Bulgaria-Korea ITCC Cooperation Project

Final Report Meeting

2012. 12. 07

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Final Report Agenda

1. Opening Remarks
2. Introduction of Final Report Meeting
3. The Status of Bulgarian Railway
4. The Future Model & Result of Railway Information System Consulting
5. The Future Model & Result of Smolyan e-Municipality Feasibility Study
6. The Prototype for "Tax Assessment by 264 paragraph 1 of the Tax-Insurance Procedure Code for Farmland"

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Opening Remarks

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Introduction of Final Report Meeting

No Min-ju

Project Manager

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1. Background

Bulgaria government has strong commitment to ICT development to enhance it' s national competitiveness Korea has offered assistance through its experience and know-how in e-Government

Strong Willingness of Bulgaria

- Considering e-Government as a central tool in transforming Bulgarian government
- 'Concept of eGovernment in Bulgaria 2010-2015'
- 'Common Strategy for eGovernemnt in Bulgaria 2011-2015'
- Hard to promote e-Government project due to lack of experience and know-how

Korea's World e-Government

- Korean e-government is ranked No.1 by UN (2012)
- Strong drive for ICT cooperation with other countries

  (Mater Plan & FS consulting, IT Training with expert)
- Co-operating IT Cooperation Center(ITCC) with Bulgaria (Since 2010)

" Bulgaria government wants to learn know-how & skills from other country's successful e-Government implementation."

" Korean government intends to share knowledge by co-operating ITCC with Bulgaria to improve relationships and to foster cooperation."

Agreed to Promoting *3 e-Government Projects* of ITCC 3rd Year Projects in Korea

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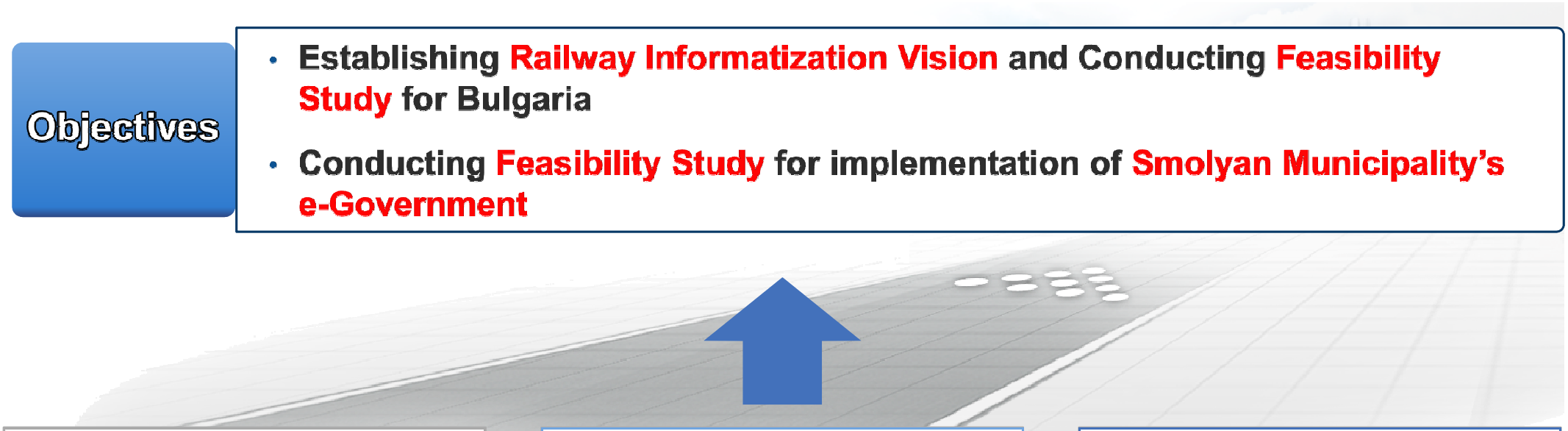
2. Project Overview

Objectives

- Establishing **Railway Informatization Vision** and Conducting **Feasibility Study** for Bulgaria
- Conducting **Feasibility Study** for implementation of **Smolyan Municipality's e-Government**



1 Railway Informatization

- Analyze EU Guideline
- Analyze Bulgaria Railway Informatization State
- Analyze GAP between EU Guideline and Current State
- Define To-Be Model of Bulgaria Railway Informatization
- Suggest Roadmap

2 Smolyan's e-Goverment

- Analyze As-Is of Bulgarian e-Government
- Assess Informatization Level of Smolyan
  - Defining e-Government Vision
  - Suggesting Business Integration & Civil Service Model for e-Gov.
- Suggest e-Government Implementation Roadmap

3 Smart Classroom

- Analyze Environment of Smart Class
  - Analyzing Korea's Smart Class
  - Analyzing As-Is of Bulgarian Smart Class
  - Drawing Implications and Providing Devices for Pilot Smart Class

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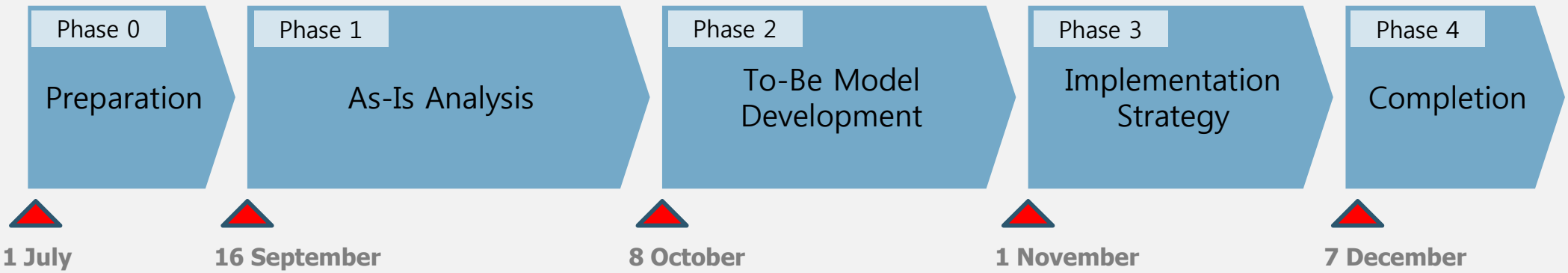
3. Project Scope & Schedule

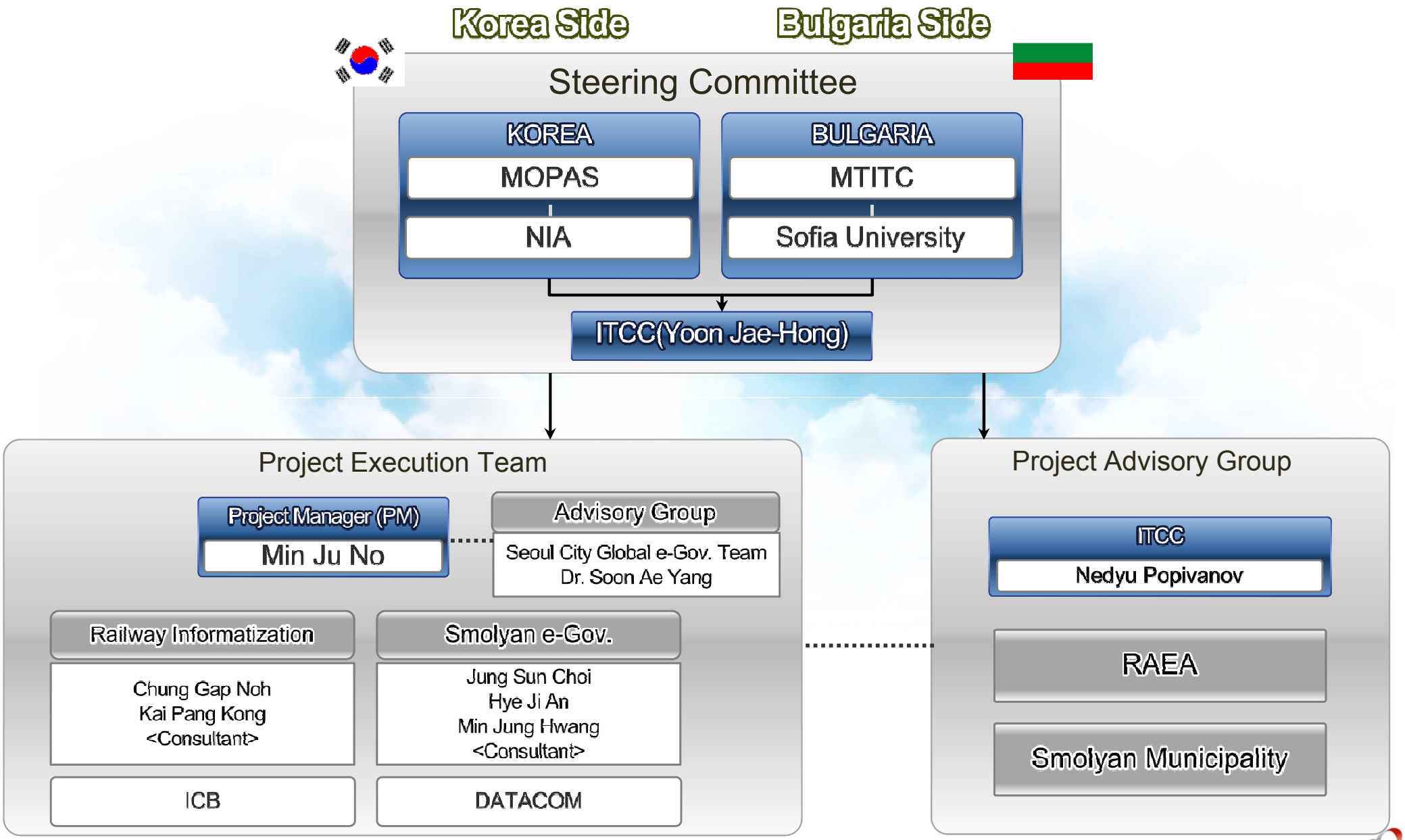
Project Scope

- Research the current state of Bulgarian railway and e-Municipality of Smolyan and identify the issues
- Establish the vision and strategy for implementing railway information system for Bulgaria and Smolyan's e-Municipality successfully
- Prioritize projects for mid/long term roadmap after an in-depth contextual analysis of Bulgaria's situation
- Recommend implementation plan including suggestion of an organizational structure related to railway information system & Smolyan e-Municipality development
- Suggest a financial plan to secure quick win tasks & projects

Project Schedule



4. Project Team



MOPAS : Ministry of Public Administration and Security

5. Activities and Milestones

Project Kickoff

2012.9.19. Official Kick-Off

Bulgarian PMO org.

Preparation for Field Survey

Interviews for analysis of Current State of Railway & e-Municipality

The NIA Consulting team conducted interviews with RAEA, Smolyan departments to understand current status and user demand

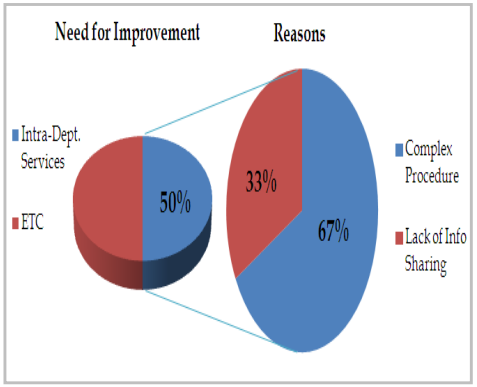
MTITC, RAEA

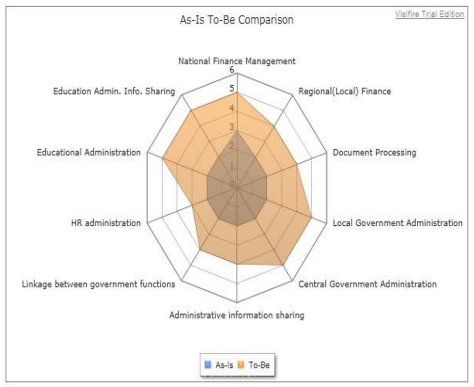
Inception Meeting

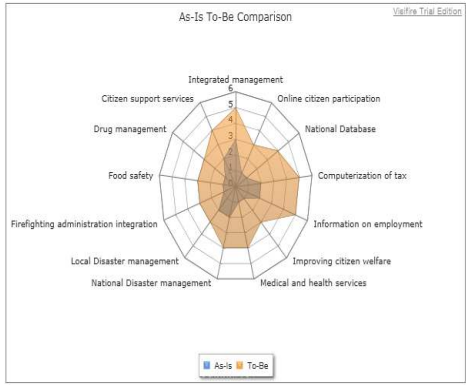
Smolyan Municipality

Surveys & e-GAT for analysis of Development Level

Surveys and e-GAT were conducted to analyze the development level of railway and e-Municipality







RAILWAY ADMINISTRATION EXECUTIVE AGENCY

Business analysis and preparation of IT Roadmap

For the railway administration in Bulgaria

Choog-Gap Noh Railway ICT Expert KORAIL

Veselin Stoyanov Sr. Consultant ICB

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1.1 Project Objective & Scope

Objective

"To Develop an EU Requirements Complying IT Roadmap for the RAEA of Bulgaria"

Analysis

As-is Analysis

- Analyse core business process, document mgmt. system, information system & railway data of RAEA

EU Requirements Analysis

- Identify & analyse related EU requirements

Gap Analysis

- Study of related Korean cases
- Gap analysis between current state of RAEA & EU requirements

To-Be Model Design

Task Identification

- Define direction for IT development
- Identify suitable task to fulfill the direction

Conceptual To-Be Model Design

- Design conceptual To-Be model
- Describe business process & data/system configuration of each recommended task

Execution Plan

IT Roadmap Development

- Develop IT roadmap

Benefit Analysis

- Deduce expected qualitative and quantitative benefits from recommended task implementation
- Determine return on investment of recommended task implementation

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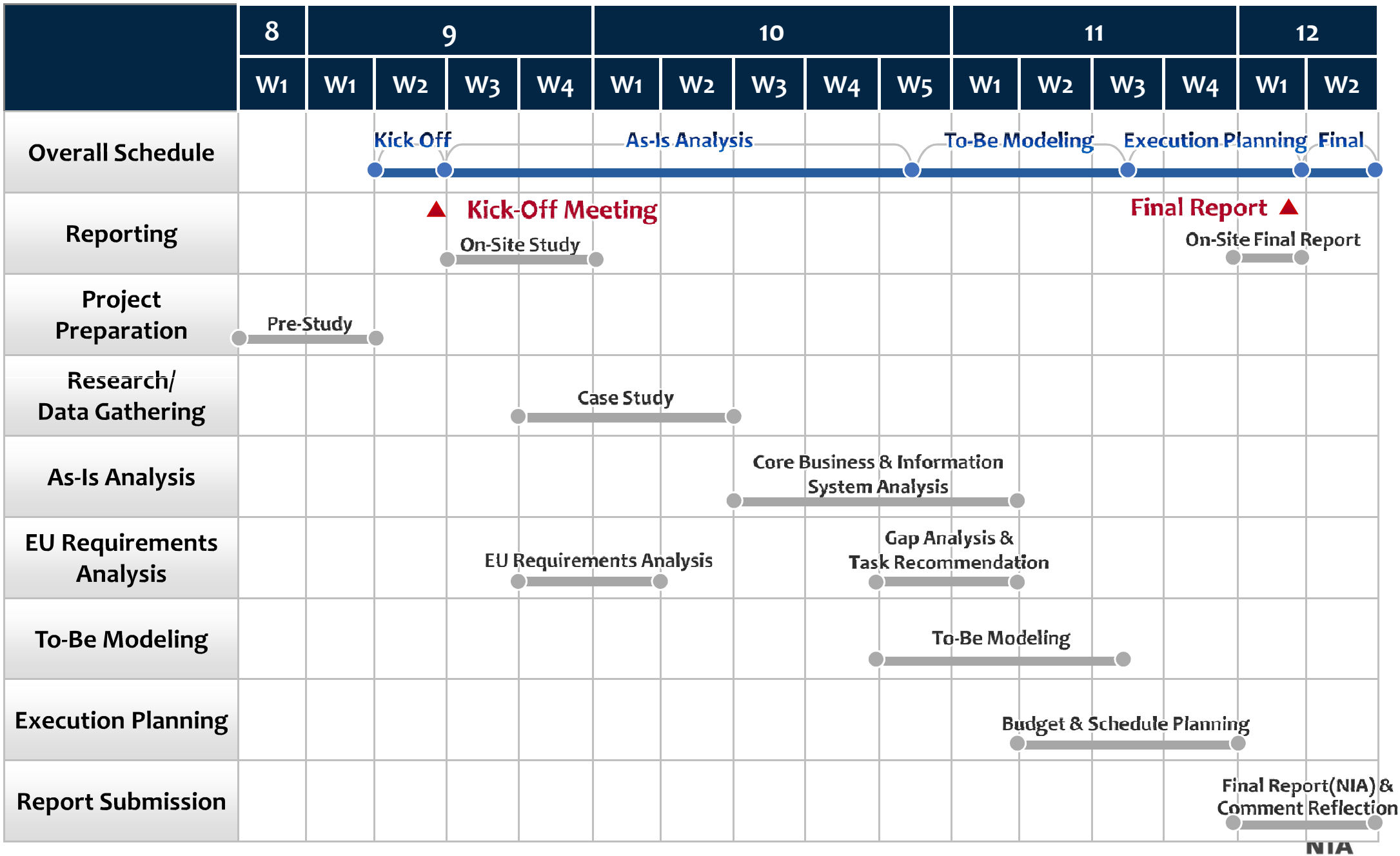
1.2 Project Schedule



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2.1 As-Is Analysis of RAEA

As-Is analysis

Business environment

- Review of Strategic and Regulatory documents in the Railway Sector of Bulgaria

Business architecture

- Interviews with the management to define high level structure of the RAEA
- Interviews with experts and review of documented regulations and procedures

Information system architecture

- Interviews and e-mails with experts in the RAEA to describe technology and data architecture

Technology architecture

- Interviews and e-mails with IT specialists in the RAEA to describe network and servers

Regulatory analysis

Review EU Directives

- Review priority EU directives
- Summarize relevant requirements

GAP Analysis

- Assess compliance of data architecture and business processes with EU requirements

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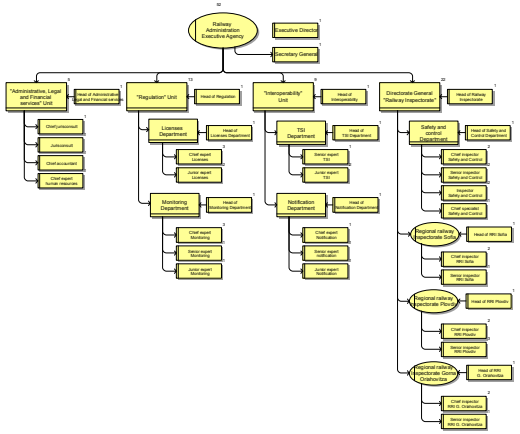
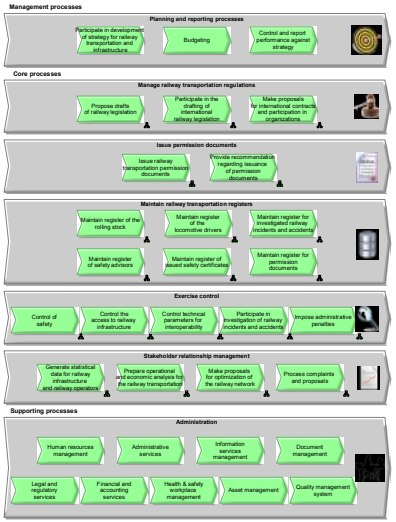
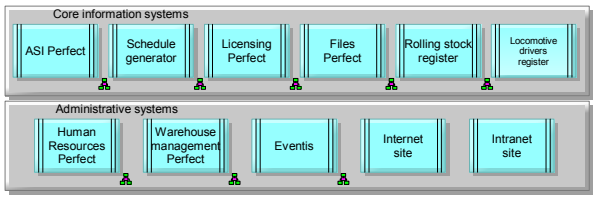
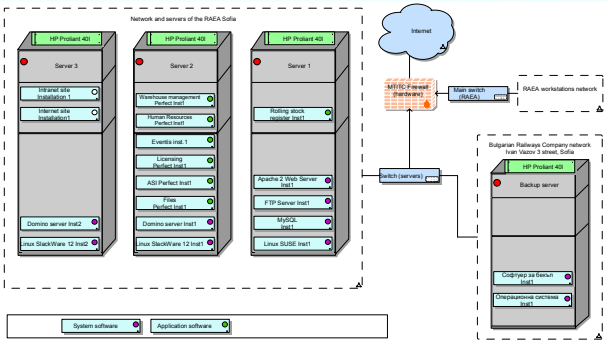
2.1 As-Is Analysis of RAEA

