

T-government

Tutorial: Basics and key issues

Marijn Janssen
Delft University of Technology
Jaffalaan 5
2628 BX Delft
The Netherlands

William S. Shu
University of Buea
P. O. Box 63 Buea,
SW Province
Cameroon

Today's agenda

- What is t-government?
 - Background and drivers
 - Elements of t-government
- Examples of t-government and innovative business models
- Business (re-)engineering to realize t-government
- Models, frameworks, architecture and standards
- Technology and implementation issues



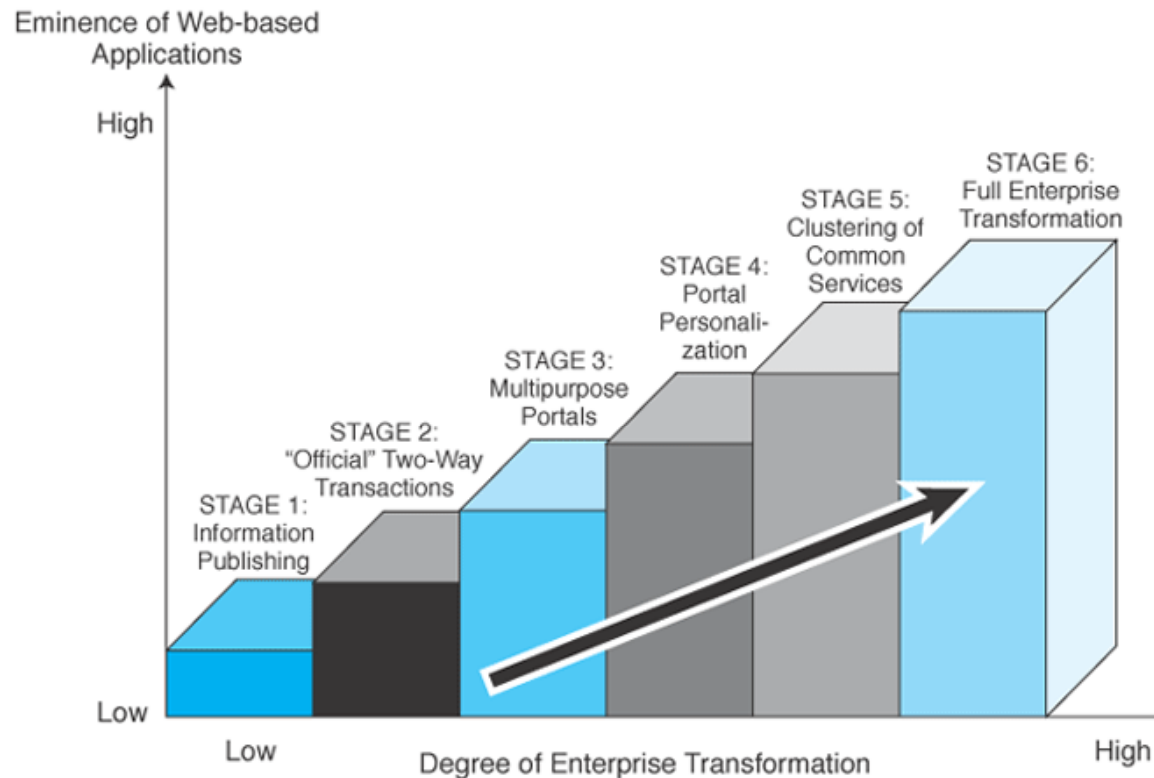
What is t-government?

Transformational government

- T-government
- E-government focuses on making services online. Nowadays more and more governments have created an online presence and provide transaction functionality
- Response to e-government developments
 - Largely technology driven
 - Reinforcement of existing structure and practices
 - Discussion about demand-orientation, customer driven approaches
 - Hardly any large reduction of administrative burden
- However, there are examples showing that it is possible to go a step
- Generally, failing in taking the next step

Towards the transformational Stage

Exhibit 9.1 The Stages of E-Government



Source: Wong, W. Y. *At the Dawn of E-Government*. New York: Deloitte Research, Deloitte & Touche, 2000.

What's t-government?

- Highest stage of e-government progression, in which information systems are integrated across different functions and a real customer-oriented government is created
- Similar to business process re-engineering (BPR) or the radical redesign of business processes, to achieve dramatic improvements (Hammer and Champy, 1993)
- Major reorganization and change of governmental structures
- No traditional limits of time, space and other physical conditions
-

T-government characteristics

- *Customer-orientation*: Government acts as an integral whole and is not experienced as fragmented.
- *Innovation*: Pursuit of new research orientations; rethinking of business processes and models; and change of current government structures to realize customer-orientation.
- *Multi-channel management*: Maintenance of the familiarity of communication channels and enabling of new multi-channel access to information. Creation of an integral customer overview of a business and exploitation of innovative channels and business models.
- *Efficiency and effectiveness*: Development of efficient and effective ways to transform and run government, as well as metrics and measures to continuously evaluate and improve transformational efforts. Finding of new innovations.
- *Accountability and transparency*: Creation of a transparent and accountable government.
- *Transformational transitions*: radical change resulting in a change in the culture and structure of government.
- *Impeding factors*: Culture, governance and organizational impediments that block current progress should be dealt with.
- *The nature of upheavals*: The realization of fundamental and radical transformations that go beyond the reinforcement of current structures by ICT.

Elements of t-government

1. *Type of transformation*

- T-government consists of two basic parts, the resulting structure, i.e. blueprint, and the process resulting in this change

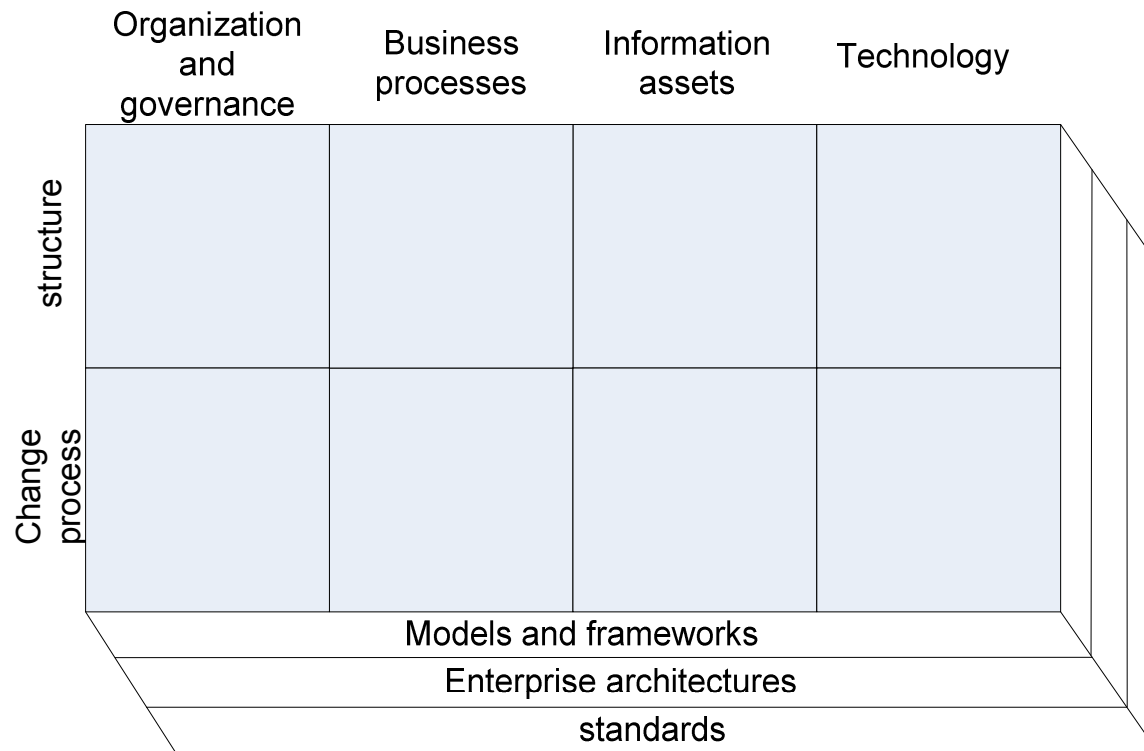
2. *Levels of abstraction*

- The levels of abstraction used to address t-government issues
- governance, organizational structure business processes, information assets and the infrastructure (technology)

