PRINCIPLES, POLICIES, AND JURIDICAL ISSUES IN E-GOVERNMENT PROJECT PLANNING: A METHODOLOGICAL FRAMEWORK

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Agenda

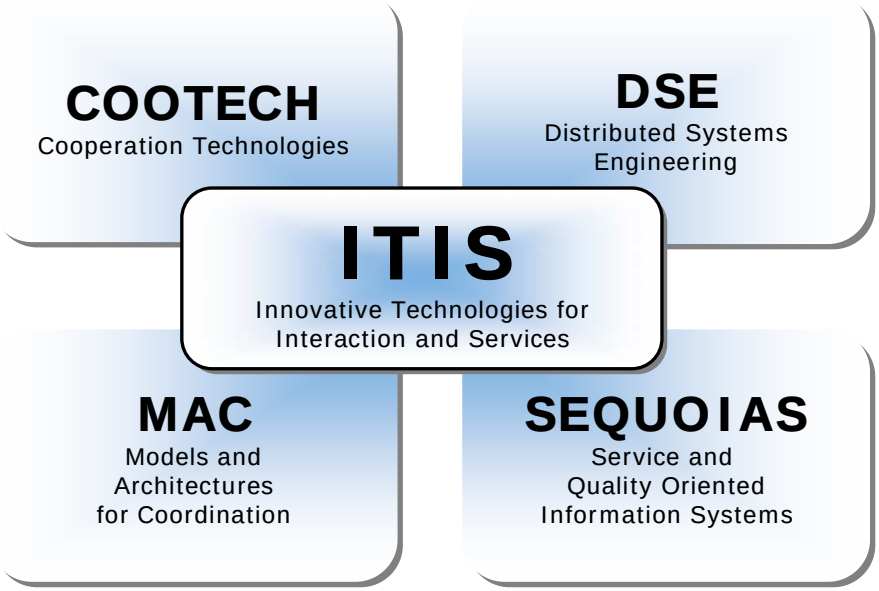
- **Introduction the research group**
- Background
- The GovQual Methodology
- Dealing with principles, policies, and laws
- Conclusion and Future work