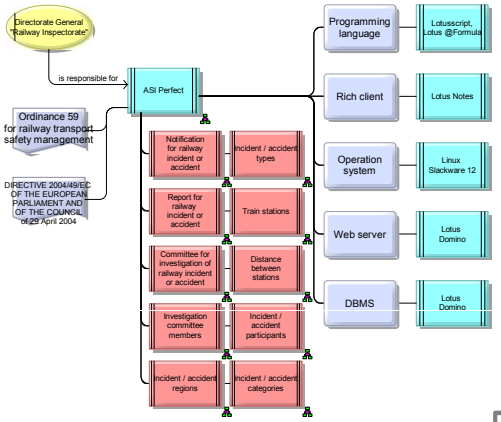


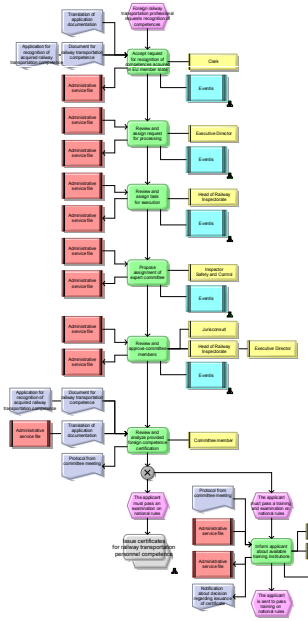
- **Organizational structure**
  - Directorates
  - Departments
  - Positions and number of employees

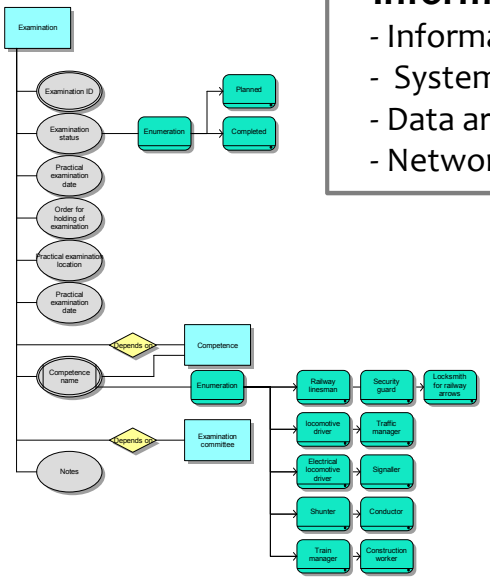












- **Information system architecture**
  - Information systems catalogue
  - System description
  - Data architecture models
  - Network diagram

- **Business process models**
  - High level activity map
  - Level 2 business processes with owners
  - Detailed business process diagrams

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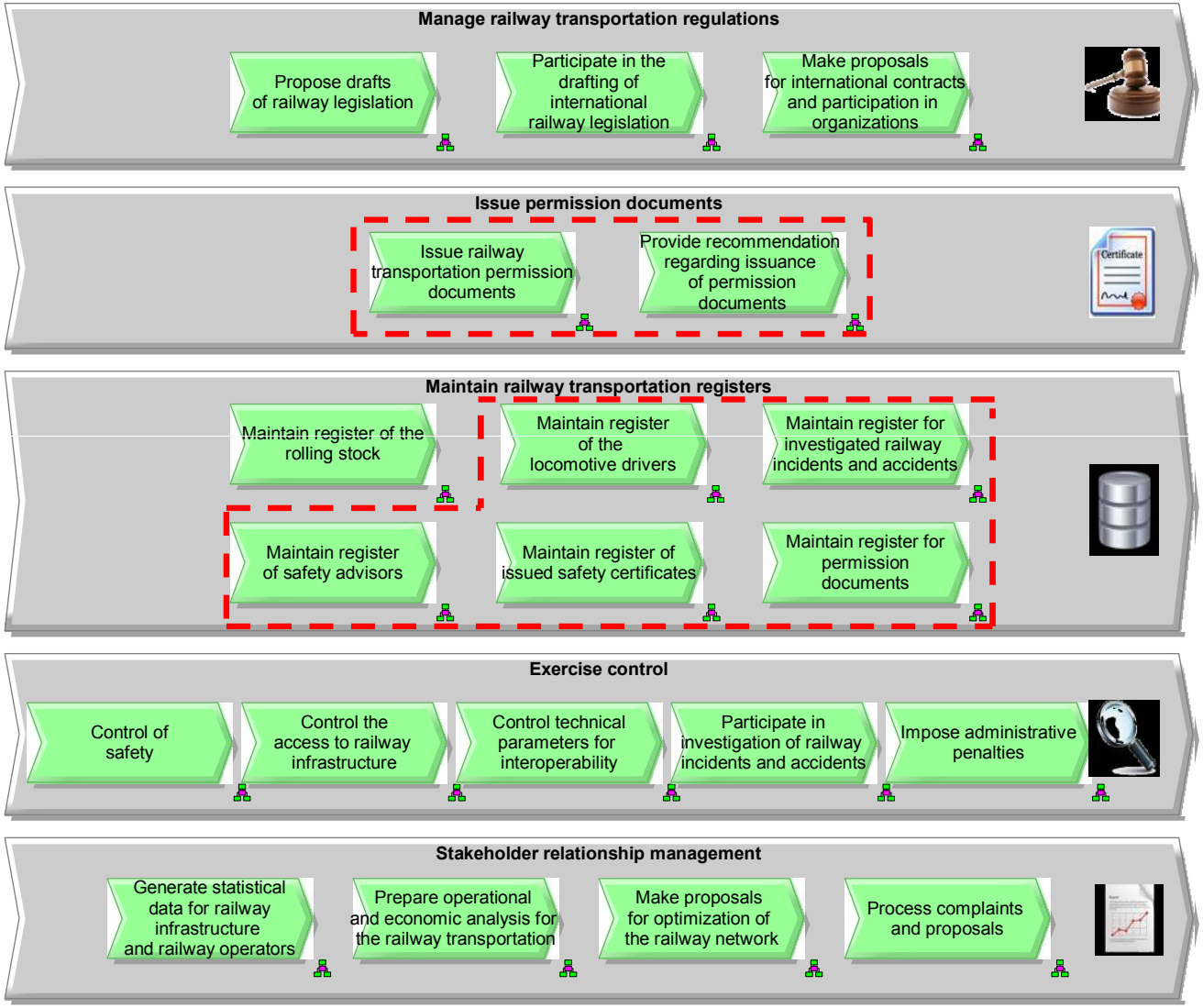
2.1 As-Is Analysis of RAEA

Major Business Process of RAEA



Selected Core Business Process for Detailed Analysis

- **Issue permission documents**
  - Accept application
  - Assess compliance
  - Issue permission
- **Maintain railway transportation registers**
  - Locomotive drivers
  - Investigated railway incidents & accidents
  - Safety advisors
  - Issued safety certificates
  - Permission documents

Aspects of Analysis

- **Description of each process**
- **System architecture (Hardware, software & network)**
- **Owner of business process**

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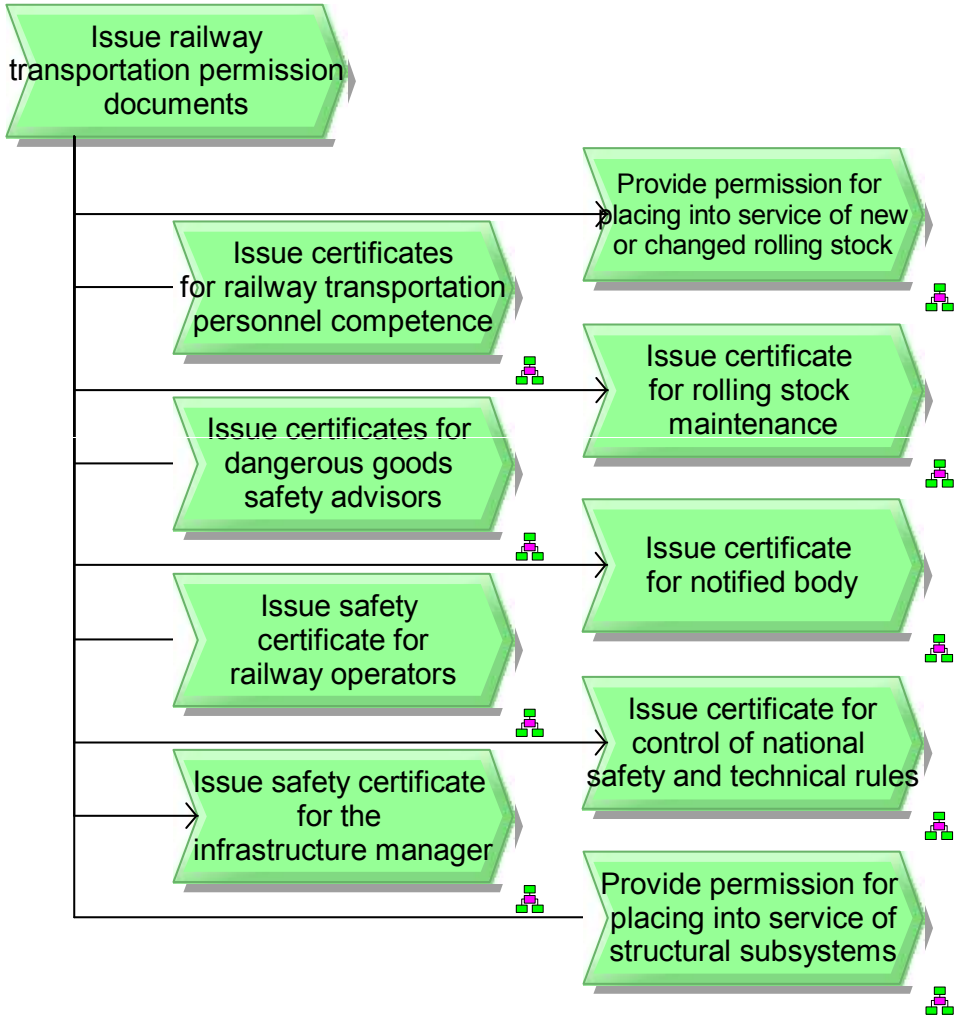
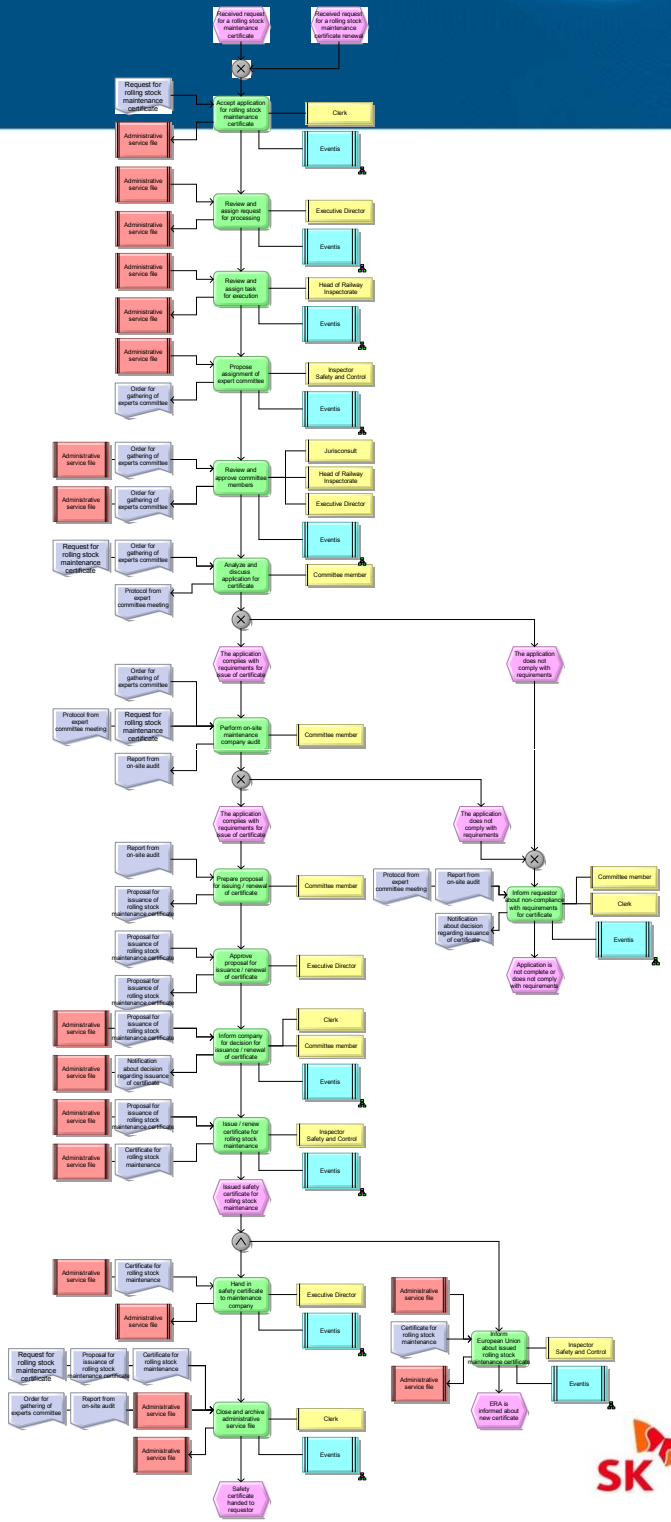
2.1 As-Is Analysis of RAEA

Level 2 and 3 business process analysis of RAEA



Detailed business processes provide information about

- **task sequence**
- **responsibility**
- **usage of existing systems**
- **document workflow**
- **internal rules and procedures**
- **bottlenecks**



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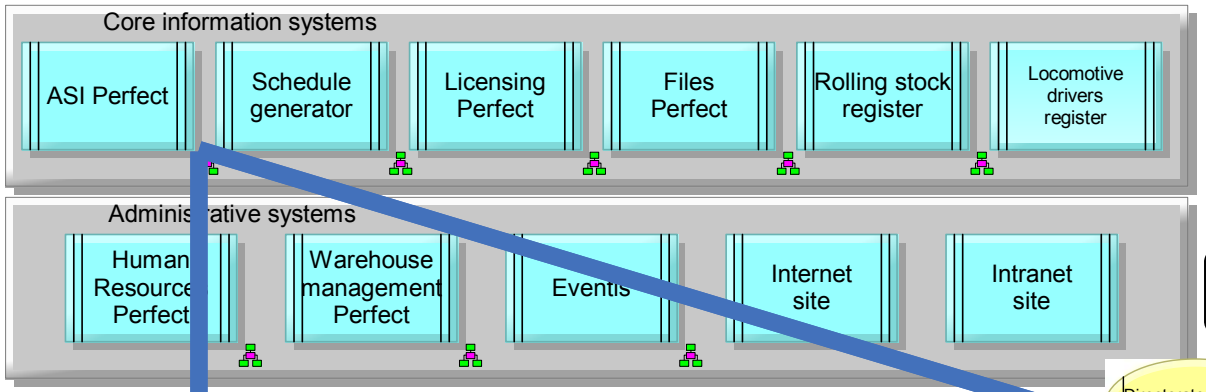
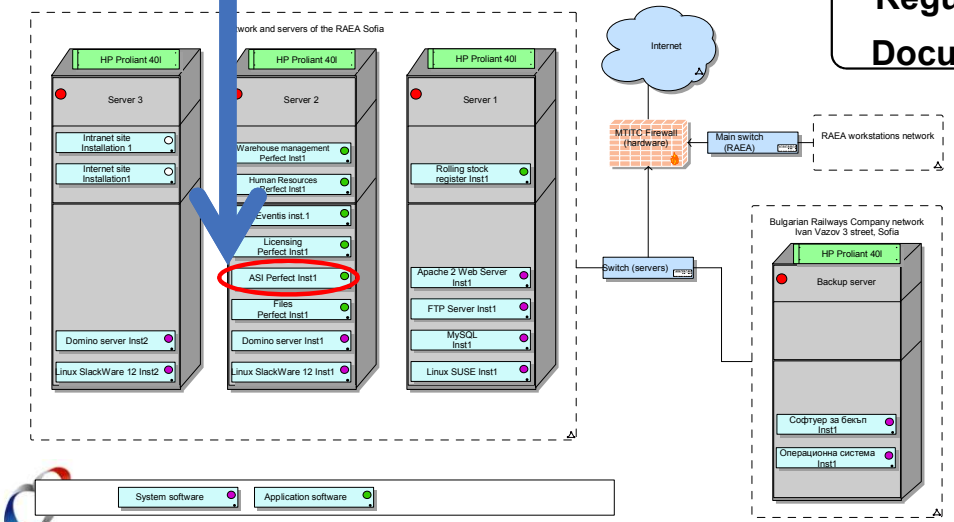
2.1 As-Is Analysis of RAEA