3. *Facilitating instruments*

- Models and frameworks, architectures and methods, standards and protocols
- Instruments that facilitate the realization of t-government
- There are hardly any formal model available that operate at this level

Elements of t-government





Many barriers blocking transformation

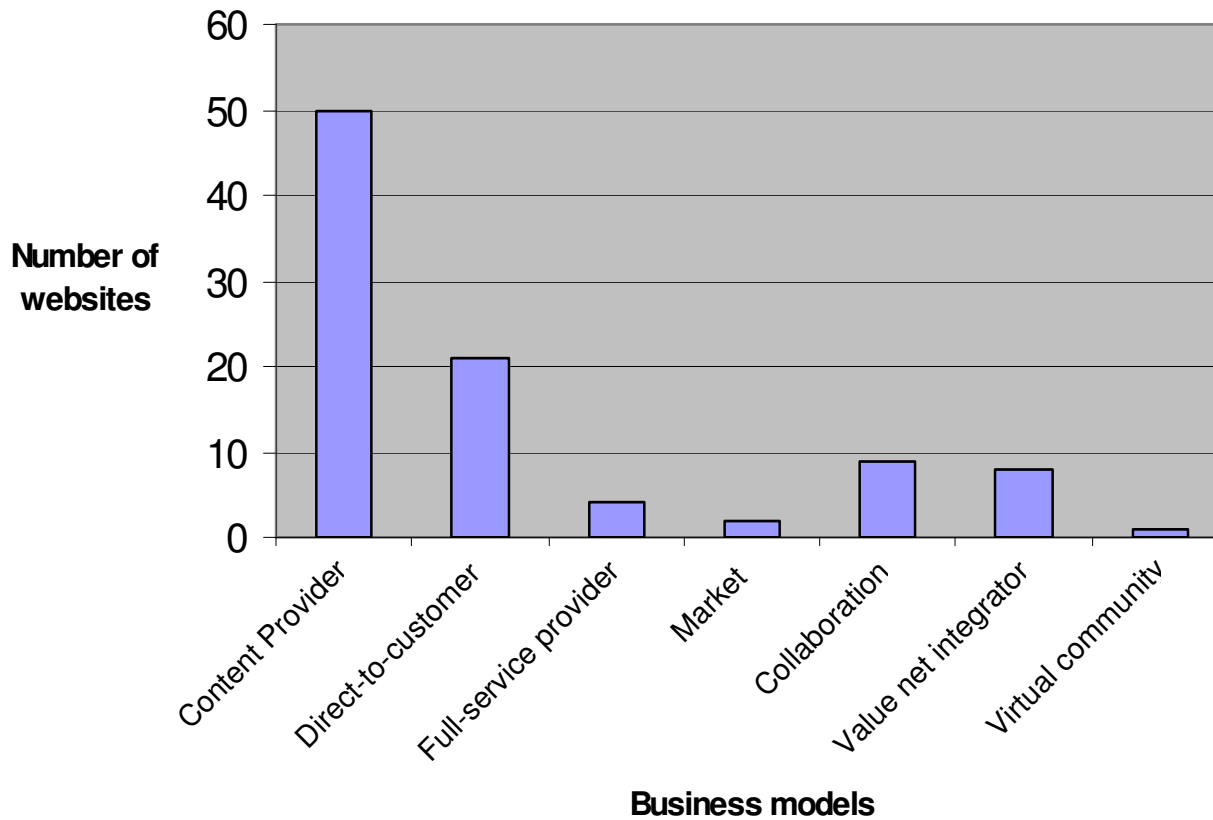


Examples of t-government and innovative business models

Egov Business models

- Governments agencies are in various stages of developments
- Agencies jump on the bandwagon
 - Website comparison website
 - Result in copying each other features, layout etc.
 - But do not compare business models
- Not clear what value-added aspects should be included and what a business model brings to the governments
- Government is often slow in adopting business models and follow private-sector initiatives
- Traditionally, business models taxonomies are aimed at classifying different types of e-government business models
- ***Atomic business models***
 - Instead of trying to specify a comprehensive list, specific models can be constructed by combining the atomic business models,
 - In analogy with atoms (which can be combined to form molecules)

Eg



e-government business model	Example
1. Content provider	<i>Bestuursdienst</i> of Rotterdam offers information concerning past and present laws, regulations, policies and policy-making processes. Constituents can subscribe to information based on subject or regional area.
2. Direct-to-customer	<i>Charlois</i> is a municipality offering a number of online services. It also offers a digital safe to reuse information and subscribe to alerts.
3. Full-service provider	<i>Rotterdam</i> is a one-stop shop offering information and services from various local governmental organizations. There is no direct link to the governmental organizations. Service and product requests are routed to the right organization, which processes the request, and the results are communicated back by the Rotterdam website.
4. Value-net-integrators	<i>Virtual business counter</i> provides a one stop for entrepreneurs. The services provided by the Chambers of Commerce, Inland Revenue Service (IRS) and Municipalities are bundled. Each organization is still visible for the entrepreneurs. If an entrepreneur starts a company, it can fill in a single form. The information on this form is submitted to the IRS, the appropriate Chamber of Commerce and municipality responsible for the geographical area. Then, each organization directly interacts with the entrepreneur.
5. Infrastructure service provider	<i>DigiD</i> is a national authentication service for citizens and businesses that can be used by all public organizations and non-governmental organizations to authorize access to their systems.
6. Market	<i>Vrijwilligerscentrale</i> matches supply and demand for volunteer vacancies. Organizations can advertise their jobs and people interested in doing volunteer work can browse and search jobs. In this way market friction is reduced, there are fewer vacancies without volunteers and less volunteers who are not able to find volunteering activities.
7. Collaboration	<i>City townhall</i> offers information, news and a participation platform for policy-making in Rotterdam. It provides participation instruments such as an online discussion platform to provide opinions, a content management system to share documents and various voting tools. Zoning plans are visualized and incidentally alternative zone plan are visualized to support the discussion of the strengths and weaknesses of each plan.
8. Virtual communities	<i>Drugs information Rotterdam</i> is a virtual community dealing with drugs-related issues. It provides documentation and information about drugs and the risks of drugs. Drugs users can chat with each other to share thoughts and persons can ask all kind of questions to virtual persons.

Elements of a business models

- Is derived from the main mission of the public organization, often founded in law
- Contains the logic and elements to fulfill the mission successfully using the internet, and to satisfy citizens and/or businesses
- Describes the products, services, and mix of channels
- Addresses the relationship between an agency's strategy and information systems
- Describes the position in the organizational network and relationships with other agencies that target the same audiences.
- Describes future evolvment
- Is ideally independent of temporary technology

