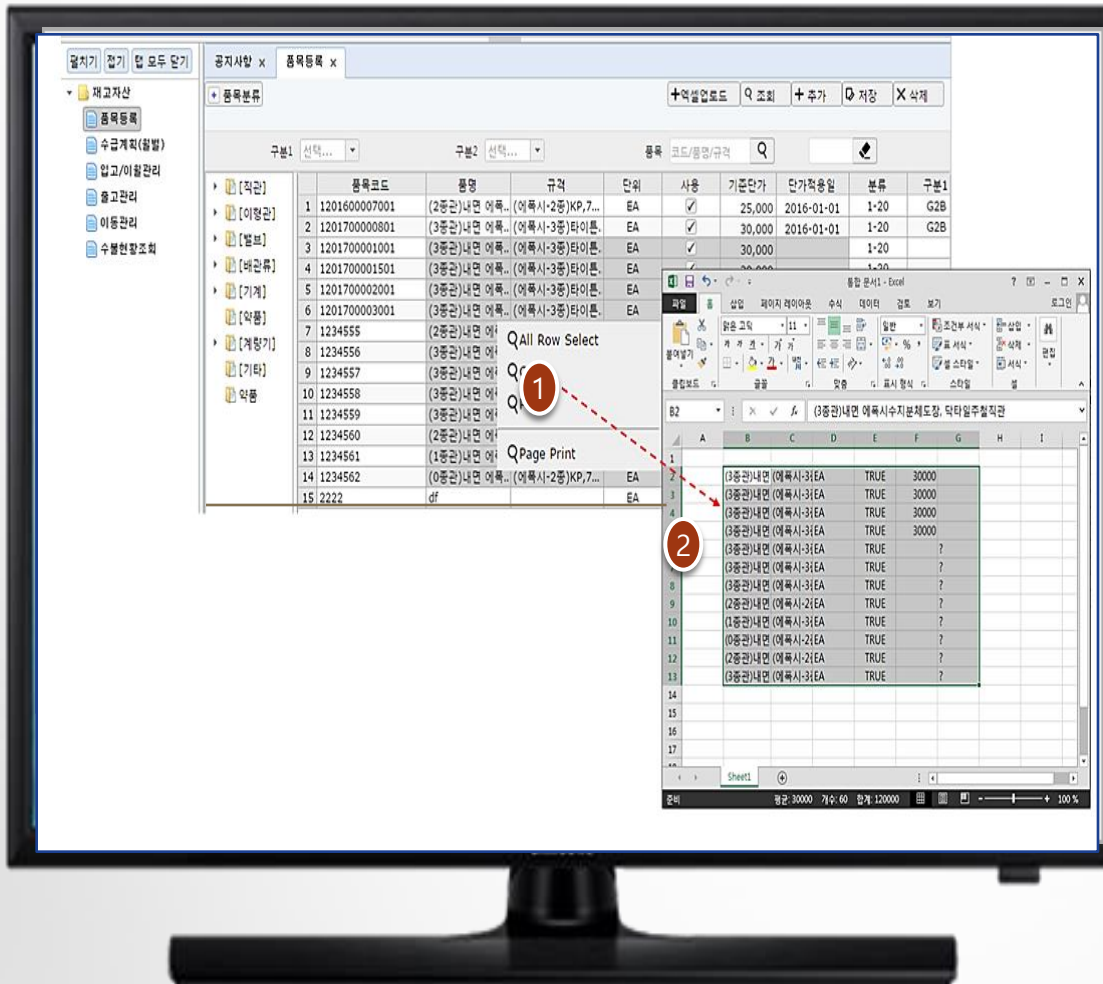
e-Government Program Example Screen(1/3)



※ Multigrid function

1. Excel on all grids
2. Keyboard Display and Tab Functions for Users
3. Apply Sort to all grids
4. The ability to enter directly into the grid with a 4 won click.
5. year/month/hour calendar function
6. Screen size features for wide monitor square monitor users

e-Government Program Example Screen(2/3)



※ Multigrid function

1. Using the mouse to select blocks in a cell to copy data
2. Upload data from Excel work directly to analysis metric file
3. Easily copy to working Excel file and upload to analysis indicator system
4. The function to paste data directly into the analysis information by working with Excel

e-Government Program Example Screen(3/3)