Information system architecture of RAEA

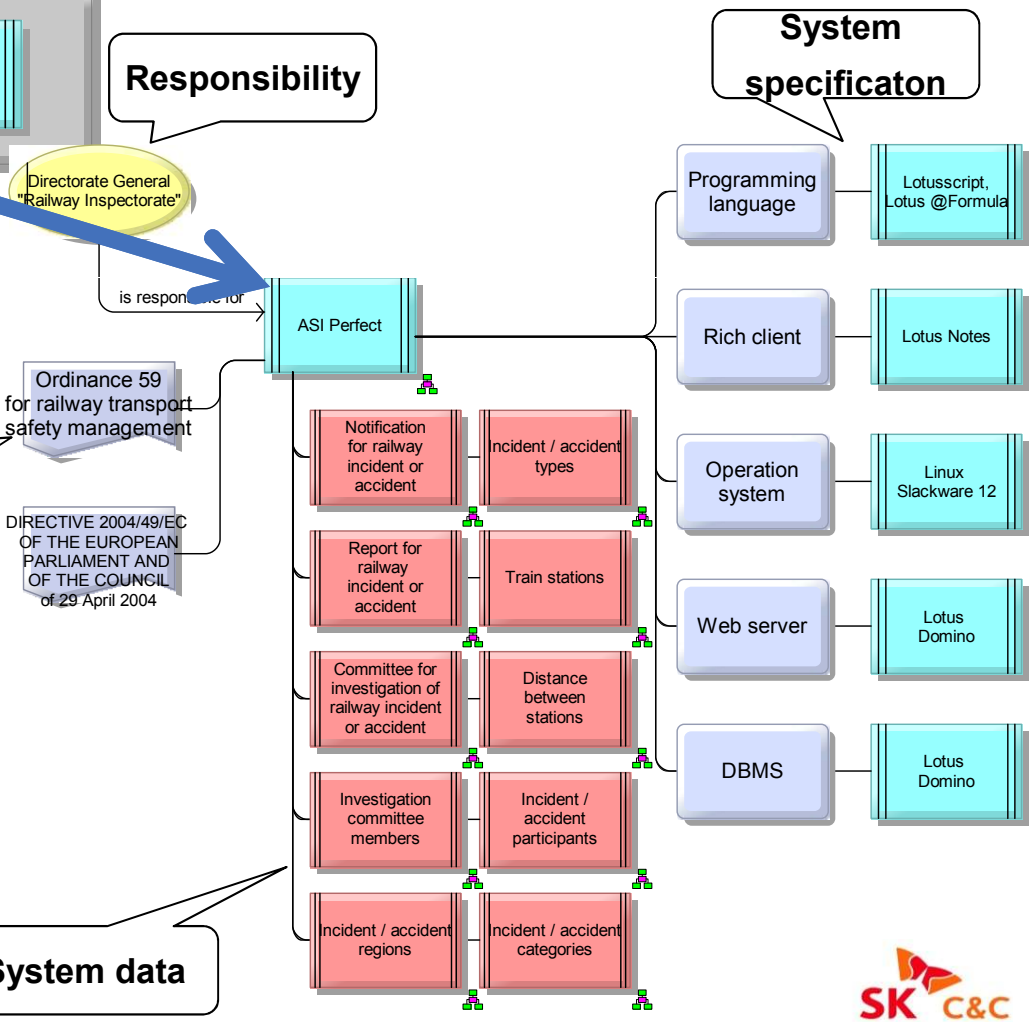


■Information systems catalogue

■RAEA Network diagram



■Individual system description



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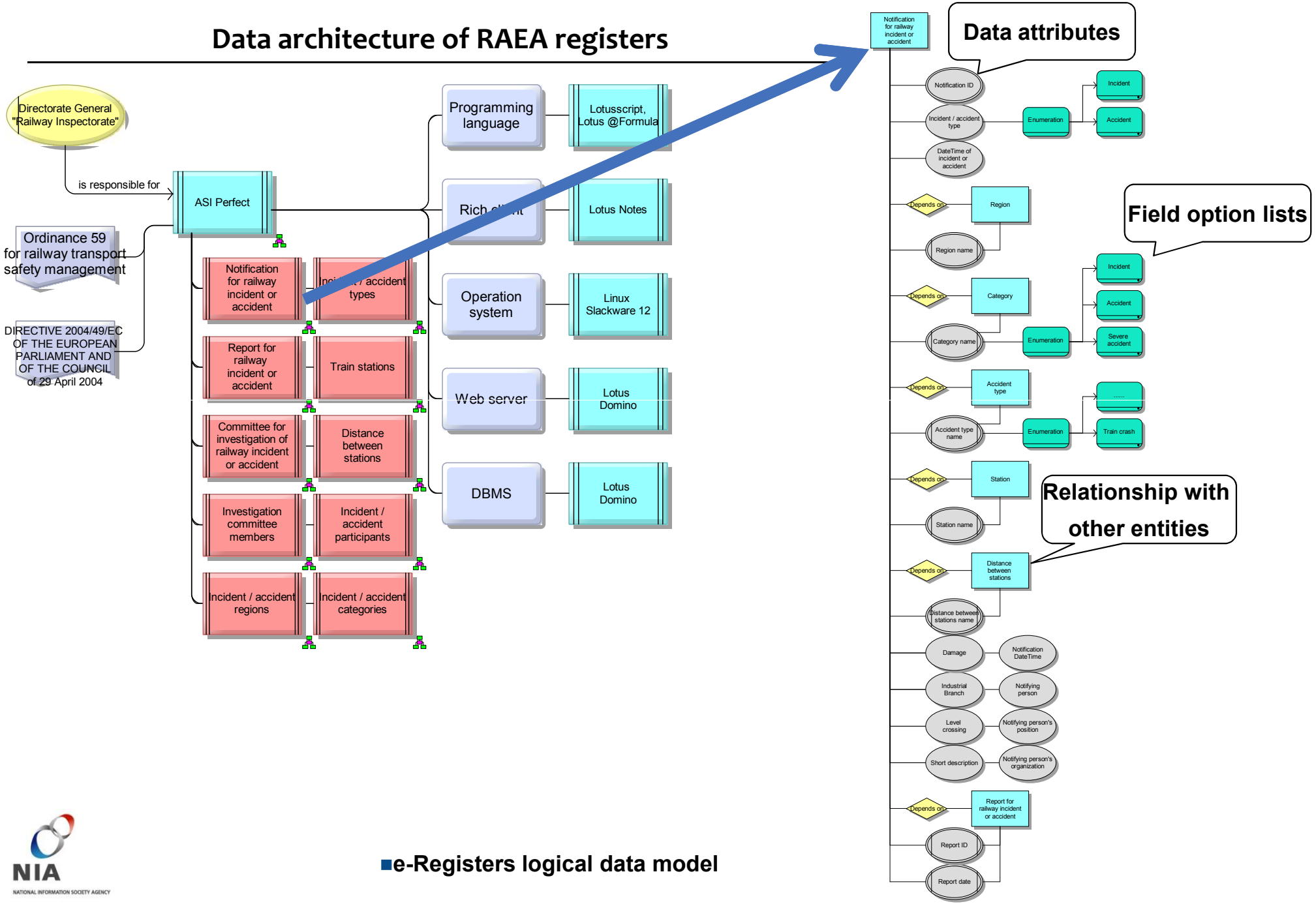
2.1 As-Is Analysis of RAEA

Data architecture of RAEA registers



■e-Registers logical data model

2.2 EU Requirements

Major Railway Requirements of European Union

Authorization & Safety Mgmt.

- Accidents & Incidents Mgmt.
- Dangerous Goods Transportation
- RU & Drivers License Issuance
- Risk Evaluation & Assessment
- Safety Authorisation Assessment
- Safety Certificate Issuance

Technical Specification of Interoperability

- Control-Command & Signaling
- Energy
- Infrastructure
- Maintenance & Operation
- Rolling Stock

Services & Maintenance

- Information Register & Maintenance
- Passengers' Rights & Obligations
- Railway Infrastructure Allocation

2.3 Gap Analysis

Item	EU Requirements	As-Is of RAEA	GAP
Accidents & Incidents Mgmt.	▪ Reporting of common safety indicators ▪ Content of accident investigation report	▪ ASI perfect contains most of the EU required information ▪ EU requirements not covered by the system are maintained outside of it in documents	▪ Some indicators and topics are not maintained in the electronic register
Information Register	▪ Data format of register ▪ Access rights ▪ Data exchange ▪ Duration of data retention ▪ Safety Advisor	▪ Most of the required contents are provided by existing information registers. Access is provided upon request and data is retained for 10 years or more. Only rolling stock register provides login for external users.	▪ Amendments required for e-registers' data format ▪ Access rights and data exchange are provided only paper based ▪ Lack of electronic data exchange or electronic login for most registers.
RU & Drivers License Issuance	▪ Standardized application form and data format for RU licensing ▪ Recommended RU licensing procedure* ▪ Standard procedure and data format for drivers licensing	▪ EU complying application form and data format for RU licensing ▪ EU complying licensing procedure ▪ Procedure is in compliance, data format is partially complied	▪ No specific gap with EU requirements in application form and licensing procedure ▪ Need to amend locomotive drivers register to support recommended data format
Safety Certificate Issuance	▪ Standardized application form ▪ Standardized data format ▪ Recommended issuing procedure* ▪ Elements of safety mgmt. system (SMS)	▪ EU complying application form ▪ EU complying data format ▪ EU complying licensing procedure ▪ The Safety management system of participants is being reviewed in major incidents and accidents	▪ No specific gap with EU requirements in application form, data format and licensing procedure ▪ Report of safety management system is not maintained in e-register as-is
Safety Authorisation Assessment	▪ Recommended assessment procedure ▪ Recommended document format for RU Safety certificate	▪ NSA based assessment procedure complies with requirements ▪ Recommended data format is used	▪ No specific gap with EU requirements

NSA: National Safety Authority

***Procedures that complying either EU requirements or NSA's own protocol is acceptable by EU**

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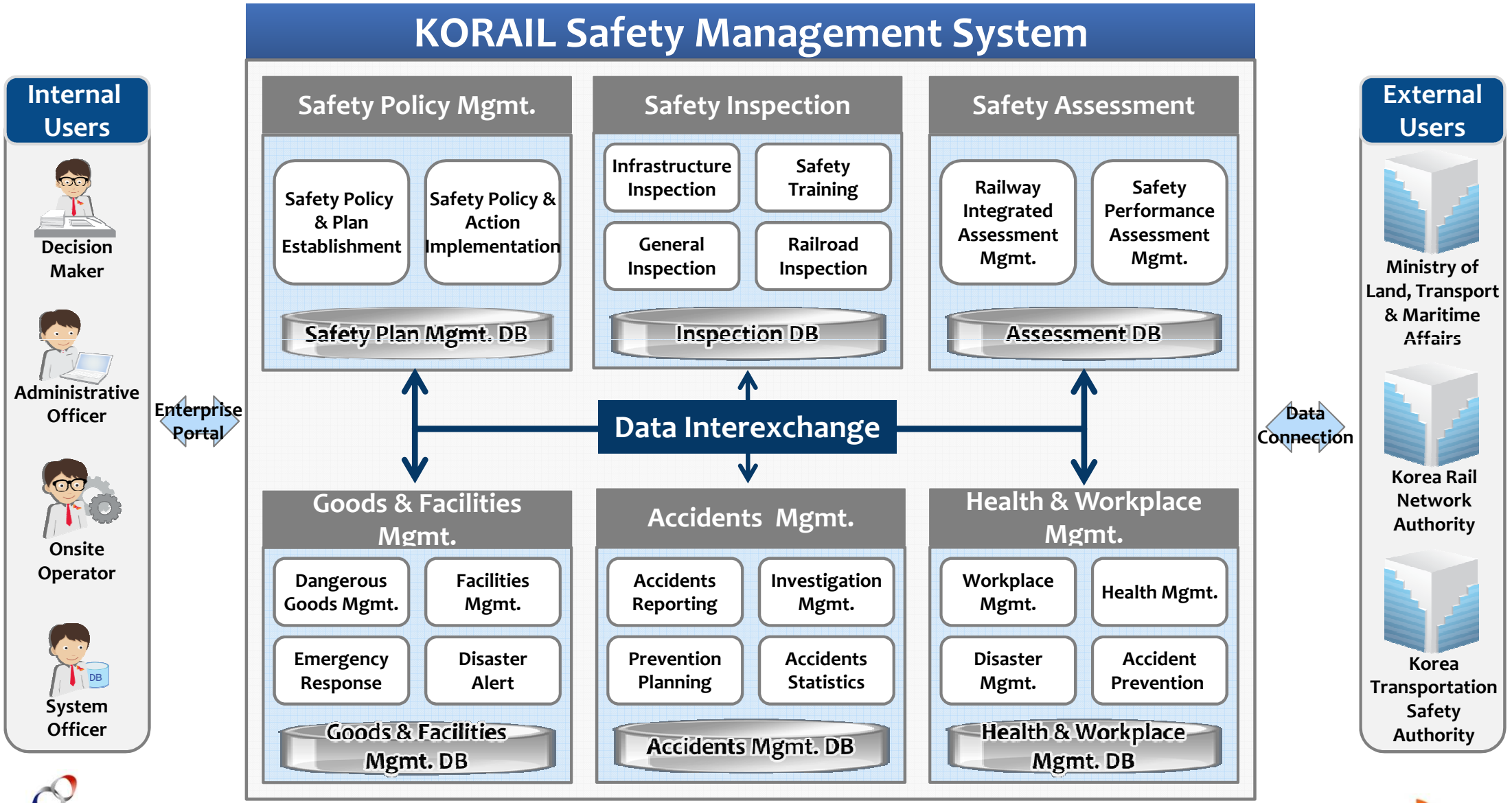
2.4 Case Study – Safety Management System



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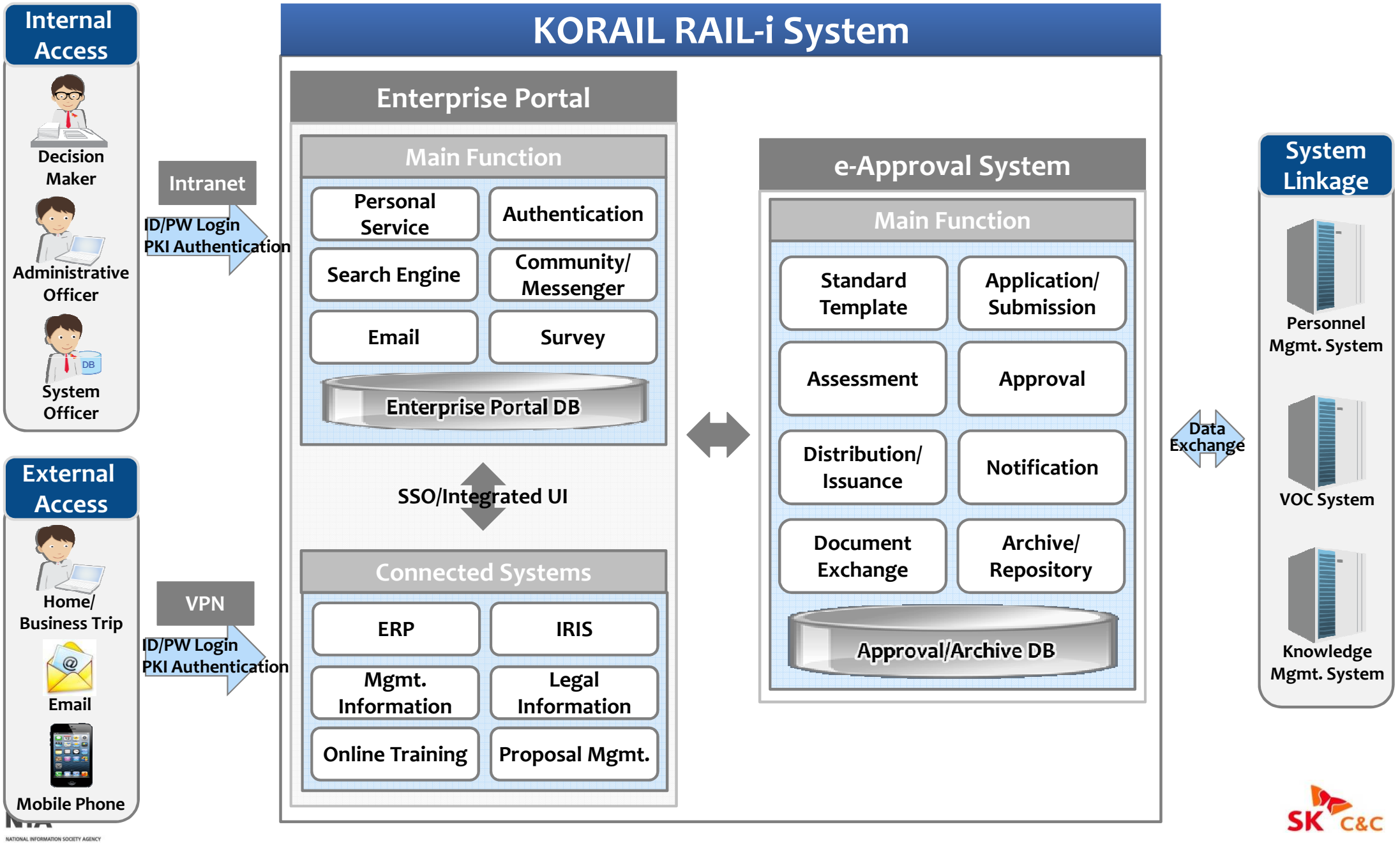
2.4 Case Study – RAIL-i System



2.5 Direction of IT Development

Implications from As-Is Analysis

As-Is of RAEA

- Paper-oriented business
- Inconvenient register and issuance operation
- Some data formats and procedures are not in compliance with EU requirements

EU Requirements

- Standardised license, certificate & data format
- Compliance of technical specification of operability for further advancement of IT systems

Case Study

- Successful and verified railway related management systems
- Effective data exchange between systems & business processes
- Paperless working environment

Direction of IT Development

Establish a standard for EU railway network

Establish a paperless and efficient working environment

Provide safe, effective and satisfactory services

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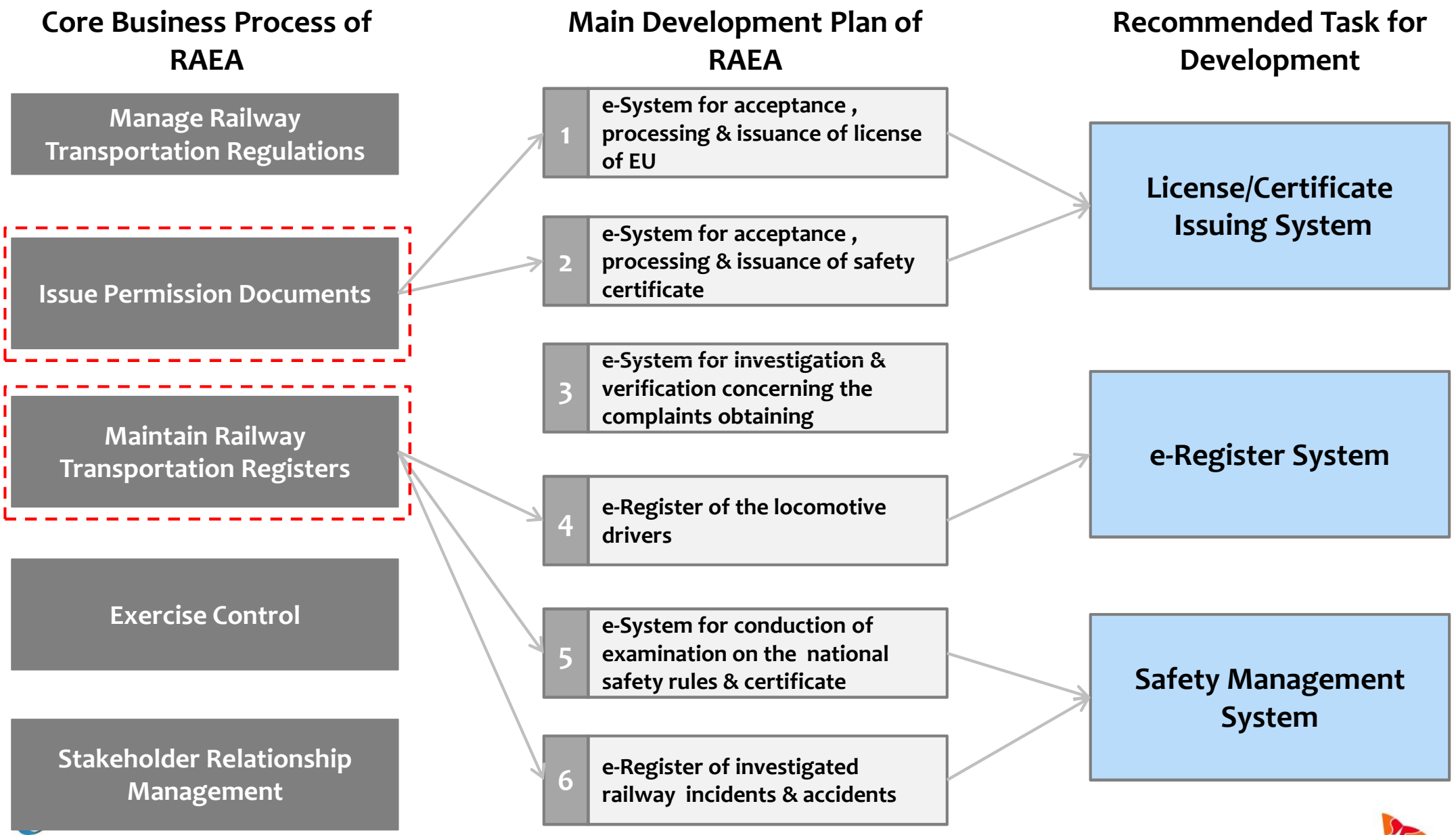
2.6 Task Recommendation