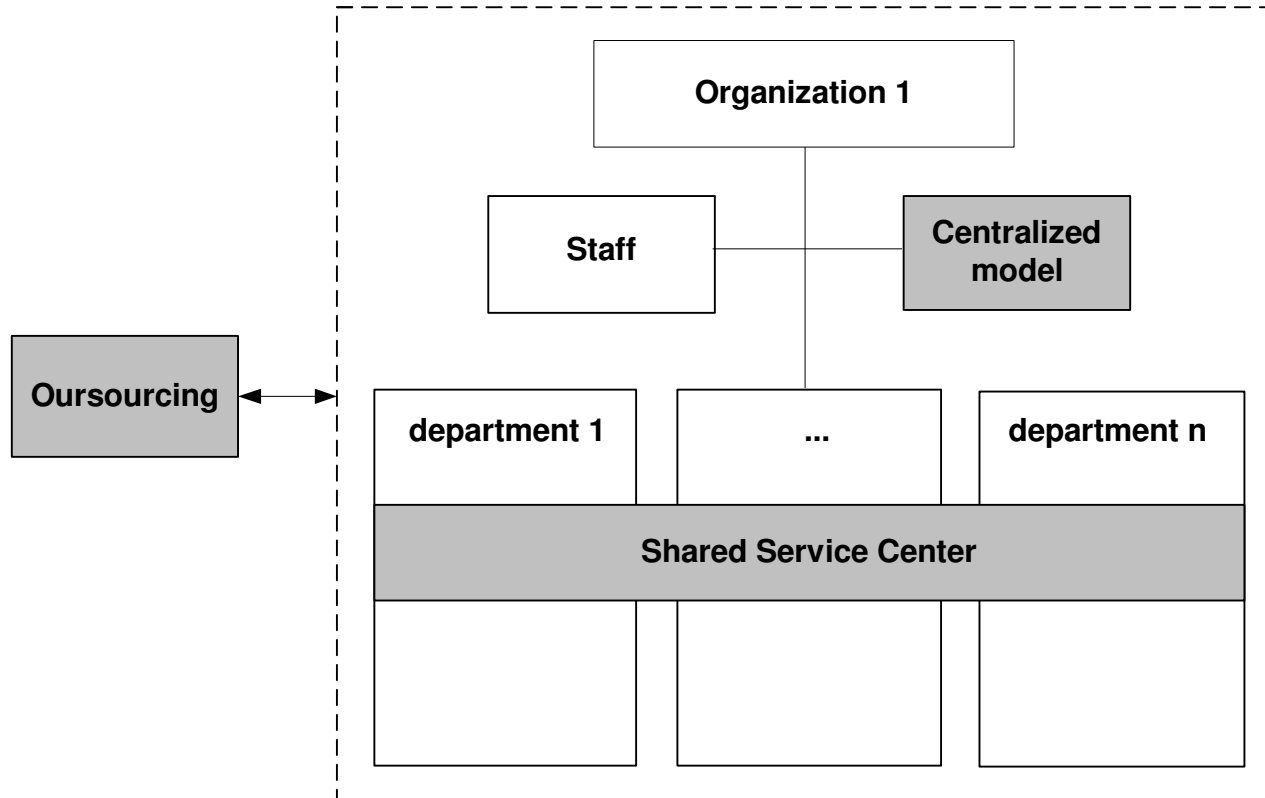
Shares Service Center (SSC)

A SSC is a separate and accountable semi-autonomous unit within an organization, which provides specific pre-defined services to the operational entities of that organization, on the basis of agreed conditions (Janssen & Joha, 2005)

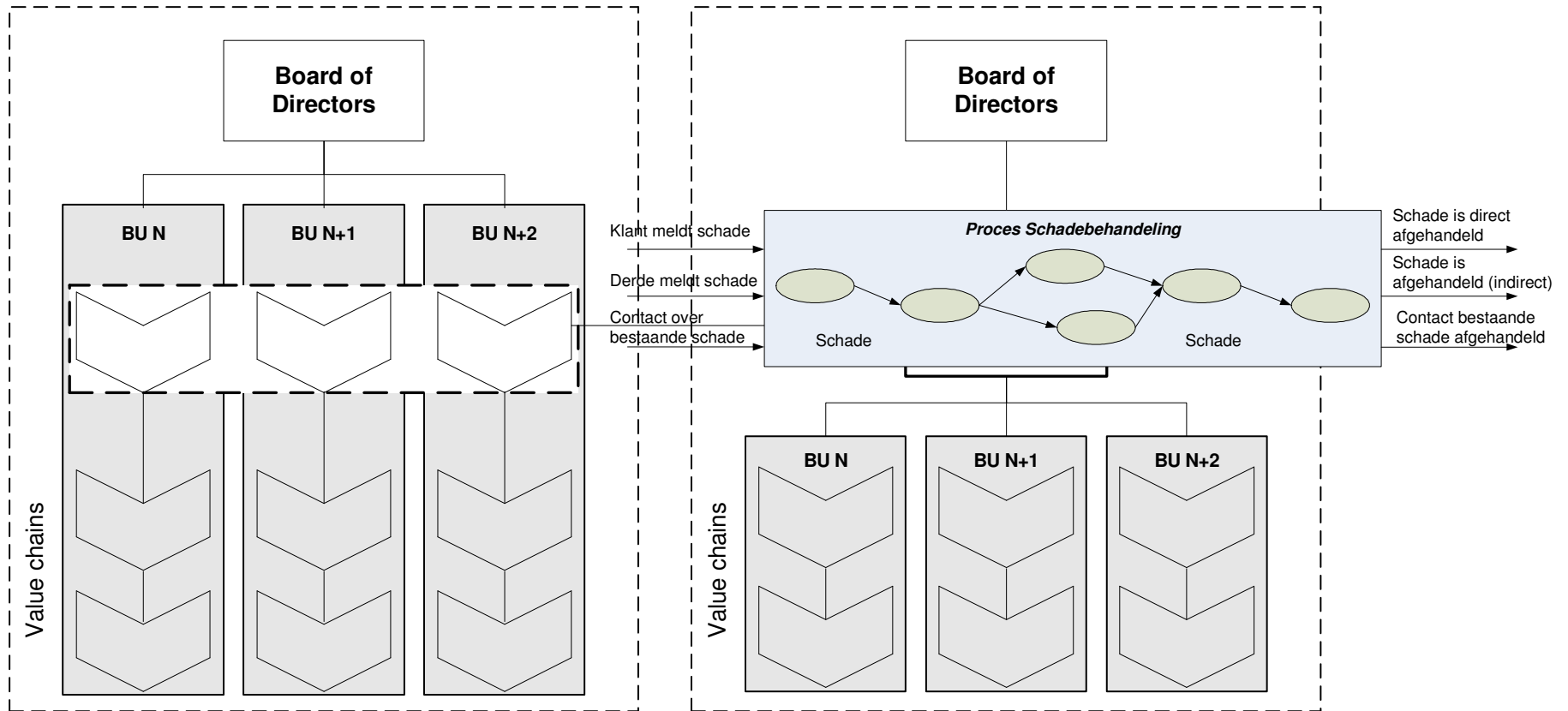
Characteristics

- Concentration and bundling of services
- Semi-autonomous entity
- Multiple customers
- Agreements between SSCs and customers

