e-Government Software Framework and Impacts on Public Sector

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October 17th, 2014

AGENDA

Information Society & Software World

Efficient & Effective Software Development

e-Government & National Framework

International Trends & Practices

Evaluations & Suggestions

Questions & Comments

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Change in Societies

Socio-Economic Change Process

BC 8.000 — 1765 (James Watt) — 1957

Agricultural Tools

Agricultural Society

Machines

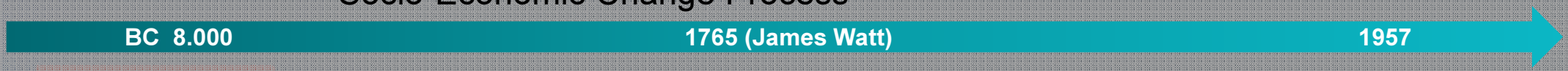
Industrial Society

Internet

Information Society

Change in Societies

Socio-Economic Change Process



Agricultural Tools

AGRICULTURAL PRODUCT

Agricultural Society

Machines

MACHINE & FACTORY

Industrial Society

Internet

KNOWLEDGE & **QUALIFIED** HR

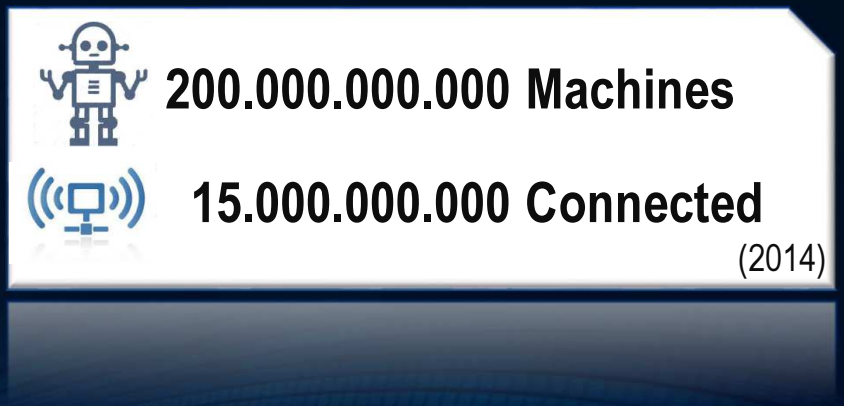
Information Society

Information Capital & Data

44.000.000.000.000.000.000.000 Bytes

4.4 ZB X 10 44 ZB

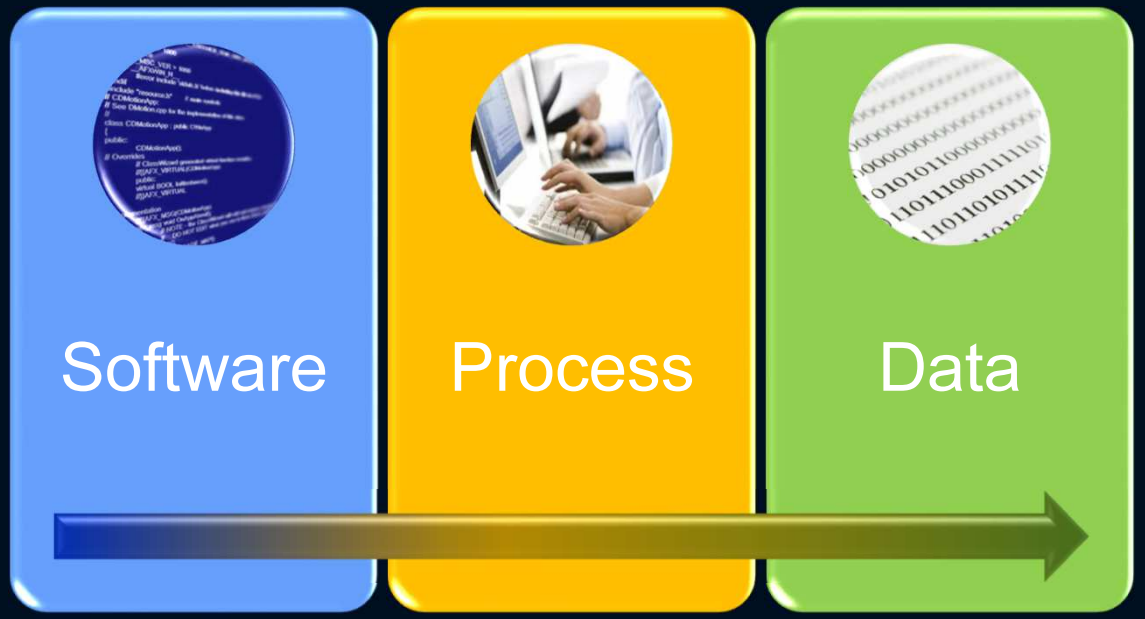
2014 2020



Machines Human

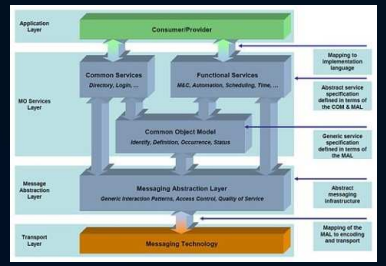
Data source: http://www.emc.com/leadership/digital-universe/2014iview/it-imperatives.htm