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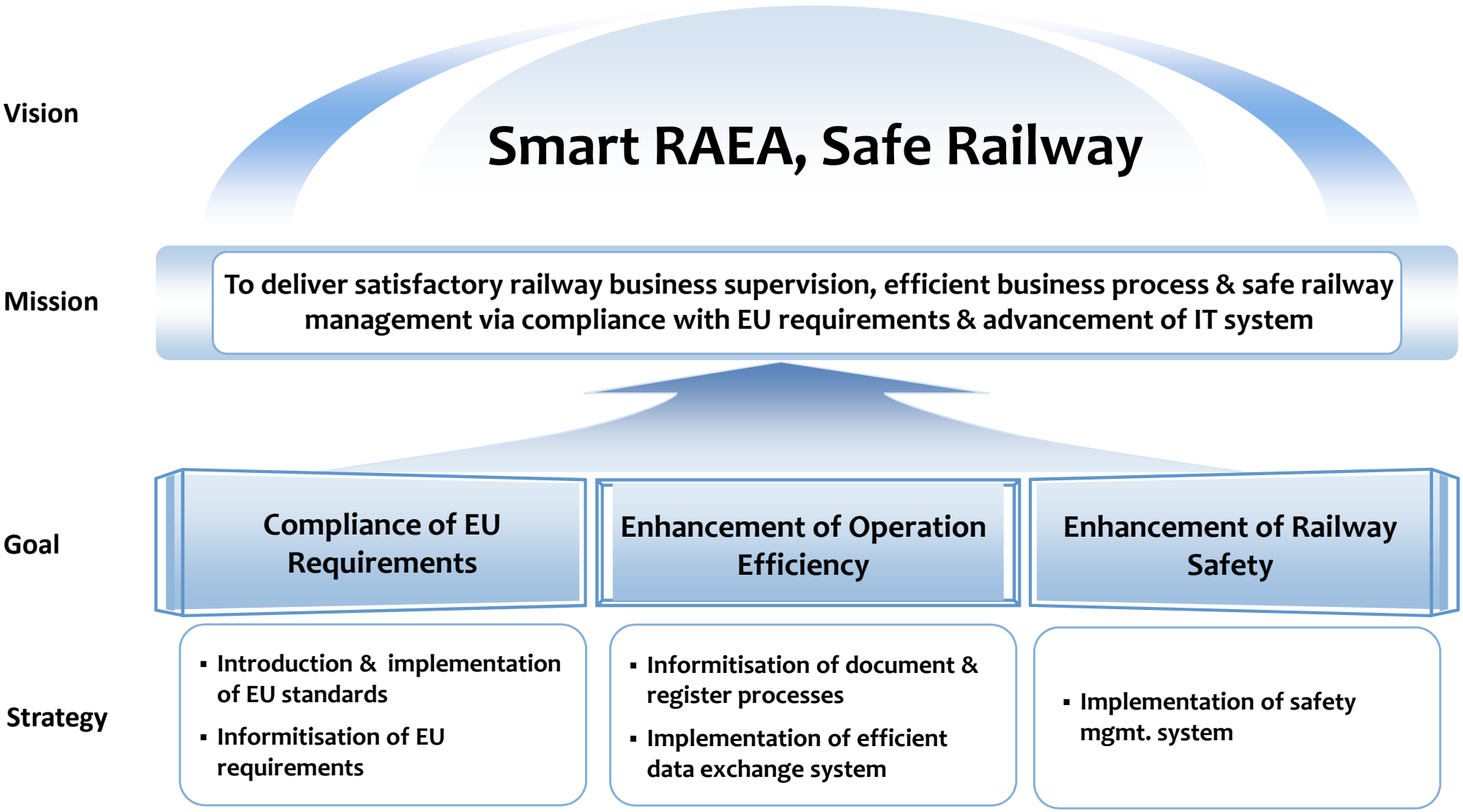
3.1 Vision & Mission



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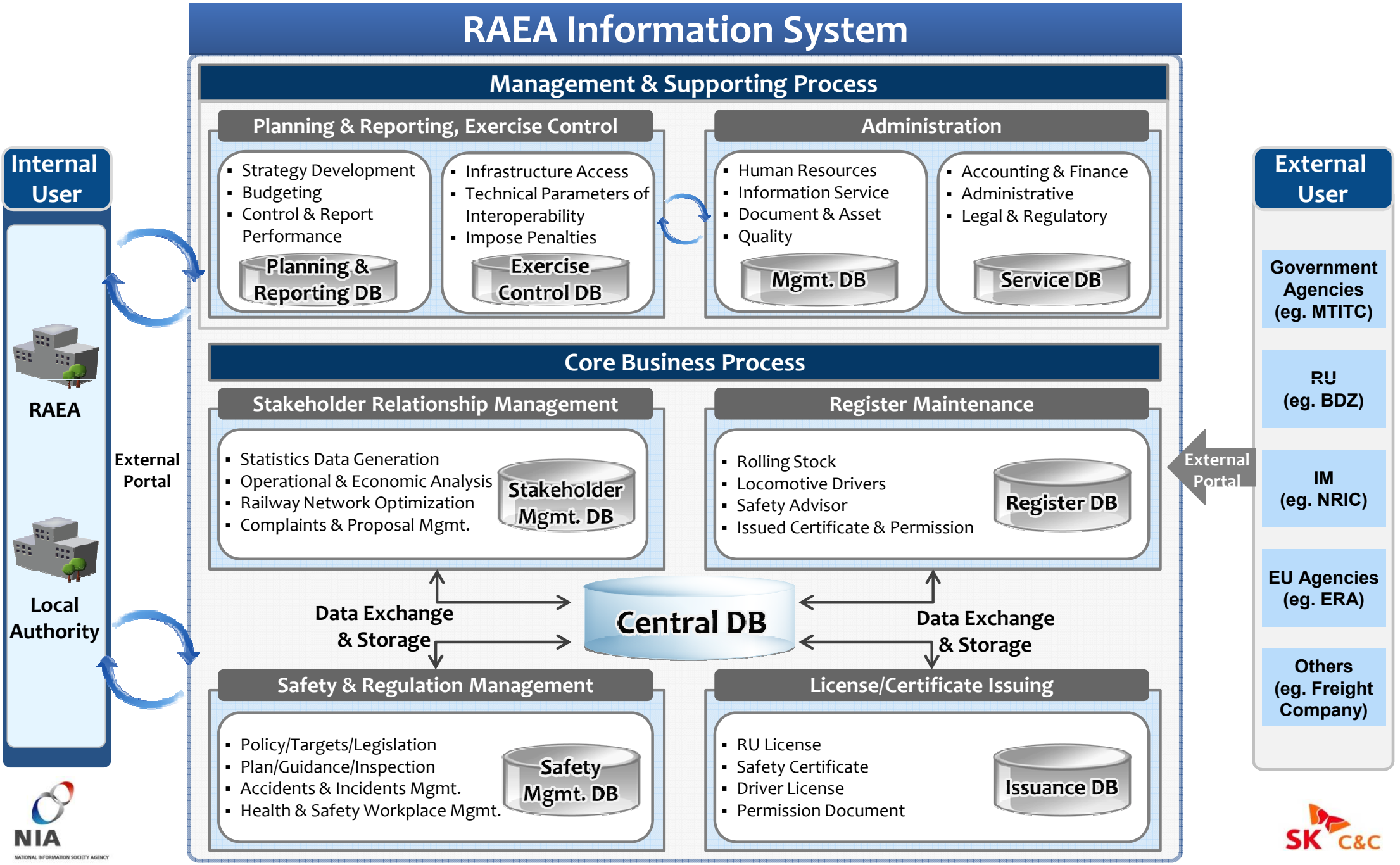
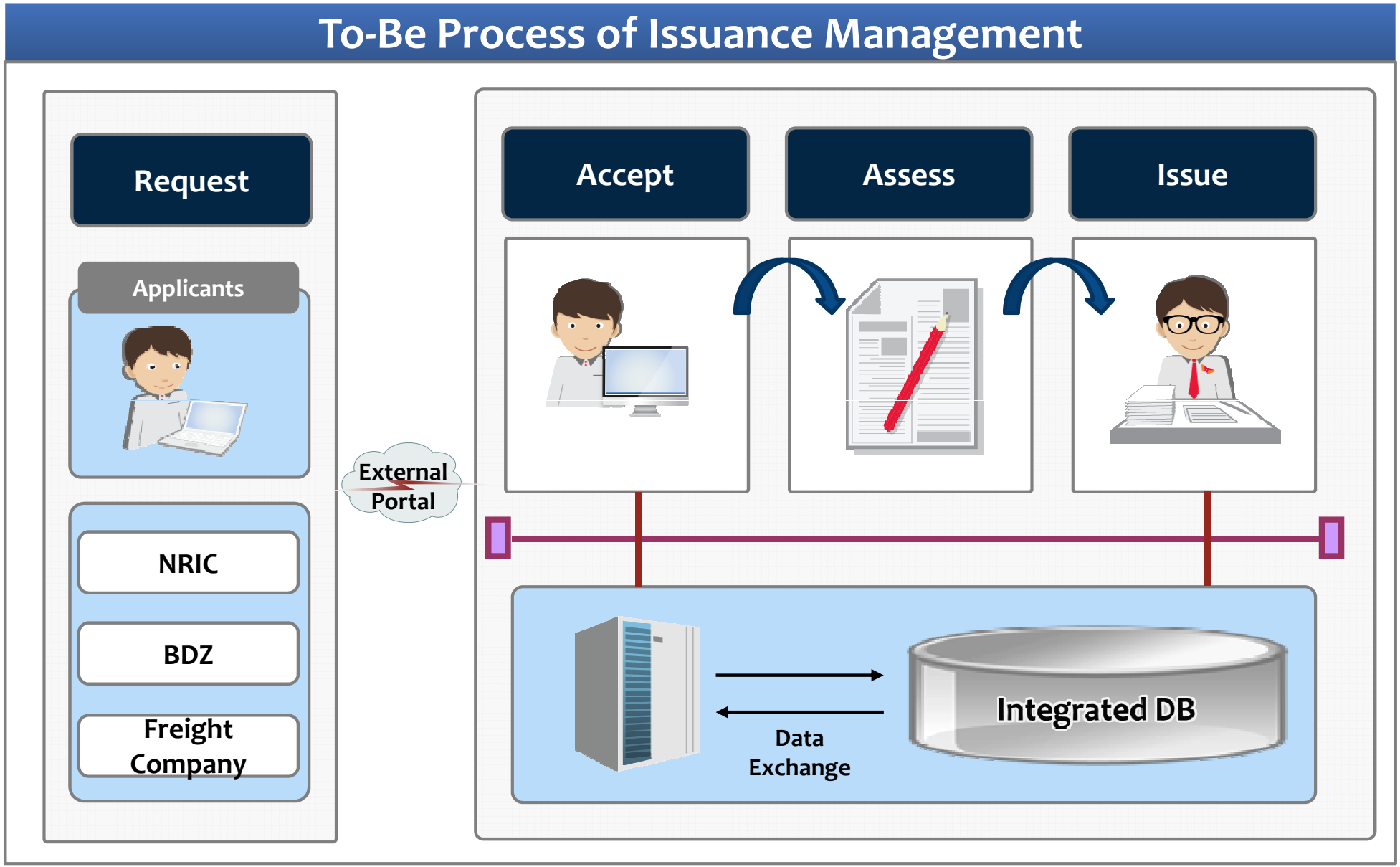
3.2 Conceptual To-Be Model



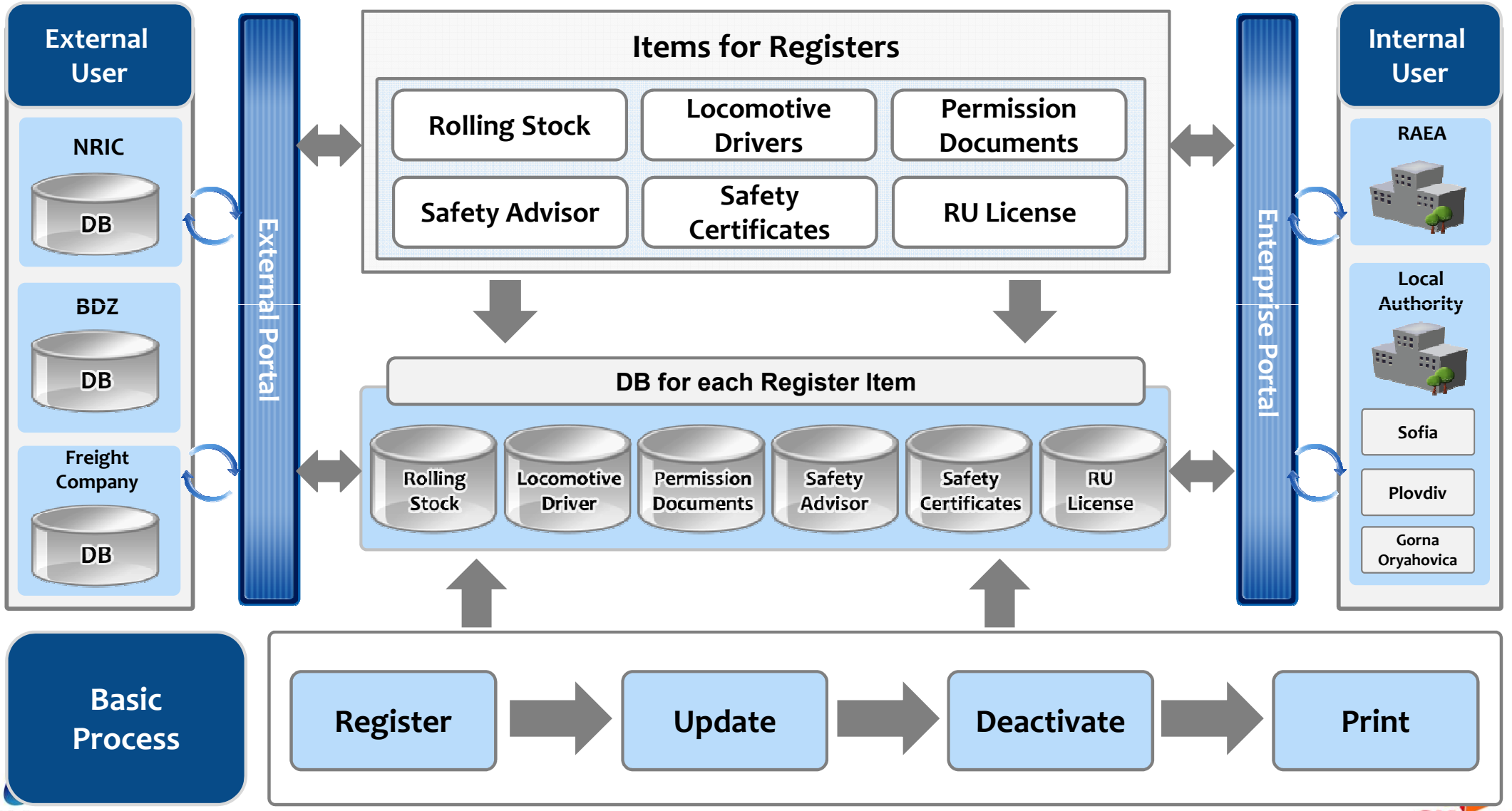
3.3 Issuance Management

To-Be Process of Issuance Management



3.4 e-Register Management

To-Be Process of e-Register Management



3.5 Safety Management

To-Be Process of Safety Management

Safety Mgmt.

Safety Goal	Safety Plan	Safety Guidance	Safety Assessment
Safety Policy Safety Indicator	Safety Plan	Safety Activities	Safety Assessment Safety Inspection

Accidents & Incidents Investigation

Accidents & Incidents Management

- Accidents & Incidents Register
- Accidents & Incidents Statistics

→ Accidents & Incidents Mgmt.

→ Report

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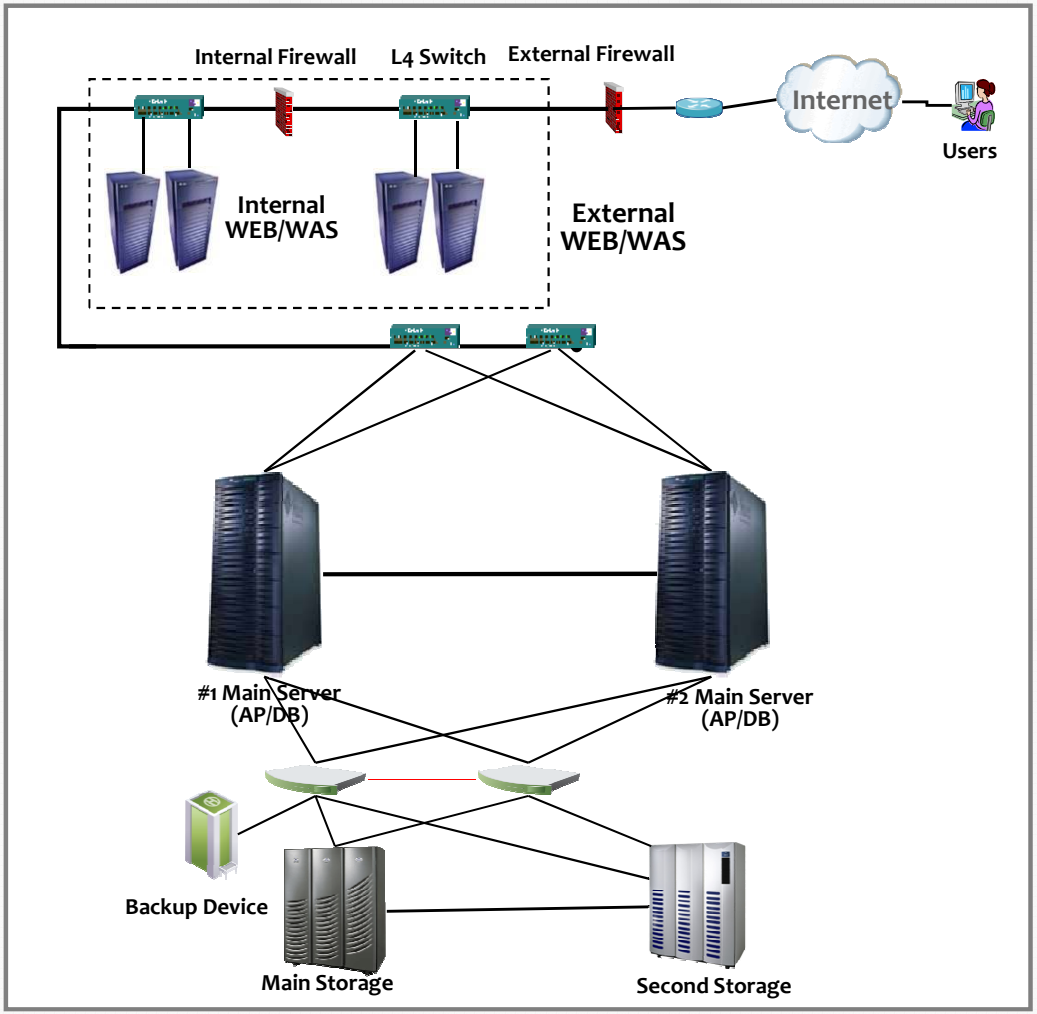
3.6 Configuration of Hardware

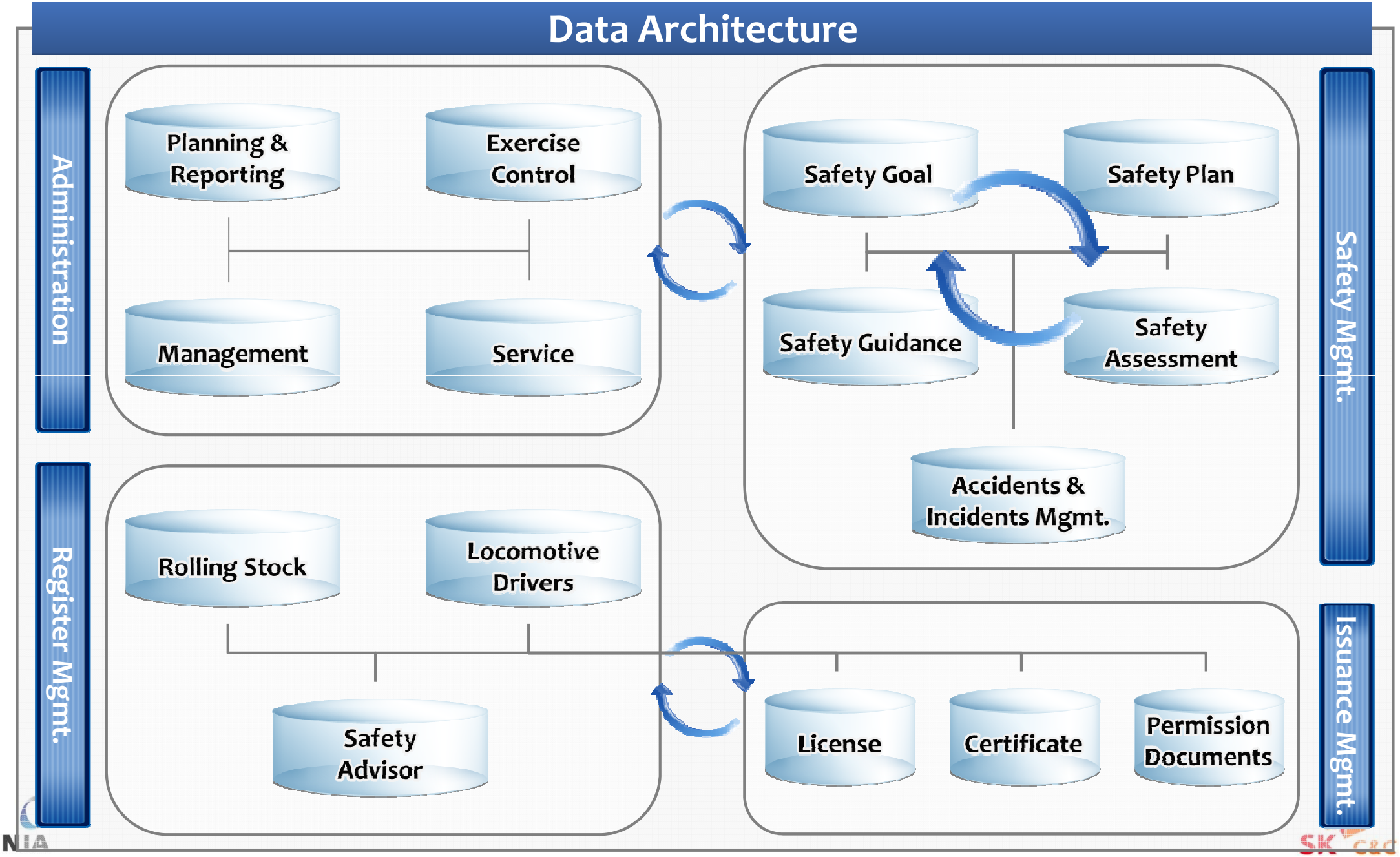
Configuration of Hardware

Item	Quantity
Internal WEB/WAS	2
External WEB/WAS	2

Item	Main Server	
	AP	DB
CPU	8 Core	8 Core
	1,000,000 tpmC	1,000,000 tpmC
Memory	16 GB	16 GB
Disk	300 GB*2	300 GB*2



