A Framework for an E-government Based on Service Oriented Artichitecture

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Abstract

Electronic government is use of information and communication technologies in government to provide public services, to improve managerial effectiveness and to promote democratic values; as well as a regulatory framework that facilitates information intensive initiatives and fosters the knowledge society. To develop framework for an e-government may dynamically change in e-Government system requirements and the need for a highly autonomous approach for government agencies. The public Agency Professional Survey is based on service oriented architecture that will be used to gather the benefits experienced by departments that are currently involved in the e-Government initiatives. The expected findings may include the outcome of the implementation of e-Government initiatives in terms of operational efficiency and organizational effectiveness towards the online public services delivery channel. The study e-Government Based on Service Oriented Architecture will be helpful in implementation framework of e-Government in Governments.

Keywords: G2G; G2C; G2B; E-Government.

1. Introduction

Electronic government or "e-Government" is defined as "the use of information and communication technologies in government to provide public services, to improve managerial effectiveness and to promote democratic values; as well as a regulatory framework that facilitates information intensive initiatives and fosters the knowledge society".

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Government is actually a dynamic mixture of goals, structures and functions [1]. According to this, E-Government becomes a natural extension of the technological revolution that has accompanied the knowledge society. The E-Government added new concepts such as: transparency, accountability, citizen participation in the evaluation of government performance.

E-Government may be related into three groups': citizens, businesses and services, and governmental departments of the country.

2. Theoretical background

2.1 Concepts of E-government & its importance

E-Government is included as "utilizing the Internet and the World-Wide-Web for delivering government information and services to citizens". As the researcher (and other examiners believe that it is not only citizens to deliver government information and services but includes local organization for a government. It may also include using other ICTs in addition to the Internet and the Web, such as "database, networking, discussion support, multimedia, automation, tracking and tracing, and personal identification technologies" [2].

According to Means and Schneider believes e-Government is the relationships between governments, their customers (businesses, other governments, and citizens), and their suppliers (again, businesses, other governments, and citizens) by the use of electronic means [3].

E-Government is defined as the use of technology, especially Web-based applications to enhance access to and efficiently deliver government information and services [4].

2.2 Categories of E-Government

E-Government's efforts can be categories into three broad categories: Government to-Government (G2G), Government-to-Citizen(G2C), and Government-to-Business (G2B).

G2C services usually offer bundled services to provide value to specific groups of citizens who find themselves in prototypical "life situations". Examples include persons who have just moved to a new city, newly married couples or unemployed people receiving government compensation. Each member of such a group has similar service requirements. Since the entire population of a country is regarded as a potential target group, these services require the most extensive national infrastructure and their implementation will provide the biggest challenges to less developed countries.

G2B services cover all service interactions between an administration and the private sector.

Typical areas include customs, tax and revenues, procurement and company registration. For lower income countries, these services might be easier to implement than G2C services because the private sector tends to have access to a wider range of advanced technological infrastructure the average citizen.

G2G services are those that a public institution offers to other public institutions. A good example is the General Auditor's office, which has regular process interactions with other departments. Some of these processes, such as the compilation of financial reports on spending or revenues collected, could be supported by or executed through online systems. Similarly, information on contact details for staff in other agencies, human resource matters concerning civil servants, union activities or other topics of common interest, could be shared through G2G services. These services also include less interactive processes, such as the provision of information to other public entities or public servants.

2.3. Benefits of E-Government framework

There are many advantages that can gain e-Government framework, these include:

- E-Government is considered one of the promising technologies that provide interoperability and integration between various ranges of services, implemented by different software applications, running on a variety of platforms in government organizations
- E-Government project is designed to enable citizens to process transactions online in a timely and efficient fashion .
- e-Government has many different importance which are as follows: (1) work process which allows the government agency to inter-operate in work processes across government agencies. (2) Knowledge sharing which allows the government agency to share knowledge across government agencies. (3) Value creation which enables government agencies in creating value in inter-operating government agencies. (4) Strategic alignment which enables inter-operating government agencies sharing an aligned strategy.

E-Government will make the government more transparent, efficient, and enable government information and services to be delivered to citizens much faster and easier. One does not need to go to different government offices when a mouse click at his/her home or other locations will do the same work in minutes.

One of the benefits of E-Government in developed countries is cost reduction in the transfer of information and online transactions [5]. E-Government has many advantages serve as criteria for measuring the efficiency of administrative work and general quality.