SSC: types of business models



Case study: Service Center Claims*

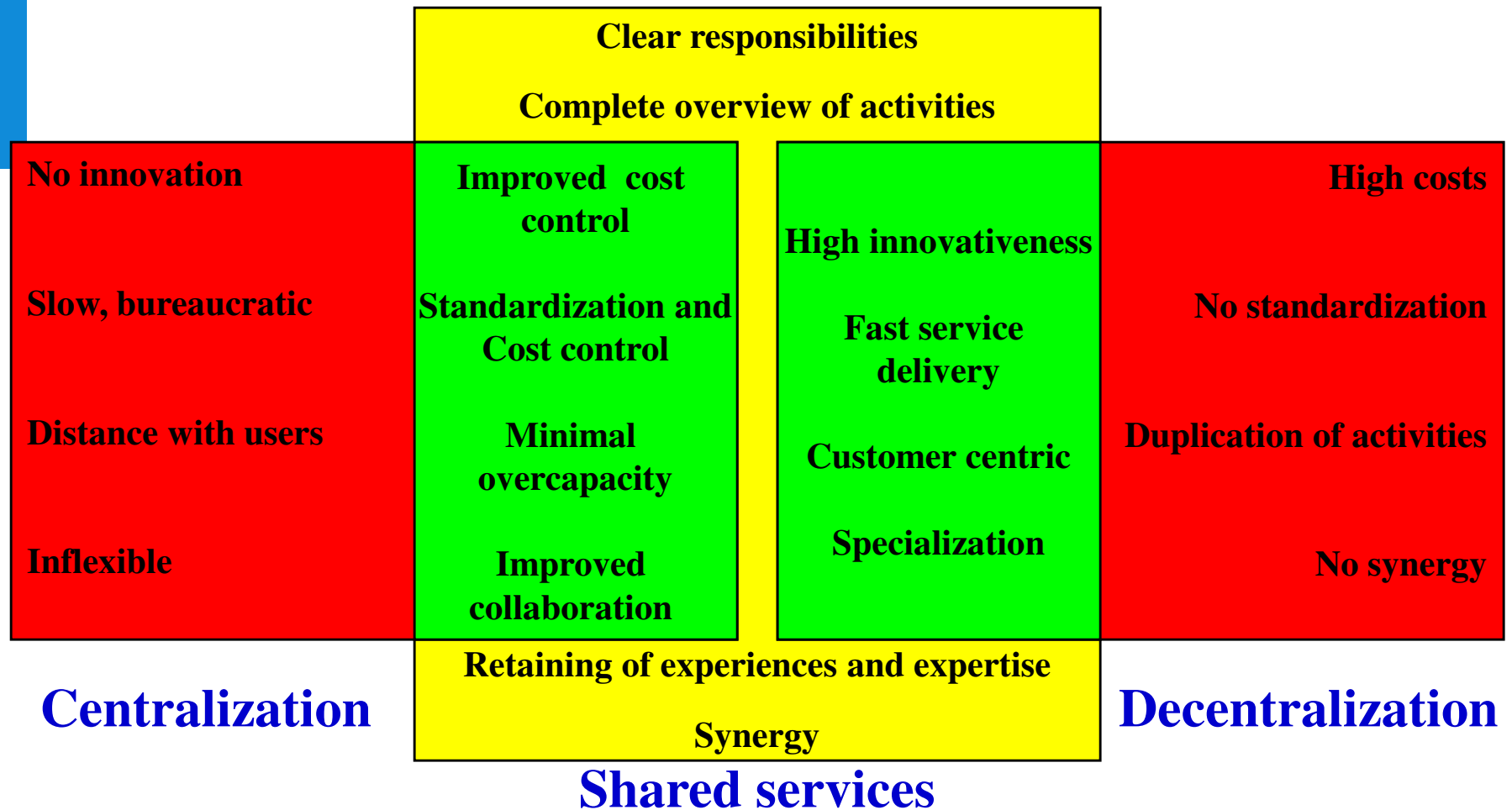


Unbundling

Concentration

*Janssen, M. & Joha, A. (2006). Motives for Establishing Shared Service Centers in Public Administrations. *International Journal of Information Management*, Vol. 26, No. 2, pp. 102-116

SSC benefits*





Business engineering to realize t- government

Barriers to (re-)Engineering*

- Projects are poorly coordinated and acting too independently
- Better communicated among agencies
- Typical issues in (re-)engineering
 - Public sector structure
 - Gaining stakeholder commitment
 - Business process and technology knowledge
 - Division of investments and costs


* Janssen, Marijn & Cresswell, Anthony (2005). An Enterprise Application Integration Methodology for E-Government. *Journal of Enterprise Information Management (special issue on e-Government)*, Vol. 18, No.5, pp. 531-547.

Public sector structure

- Distributed decision-making based on division of control and powers among agencies
- Objectives of government agencies are a lot more diffuse leading to strategies having to meet multiple and frequently competing objectives
- Hierarchical bureaucratic structures often reflect a commitment to outmoded cultural values emphasizing risk aversion and valuing control of functional silos
- Data and information are not viewed as universal currencies but as a commodity which was owned and whose circulation could be restricted
- Organizational structures and functions have not kept pace with changes in technology

Gaining stakeholder commitment

- Stakeholders can use their power to influence the outcome
- Involvement and commitment of primary stakeholders is essential
- Culture-based conflicts and collaboration issues may impede implementation and block innovations
- Need for comprehensive understanding of the situation, including the actors



Business process and technology knowledge

- Knowledge about information and communication technology varies
- Absence of IT know-how at senior management levels can block innovation
- Smaller agencies have limited resources
- Organizational and functional boundaries might distribute knowledge
- No overview of the complete business processes

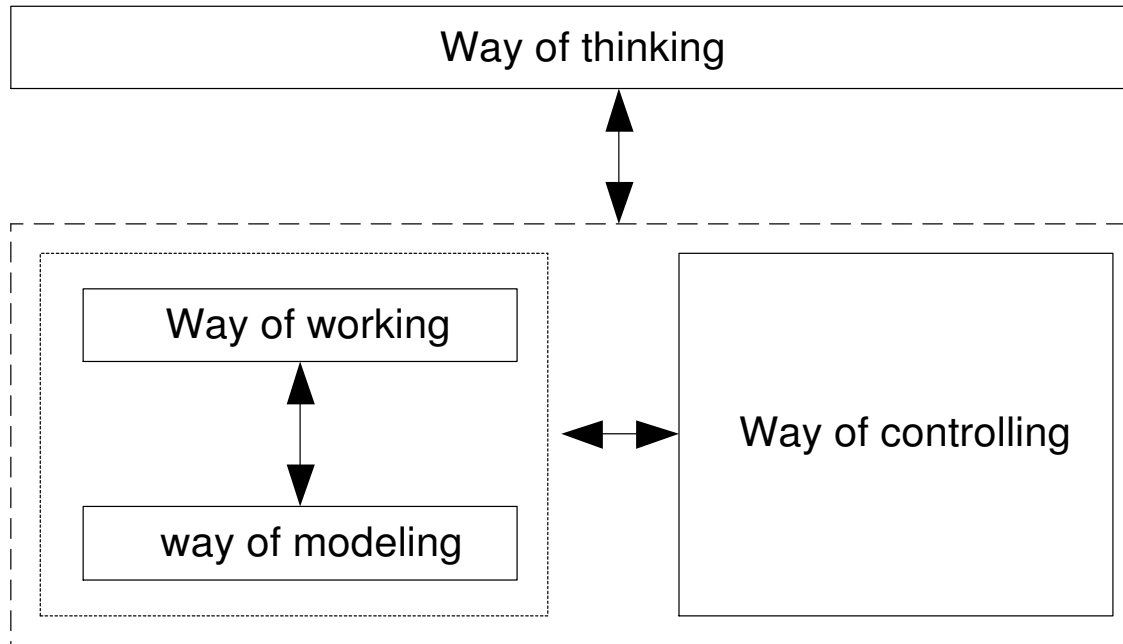
Division of costs

- Multiple stakeholders representing autonomous agencies with separate budgets
- Uncertainty about the costs and assumed benefits
- Inability to discuss how costs will be divided and who will gain the expected benefits
- Implications for 'other organizations' are not clear

Business (re-)engineering

- Methods for breaking through the traditional boundaries between organizational units that to demonstrate the value of cooperation
- Business engineering is the simultaneous design of social and technical systems
- Results in changes in culture, gaining commitment, organizational structure and business processes, and reward systems