The screenshot displays a web-based application for asset management. The main area features a data grid with columns for asset number, name, type, location, and status. A dialog box for '엑셀업로드' (Excel Upload) is open, showing a table of asset data. The dialog box has a '파일선택' (File Selection) button and a '선택된 파일 업로드' (Upload Selected Files) button. The data grid in the background shows the following information:

#	자산번호	자산명	규격	소재지	취득	취득일	수...	취득가액	상태	상각	방법
1	A192900021	83 폭도선터	A 토지	폭도정수					수도		M2
2	A193300052	68 서부사업...	A 토지	만리 배수지					수도		M2
3	A193300053	68 서부사업...	A 토지	만리 배수지					수도		M2
4	A193300054	68 서부사업...	A 토지	만리 배수지					수도		M2
5	A193500171	83 폭도선터	A 토지	정수사업소부지					수도		M2
6	A196900091	60 중부사업...	A 토지	장위3등노인정					대		M2
7	A196900092	60 중부사업...	A 토지	장위3등노인정					대		M2
8	A197500481	79 광양선터	A 토지	정수사업소부지					수도		M2
9	A197500482	79 광양선터	A 토지	정수사업소부지					수도		M2
10	A198600280	70 강서사업...	A 토지	토지			23510				M2
11	A199501001	96 강북선터	A 토지	관로부지					육장		M2
12	A199501002	96 강북선터	A 토지	관로부지					육장		M2
13	A199501011	96 강북선터	A 토지	관로부지					수도		M2
14	A199501012	96 강북선터	A 토지	관로부지					수도		M2
15	A199501181	96 강북선터	A 토지	관로부지					임야		M2

※ Data Grid function

1. Review how Excel Upload format is downloaded from each menu you want to upload after work.
2. When uploading Excel data, it provides a data view before confirming upload so that pre-validation can be performed in advance.
3. Conversion of inquiry data Excel facilitates response of request data to foreign agencies