The essential task of government is governance, which means the job of regulating society and not just working with marketing and sales.

2.4 1Web Application Framework

A webapp framework is a set of tools that support webapp development with: A standard design model (e.g., MVC), User interface toolkit, Reusable components for common functions (authentication, e-commerce, etc.), Database support, and Support for distributed system integration.
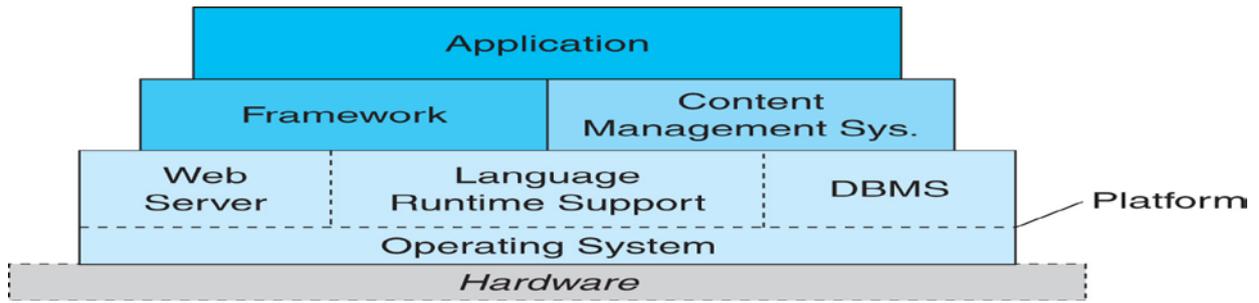
Figure1: Web Application Framework

A webapp framework based on PHP has Features: use of MVC design paradigm, Centralized database, and action definitions link user interface events to Controller and View modules .

2.5 Service oriented Architecture

Services are intangible commodities and economic activities that require specialized knowledge and skills and are offered by service providers over a communication media to service consumers. These self-describing, open components are being communicated over the Internet hence, e-Services – the delivery of services by employing Information and Communication Technologies and infrastructures [6].

2.5.1 Architectures describe different viewpoints

 ➢ conceptual view: entities of application domain and their relationships
 ➢ process view: system runs, concurrency, synchronization
 ➢ implementation view: software artefacts (subsystems, components, source code)
 ➢ runtime view: components at runtime and their communication

Architectures make systems comprehensible and controllable for structuring according to different viewpoints and enables communication between different stakeholders.

2.5.2 Architecture Types

Architecture types can be classified as: a) Web Platform Architecture (WPA) which is platform (Infrastructure) consists of: Hardware, Software modules & configurations, and Choice of software platform (e.g., J2EE, .NET). b) Web Application Architecture (WAA) which may contain the following:

 ➢ Conceptual view of how key business processes and needs are separated & implemented
 ➢ Often domain-specific
 ➢ Greater complexity requires greater modularity

Web Services is a kind of SOA (Service Oriented Architecture) service type that depends on rigorous set of standards and the most preferable service type because of its interoperability i.e. having a capability of harmonizing services that runs from different platforms by abolishing the challenges associated with system

integration. [6]