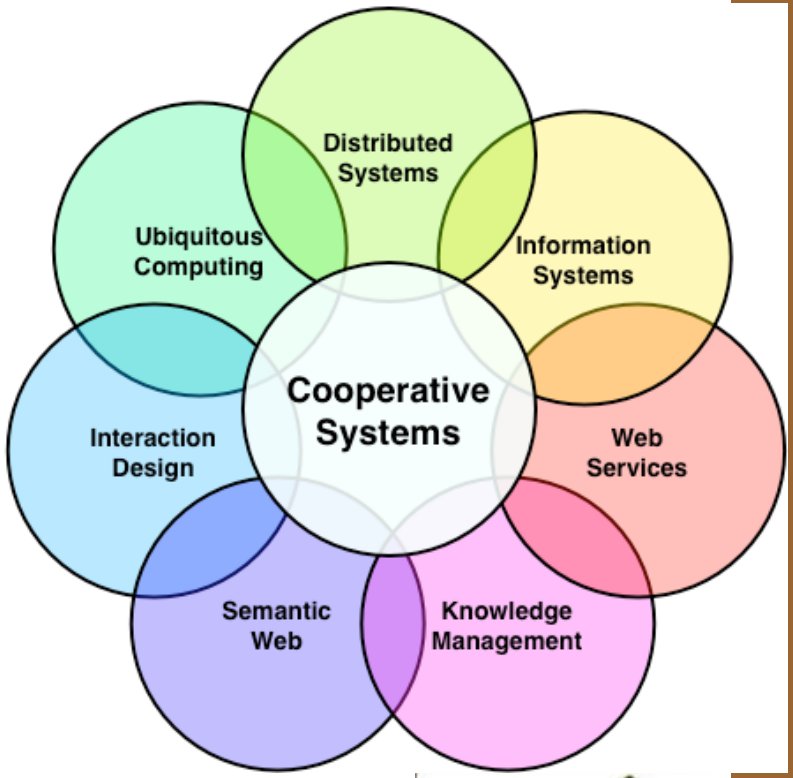
What is DISCo

- The Department of Informatics, Systems and Communication (DISCo) opened on January 1, 1999. Currently, DISCo offers
  - First level and one second level degree in Information Technology and Computer science.
  - Diversified plans of study, some of them highly multidisciplinary
  - Doctoral programmes in Computer Science and Studies and on Information and communication technology applied to knowledge society and to learning processes
  - Industrial and academic collaborations at national and international level
- Research is organized into four areas developed by the research labs:
  - Software architecture and analysis, distributed systems, imaging and artificial vision, robotics
  - Date bases and information systems, artificial intelligence, knowledge engineering and management, cooperative technologies
  - Bioinformatics, complex systems, formal models of distributed systems
  - Information, finance and environment, computational networks and decision sciences

The ITIS Lab at DISCo

- In 2007, four labs already collaborating in several initiatives merged to found the ITIS Lab





- Cooperative Systems is the concept around which ITIS is built

SEQUOIAS

The SEQUOIAS group

- SEQUOIAS research focuses on two main areas:

Information systems

- Data quality
- Service science
- Methodologies for planning and design of information systems
- e-Government
- Cooperative Information systems
- Applied ontologies

Distributed Systems & Services Engineering

- Peer-2-Peer cooperative systems
- Knowledge Management
- Semantic Web services
- Web service selection and composition
- Business Process Management and Workflow Management Systems

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Motivations

- Different approaches in the **management of the public sector** towards new models of governance, aiming to reintegrate services with a new perspective on bureaucracy
- Awareness that models and techniques of **information systems evaluation** exploited in the private sector cannot be adapted as-is to public sector and e-Government initiatives
- Lack of methodologies coping with the **systemic complexity** of e-Government at strategic planning level
- Poor consideration of the **impacts of principles, policies and laws** on e-Government projects planning has been seldom investigated
- Poor consideration of the **institutional facets of e-Government strategy** as a rules-based-action aiming to provide services appropriate for the institutional context

Questions

- *How to deal in a systemic way with the different facets involved in the planning of e-Government initiatives?*
- *How to deal with different rules and legal frameworks in planning and design of e-Government initiatives?*
- *How to elicit the institutional requirements within the context of intervention?*

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E-Government Strategy

- *An e-Government strategy is a plan for e-Government systems and their supporting infrastructure which maximizes the ability of management to achieve organizational objectives (Heeks, 2005)*
- Furthermore, the e-Government strategy can be seen from an institutional perspective as a **rules-based-action** aiming to provide services appropriate for the institutional context.
  - The appropriateness of rules considered organized into institutions includes both cognitive and normative components (see March & Olsen2008).