3.7 Data Architecture



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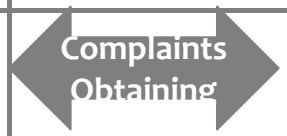
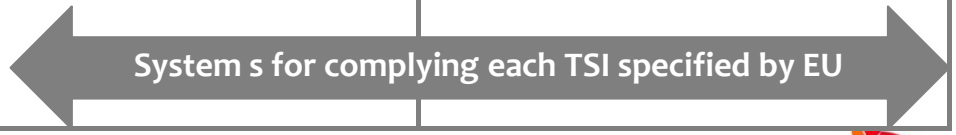
4.1 IT Roadmap

		2013	2014	2015
		Stage 1	Stage 2	Stage 3
Task	Issuance Management System			
	e-register Management System			
	Safety Management System			
	Others (Recommendation for further system advancement)		 	

4.2 Expected Quantitative Benefits

RAEA Return on Investment

(Unit: Thousand Dollar)

Item	Y	Y+1	Y+2	Y+3	Y+4	Total
Investment Cost	2,601	89	93	96	100	**2,979**
Return	-	885	919	954	990	**3,747**
Net Return	(2,601)	796	826	858	890	769
Investment Cost (PV)	2,601	84	82	81	79	**2,928**
Return (PV)	-	835	818	801	784	**3,238**
Net Return (PV)*	(2,601)	751	735	720	705	310

Annual investment and return are adjusted for inflation rate, which is 3.81%

(Unit: Thousand Dollar)

Total Investment Cost	2,979	Net Present Value*	310
Net Return	769	Internal Rate of Return	11.0%
Return on Investment	126%	Payback Period	End of Year 3 from Project Initiation

*Discount factor is 6%, which determined based on the Korea case and inflation rate of Bulgaria

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4.3 Expected Qualitative Benefits

RAEA Officer Benefits	**Compliance of EU requirements**	■ Provide standardised operation & mgmt. process ■ Provide EU requirements complying platform for further development of IT system
	Enhanced operation efficiency	■ Reduce time required for document processing ■ Enhance quality and effective of business process
Consumer Benefits	**Enhance accessibility of business operation**	■ Provide one-step online service ■ Reduce time for users
	Enhanced consumer satisfaction	■ Reduce service fee due to simplification of business operation ■ Receive high quality service
Financial Benefits	**Reduce operation cost**	■ Reduce worked man-hours ■ Reduce storage and management cost of paper-based documents
Social Benefits	**Enhance safeness of railway operation**	■ Minimize subjective human factor during safety mgmt. ■ Prevent & minimize railway accidents & incidents ■ Enhance quality and effectiveness of safety mgmt.
	Be environmentally friendly	■ Reduce vast amount of paper during business operation

The Future Model & Result of Smolyan e-Municipality Feasibility Study

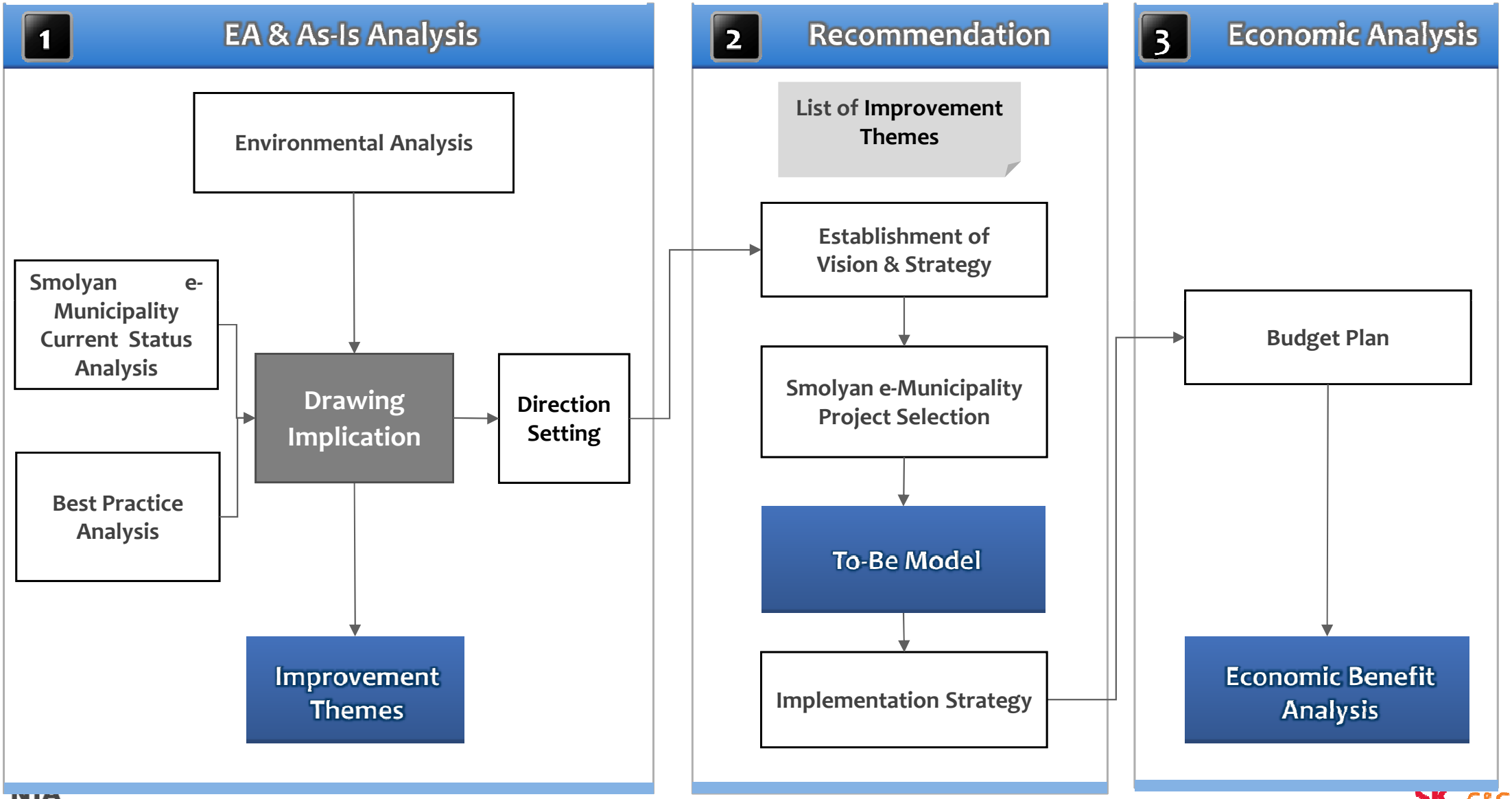
NO Min-ju

Project Manager

NIA

Our Approach

Based on analysis of the EA and As-Is of e-Municipality in Smolyan, we provide a roadmap of e-Municipality projects which are prioritized according to the needs of Smolyan.



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1. PEST Analysis

To establish the best-fit e-Municipality for Smolyan, the PEST analysis is conducted and implications from each analysis is reflected to design To-Be model of e-Municipality.

Overview

- **Full Name:** Republic of Bulgaria
- **Capital:** Sofia
- **Main Ethnic:** Bulgarian
- **Official Language:** Bulgarian
- **Population:** 7,037,935(2012)
- **Area :** 110,879 ㎢

PEST Analysis

Political Issue

- Smolyan municipality should establish a long-term e-Municipality roadmap during the current period of political stability
- For enhancement of national competitiveness, Smolyan municipality needs to establish an e-Municipality roadmap which supplements the national agenda

Economical Issue

- Since more infrastructure construction projects backed by EU funds will come out, there is a lot of chance for economic development of the country
- The systems that support corporate activities and civil service need to be improved
- Securing various funding sources will be key factor for an implementation of e-Municipality

Social Issue

- Means for ethnic representation (for social integration) and social stabilization are needed
- Expansion of IT support needed to improve deteriorating education & health environment
- Should consider the way to the resolve unemployment problem based on ICT technology and e-Municipality services

Technological Issue

- Provision of more online municipality services to supplement the rise in internet use is recommended
- Mobile municipality services has high potential for success due to high mobile penetration
- ICT education to increase ICT skill is needed to provide an e-Municipality service

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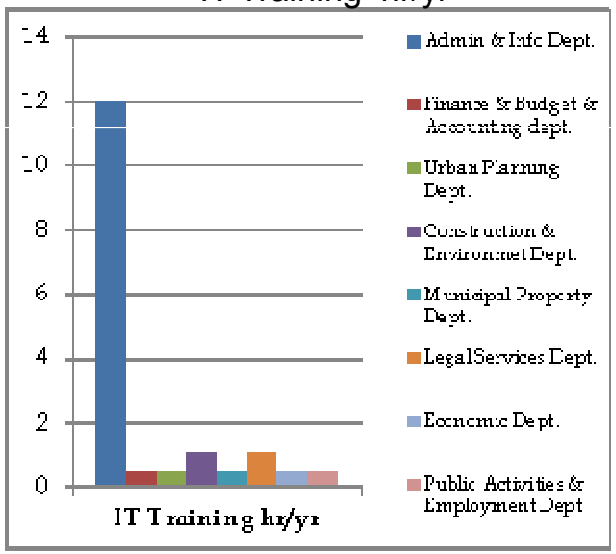
1. Requirement Analysis

Implications from the result of the questionnaires were given to provide a highly recommended e-Municipality through measuring the readiness and efficiency, direction and methodology.

Section 1 of Questionnaire

Measuring the Readiness for e-Government

IT Training hr/yr



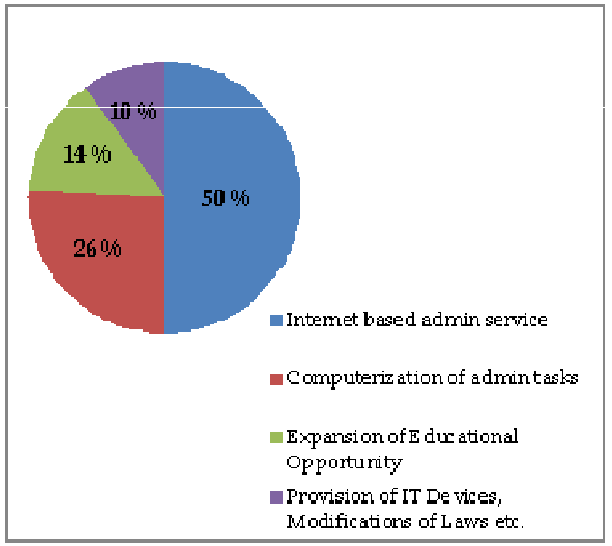
- Insufficient IT training
- Unevenly distributed IT tools
- Unsatisfied IT Training Demand

Implications

Section 2 of Questionnaire

Addressing the Improvement of Municipality Administrative Work

Priorities in Creating an e-Municipality



- Improvement through government process innovation
- Internet based civil services including edu.

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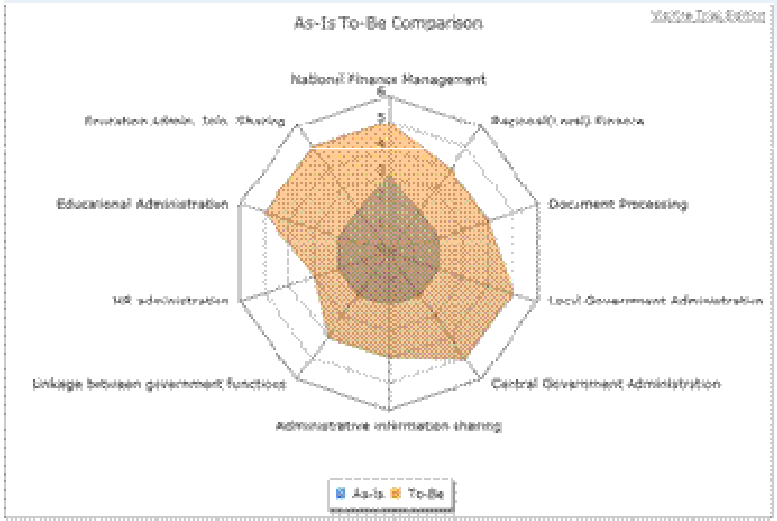
2. Survey of ICT State

By using e-GAT, it is implied that in a G2G relationship, DB linkage and establishing common business processes are important as where in a G4C relationship, critical civil services need to be processed online.

Advantage

Enables basic prioritization of projects required for e-Municipality in a short time.
Systematic approach based on quantitative decision making

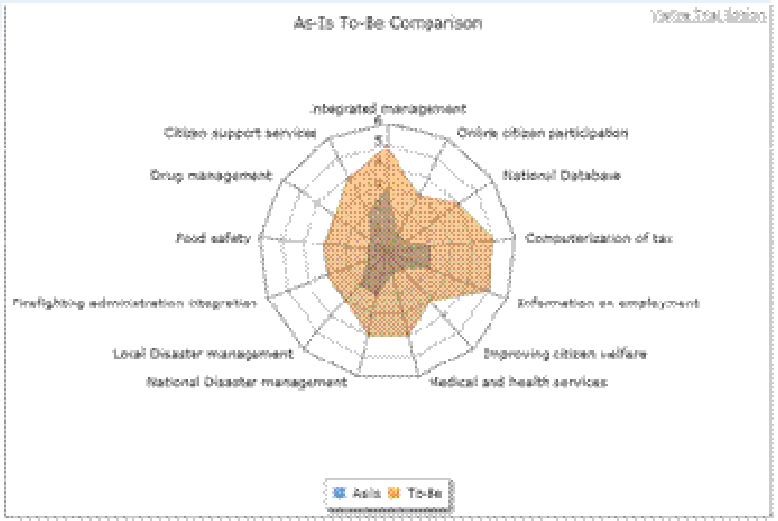
G2G: Innovation of Municipality



- Significant High demand of computerization
- Education, Finance Mgmt
- DB linkage within Intra Agency
- Establish Business process within agencies

e-GAT

G4C: Innovation of Citizen-Oriented Municipality Services



- Demand in efficient computerization in Civil Services(Tax, employment, welfare, medical and etc.)
- Integrated Portal linked with DB
- Unified Standard needed
- Critical services processed online w/o documentation

*The e-GAT pre-assessment tool to scope out the goals and boundaries of establishing an e-Municipality in relation to Korea.

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2. Survey of ICT State

The ICT Infrastructure should be improved by each project and the Multi-functional single window for one-stop citizen service(no visiting) should be designed covering whole citizen services.

ICT Infrastructure

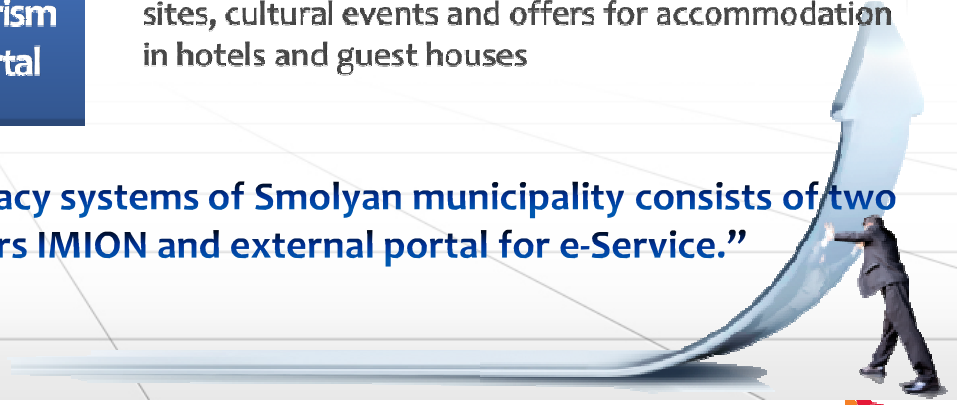
H/W	◦ 5 Servers (Domain/SQL/Exchange/Web /File server and Gateway) ◦ 70% of work stations that use Window XP Professional
S/W	◦ total 47 software including operation software and business oriented application programs ◦ Disconnecting with IMION (Internal Portal)
N/W	◦ The main paths: fiber optic cables ◦ The other part of the network paths: UTP cables

" The external software take part in the function of the internal administrative portal, Current condition of the network & H/W is unsatisfactory ."

Legacy System and e-Service

IMION	◦ E–network for administrative services in the Municipality of Smolyan program–IMION ◦ 39 basic functions as internal administrative portal
e-Service Portal	◦ opportunity to download a form for the respective service. After filling in the form, submit to Municipality ◦ Unilaterally interactive service(3), Bilateral interactive service(8), Transaction service(3)
Tourism Portal	◦ publish regional news, information about tourist sites, cultural events and offers for accommodation in hotels and guest houses

" Legacy systems of Smolyan municipality consists of two layers IMION and external portal for e-Service."



3. Benchmarking

Korea government has successfully implemented e-Local Government projects by proceeding the projects step by step based on eGovFrame and strong back-up of local governments.

Saeol Administrative System

Vision

- Establishing World-Best e-Local Government

Details

- A brand name refers an advanced administrative information system utilized by Korea's 232 cities, countries and districts
- Provides a simple, integrated civil service program and an administrative service desk for civil servants

Achievement

- One Stop, Non-Visitation civil affairs processing
- Civil service quality has been improved
- Seamless work processing has been realized (including mobile office)

Gang Nam District's e-Gov.