The World Wide Web Consortium (W3C) has developed web service architecture to show the basic functionalities and core technologies which are very helpful to aid conceptualization. The following figure shows the basic architecture.
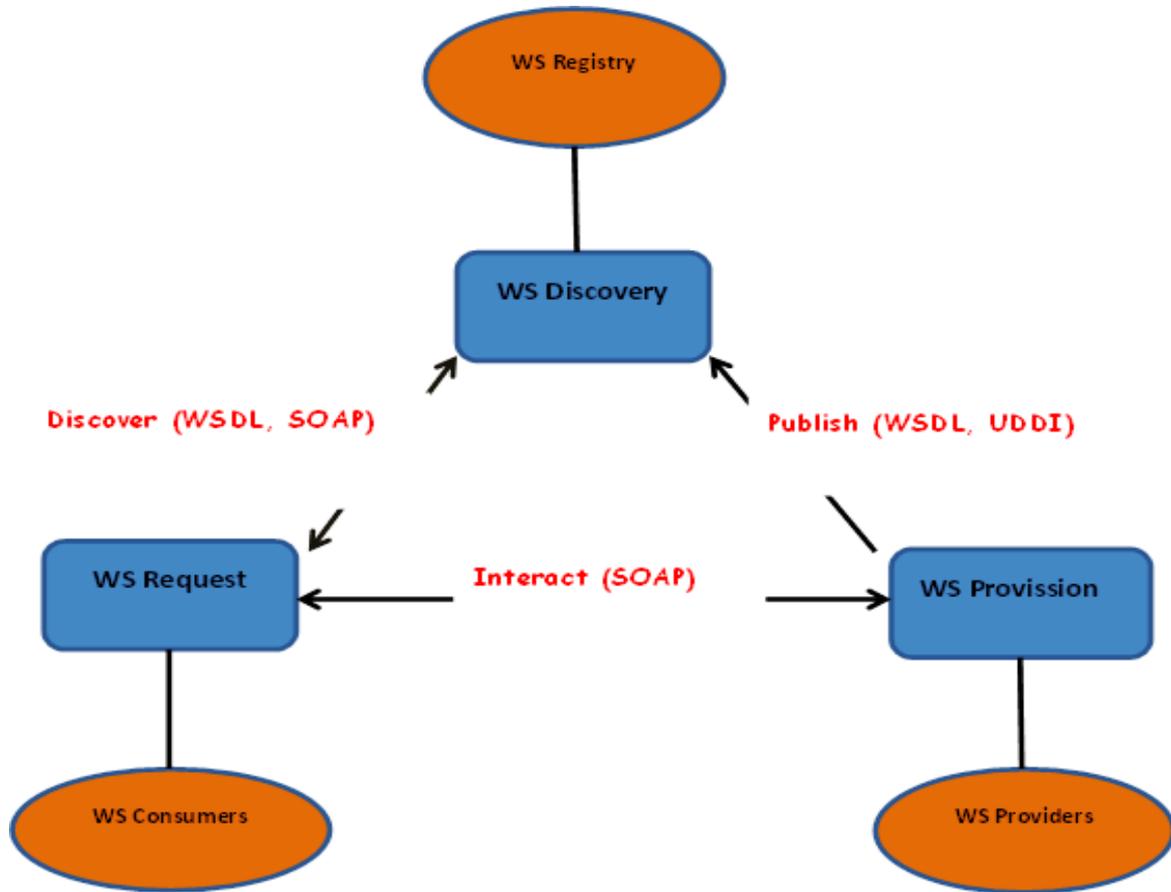
Figure 2: Web services architecture .

Web Services technologies allow applications to pass standardized messages (SOAP messages) over composite computing systems [7]. These programming language, operating system and hardware platform independent software systems are shared and easily be accessed over standard Internet protocols offering richness, flexibility and scalability features needed by service providers.

3. Materials and Methods

This research is employed exploratory research purpose to gather as much information as possible, discover general insight and get a deeper understanding of electronic identity management systems that uses web services and other integrated technologies. With this method we will come up with a clear understanding of the problem under the study. Furthermore, we will utilize descriptive method to collect and present citizens' perception about trustworthiness of their government in managing their sensitive personal information and their understanding the usefulness of electronic identity management which will be very helpful to make electronic

identity management system successful in its implementation.

4. E-Government implementation scope

The Figure 3.1 below describes the breakdown of activities for e-Government implementation that constitutes the scope of this study.
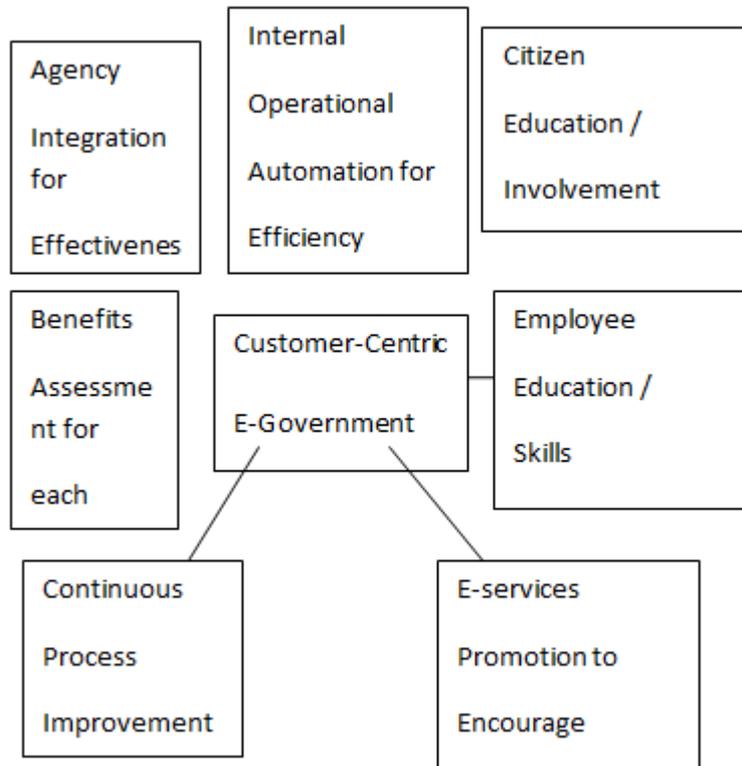
Figure 3: E-Government implementation scope