Chapter

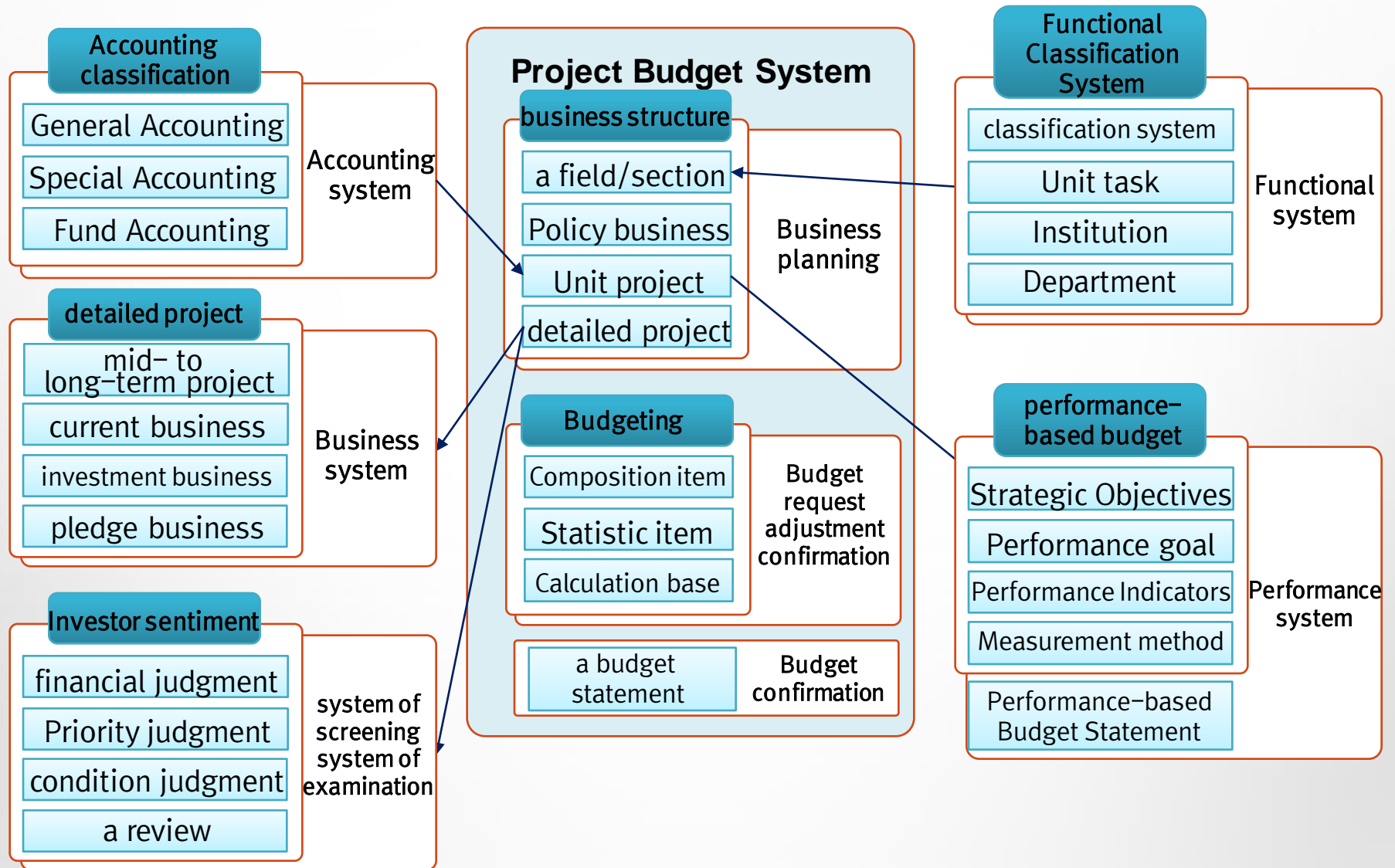


Accounting Solutions



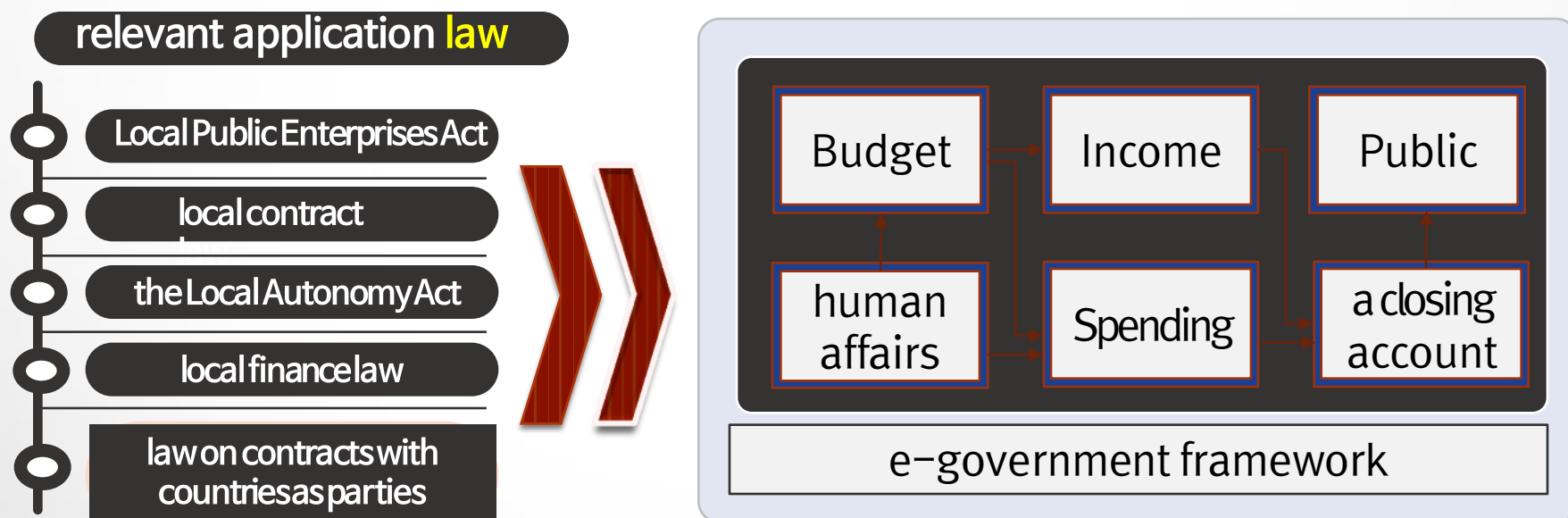
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Hierarchical structure of business