Data, Software & Framework



Efficiency
Effectiveness

Framework



Data, Software & Framework

Facebook Active Users : 1.310.000.000 (monthly)
Android Market App Count:1.374.812 (Oct 11, 2014)
IOS Market App Count : 1.300.000+ (Sept 2014)
.....
IOS Downloads : 75.000.000.000 (June 2014)
.....

http://www.statisticbrain.com/facebook-statistics
http://www.appbrain.com/stats/number-of-android-apps/
http://ipod.about.com/od/iphonesoftwareterms/qt/apps-in-app-store.htm
http://www.statista.com/statistics/263794/number-of-downloads-from-the-apple-app-store/

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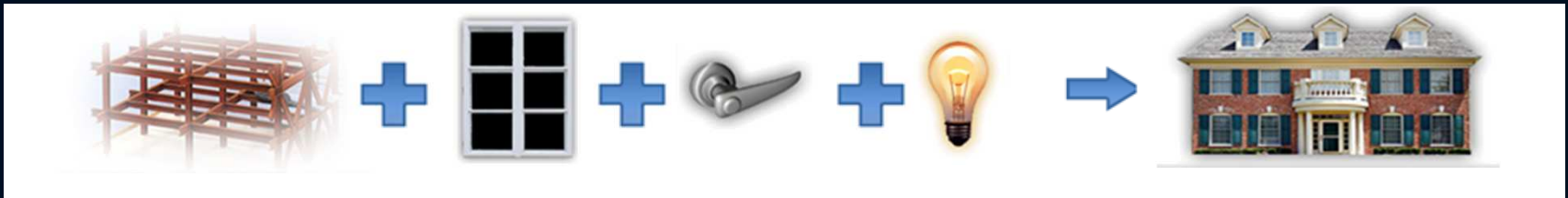
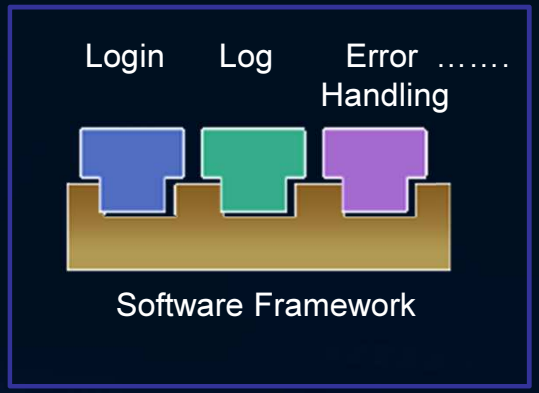
Today's Software Development Requirements

Software Framework: A Library ?

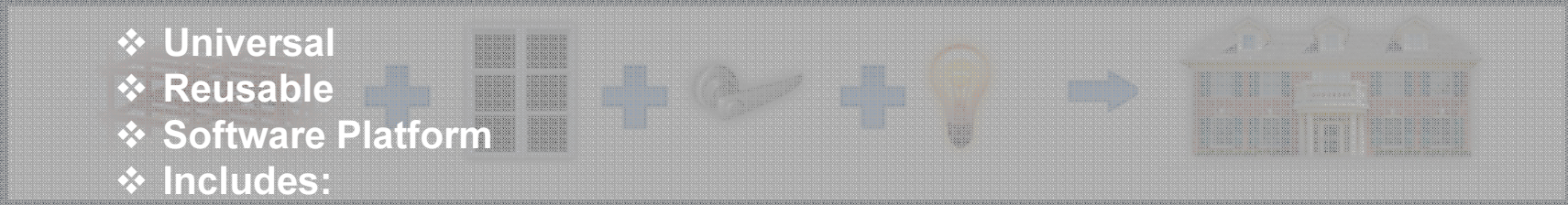




National e-Government Project

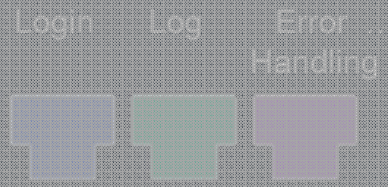
Data source: http://en.wikipedia.org/wiki/Software_framework

Software Framework: A Library ?



- Universal
- Reusable
- Software Platform
- Includes:
  - Support programs
  - Compilers
  - Code Libraries
  - Tool Sets
  - API's

that bring together all the different components to enable development of a project or solution.