Analytical framework for design methodology*

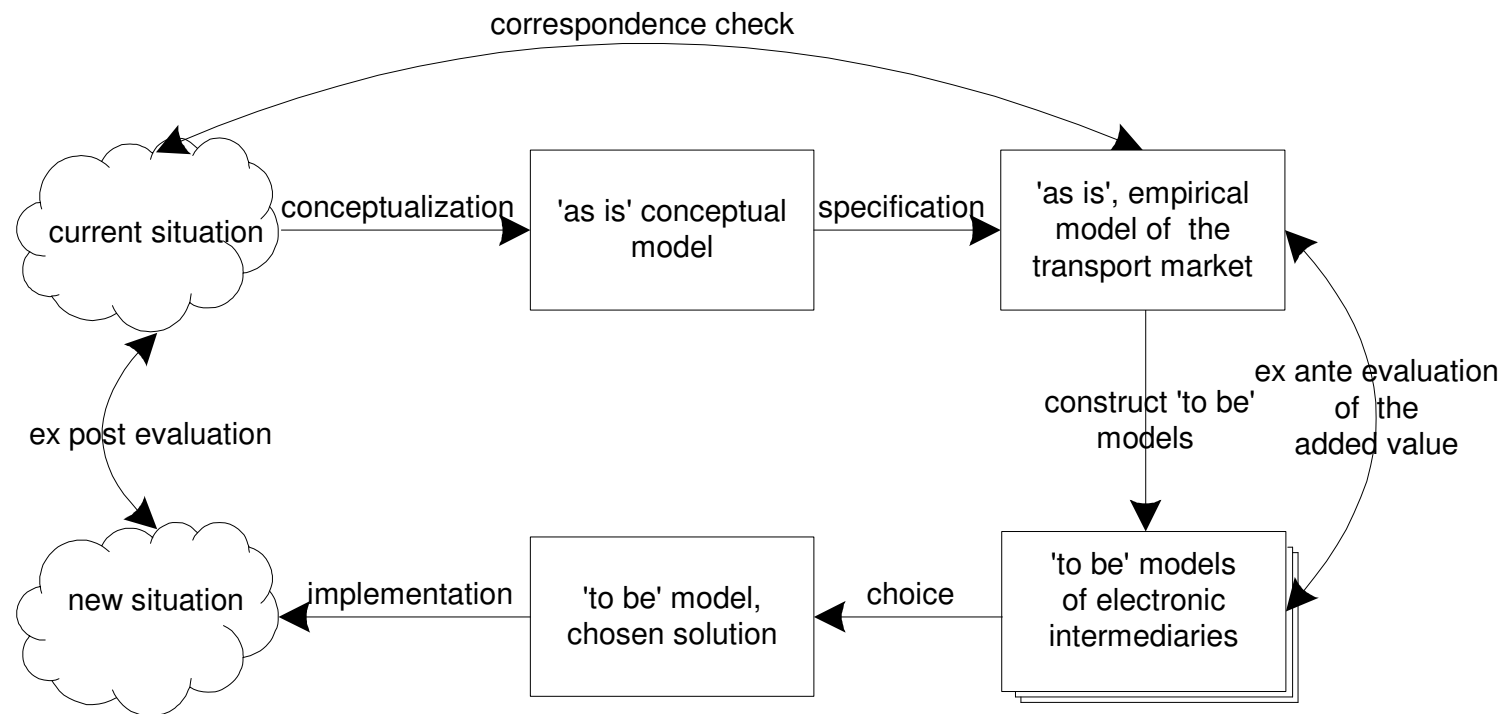


*Sol, H.G. (1982). *Simulation in Information Systems Development*. Doctoral Dissertation, University of Groningen, Groningen, The Netherlands.

Way of thinking

- Supporting relatively small steps and letting stakeholders participate
- Realizing transformations that satisfy all the stakeholders
- Simultaneously addressing policy, social, organizational, strategic, business process and technical issues
- Measuring performance differential
- Communicating results
- Making of business case

Design cycle*



* I I. Mitroff, F. Betz, L.R.Pondy, and F. Sagasti, "On Managing Science in the System Age: Two schemes for the study of science as a whole systems phenomenon," *TIMS Interfaces*, vol. 4, pp. 46-58, 1974.

Business (re-)engineering

- Requires understanding and reengineering of the public sector structure, gaining stakeholder commitment, sharing of knowledge, and negotiation about the division of costs and benefits
 - Supporting public sector decision-makers
 - Understanding the myriad of processes, applications and technology
 - Identifying and evaluating EAI design options
 - Gaining stakeholder commitment
 - Communication
 - Business (investments/cost and social/organizational implications) case
 - Understanding what is needed and why



Models, frameworks, architecture and standards

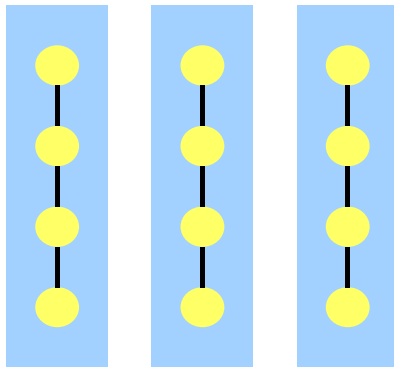
Why enterprise architecture?*



*Source: Overheidsarchitectuurdag 2006

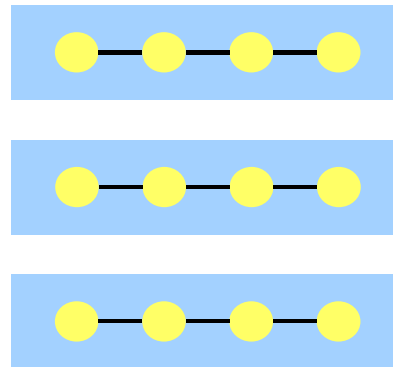
Changing focus

1980's and earlier



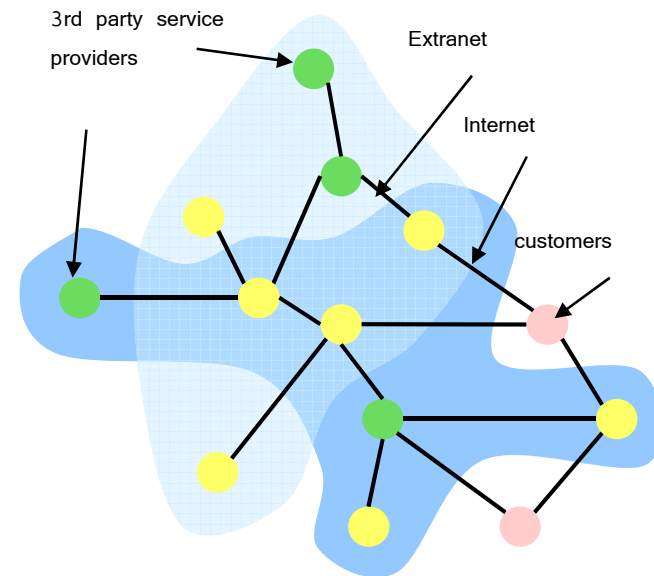
- Organisation Focus
- Mainframe centric
- Monolithic
- Internal use

1980's-90's



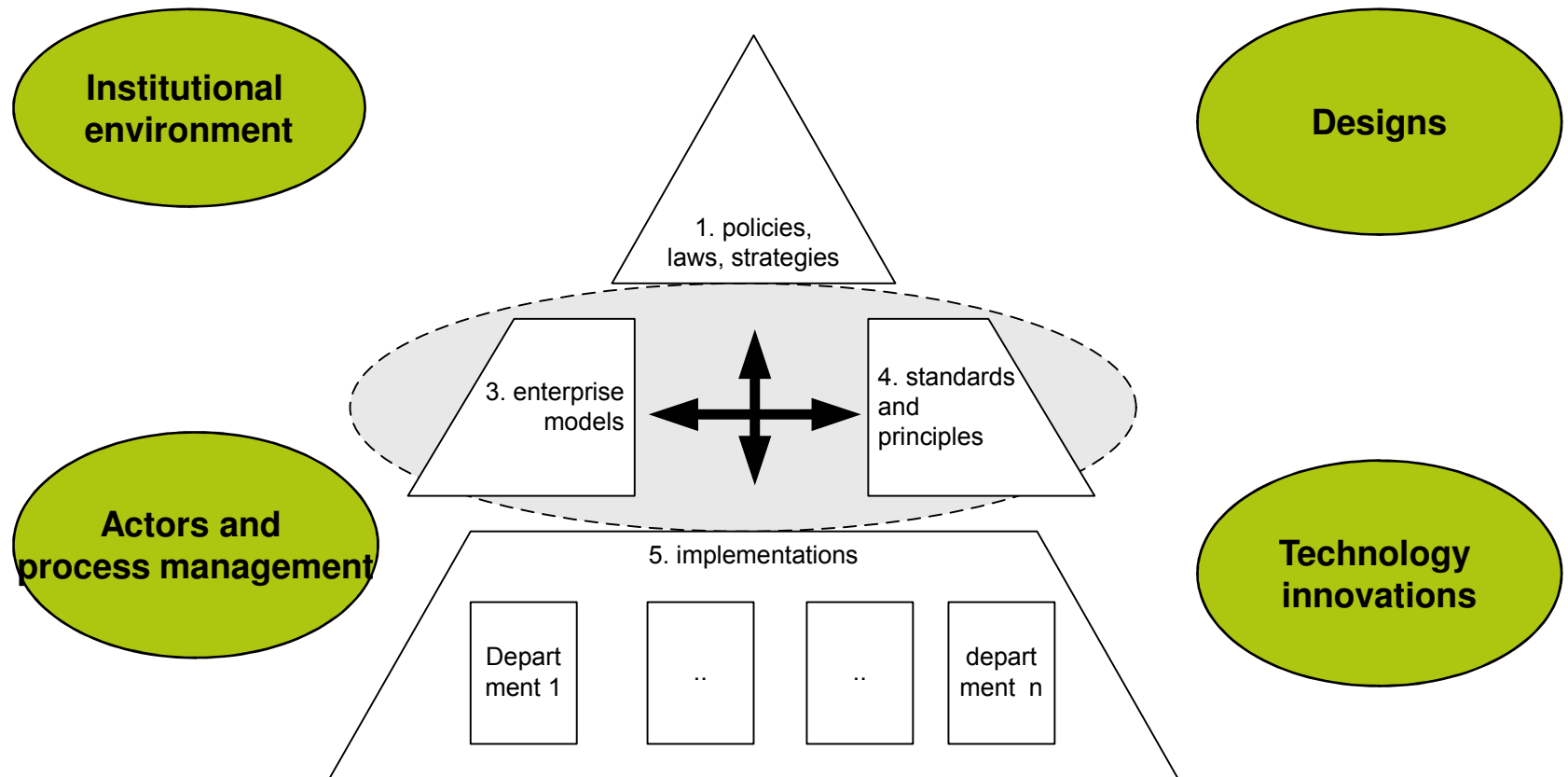
- Business Process Focus
- Client/Server
- Monolithic
- Business-to-business via EDI - *file transfer*