Vision

- e-Local Government, Cyber CT –Gang-Nam

Details

- The first e-Local Government of Korea
- Goal is "**STAR**" - **S**eamless administration, **T**wo-way communication, **A**dvanced IT application, **R**etailed information service
- Promoted based on two main projects: Gang-Nam UIS and Smart Gang-Nam

Core Values

- The core values are defined in 3 aspects : Organization/Regulation(Flow), System(Integration) and Data(Sharing)

eGovFrame

Vision

- Improve the quality of e-Government services and the efficiency of ICT investment

Details

- Provides common components and standardized framework for developing e-Government information system
- Composed of 4 environments (Development, Runtime, Operation and Management) and 219 common components

Achievement

- Redundant development has been reduced
- Interoperability among e-Gov systems has been improved

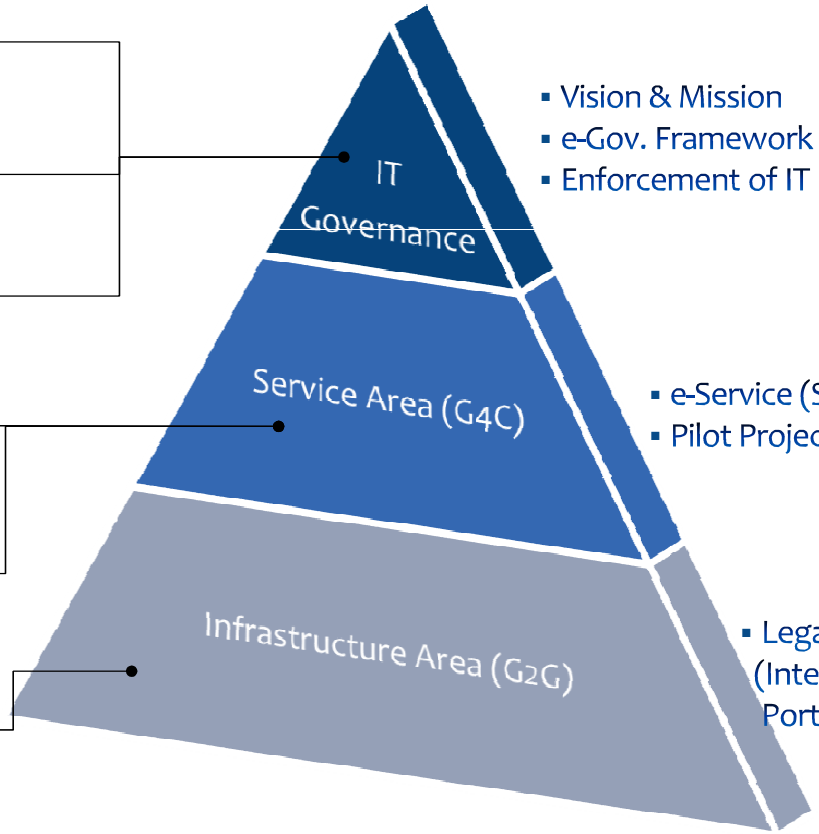
4. Electing Improving Opportunity

On the basis of Improvement themes, the future model is expected to be classified into 3-areas; the IT Governance area, the Service area and the Infrastructure area.

Improvement Themes

1. Smolyan municipality's strong drive (Top-down) with shared commitment such as vision & mission
2. Common e-Municipality framework for inter-operability and roadmap in a long term view
3. Enforcement of IT department roles such as IT training
4. Multi-functional single window for one-stop citizen service(no visiting) via multimedia such as mobile
5. A pilot project (Proto Type for Tax-assessment) developed by advanced framework such as that of Korea
6. Functional Improvement (e-document, budgeting, notification and etc.) of internal administrative systems such as IMEON

Future model direction setting



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1. e-Municipality Vision & Mission

Vision, mission, goal and strategies are defined as the foundation prior to the e-Municipality project launch. These are presented in a diagram below to understand the concept at a glance.

Vision : Smolyan, Becoming a Leading e-Municipality for Bulgaria

Mission : To fulfill the shared commitment[1] of Smolyan, Provide convenient services to citizens and improve the administrative affairs efficiency and effectiveness.

Goal :

1. IT Governance	2. Service area(G4C)	3. Infrastructure (G2G)
To retain power of execution for the e-municipality by expanding e-Municipality values, organization and law/regulation	To build a citizen-oriented civil service by providing online based One-Stop service using ICT and diversifying civil service channels	To improve the administrative affairs efficiency and effectiveness by standardizing, computerizing and sharing

Strategies :

1. IT Governance	2. Service area(G4C)	3. Infrastructure (G2G)
▪ Establishment and consensus of e-Municipality values ▪ Enforcement of organization in charge of ICT ▪ Establishment of favorable law and regulation on e-municipality	▪ Provision of Online based One-Stop Services for Civil Affairs ▪ Provision of convenient civil services through multiple means	▪ Standardization of municipality administration ▪ Computerization of municipality administration ▪ Integration of municipality information system

**The shared commitment[1]: It can be defined as the exclusive hope and values such as economic development and improvement of quality of life (boosting industry, low employment rate, educational opportunity and etc) that people in Smolyan can sympathize*

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2. Smolyan e-Municipality Future Model

SMOLYAN'S E-MUNICIPALITY

IT GOVERNANCE

- E-Municipality Values (Vision, Mission, Goal, and Strategies)
- Organization
- Law& Regulation

SERVICE AREA

BUSINESS DOMAIN

- e-Procurement System
- Electronic International Trading System
- Tourism Portal

SOC DOMAIN

- Disaster Management System & ITS
- Architectural Administration Information System

CITIZEN DOMAIN

- Municipality Representative Portal
- e-Learning
- Employment Information System
- Medical and Health Information System
- Online Citizen Participation Portal
- Integrated Civil Service Call Center

INFRASTRUCTURE

- Municipal Administrative Finance Information System
- Municipality Business Reference Model
- DATA EXCHANGE
- Groupware(GPKI) and e-Document System

PUBLIC ORG.

Ministry

Municipality

EXTERNAL LINK

PRIVATE ORG.

Hospital

Financial Institutions

EXTERNAL LINK

CITIZEN

SINGLE WINDOW

Citizen

Business

OFFICIALS

GROUP WARE

Municipality

Local Office

3. Project Identification & Descriptions (1/3)

CODE	PROJECT	FUCTIONS
[G:P1]	IT Governance consulting project	• Business Process Reengineering for 98 Citizen Service (Optional) • Diagnosing organizations(Municipality) including "Administrative and Information Services Security and Civil Mobilization Department" • Developing useful ICT education program & promotion strategies for citizens to facilitate e-Municipality participation
[S:P1]	Municipality Representative Portal (G4C Single Window)	• Offer one-stop access link to all the municipality resources(information, directory) • Provide information about offering-possible civil services and administrative process, legislation • Civil affairs application can be processed in internal administrative system(IMION) and Citizens can read their own affairs through the web site • Citizen can be issued public certification from each civil affairs through the internet • PKI (GPKI) can be issued on website and citizen can register the web site without visit.
[S:P2]	e-Learning	• Learning supplementary materials to be used during class. • Provide contents writing interface that can be used as supplementary materials by easily reprocessing the supplementary learning materials in the Repository. • Share contents, evaluation questions and supplementary materials used in class, all created by teachers • Provide learning support tools that can be used during class along supplementary learning materials.
[S:P3]	Recruitment and Employment Information System	• Interconnecting and integrating Smolyan's labor market information like employment, job, training and certification • The job seeker enters its basic information like personal information, job experience and employee enters job description and both of them can search qualified candidates and jobs based on the information
[S:P4]	Medical and Health Information System	• Public Health Management Informatization: Informatization of public health, enhancement of public health surveillance system and medical service quality management improvement • Medical Org Service Informatization: Medical information system foundation construction, remote medical service providing • Medical Information Sharing between Health Organizations
[S:P5]	Online Citizen Participation Portal	• Online Participation/Petition Filing: Provide online civil petition filing, citizen service and information provision • Integration of Citizen Services: Citizen services are integrated from the Ombudsman of Smolyan, municipality and local offices and This system will be extended to integrated civil service call center [S:P6]

3. Project Identification & Descriptions (2/3)

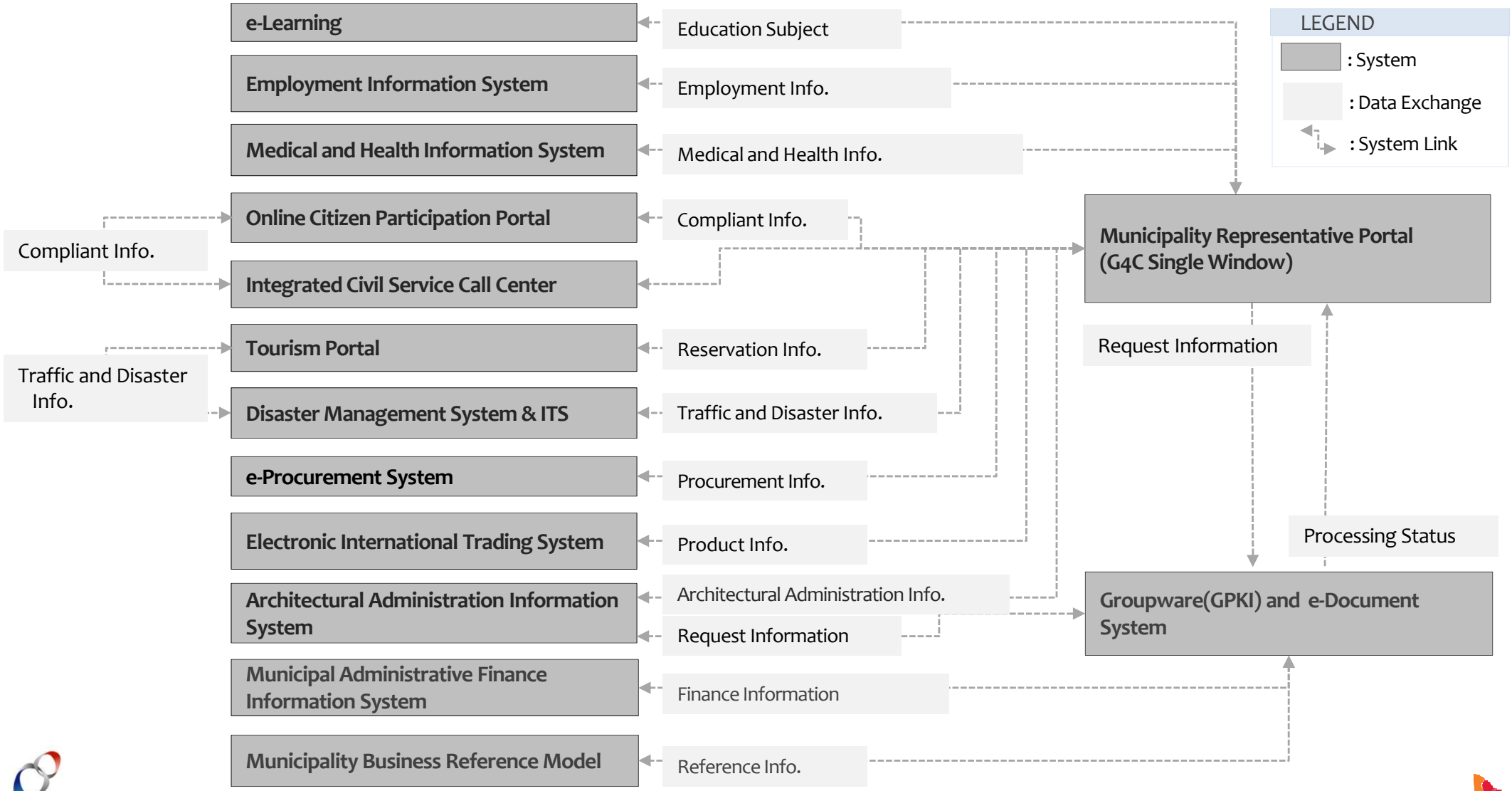
CODE	PROJECT	FUCTIONS
[S:P6]	Integrated Civil Service Call Center	• Basic Consultation Function: Offering Standard and non-standard civil service and Request info to organization in charge • Integration with Organizations: Municipality and local offices
[S:P7]	Architectural Administration Information System	• Redesign entire process of architectural administration including approval for use, building ledger issue and follow-up management based on internet • Link to systems of architectural administration related institutions like real estate registration (registration commission) and land • Offer Web Portal for public where they can apply and get permission of architectural administration and Intranet for municipality officials
[S:P8]	Disaster Management System & Intelligent Transport System	• Disaster & Transportation Information Collecting: Real-time Delivery of collected Disaster & Transportation Information through sensors and cameras to the appropriate control centers. • Disaster & Transportation Information Sharing: Receive and decode report Disaster & Transportation Information to appropriate departments if there is an issue occurs. Information on traffic should be provided through mobile, navigation and road signs
[S:P9]	Tourism Portal	• Tourist Attractions, My Wish-list, Tour Courses, Real-time Reservations: Reserve popular experience tours. • U-Weather: The Environmental Pole offers Smolyan weather information in real-time. • Real-time Popular Attractions: Check real-time information tagged at local Kiosks using RFID. • Tourists can check out their selections via the Internet in prior to visiting Smolyan. • Disaster Management System & Intelligent Transport System[S:P8] need to be linked.
[S:P10]	E-procurement system	• Support online tasks including request, method of contract, selection of contractor, payment and follow up management. • Provide tasks for issuance of a PKI(GPKI) and security(usage of linkage between certification center inside of G4C) • Needs to be linked to the Municipal Administrative Finance Information System [I:P2] to increase internal administration efficiency
[S:P11]	Electronic International (domestic) Trading System	• Integrated Services from Trading to domestic distribution should be provided. • Payment method should be provided when purchasing a product. • Group marketing support service should be provided for products for sale. • Documentation needed for export and civil affairs administration should be linked while processing.

3. Project Identification & Descriptions (3/3)

CODE	PROJECT	FUCTIONS
[I:P1]	Groupware (e-Document, e-Approval, Knowledge Management System)	• Work Portal: A function for individual use and civil affairs which requests tasks through the Work Portal personnel by a linkage with a G4C Single Window [S:P1] • e-Approval, Data Management, Documentation Distribution, Electronic Mail, Address book, Schedule Management, Management of Bulletin Board and Community, Task Management, Document Management, Performance and Report Management and Top Message Management:
[I:P2]	municipal administrative Finance Information System	• A function that manages everything from risk control, inquiries of current business situations and management throughout the whole financial business. • An accounting function to divide new deals and Fund execution automatically • A function of budget management that reviews and decides through performance information, the feasibility study and business process • A function for Financial statistical analysis in each field, department and function • Establishment of the portal for efficient financial task handling
[I:P3]	Informatization of Municipality Administration	• Fulfillment of computerization of civil affair service and internal administration document for the wide use of E-Document. In order to follow through, selection of documents available for digitalization among individual departments is needed (for the Regional and Urban Planning Department, these departments use a different size of documents such as design sketches. Therefore a different document sharing solution needs to be applied). • The electronic document will be shared according to the function of data management in GROUPWARE [IP1]
[I:P4]	municipality Business Reference Model (BRM)	• Municipality Business Inquiry: Inquire municipality business info. which is classified with function, purpose • Change Management: When function classification system changed due to reorganization, managing related business information • History Management: Inquire change history of specific classification system from the first stage to today • Integrated Searching: Providing related government (municipality) business searching function through keyword searching

3. Project Identification & Descriptions -The Relationship between Future Systems

If it is necessary, each system can be linked with another system. Furthermore, even though the system has a unique portal, almost all systems can be connected with the G4C Single window.



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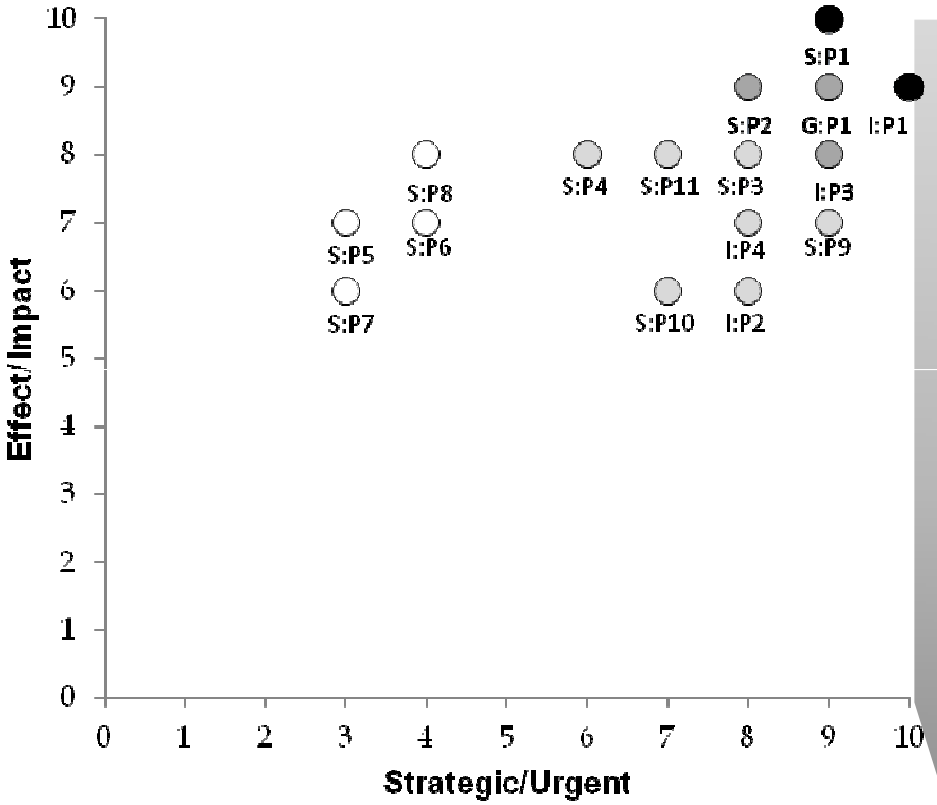
4. Project Priority Evaluation

Each project was scored based on the evaluation criteria, and its result was marked on the project portfolio matrix and each project and grouping was conducted. Then, it was reflected on the roadmap.



***Strategic/ Urgency:** Consideration on policy, requirements of users, and phase of e-Municipality implementation

***Effect/Impact:** Consideration on the objectives and other factors to implement the project

Phase	Code	Project	Score
Stage 1	S:P1	Municipality Representative Portal(G4C Single Window)	9.5
	I:P1	Groupware and e-Document System	9.5
	G:P1	IT Governance consulting project	9
	S:P2	e-Learning	8.5
	I:P3	Informatization of Municipality Administration	8.5
Stage 2	S:P9	Tourism Portal	8
	S:P3	Employment Information System	8
	I:P4	Municipality Business Reference Model	7.5
	S:P11	Electronic International Trading System	7.5
	I:P2	Municipal Administrative Finance Information System	7
	S:P4	Medical and Health Information System	7
	S:P10	e-Procurement System	6.5
Stage 3	S:P8	Disaster Management System	6
	S:P6	Integrated Civil Service Call Center	5.5
	S:P5	Online Citizen Participation Portal	5
	S:P7	Architectural Administration Information System	4.5

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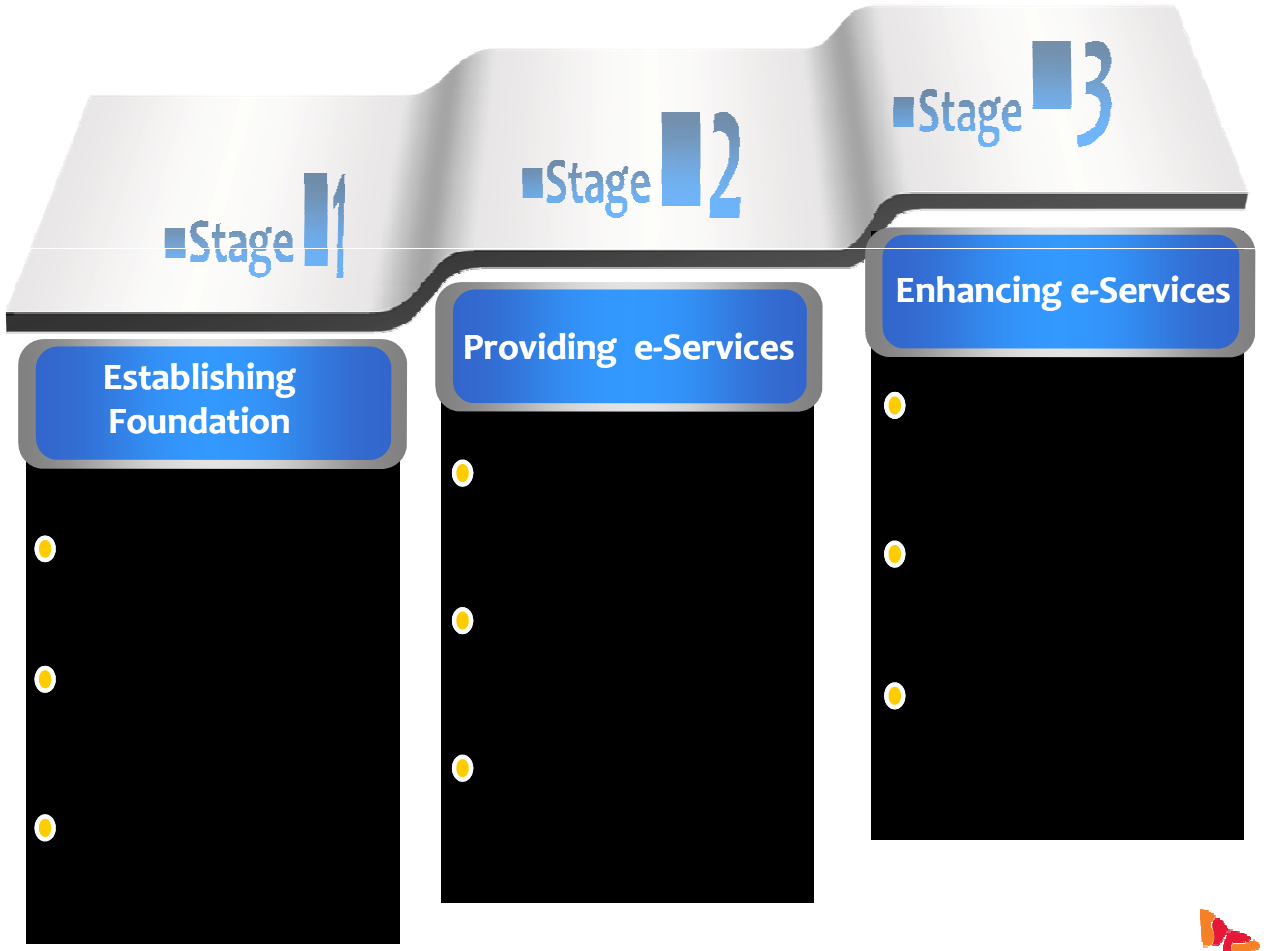
5. Implementation Strategy - e-Municipality Promotion Stage