4.1 Standard Framework Development

E-Government Standard Framework is Collection of source code and reusable design supporting application development.

4.1.1 System

Automated system for specific business requirements satisfaction (E: Personal Management system etc.).

4.1.2 Application

Development using source code and standard framework providing design by business functions, which have to be materialized in each construction project.

4.1.3 Stand Framework

Recycling assets defined base source code and design, which is repeatedly using in SI project by specific technology and application forming base structure.

4.1.4 Basic of S/W

Movement of S/W from the bottom of Application, for application behavior.
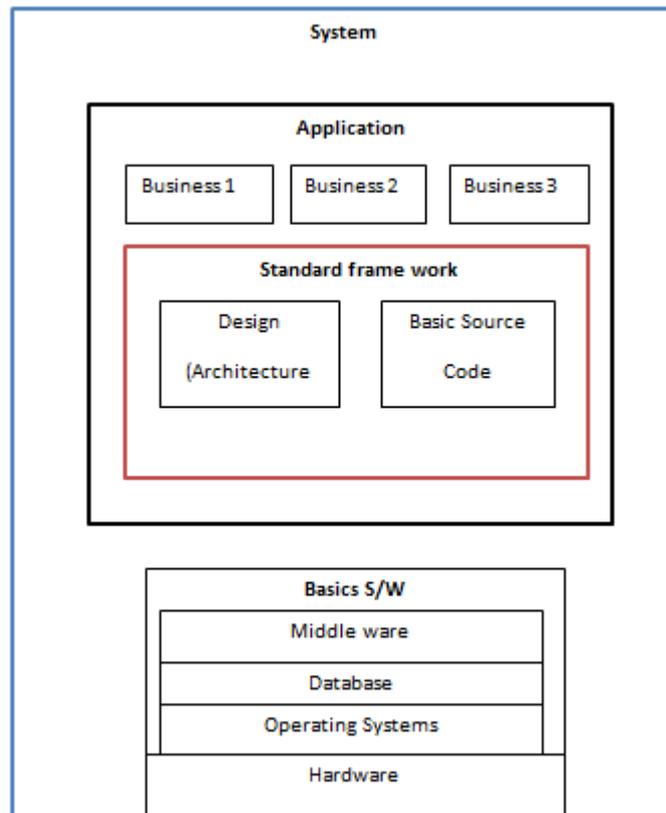
Figure 4: Standard framework development

4.2 Status examination of using the framework

Execution survey, interview and material research for status examination of Framework using in e- Government project.

4.2.1 Survey

- o   Present conditions or state of arts in.
- o   Recognition of the open source framework.
- o   Recognition about e- Government Standard Framework.