New Millennium








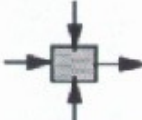

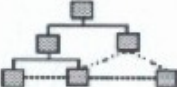

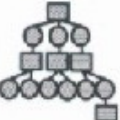
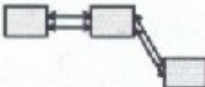
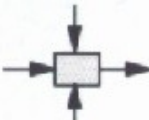
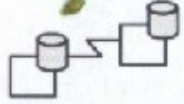



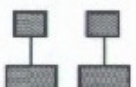


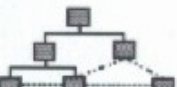










- Virtual organisations
- Distributed
- Componentised
- E-commerce direct to customers - *real-time transactions*

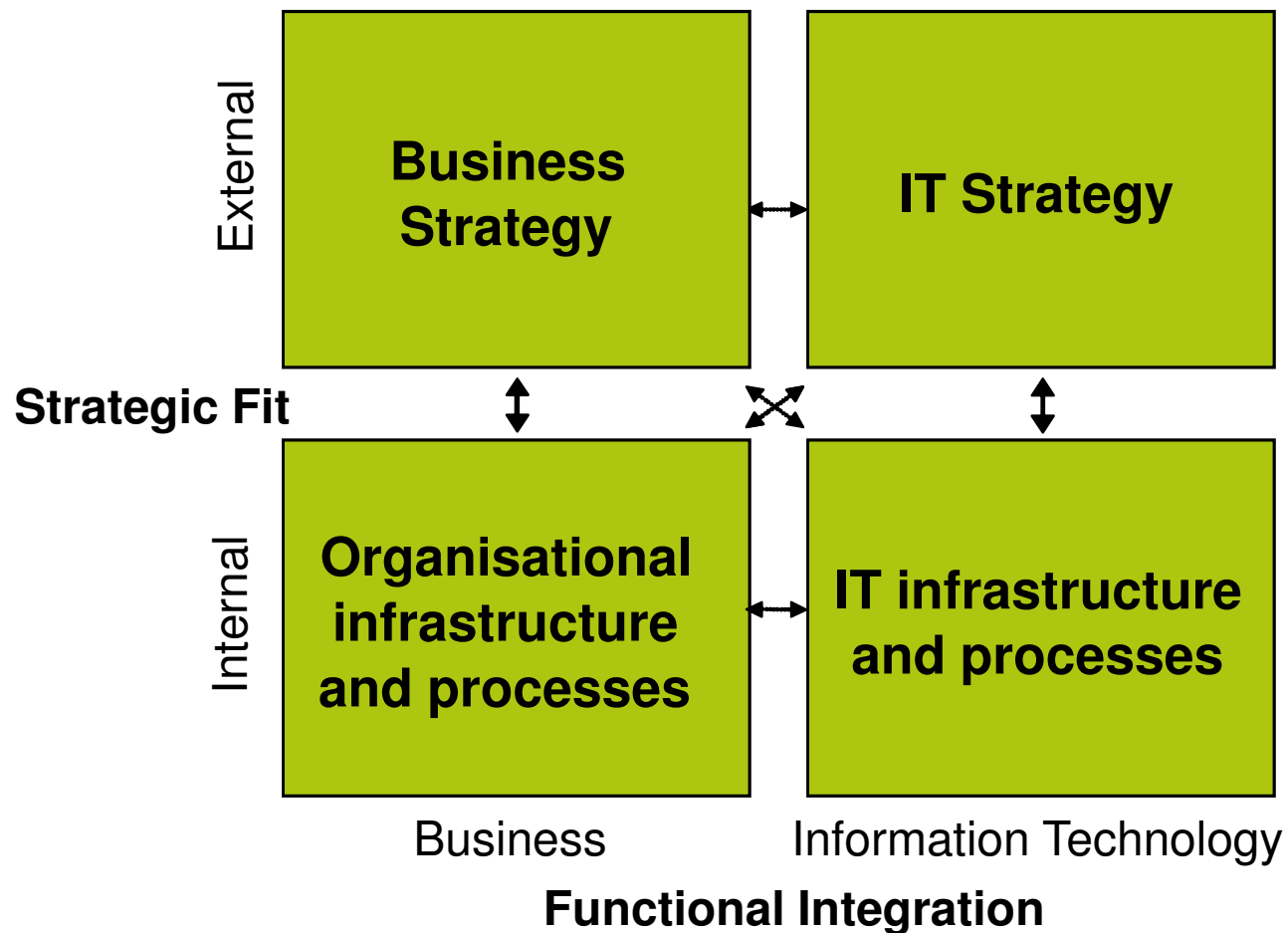
Architecture as balancing act and position*