DIFFERENCES

- **Flow control** is dictated by Framework
- A framework has a **default behaviour**
- A framework can be **extended** by the user usually by selective overriding or specialized by user
- The framework code, in general, is **not** supposed to be **modified**

Data source: http://en.wikipedia.org/wiki/Software_framework

Framework Savings

Most recent technological Development	Sharing Experience	High Return on Invest (ROI)
Lower error rate in Software Development	Higher Performance with Optimized FW	Low «Total Cost of Ownership» (TCO)
Focus on Business Process in Project Management	More Stable Solutions	Institutional Software Development Infrastructure
60-70% Measured Saving on production	Time and Labor Savings (as limited resource in PM)	Standardization (Usability, Accessibility…)
Simplified & standardized Development Processes	Enhanced IT Service Quality with proven Architectures	Basic Legislation Compliance
Compliance to Quality & Test Processes	Simplified Deployment	

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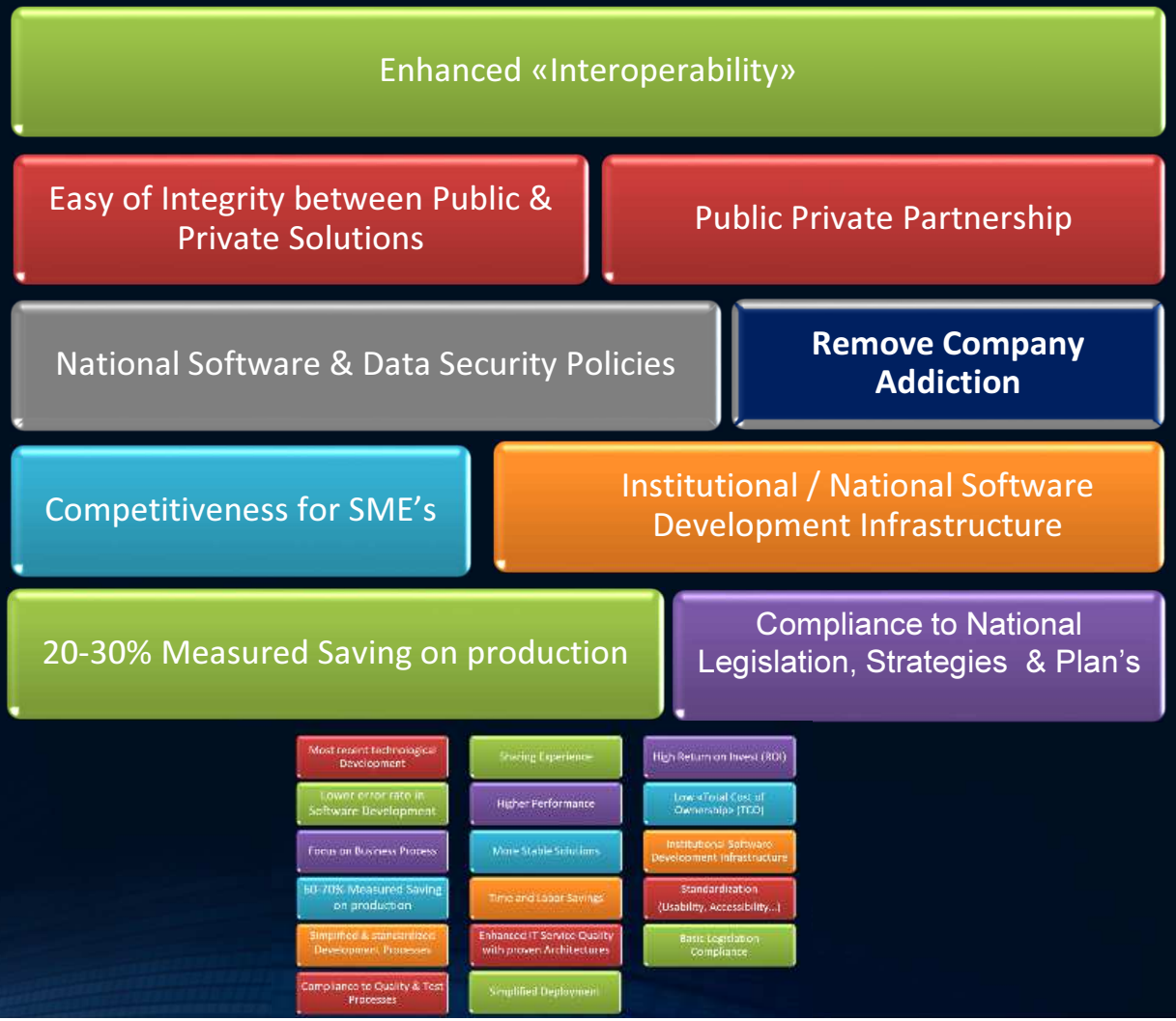
National Framework Savings



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European Union

- **July 1999:** Interoperability Decision of the European Council and the European Parliament
- 1720/1999/EC: Decision of the European Parliament and of the Council of 12 July 1999 to adopt a series of actions and measures in order to ensure interoperability of, and access to, trans-European networks for the electronic Interchange of Data between Administrations (IDA)
- **7-8 July 2003**: European eGovernment conference in Como , Italy (http://europa.eu.int/information_society/eeurope/egovconf/index_en.htm)
- **eEurope 2005 Action Plan**: Deliver the interoperability framework for pan-European services by the end of 2003
- **INSPIRE:** Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). OJ L 108, 25.4.2007, p. 1

European Union

(ISA) Programme

Interoperability Solutions for European Public Administrations
http://ec.europa.eu/isa/