4.2.2 Interview

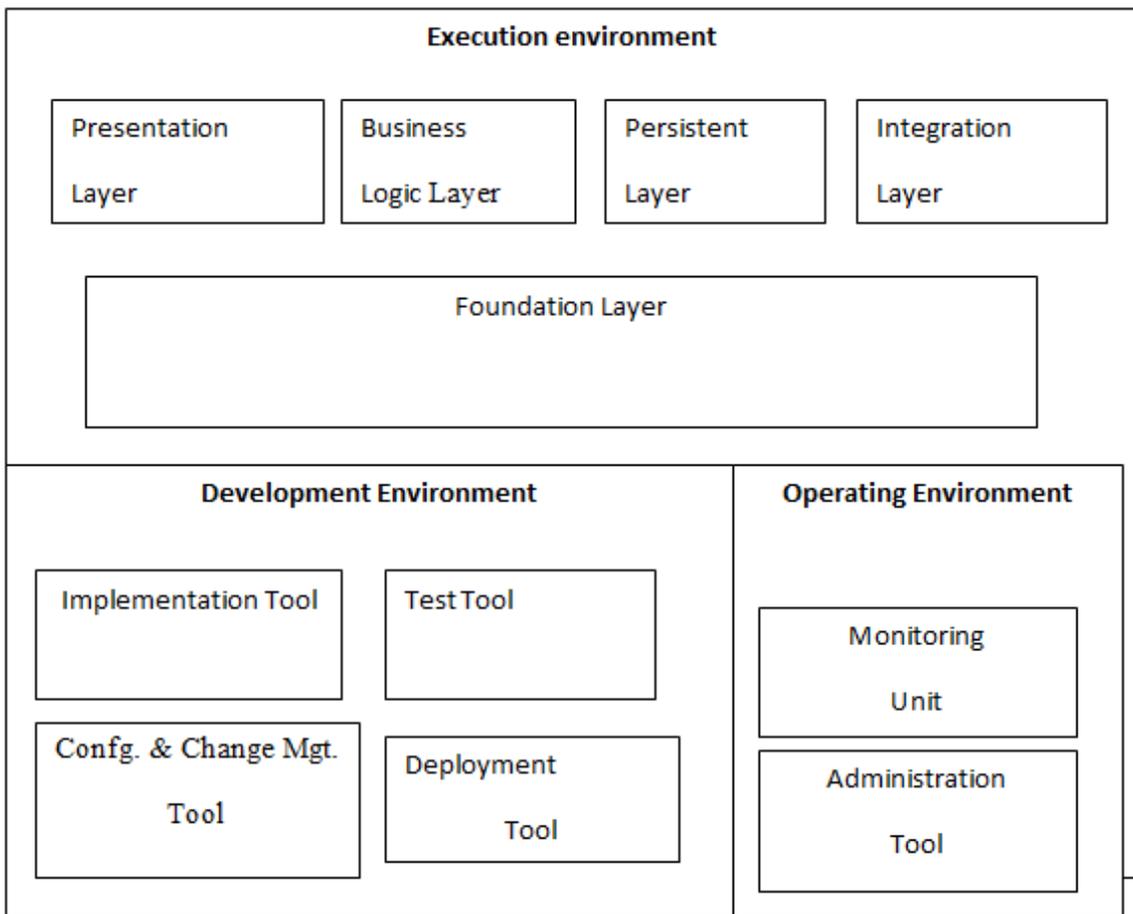- o   Understanding the Standard Framework, Benefits and Challenges.

- o   Impact on selected business, difficult in change.
- o   Consideration details etc. during building e-Government Standard Framework.

4.2.3 Research on Materials

- o   E-government laws
- o   Information budget
- o   E-Government Annual Report

4.3 Conceptual architecture

Configuration standard framework realization, development and operation etc. Environment, Service group and services.

Execution environment

| Presentation Layer | Business Logic Layer | Persistent Layer | Integration Layer |

Foundation Layer

Development Environment

| Implementation Tool | Test Tool |
| Confg. & Change Mgt. Tool | Deployment Tool |

Operating Environment

Monitoring Unit

Administration Tool

Figure 5: Conceptual architecture

4.3.1 Environment

- o   Huge system classification of Standard Framework, in main stakeholders' (developers operators, administrators) perspective.

o   Consist by 4 types of environments.

o   Existing environment: Providing functions needed for business program realization and

o   business service,

o   Development environment: Providing support tools for development on business Program.

o   Operating environment: Providing operation tools for business program monitor and management.

o   Management environment: Providing tools and procedures, which support Standard Framework operation and maintenance.

4.3.2 Service Group

System Classification group focus on Standard Framework Service functions.

4.3.3 Service

Unit services provided by standard framework.

4.4 Open Source

Selection best Open Source through analysis and verification for building open standard framework which utilize open source.

4.4.1 Open source analyses

o   Preparation plan for selection Standard Framework Open Source and licensing guideline.

o   Establishment "Open Source SW evaluation Process" by utilizing international SW evaluation process model and practical SW evaluation process.

o   Select Open Source license without restriction in distribution and reusability

4.4.2 1st logical verification

➢   Target: ISP-Open Source derived during requirement definition.

➢   Method: Assessment 1st filter requirement derived from Open Source SW evaluation plan.

• Select Open Source without limitations related to community and reusability.

• Select Open Source without limitation in connection and coordination and definition quality properties which will be compiled in execution environment service.

• Select by 100 satisfaction for establishment essential requirements derived each service

4.4.3 2nd physical verification

➢   Target: 76 kinds of Open Source (execution environment , development environment 14), which were selected by Open Source SW 1st evaluation.