An e-Municipality promotion stage for Smolyan is designed based on the e-Gov. Promotion Stage of UN-ASPA by reflecting chracteristics of Smolyan.

e-Gov. Promotion Stage – UN-ASPA

Stage	Details
Stage 1	• Emerging web presence • Creation of the government website. Basic and limited level of information is provided in a static manner
Stage 2	• Enhanced web presence • Expansion in government websites. Increased dynamics in information through regular updates of information/contents
Stage 3	• Interactive web presence • Usage of electronic formats. 2-way communications via web (online application, confirmation and response)
Stage 4	• Transactional web presence • Provision of actual online services, process handling and electronic payment
Stage 5	• Fully integrated web presence(seamless) • All services and links are provided on a single government portal, and all the administrative services can be processed online

e-Municipality Promotion Stage for Smolyan



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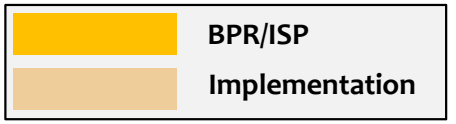
5. Implementation Strategy – e-Municipality Roadmap



Segment	Stage 1 (establishing e-Municipality foundation)								Stage 2 (providing various e-Services for citizen and municipality)												Stage 3 (enhancing e-Service)							
	Y				Y+1				Y+2				Y+3				Y+4				Y+5				Y+6			
	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q
IT Governance	IT Governance Consulting Project																											
Service Area (G4C)	Municipality Representative Portal																											
					e-Learning																							
									Tourism Portal																			
											Employment Info. System																	
													e-International Trading System															
																Medical & Health Info. System												
																	e-Procurement System											
																					Disaster Mgmt. System & ITS							
																									Integrated Call Center			
																										Online Participation Portal		
																									Architectural Admin. Info. System			
Infrastructure Area (G2G)	Groupware and e-Document System																											
					Informatization of Municipality Administration																								
									Municipality BRM																			
											Finance Info. System																	

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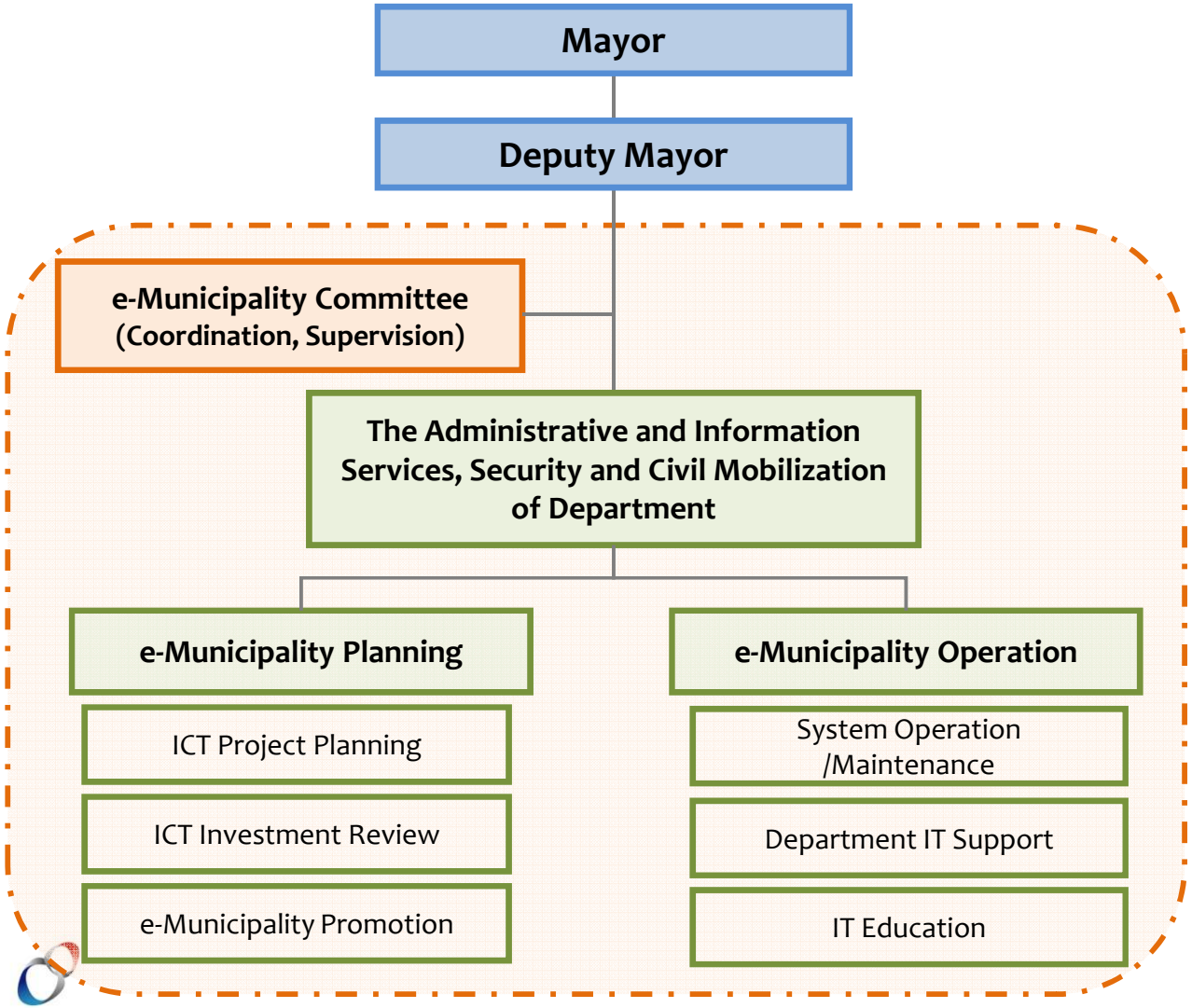
5. Implementation Strategy – Organization

A new organization for e-Municipality of Smolyan focuses on efficient e-Municipality implementation by enhancing the R&R of existing relevant departments and establishing a new committee.



1. **e-Municipality Council**

- Establishing vision and goal of e-Municipality
- Basic planning for e-Municipality
- Monitoring and evaluating each e-Municipality projects
- Organized by internal/external existing IT experts

2. The Administrative and Information Services, Security and Civil Mobilization of Department

- Enhancing existing organization's R&R in terms of e-Municipality Planning and System Operation
- e-Municipality Planning part supports e-Municipality project execution, management and promotion to encourage citizen's participation
- e-Municipality Operation part handles system operation related works such as department's system operation/maintenance, IT support and IT education for civil servants

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1. Estimated Budget - For all e-Municipality Projects

According to the e-Municipality Roadmap, 3 stages were suggested to implement effectively and efficiently. Budgeting also should be considered in terms of each stage.

(UNIT : USD)

Classification	Code	Project	Amount of Stage 1	Amount of Stage 2	Amount of Stage 3
IT Governance	G:P1	IT Governance consulting project	312,000		
Service Area (G4C)	S:P1	Municipality Representative Portal	3,960,000		
	S:P2	e-Learning	660,000		
Infrastructure (G2G)	I:P1	Groupware and e-Document System	4,134,500		
	I:P3	Informatization of Municipality Administration	546,000		
Service Area (G4C)	S:P3	Employment Information System		1,158,000	
	S:P4	Medical and Health Information System		1,616,000	
	S:P9	Tourism Portal		1,055,000	
	S:P10	e-Procurement System		1,244,800	
	S:P11	Electronic International Trading System		1,055,000	
Infrastructure (G2G)	I:P2	Municipal Administrative Finance Info. System		1,055,000	
	I:P4	Municipality Business Reference Model		1,244,000	
Service Area (G4C)	S:P5	Online Citizen Participation Portal			1,115,000
	S:P6	Integrated Civil Service Call Center			2,724,000
	S:P7	Architectural Administration Information System			1,158,000
	S:P8	Disaster Management System & ITS			5,448,000
Total			9,612,500	8,427,800	10,445,000

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2. Estimated e-Service Budget – Only for e-Service

Basic e-Municipality can be fulfilled by the Municipality Representative Portal (G4C for e-Service, SP1) on the e-Service Roadmap. Therefore, detailed budget for this project is suggested as the following.

(UNIT : USD)

Code	Sub-Project	Activity	Budget						
			Consultant		Developer		Infrastructure		
S:P1	BPR/ISP	BPR of 98 Citizen Services	60	780,000					
		PKI(GPKI) Center Designing	6	78,000					
		Certification Issuing Designing	6	78,000					
		Legacy Sys. Connection Designing	3	39,000					
		Single Window Designing	3	39,000					
		Sum	**78**	**1,014,000**					
		Total	1,014,000						
	1st Implementation	Total 28 Services Implementation			84	504,000	Common Cost	H/W	590,000
		PKI(GPKI) Center Implementation			9	54,000		S/W	330,000
		Certification Issuing Implementation			6	36,000		Others	100,000
		Sum			**99**	**594,000**			1,020,000
		Total	1,614,000						
	2nd Implementation	Total 37 Services Implementation			111	666,000			
		Improvement of Single Window			6	36,000			
		Sum			**117**	**702,000**			
		Total	702,000						
	3rd Implementation	Total 33 Services Implementation			99	594,000			
		Improvement of Single Window			6	36,000			
		Sum			**105**	**630,000**			
		Total	630,000						
Total			3,960,000						

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3. Estimated Benefits

Citizen's side : 521,993 USD per year and Civil Servant's side : 958,125 USD per year
A Total of 1,480,118 USD per year will be expected as benefits.

■ Estimated Quantity of Benefits

(UNIT : USD)

Segment		Calculation	Amount/Y
Citizen Side[1)]	1	(Frequency of Citizen service)*(hourly wage for citizen)*(lead time)	434,994
	2	(Frequency of Citizen service)*(Transportation fee)	57,999
	3	(Frequency of Citizen service)*(Attachment issuing fee)	29,000
		Total	521,993
Civil Servant Side[2)]	1	(Number of civil servant)*(hourly wage for civil servant)*(working day per year) *(Shorter working hour per day)	958,125
		Total	958,125
Grand Total			**1,480,118**

*** Citizen Side[1)]** : Citizen side mean how much time and money citizen in Smolyan can save by e-Service

*** Civil Servant Side[2)]** : Civil Servant side mean how much efficiency civil servants in Smolyan municipality can gain in each work

■ Assumption

(Variable)	Amount
(Frequency of Citizen service)	44,615 cases per year
(hourly wage for citizen)	3.9 USD
(lead time)	2.5 hours
(Transportation fee)	1.3 USD
(Attachment issuing fee)	0.65 USD

(Variable)	Amount
(Number of civil servant)	219 persons
(hourly wage for civil servant)	7.3 USD
(working day per year)	250 days
(Shorter working hour per day)	2.4 hours

4. ROI (Return of Benefits)

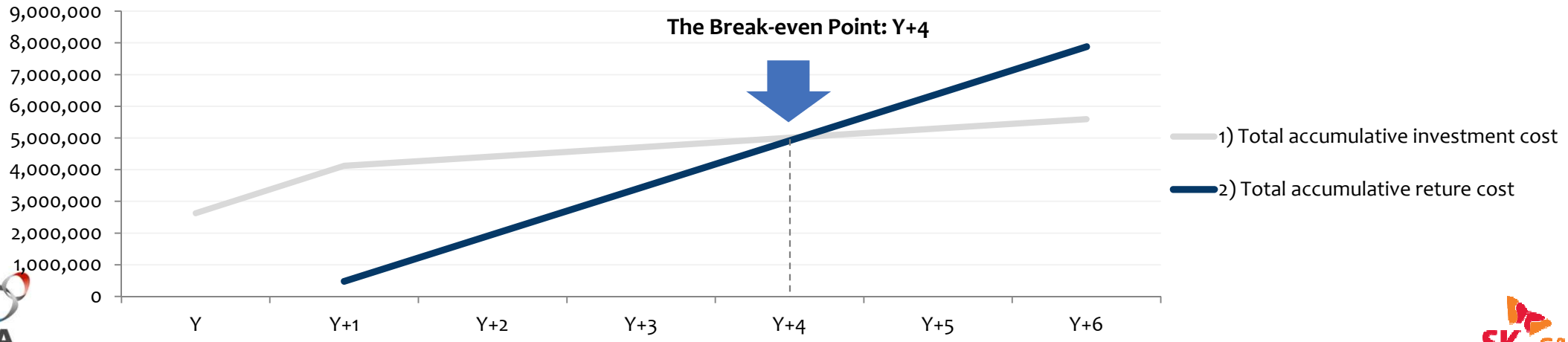
The result of calculating the ROI is expressed as a percentage below and the point of disinvestment is regarded as Y+4 (after 3 years from completion of implementation).

■ ROI Calculation

(UNIT : USD)

Account	Classification	Stage 1		Stage 2			Stage 3	
		Y	Y+1	Y+2	Y+3	Y+4	Y+5	Y+6
Investment	Implantation Cost (Budget)	2,628,000	1,332,000					
	Operation & Maintenance Cost		161,400	294,600	294,600	294,600	294,600	294,600
	Total Investment Cost	2,628,000	1,493,400	294,600	294,600	294,600	294,600	294,600
	1) Total accumulative investment cost	2,628,000	4,121,400	4,416,000	4,710,600	5,005,200	5,299,800	5,594,400
Return	Benefits of Citizen Side		156,598	521,993	521,993	521,993	521,993	521,993
	Benefits of Civil Servant Side		319,375	958,125	958,125	958,125	958,125	958,125
	Total Return Cost		475,973	1,480,118	1,480,118	1,480,118	1,480,118	1,480,118
	1) Total accumulative return cost		475,973	1,956,091	3,436,209	4,916,327	6,396,446	7,876,564
ROI(%)	2)/1)*100	0%	12%	44%	73%	98%	121%	141%

■ ROI: The Break-even Point



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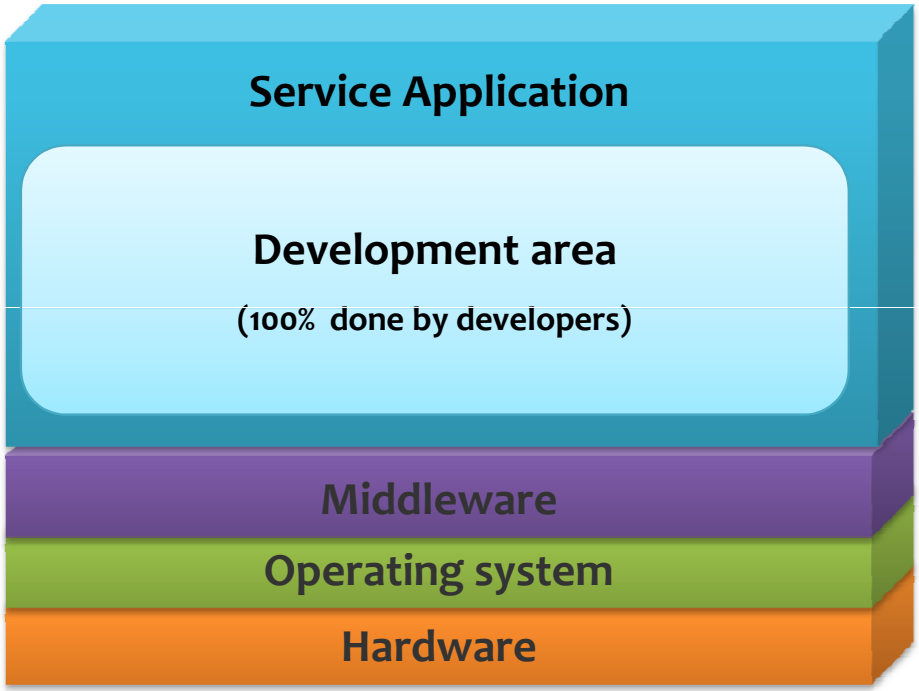
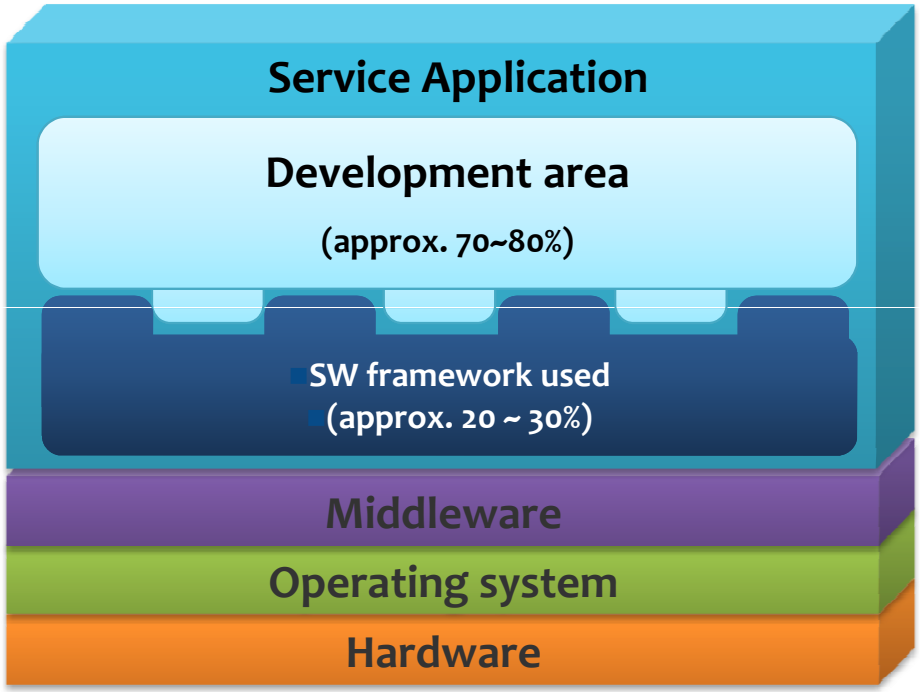
1. Concept of SW Framework

The SW Framework is a special case of software libraries because they are reusable abstractions of code and widely used for e-Government development.