	the competent department	a cast member	Field	Sector	Policy business
1	Organizational officer	Seoul Institute of Technology	general public administration	general public administration	Improving the efficiency of municipal administration
2	Women's Policy Officer	Women's Family Foundation	Social welfare	Child care, family and women	Gender Equality and Promotion of Women's Welfare
3	Corporate Support Officer	Korea Advanced Institute of Science and Technology	Industry · Small and Medium Business	Industrial Promotion and Advancedization	Enabling a vibrant economic environment
4	Corporate Support Officer	Credit Guarantee Foundation	Industry · Small and Medium Business	Industrial Promotion and Advancedization	Enabling a vibrant economic environment
5	Welfare policy	Welfare Foundation	Social welfare	Support for vulnerable classes	Strengthening the welfare of the socially vulnerable and improving the social welfare delivery system
6	Cultural policy	Sejong Center for the Performing Arts	Culture and Tourism	culture and art	Enactment of Culture City Seoul
7	Cultural policy	Cultural Foundation	Culture and Tourism	culture and art	Enactment of Culture City Seoul
8	Cultural policy	Seoul Philharmonic Orchestra	Culture and Tourism	culture and art	Enactment of Culture City Seoul
9	administrative department	Volunteer Center	general public administration	general public administration	Realizing the Impression Administration for Citizens through Citizen Participation
10	Health Policy Officer	Seoul Medical Center	Health	health care	Public Health and Medical Service Level Enhancement
11	Officer in charge of design planning	Design Foundation	national territory and regional development	Areas and cities	Design Capacity Enhancement Promotion

Operation of budget accounting for public institutions

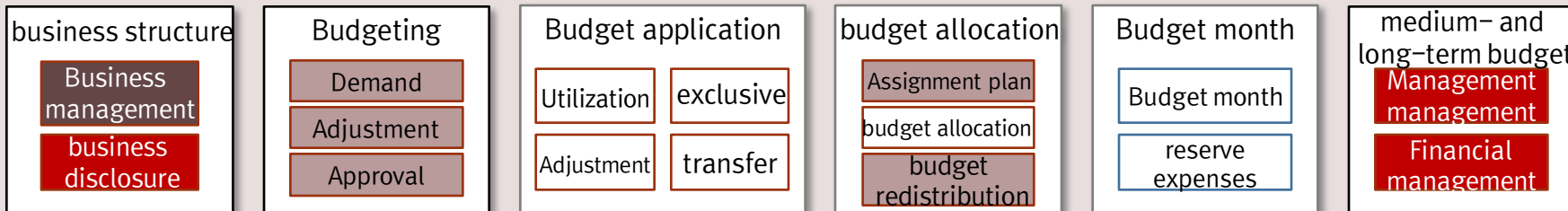


An information system that generates and manages work processing and information based on the accounting standards required by the government for all operations, from budgeting to income, expenditure, and accounting/ settlement, which are the basis for the management activities of local public corporations established under the Local Public Enterprises Act.

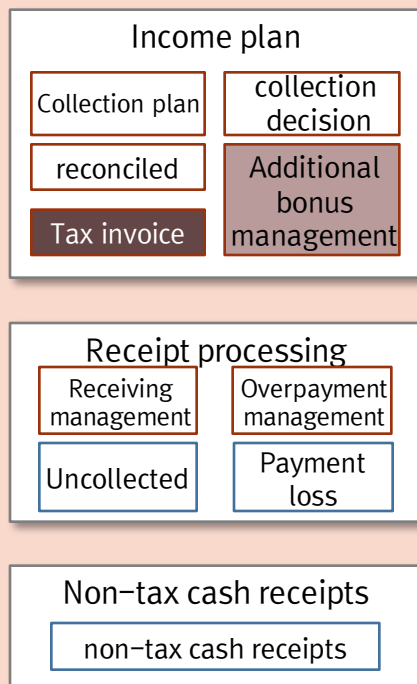
Providing statute-based budget accounting solutions