➢   Method: Classified into the following criteria to evaluate by measurement criteria of consistency and

relative importance level.

- Evaluation by measurement criteria as functionality, reliability, usability, efficiency, portability etc.
- Open Source SW selection through functional testing and quality testing about maintainability

4.4.4 Selection Results

Primary selected Open Source

- o   Business process:
- o   Date process:
- o   Implementation tool: Net beans
- o   Test tool
- o   Distribution tool:
- o   Status management tool: Subversion

4.5 Perform results of the execution environment

Implementation Standard Framework execution environment of 5 types of Layers as Screen processing, business processing, data processing, connection processing, common base etc.

4.5.1 Screen processing layer

 (Ajax Support)

Providing architecture required for implementation UI component interface and screen (UI Adaptor etc.).

4.5.2 Business processing Layer

Providing function etc. which shows mapping from business flow to screen flow (Web Flow function etc.).

4.5.3 Data processing Layer

Providing DB related various connection and SL processing functions (DB connection, SL processing).

4.5.4 Linked/Integrated Layer

Providing Web Service, Connection metadata functions (Web Service etc.).

4.5.5 Common base Layer

Providing utility required for development and variety reusable components of Server function (Bean

Management, common use function etc.)

Business features
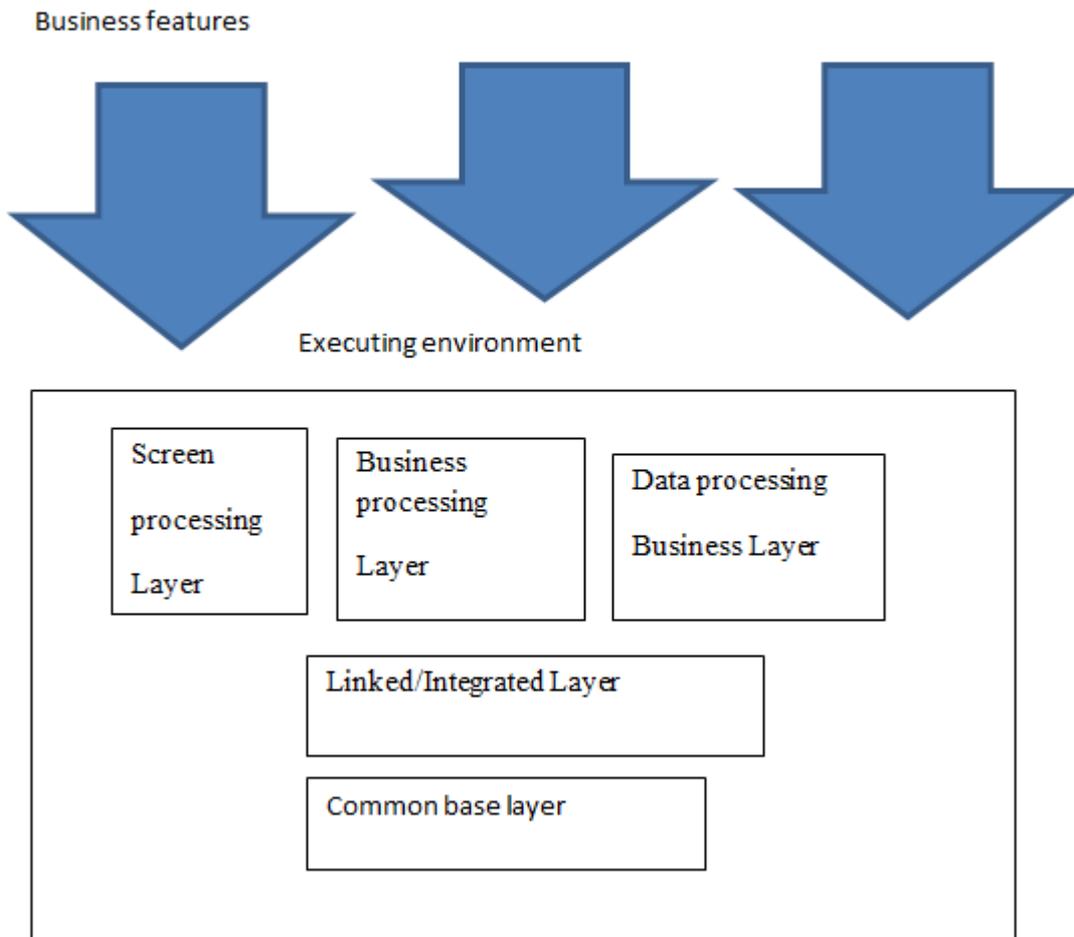
Figure 6: execution environment

4.6 Perform results of the management environment

Management environment development for internal processing and effective reception of standard framework various inquiry and request.