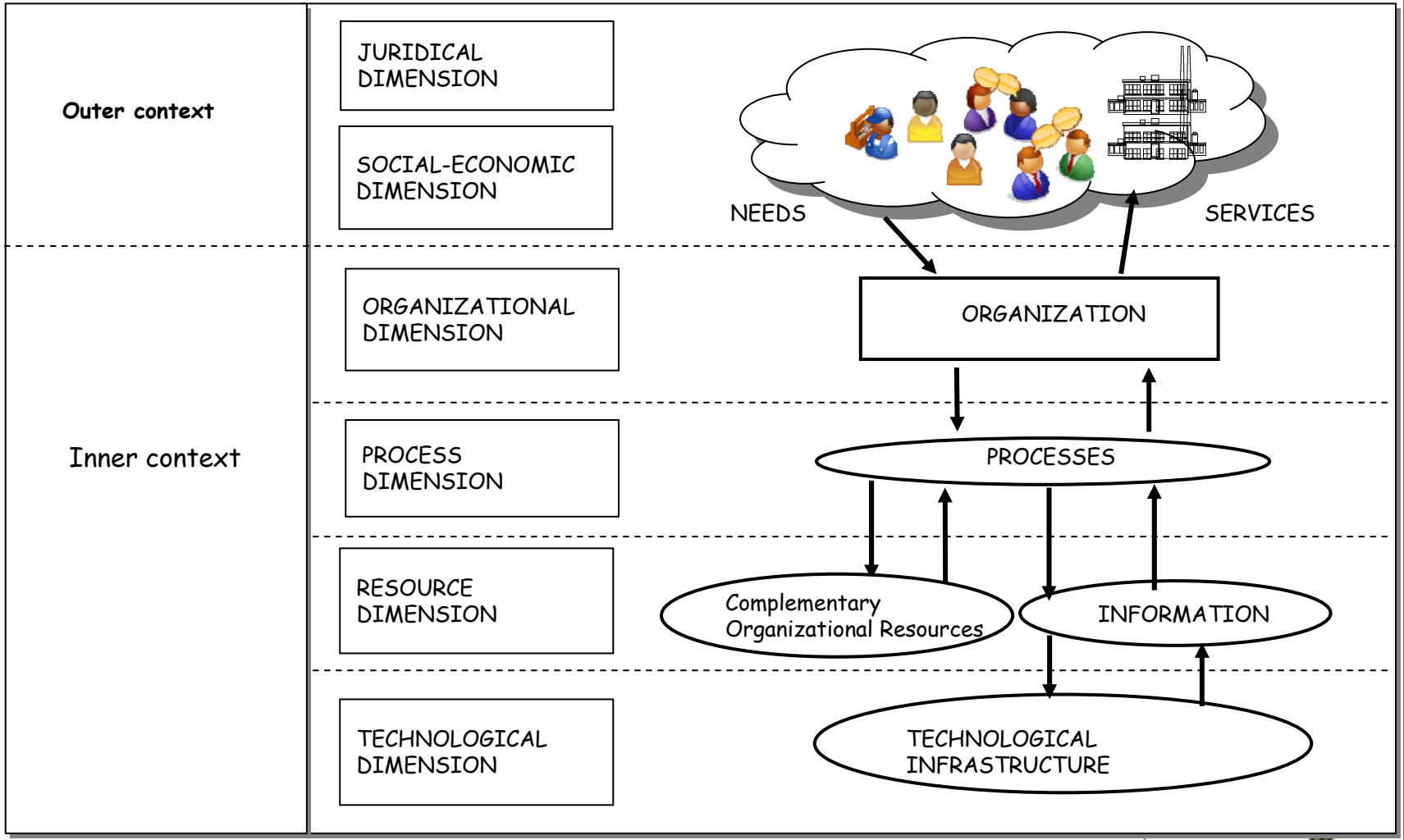
Founding concepts

- **Appropriateness** is the capability of detecting and enhancing the potential of the context, and the degree the e-Government services fit the context characteristics, both at the macro (scenery) micro (users context) , and institutional level (Bridges 2005) . The appropriateness of rules considered organized into institutions includes both cognitive and normative components (March & Olsen 2008).