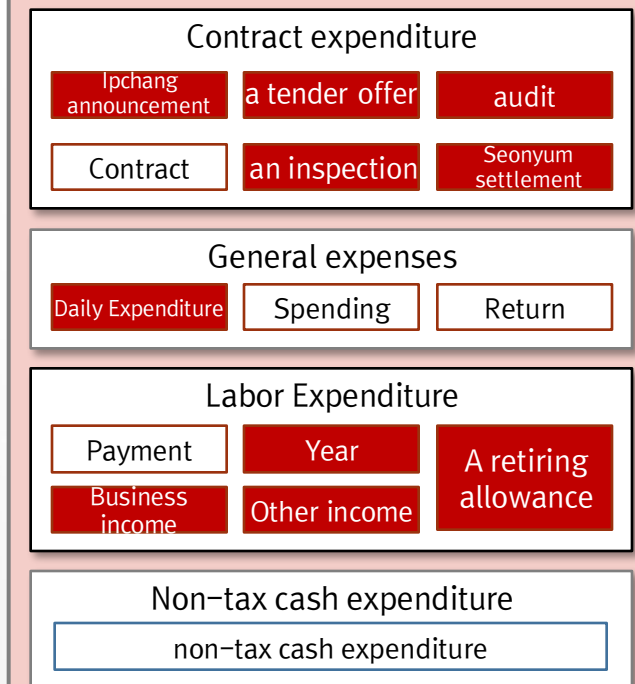
Budget



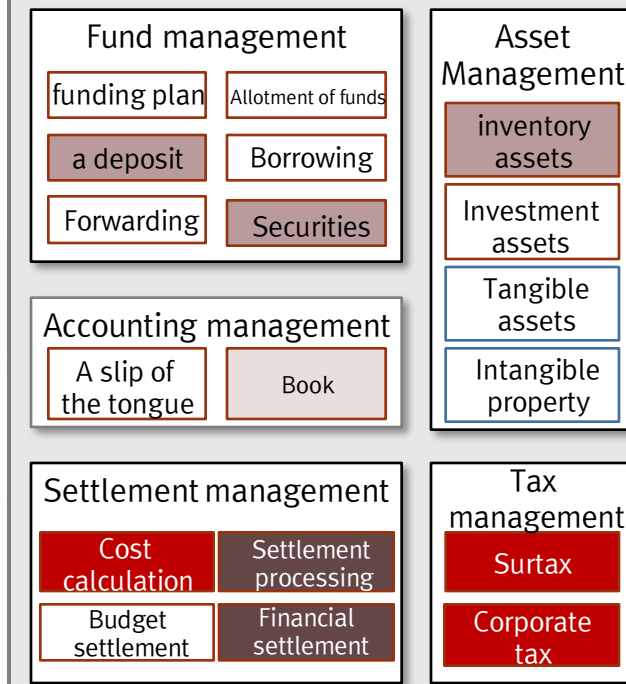
Income



Spending

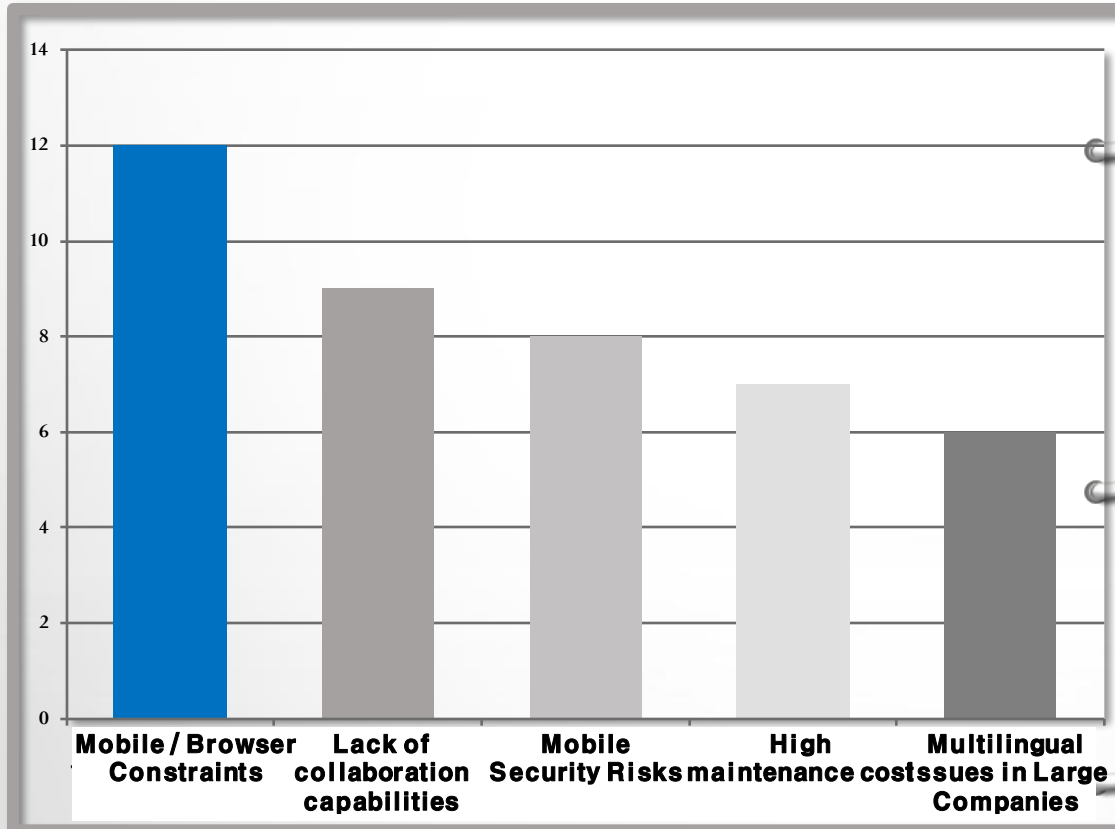


Accounting/accounting



Existing Portal / Groupware Issues

With the advent of smartphones and social apps, the speed and level of work of employees are increasing, and there is a demand for collaboration, but the groupware in the company does not support it.



About 6~70% of groupware customers are considering replacing groupware

주요 사항

Mobile/Browser Low Compatibility

Slow work progress with each other due to failure to support work with browsers (IE, Chrome, Safari) and mobile in various PC environments

Lack of collaboration capabilities

Except for bulletin boards, it is impossible to share work, so closed and inconvenient work system such as electronic payment, address book, calendar, etc.