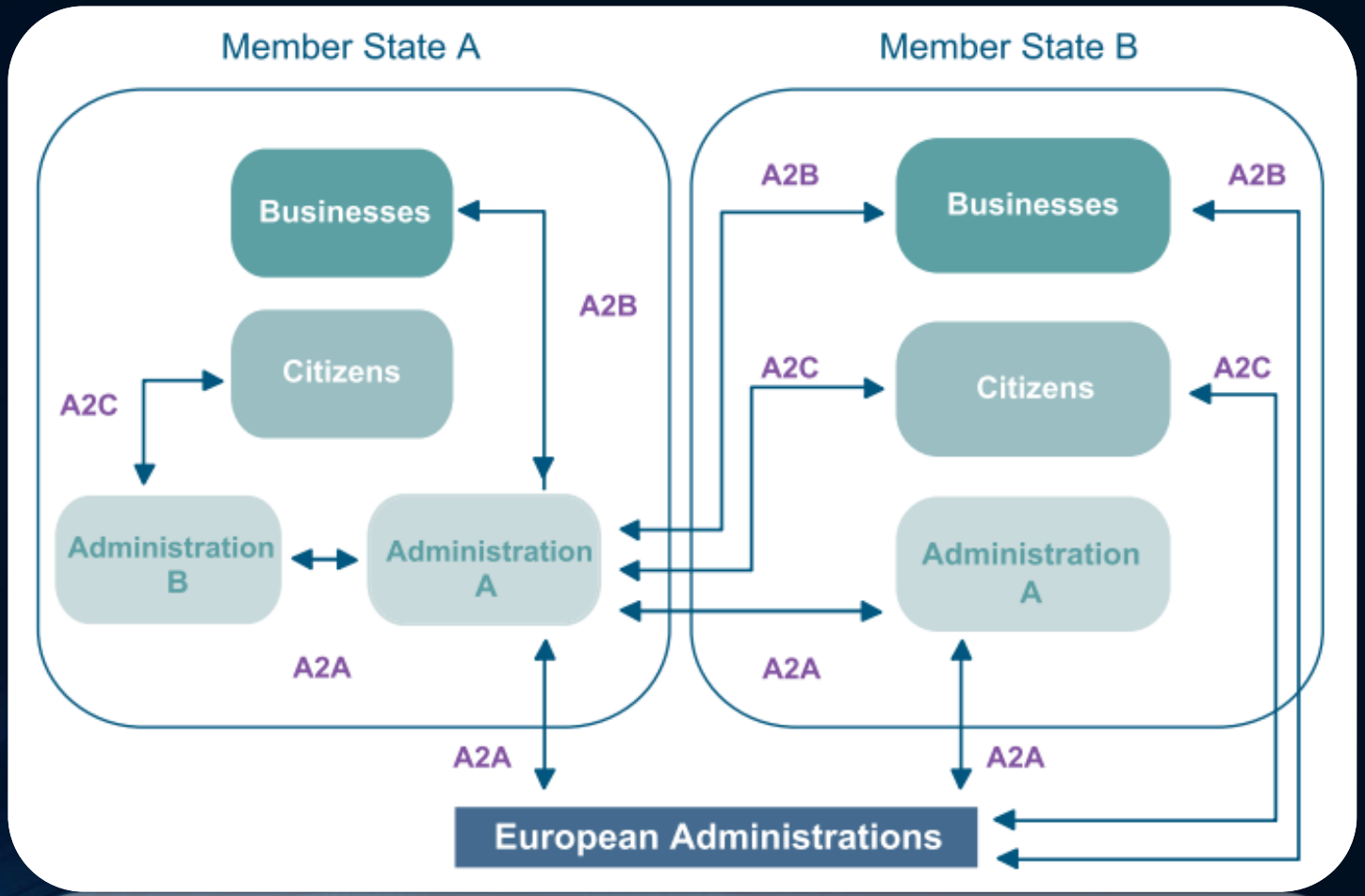
ISA² : **26 June 2014:** the European Commission has adopted a proposal for a Decision of the European Parliament and of the Council establishing a programme on interoperability solutions for European public administrations, businesses and citizens (ISA²)

26.06.2014 - 2014/0185 (COD): Establishing a programme on interoperability solutions for European public administrations, businesses and citizens (ISA²) Interoperability as a means for modernising the public sector

ISA² is the key that will unlock that potential. It is central to the **Digital Agenda for Europe**.