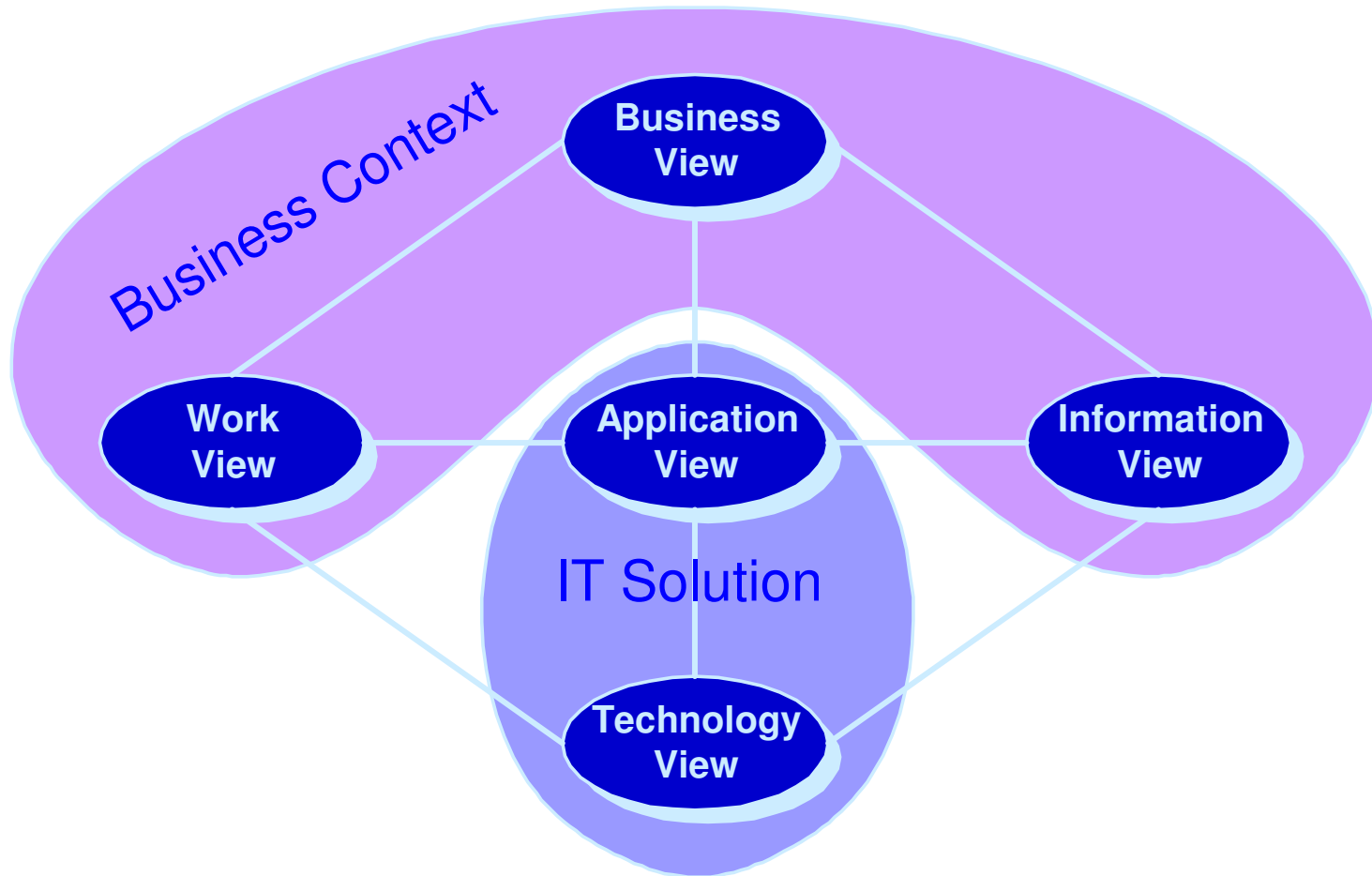
*Janssen, M. & Hjort-Madsen, K. (2007). Analyzing Enterprise Architecture in National Governments: The cases of Denmark and the Netherlands. (*HICSS-40*), Waikoloa, Big Island, Hawaii, 3-6 January, 2007.

	DATA <i>What</i>	FUNCTION <i>How</i>	NETWORK <i>Where</i>	PEOPLE <i>Who</i>	TIME <i>When</i>	MOTIVATION <i>Why</i>	
SCOPE (CONTEXTUAL)	List of Things Important to the Business 	List of Processes the Business Performs 	List of Locations in which the Business Operates 	List of Organizations Important to the Business 	List of Events Significant to the Business 	List of Business Goals/Strat 	SCOPE (CONTEXTUAL)
<i>Planner</i>	ENTITY = Class of Business Thing	Function = Class of Business Process	Node = Major Business Location	People = Major Organizations	Time = Major Business Event	Ends/Mean=Major Bus. Goal/Critical Success Factor	<i>Planner</i>
ENTERPRISE MODEL (CONCEPTUAL)	e.g. Semantic Model 	e.g. Business Process Model 	e.g. Business Logistics System 	e.g. Work Flow Model 	e.g. Master Schedule 	e.g. Business Plan 	ENTERPRISE MODEL (CONCEPTUAL)
<i>Owner</i>	Ent = Business Entity Rein = Business Relationship	Proc. = Business Process I/O = Business Resources	Node = Business Location Link = Business Linkage	People = Organization Unit Work = Work Product	Time = Business Event Cycle = Business Cycle	End = Business Objective Means = Business Strategy	<i>Owner</i>
SYSTEM MODEL (LOGICAL)	e.g. Logical Data Model 	e.g. Application Architecture 	e.g. Distributed System Architecture 	e.g. Human Interface Architecture 	e.g. Processing Structure 	e.g. Business Rule Model 	SYSTEM MODEL (LOGICAL)
<i>Designer</i>	Ent = Data Entity Rein = Data Relationship	Proc. = Application Function I/O = User Views	Node = I/S Function (Processor, Storage, etc) Link = Line Characteristics	People = Role Work = Deliverable	Time = System Event Cycle = Processing Cycle	End = Structural Assertion Means = Action Assertion	<i>Designer</i>
TECHNOLOGY MODEL (PHYSICAL)	e.g. Physical Data Model 	e.g. System Design 	e.g. Technology Architecture 	e.g. Presentation Architecture 	e.g. Control Structure 	e.g. Rule Design 	TECHNOLOGY MODEL (PHYSICAL)
<i>Builder</i>	Ent = Segment/Table/etc. Rein = Pointer/Key/etc.	Proc. = Computer Function I/O = Data Elements/Sets	Node = Hardware/System Software Link = Line Specifications	People = User Work = Screen Format	Time = Execute Cycle = Component Cycle	End = Condition Means = Action	<i>Builder</i>
DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)	e.g. Data Definition 	e.g. Program 	e.g. Network Architecture 	e.g. Security Architecture 	e.g. Timing Definition 	e.g. Rule Specification 	DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)
<i>Sub-Contractor</i>	Ent = Field Rein = Address	Proc. = Language Stmt I/O = Control Block	Node = Addresses Link = Protocols	People = Identity Work = Job	Time = Interrupt Cycle = Machine Cycle	End = Sub-condition Means = Step	<i>Sub-Contractor</i>
FUNCTIONING ENTERPRISE	e.g. DATA	e.g. FUNCTION	e.g. NETWORK	e.g. ORGANIZATION	e.g. SCHEDULE	e.g. STRATEGY	FUNCTIONING ENTERPRISE