Security risk of social service

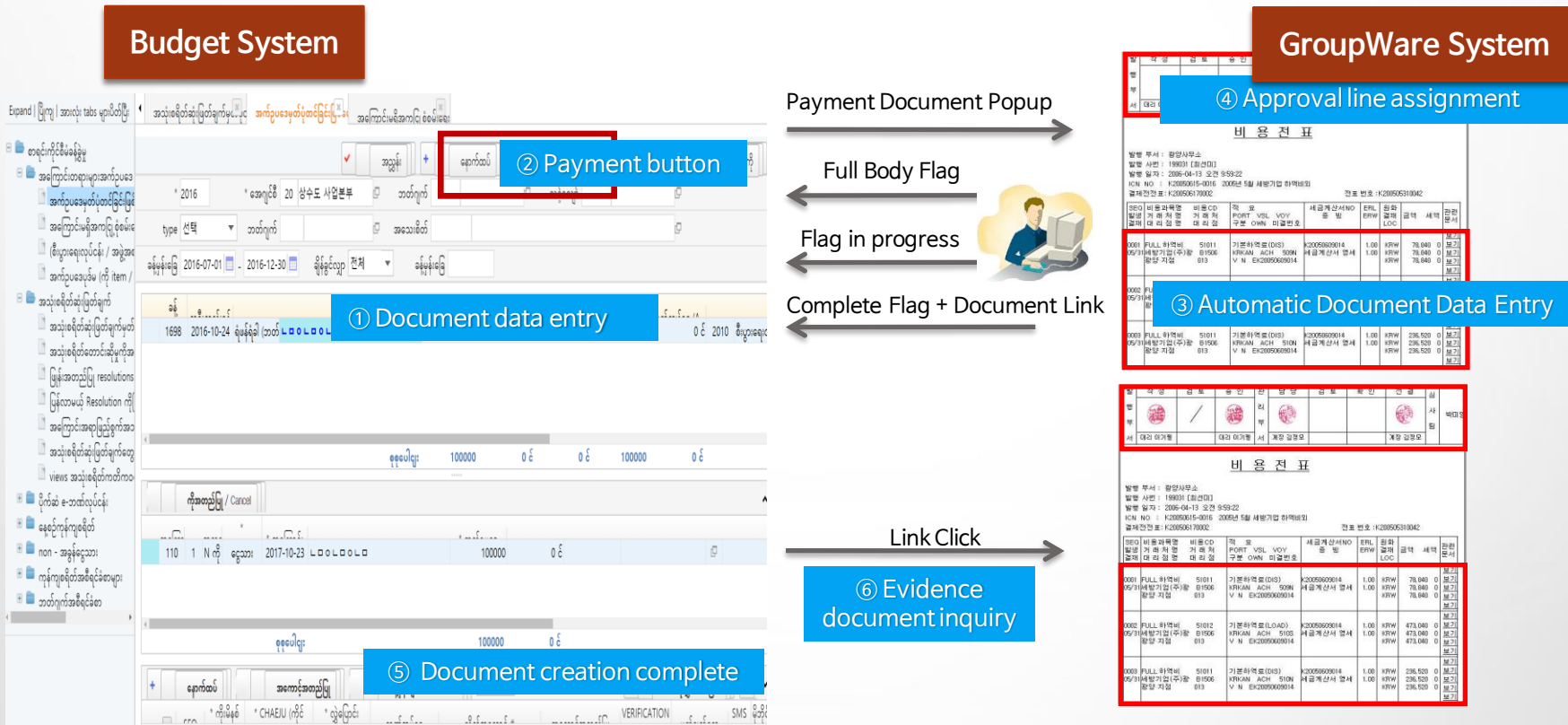
Easily and quickly used social services (mobile apps) information leakage and outsourced information of retirees and outsourcing employees