European Union

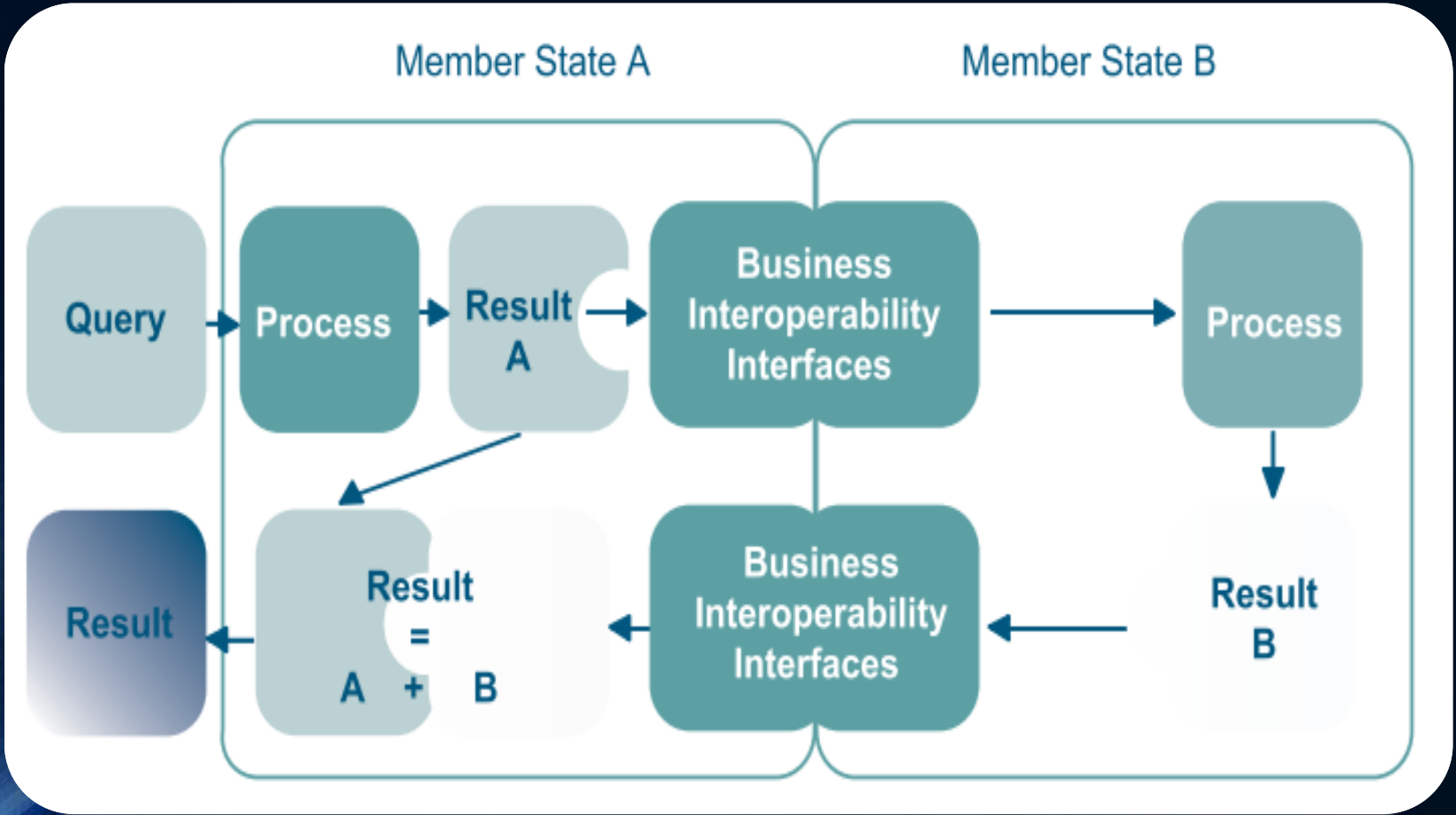
Interaction, LSP & CrossBorder Services



Data source: http://ec.europa.eu/idabc/servlets/Docd552.pdf?id=19529

European Union

INTEROPERABILITY



Data source: http://ec.europa.eu/idabc/servlets/Docd552.pdf?id=19529

Practices from the World

Germany: Standards and Architectures for e-Government Applications (SAGA)
http://www.cio.bund.de/Web/DE/Architekturen-und-Standards/SAGA/saga_node.html

Canada: Service Oriented Architecture Strategy (SOA-S)
http://www.tbs-sct.gc.ca/cio-dpi/webapps/architecture/p-gi/p-gi-eng.pdf

Denmark: Infrastructure Services for SOA within the Public Sector (ISSOAPS)

England: e-GIF (UK e-Government Interoperability Framework)

- Interoperability
- Market Support
- Scalability
- Openness

Australian: AGTIF (Australian Government Technical Interoperability Framework)

Practices from the World

Brazil: e-PING Open-Source Architecture for e-Gov
http://www.governoeletronico.gov.br/acoes-e-projetos/e-ping-padroes-de-interoperabilidade

Malaysia: MyGIFOSS
http://www.pl.gov.my/documents/10157/f5d3004b-42e5-4d16-8178-4a4d1500fab2

Korea e-GIF & e-GovFrame

IBM Government Industry Framework

N.Korea eGovFrame *

National Information Society Agency

Reducing of Cost via Software Framework

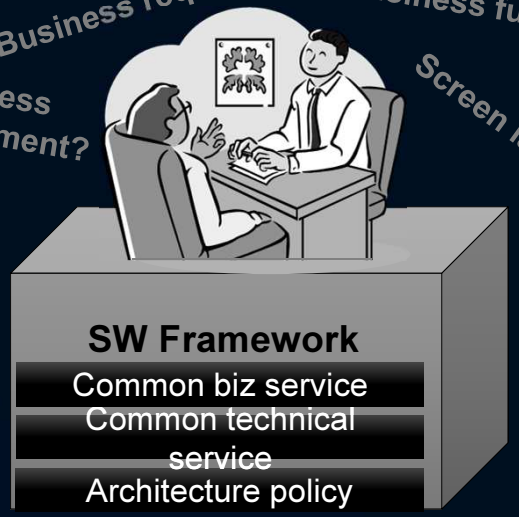
Most of technical issues are handled by Software Framework