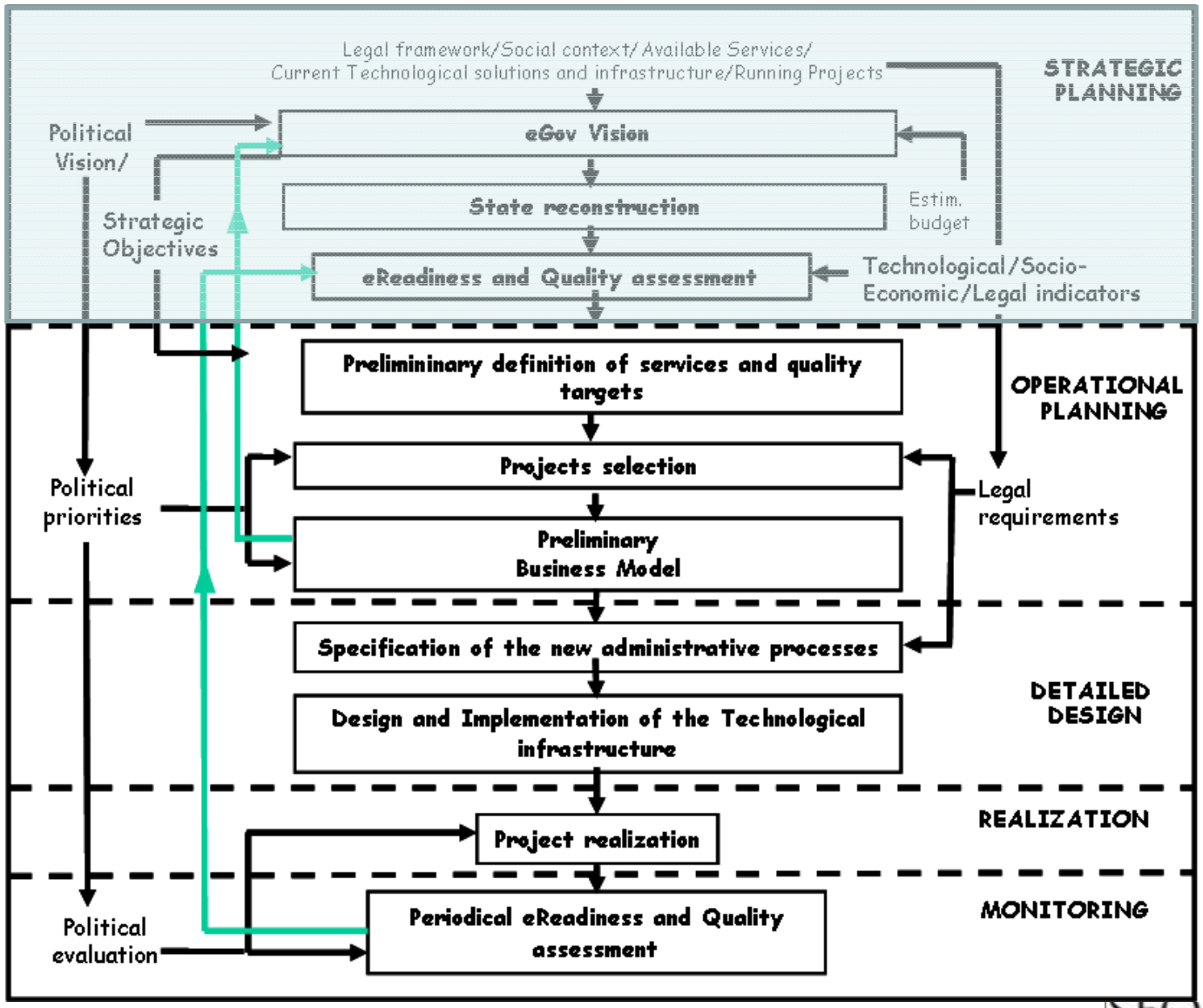
- **Homology of systems or structure** establishes a structural correspondence between two phenomena or between two coherent systems of meaning and action (Boudon 2000, 2001).

- **Quality**, as a quality of an artifact, a product, a service, is the degree to which a set of inherent characteristics of the artifact, process, service fulfills requirements (ISO 2000).