4.6.1 Simple function contact

- o Apply method
- o Confirmation of Function's present
- o Confirmation of request process

4.6.2 Business support request

- o Scene support request.
- o Technical Support.

o   Request & Review support request.

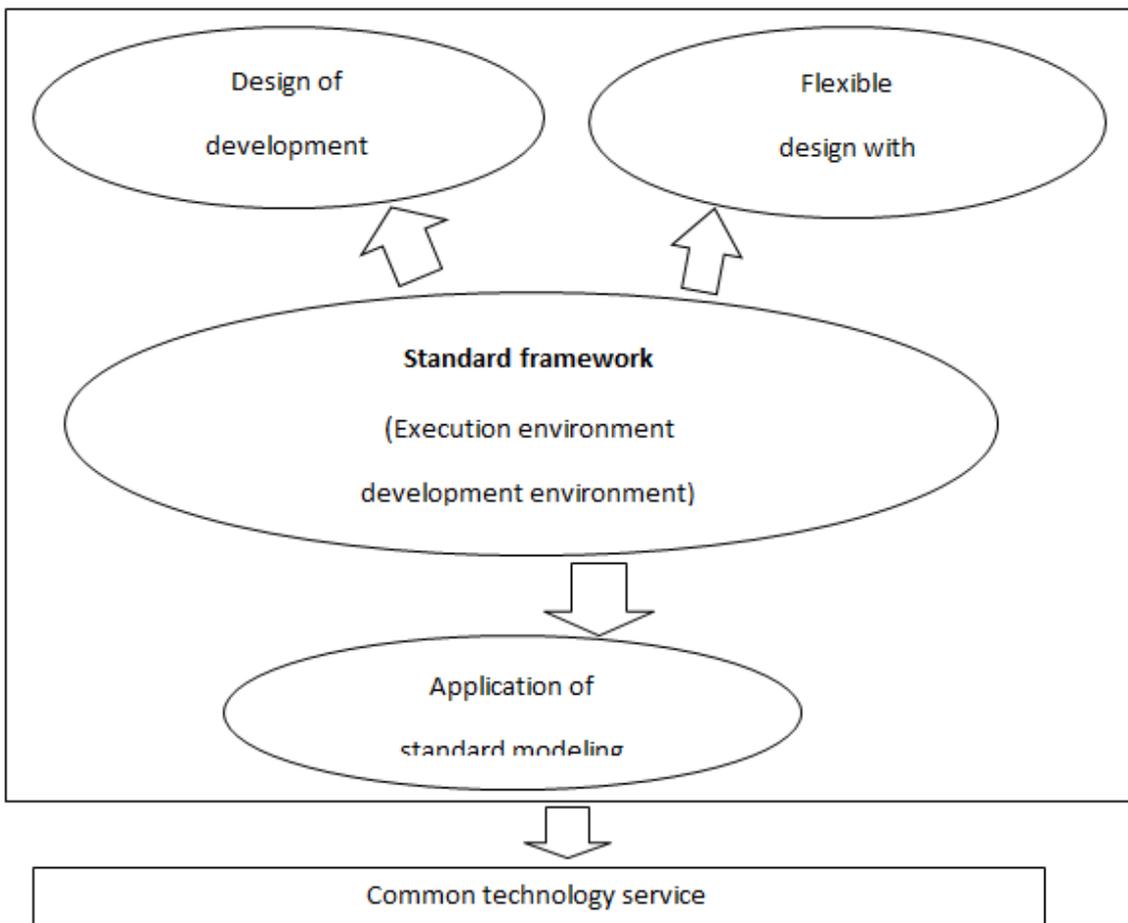### 4.6.3 Function improvement request

o   Adding new functions.

o   Improvement existing..

o   functions & applying measures.

4.6.4 Error correction request

o   Function errors' correction.

o   Compatibility error correction.

o   Procedure error correction.

4.7 execution results

Design standardization of framework base that consider reuse.