IS development without SW framework

Error handling?
Package composition?
Transaction control?
Screen layout?
Operation
Business functions?
Thin Client?
Interface with Tuxedo?
System log?
Framework A
Text transformation?
Business requirement?
Batch?
Business log
cache?

IS development with SW framework

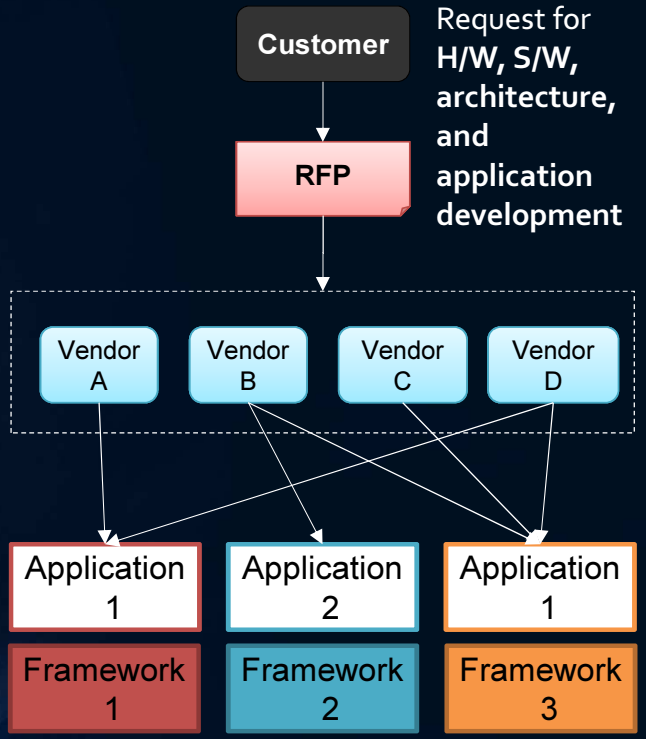
Business requirement?
Business functions?
Business improvement?
Screen layout?



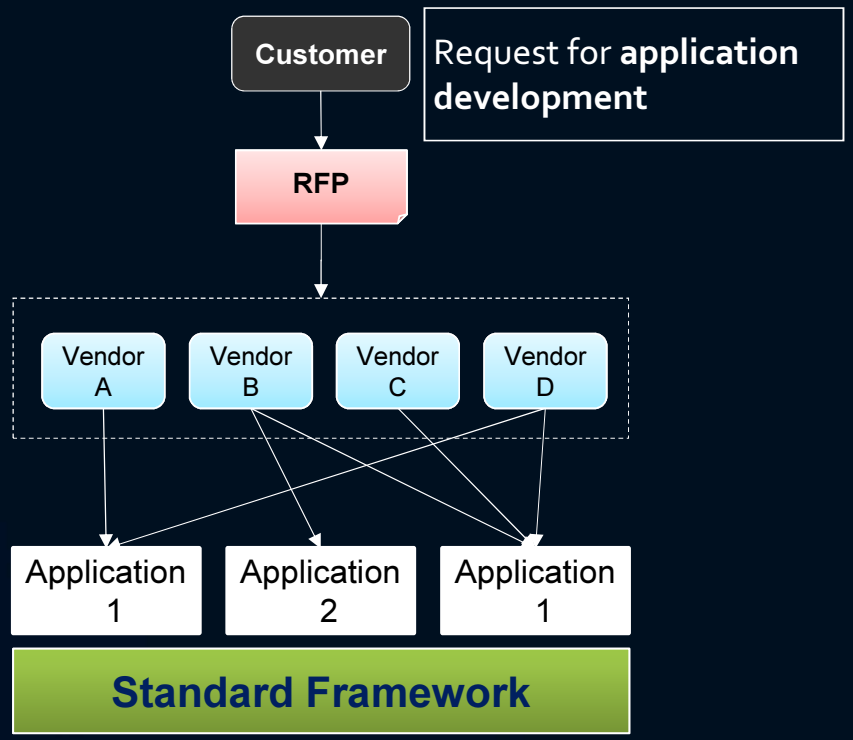
Source : National Information Society Agency, 'Reducing of Cost & Project Management via Software Framework', May 20113, Government CIO Summit, Republic of South Africa