Is Without SW Framework



Is With SW Framework

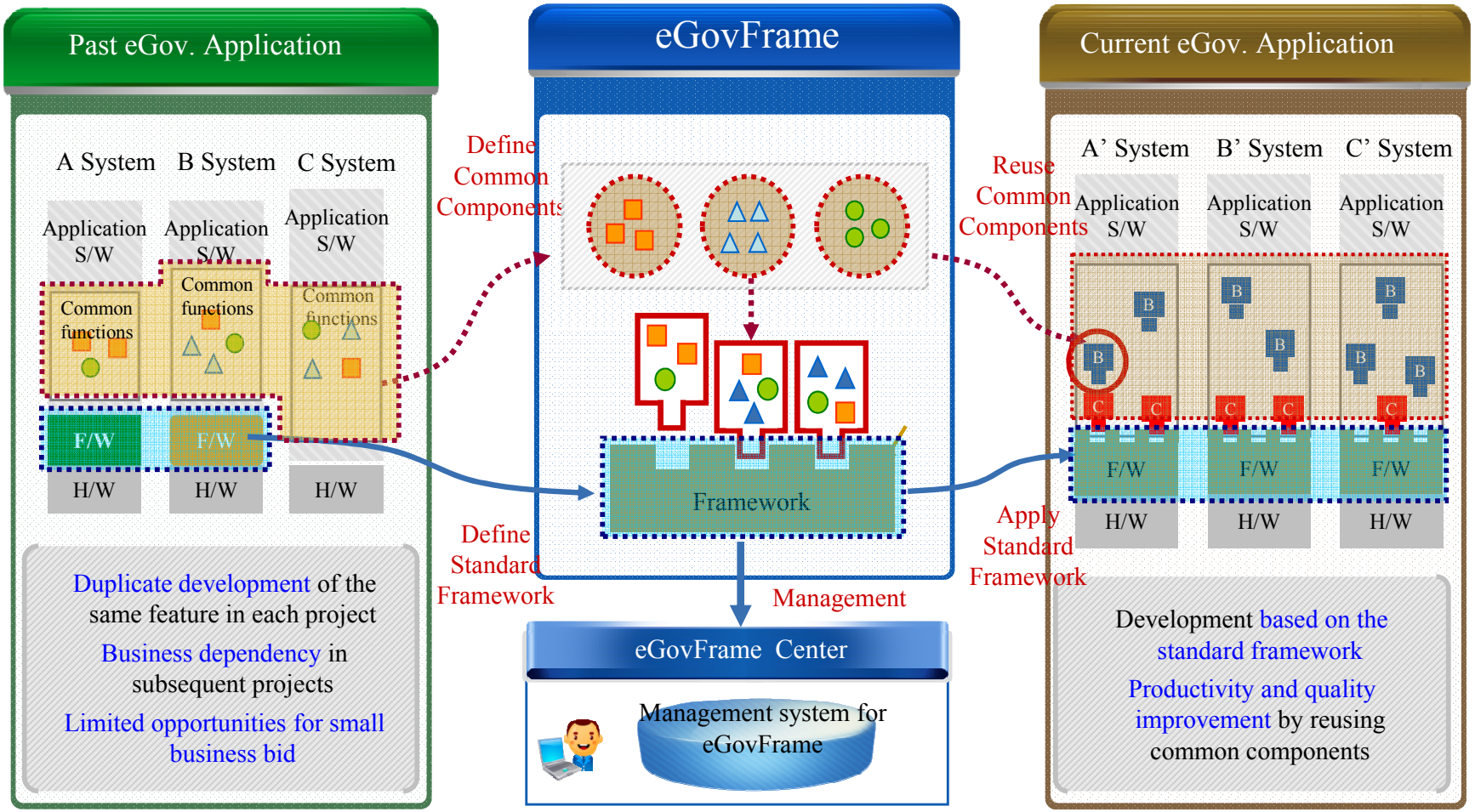


Benefits of SW Framework

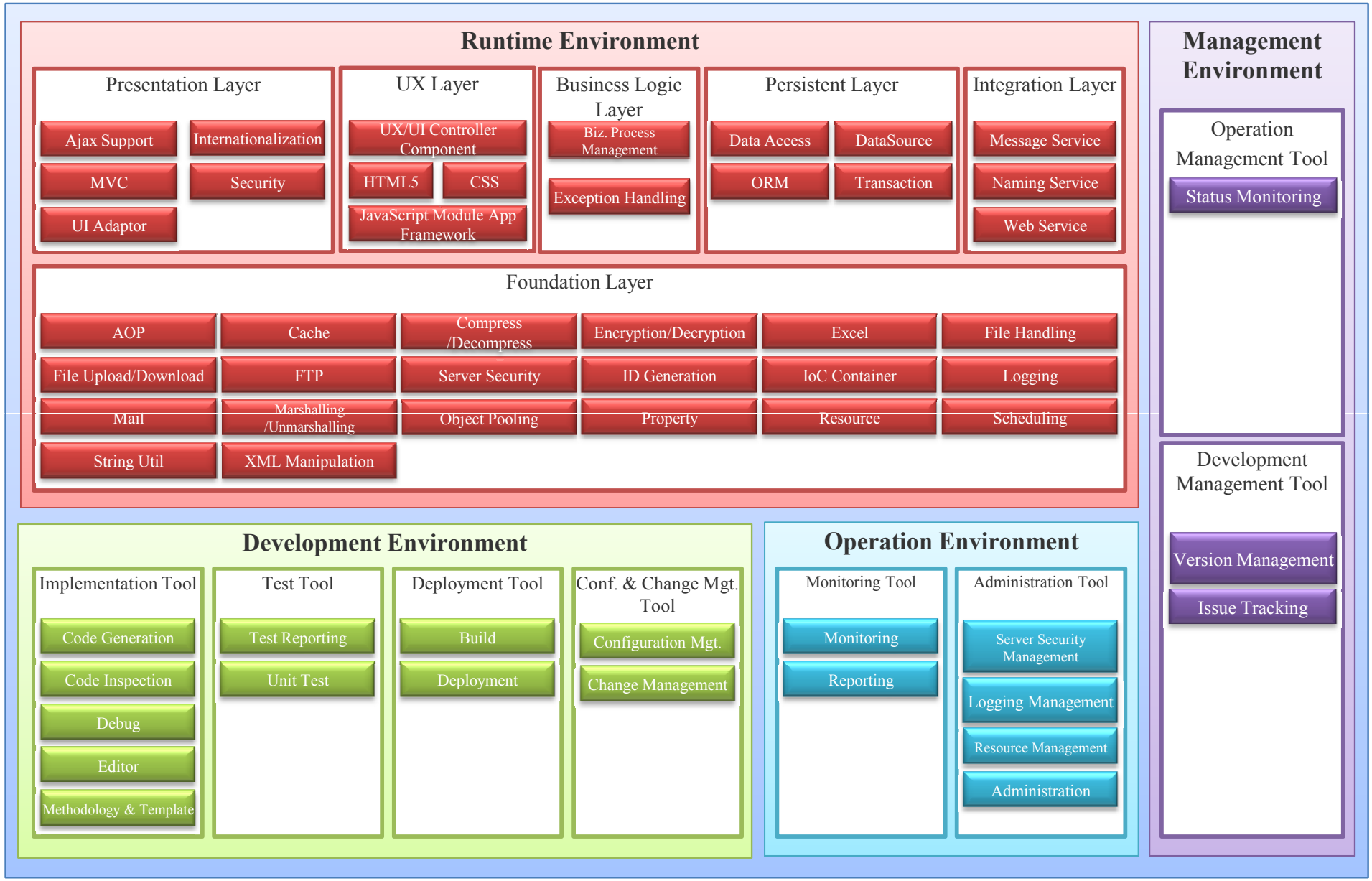
- Improving productivity with code reusability
- Improving maintainability with consistent development approach
- As providing proven solutions based on best practice, reducing the technical variation between developers

2. Common components

Common Components are a collection of reusable common modules in developing application for e-Government projects



3. eGovFrame Composition Functionalities



4. Common Components of eGovFrame

229 Common Components of the reusable software modules

Categories		Components
Technical Common Components (139 Components)	Security	8 Services including real name authentication and authority management
	User authentication/directory service	3 Services including general login and certificate login
	User support	51 Services including User Management, Counsel Management, Survey Management, FAQ and Q&A
	Collaboration	33 Services including Board, Club Management and Community Management, mobile real-time notice, etc
	System management	25 Services including Common Code Management, Menu Management and Log Management
	Integration	6 Services, including system access, mobile open API, etc
	Statistics/Reporting	5 Services including Article and Connection Statistics
	Digital asset management	8 services including knowledge management, mobile photo album, etc
Utility Common Components (90 Components)		90 Services including Calendar and Format Conversion

5. eGovFrame Application Procedure

To apply the common components of a eGovFrame to the prototype, the 6 steps from Downloading the eGovFrame to Running & Testing the Framework should be proceeded.

1

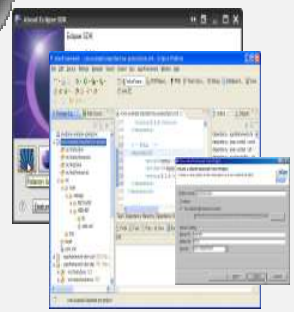
Download eGovFrame
(Runtime/Development, etc)

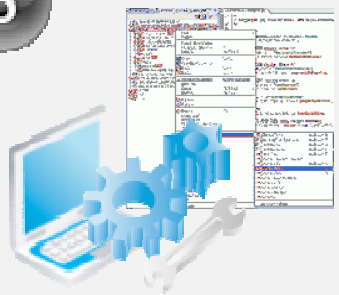
2

Install eGovFrame
(Unzip files and configure properties)

3

Download Common Component

4

Import them into Development Env.

5

Modify, compile and build
(Properties or Source code can be modified)

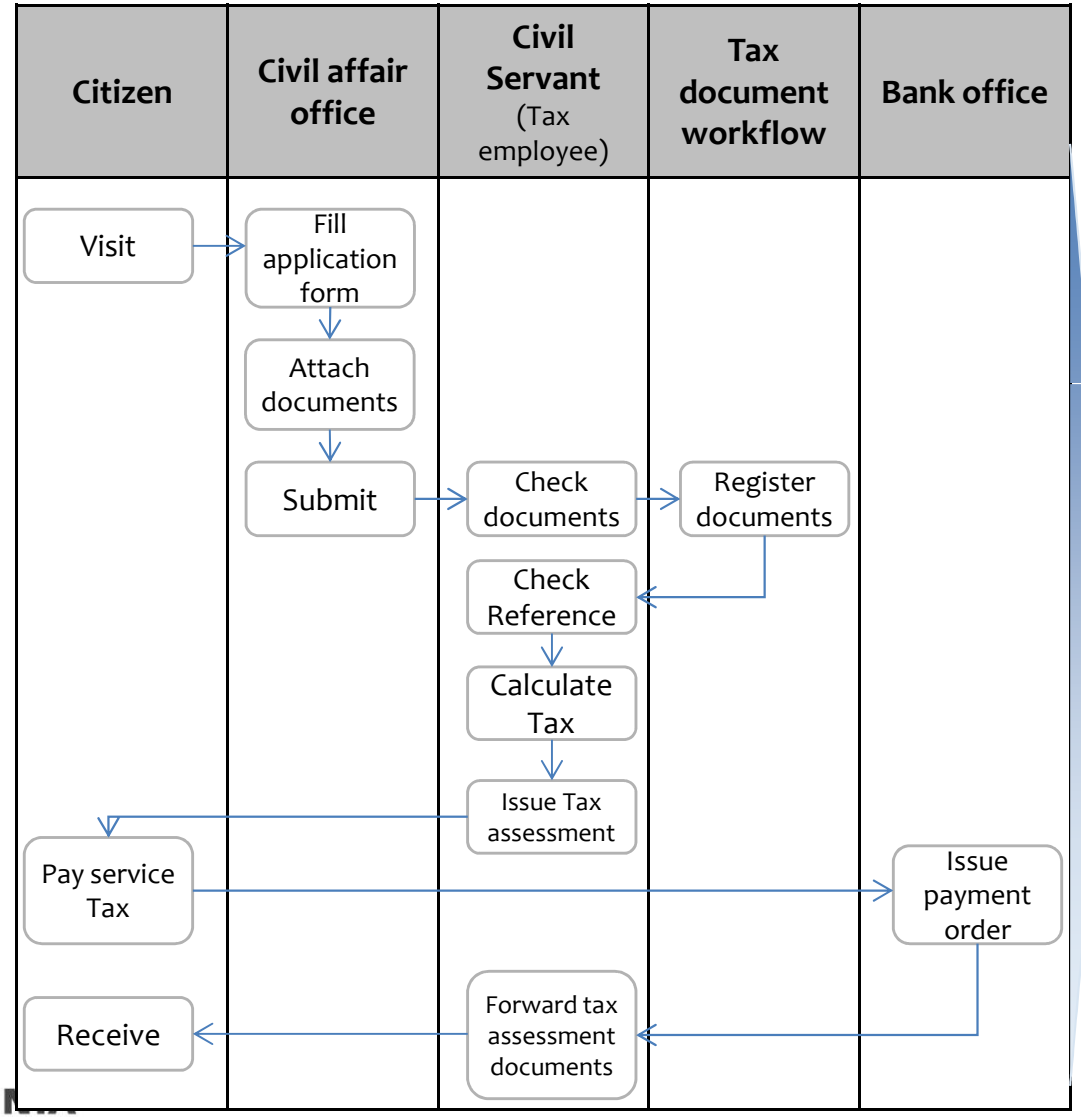
6

Run & Test

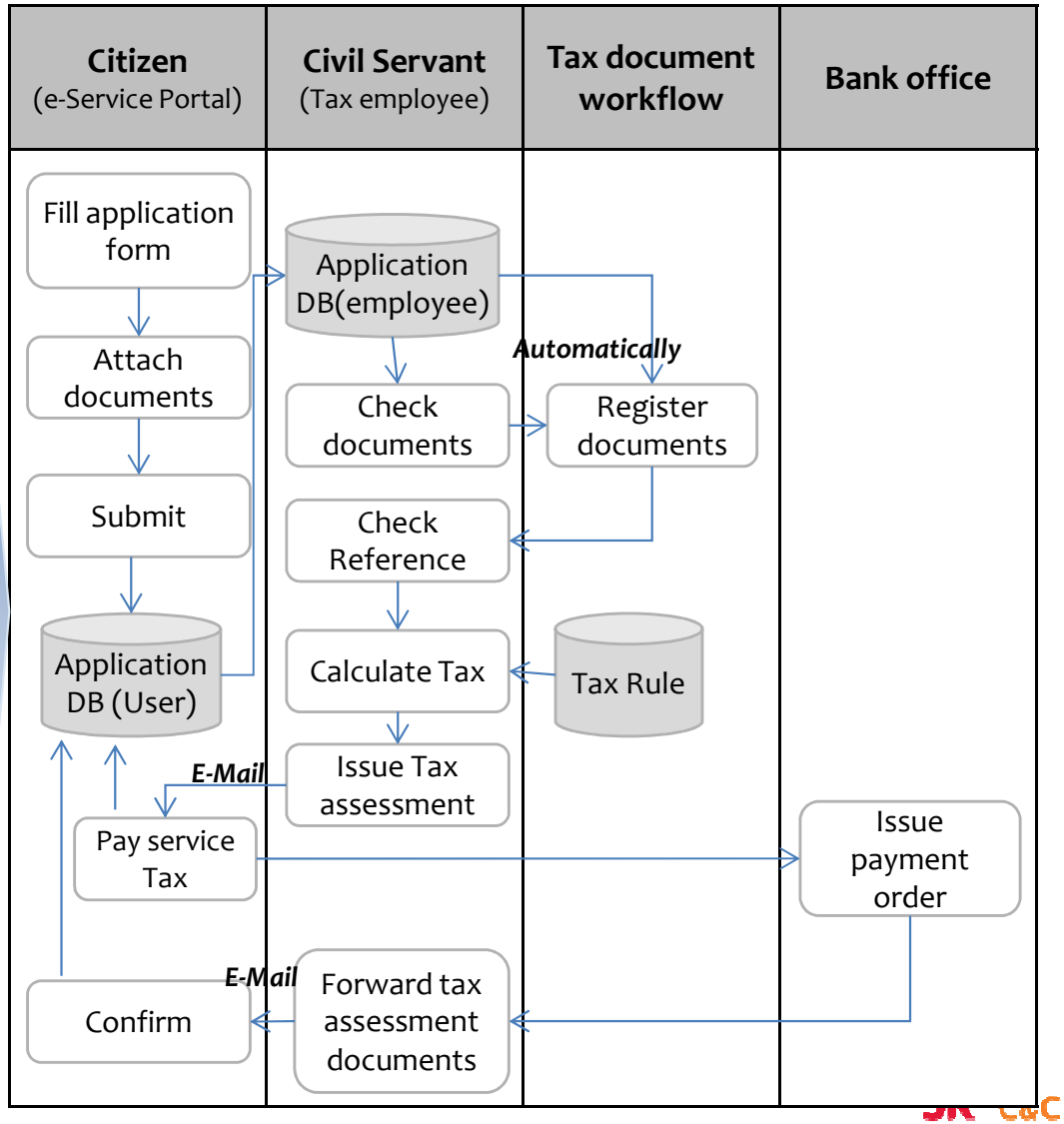
6. Business Architecture

Once Tax Assessment is provided via e-Service Portal, citizens don't need to visit the civil affairs office, instead they can do the same work in wherever they can access the internet.

As-Is Process of Tax Assessment



To--Be Process of Tax Assessment



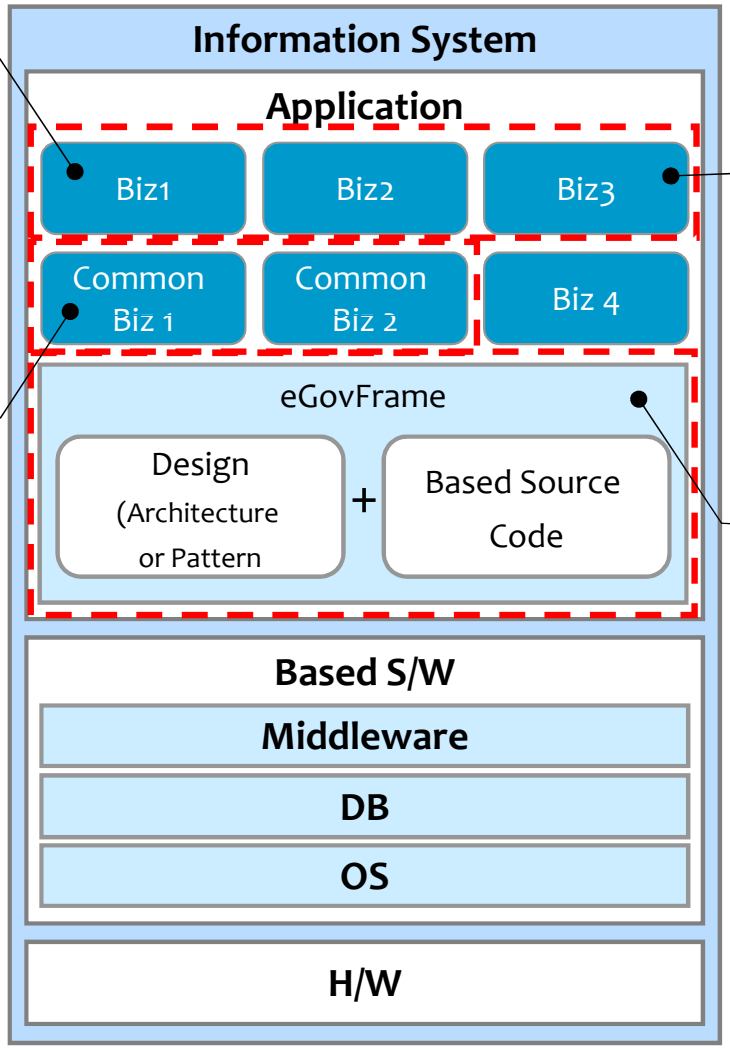
7. Technical Architecture

The prototype of tax assessment is designed by developing core business functions of tax assessment on the basis of the eGovFrame of Korea.

Prototype Architecture

Prototype: Tax Assessment for Smolyan

Generally used ***reusable components*** (ex: calendar, notice board, etc)



As core ***biz functions***, develop using design and source code (API) which provided by eGovFrame

Reusable asset, defining ***design and base source code*** which is ***repeatedly*** used in information system project, as based structure to make a particular technology or application

User Interface

Main

Login

Service Info.

Service Apply

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The Prototype for “Tax Assessment by 264 paragraph 1 of the Tax-Insurance Procedure Code for Farmland”

Emil Doychev

Expert

DataCom

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Thanks

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