High maintenance cost of commercial software

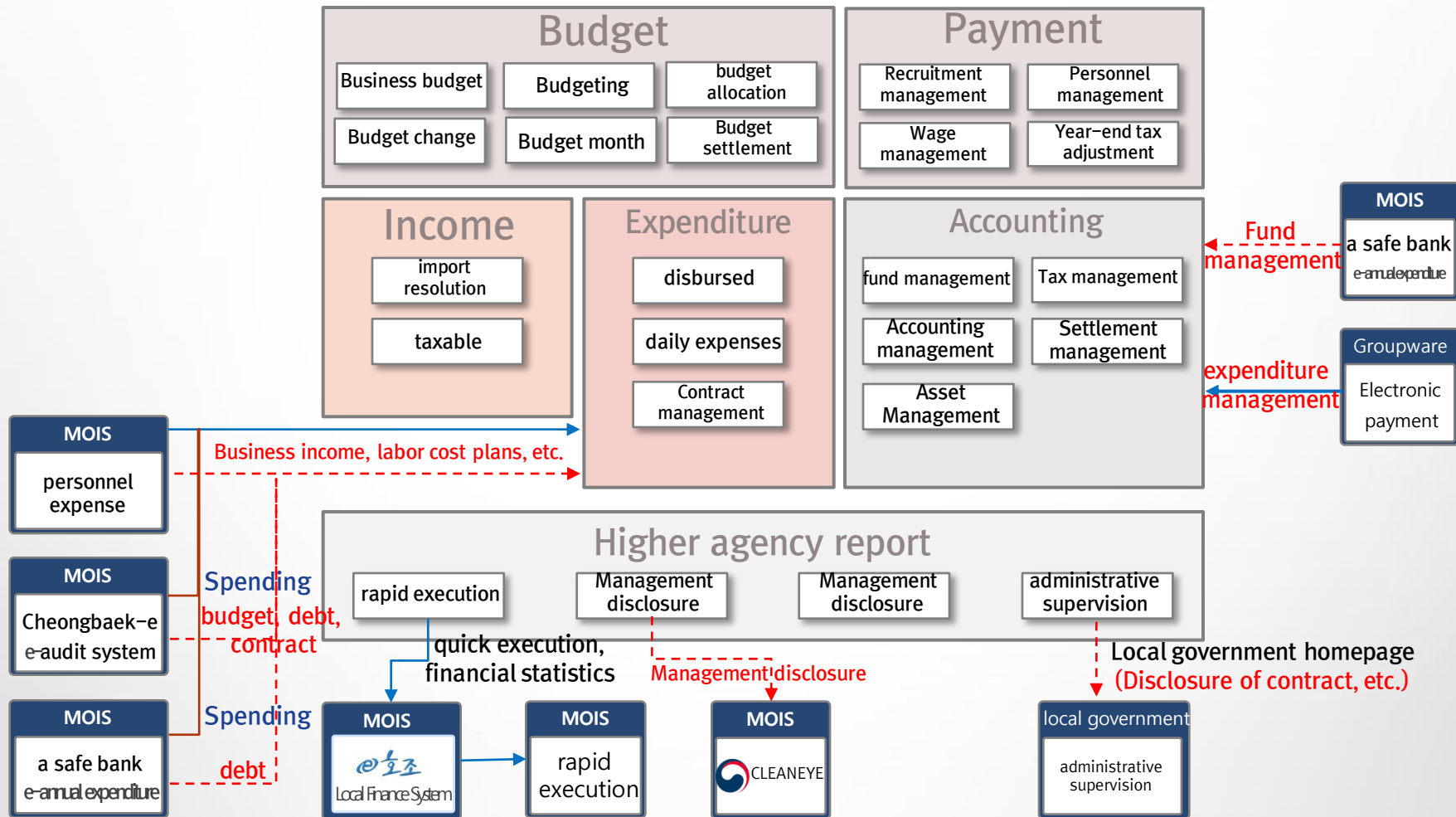
Incurring a considerable amount of maintenance costs such as commercial software (OS, DB, WAS, etc.) other than groupware solution