N.Korea eGovFrame *

Development with vendor's frameworks



Development with standard frameworks



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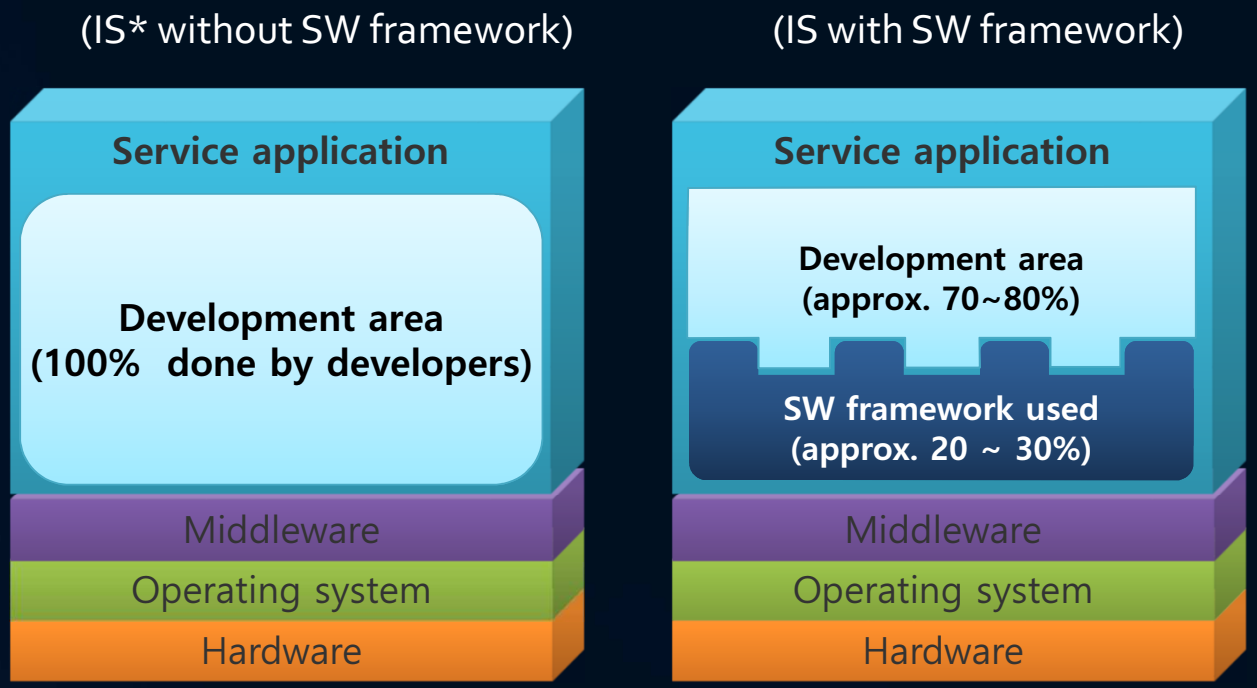
N.Korea eGovFrame*

Reducing of Cost via Software Framework



* IS : Information system

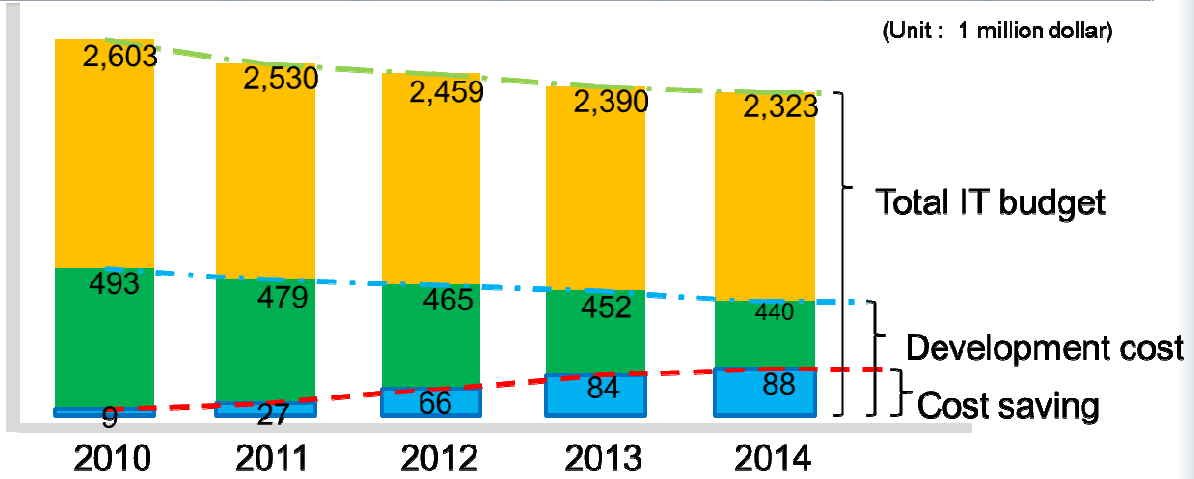
Source : National Information Society Agency, 'Reducing of Cost & Project Management via Software Framework', May 20113, Government CIO Summit, Republic of South Africa

N.Korea eGovFrame *

About **274 million dollars of budget saving** are expected by applying eGovFrame until 2014

< Expectation of Cost saving using eGovFrame >

Section	2010	2011	2012	2013	2014	Total
Total IT Budget	2,603	2,530	2,459	2,390	2,323	12,304
Development Cost	493	479	465	452	440	2,329
Cost saving	**9**	**27**	**66**	**84**	**88**	**274**