The GovQual perspective



The GovQual methodology



DIPARTIMENTO DI INFORMATICA SISTEMISTICA E COMUNICAZIONE

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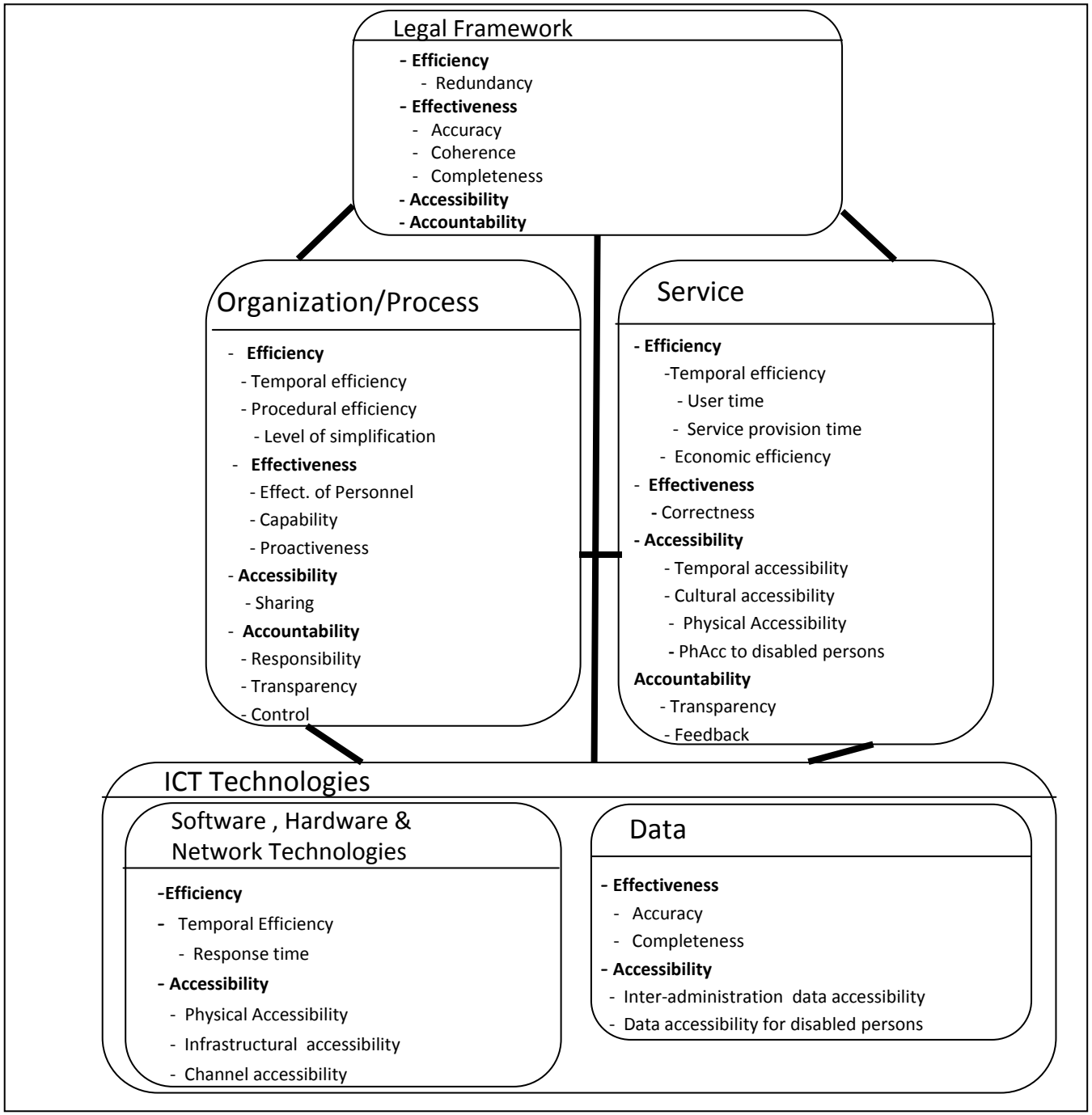
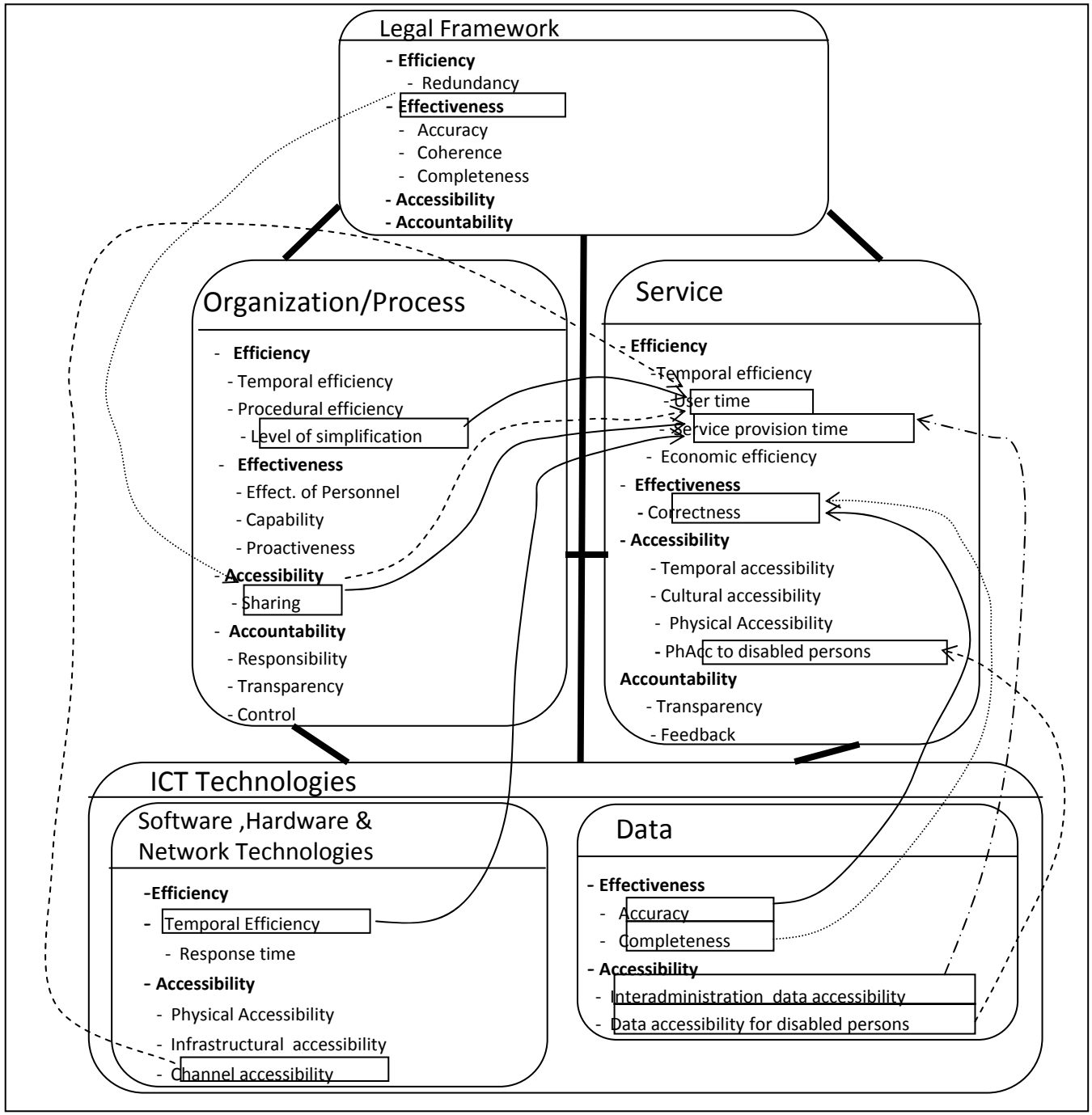
GovQual Quality framework