Henderson & Venkatraman

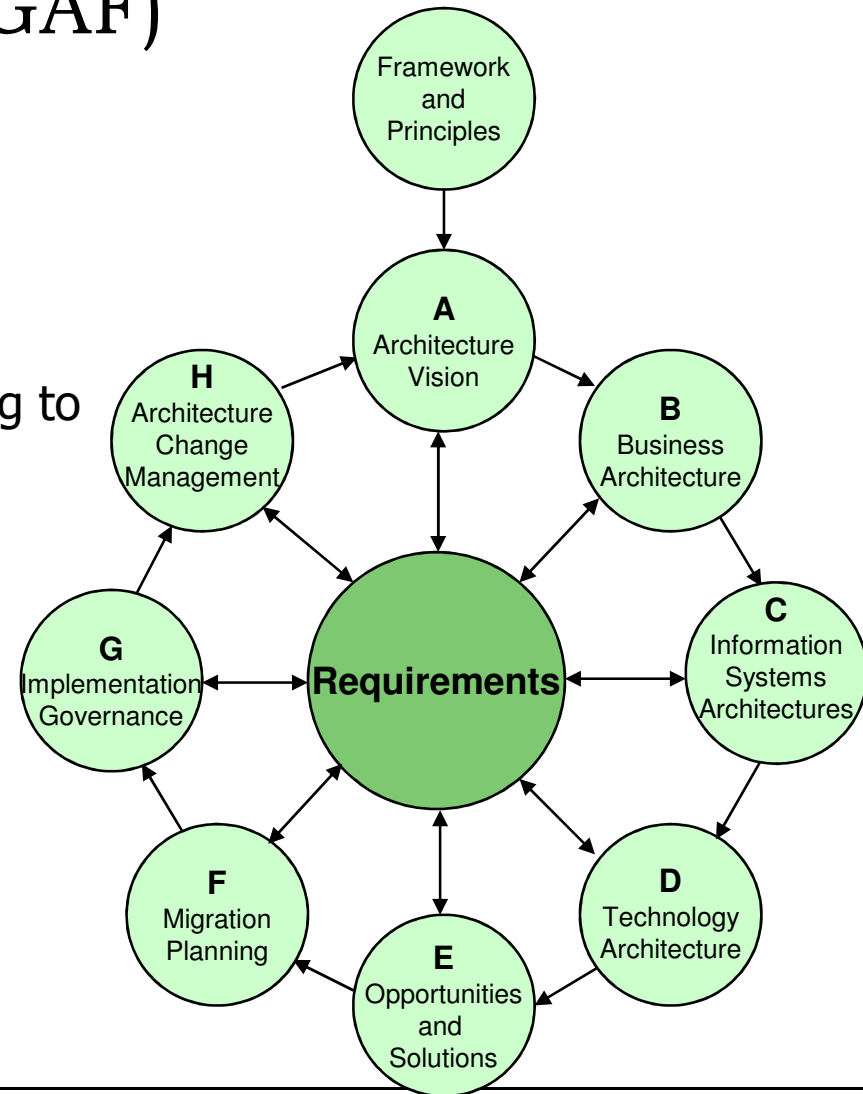


IT solutions in context

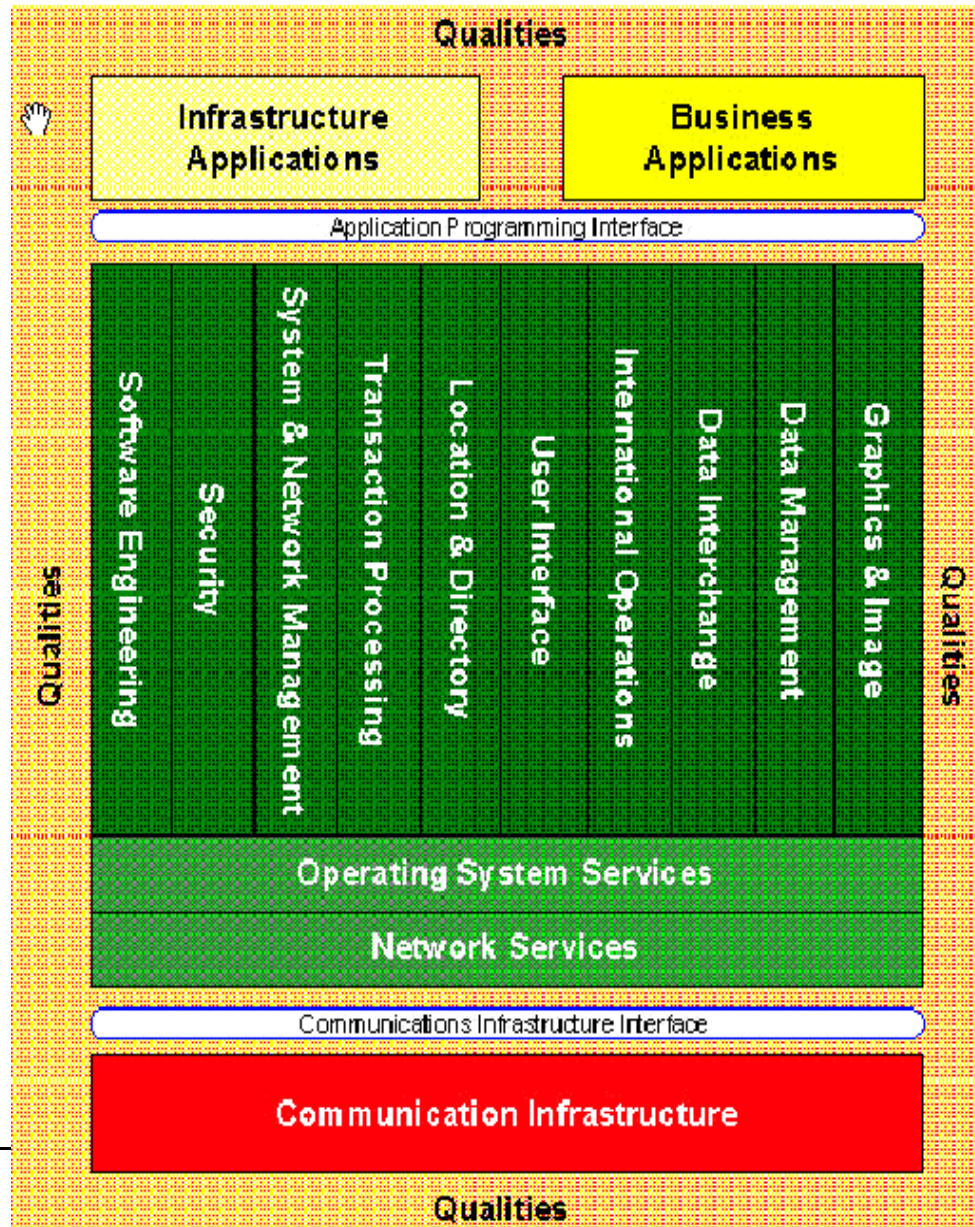


The Open Group Architecture Framework (TOGAF)

- The cycle is divided in “phases”
- Each phase is described according to a template having the following elements: objectives, approach, inputs, steps, and outputs




TOGAF technical reference model



Conclusions enterprise architecture

- Aligns strategy and implementation
- Provides standards for interoperability
- A reasonable level of abstraction
- Adequate coverage of the real world
- Reasonable familiar and assessable concepts
- Entities differ while maintaining similarities in domains
- Layered approach
- Communication vehicle
- Describes current situations, evolution project and prescribes desired situations
- Defines principles and guidelines as a starting point
- Includes management and governance issues
- Helps transformation



Technology and implementation issues

Technology

- Technology: mechanism deliver change
- Hardware Technologies
 - Digital TV: a communication channel, convergence of technologies.
 - Broadband and wifi, communication infrastructure
 - Cellular networks and mobile phone technologies, adaptable channels
 - Encryption Technology for information assurance
 - 64-bit computing, high performance/grid computing for computing power and efficiency



Software Technologies

- Web services, for multi-channel communication, interoperability
- Virtualisation: to harness transitions across technological ages
- Just-in-time technologies: for rapid response and efficient response to change

Solutions

- Internet-based services
- Management solutions, e.g.:
 - Performance management,
 - Enterprise Resource Planning,
 - Customer Relationship Management
 - Supply Chain Management

Of Transformational Solutions

- Semantic Technologies: better attribute interpretations to computational processes
- Complexity: Computational (time and space); intellectual, scalability
- Automation: of processes, transformation & software production.
- Derive from current technology and practices:
 - Use of current technologies as stop-gap
 - Develop e-version of processes and model
 - Develop transformational versions

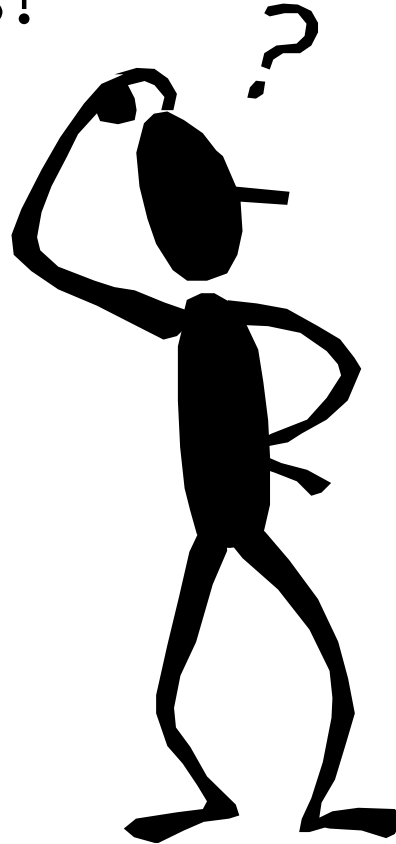
Discussion topics

- Trends and orientations; vision
- Benefits
- Information Assurance
- Multi-channel Access
- Professionalism: training
- Technical challenges:
 - Models, complexity, technology
- Social Challenges:
 - Culture, leadership, legislation

Discussion topics

- Is there a need for t-government in your country or organization?
- Is t-government feasible in public administration?
- What is the need for t-government?
- Which models can help your organizations?
- How would you implement t-government?

Questions?



Marijn Janssen, m.f.w.h.a.janssen@tudelft.nl
William S. Shu, wsshu@yahoo.com