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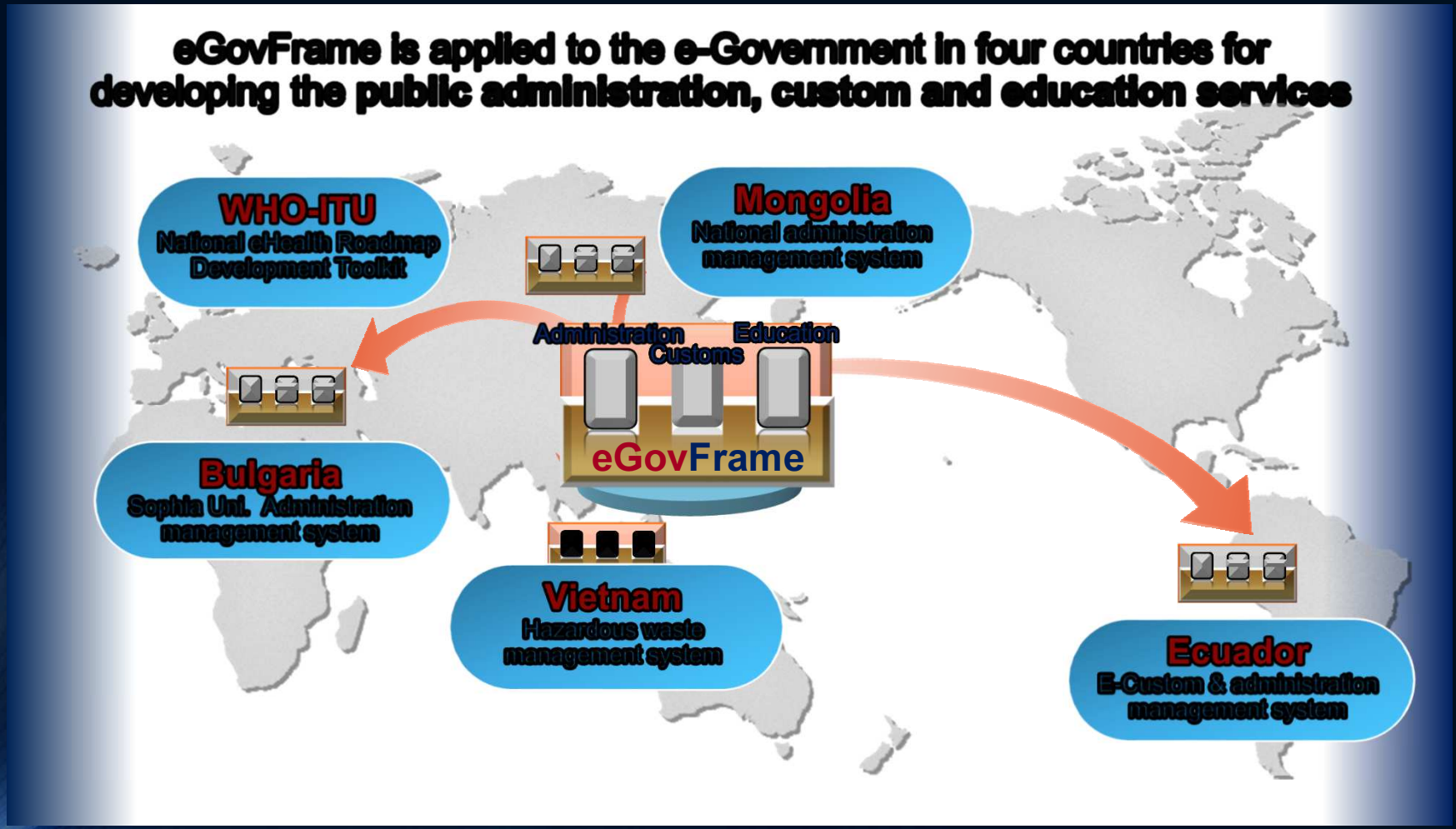

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N.Korea eGovFrame *

Before	Now
Redundant development of similar functionalities in every projects	Reduction of redundant development by reusing 219 common components
Vendor Dependency due to framework delivered as black box	Eliminating dependency to the provider by utilizing open sources framework
Disadvantage to SMEs who cannot afford to possess the framework	Enhancement of SMEs competitiveness through sharing standardised framework
Difficult to maintain the system due to lacking on development standard	Convenient to maintain the system with help of proven development standard
Spent longer time and effort to link the systems due to different framework	Enhances interoperability between systems by standardised framework

Source : National Information Society Agency, 'Reducing of Cost & Project Management via Software Framework', May 20113, Government CIO Summit, Republic of South Africa

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Evaluations & Suggestions

- **Multi-stakeholder approach** including Private Sector, Public Agencies and NGO
- Evaluating and supporting as **National Investment Project**
- With the **leadership of a Public Agency** that has an experience on national software development and especially software architecturing, test, quality appliance of international standards compliance
- Applying **step by step**

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