Process Flow (Budge ↔ G/W)

This is a general ERP interlocking logic that handles data input in ERP and automatically calls the payment form to complete in groupware.



Budget accounting system schema



Reasons for Introducing Seoul's Program Budget

- **Changes in the working form and consciousness of civil servants**
 - Civil servants recognize a clear sense of goal by preparing performance plans, performance reports, etc.
 - the change from passive administration to proactive administration that values responsibility for performance in compliance with existing laws and regulations
- **Changes in the appearance of working in all stages from budget establishment to post-evaluation**
 - Request budget as "accident to obtain budget unconditionally" or rationally demand budgeting based on "It simply needs 00% increase from last year's budget" and review budget preparation by considering performance objectives and evaluation system
 - Induce active business behaviors and connect them with budget preparation for next year by making efforts to reduce budget waste with responsibility
- **Securing transparency, reliability and productivity of administration**
 - Improving citizens' confidence by presenting goals for budget operation and reflecting the results of the assessment, and establishing a structural system to reflect the results in the next year's budget by aligning the project plan with the required budget.



Chapter

IV

Solutions Propose

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Project Execution Plan

- ◆ **The purpose of business**
 - ❖ **Build a successful business finance model**
 - ❖ **Componentization based on Program Budget of local financial information (OCED standard)**
 - ❖ **Base on Law and Institution and design development and operational maintenance**
 - ❖ **Ease of securing professional development personnel**
 - ❖ **Contribute to budget savings at an affordable dev Cost base on open Source**

- ◆ **Task-Force Team Configuration**
 - ❖ **Ministry of Public Administration or Yangon City**
 - **Infrastructure: Support for operating platform (server, network equipment, database, security, etc.)**
 - **Law/system Operation: System, Guidelines and Operation Manual for GAAP Budget and Settlement**
 - **Program related : design, implementation, operation and maintenance**



Project Execution Plan

- ❖ **Supply using the Electronic Government Council of Seoul city or Ministry of Public Administration**
 - **Seoul Metropolitan Government :**
 - **Law/system/administrative guidance etc. support for local financial Account**

- ❖ **HiperTech Inc : Local Financial Platform Support**
 - **Support for open source-based development platform**
 - **Support for operational/maintenance personnel**
 - **Support for solutions to language**

Contract US



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