Figure 7: Executing results

4.7.1 Common technology service

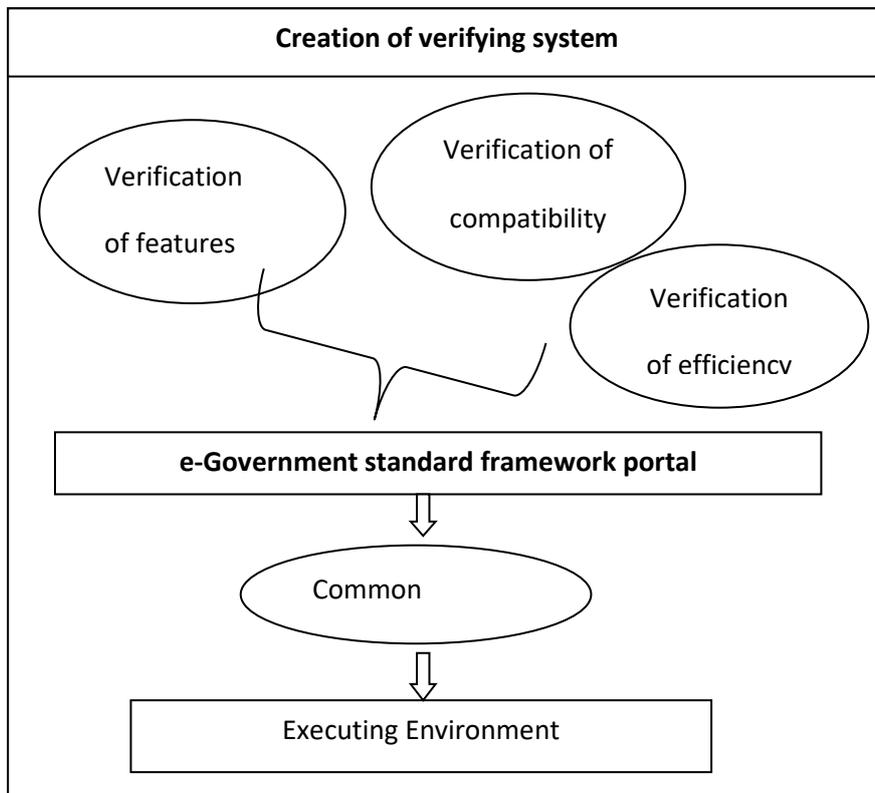| Section	Development
Security	Confirmation of users name, authority management
User directory/ common confirmation	General login, confirmation login
Cooperation	Notice board, supervising association of likeminded users, managing community
System Management	Common code, managing menu, managing log
System /Service connection	Managing status of connection, managing connection authority
Statistics/reporting	Statistics of notices, statistics of connection

4.8 Creation of e-Government Frame portal

Figure 8: e-Government frame portal

4.8.1 Creation of framework portal

Creation of portal, which applies execution environment, development environment, common component.

4.8.2 Verification of framework and common

Component

- o Verification of features (existence of mistakes), compatibility (solution OS, web browser), efficiency (TPS).
- o Completion of creation and proceeding management of model

5. Discussion

Since E-Government is the use of digital technologies to transform government operations in order to improve effectiveness, efficiency, and service delivery, the researcher decided to develop an E-government framework based on SOA. Another reasons gained to develop this framework due to it has the following effects:

- ➢ To increase internal efficiency in public administration.
- ➢ To create new services.
- ➢ Easy access to information.
- ➢ To participate global information networks.
- ➢ Information sharing among Institution.
- ➢ Online access to public services.
- ➢ Individual efficiency.
- ➢ High Performance in teamwork.
- ➢ Transparent state.

6. Conclusion

We categories into three broad categories: Government to-Government (G2G), Government-to-Citizen (G2C), and Government-to-Business (G2B). We focus that the E-Government will make the government more transparent, efficient, and enable government information and services to be delivered to citizens much faster and easier.

We mentioned that E-government is based on web Application framework and it is a set of tools that support webapp development with: A standard design model User interface toolkit, Reusable components for common functions, Database support, and Support for distributed system integration.

We consider the status examination by using a framework consist of Execution survey, interview and material research for status examination of framework using in e- Government project. Finally we presented standard framework development which is collection of source code and reusable design supporting application

development. We also mentioned configuration standard framework realization, development and operation.

7. Recommendation

There is further improvement in terms of efficiency and easy to use for achieving enhanced web-application framework. So that there is need for high-speed huge servers that have secure protocols.

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