Relationships between qualities



GovQual application

- Extensively applied in the eG4M (eGovernment for Mediterranean Countries) project:
  - **Morocco** – from November 2008 to April 2009
    - eReadiness of Municipality of Tangier (focus on Governance)
  - **Tunisia** -from January 2008 to April 2009
    - Information systems integration initiatives of the Tunisian Ministry of agriculture and hydraulic resources.

The tunisian experimentation

- The main challenge for the Ministry is the **integration** at horizontal level of the data bases of the central administrative departments.
- A second related goal is to
  - provide a unified view of the **interactions between each department** and other public administration,
    - to evaluate the actual level of **efficiency** and **effectiveness** of current information systems for eGovernment services provision.

The participants

- Four major administrative departments have priority in the e-Government initiatives, namely:
  - the department of animal production;
  - the department of the restructuring of agricultural state-owned domains;
  - the department of veterinary services;
  - the department of water resources management

The action…

- GovQual **state reconstruction** step have been focused on the following issues:
  - the ***conceptual schemas re-engineering*** of the current data bases, in order to identify the master data of the MAHR, suitable to be used for the design of the conceptual schema of the integrated information system;
  - the ***data quality evaluation*** of the available data, in terms of their currency and completeness, in order to verify the correspondence with the current procedures and services provided by the public administration;
  - the ***representation of the interactions*** *between public administrations* in terms of services and related processes, together with involved type of information and ownership of the involved data bases; the goals is to define the priority intervention areas in the integration initiative.
- After a set of courses introducing the methodology and related topics, the above described three issues have been developed through participatory design workshops involving four teams composed by three civil servants (one senior manager and two middle level manager) each from the four departments

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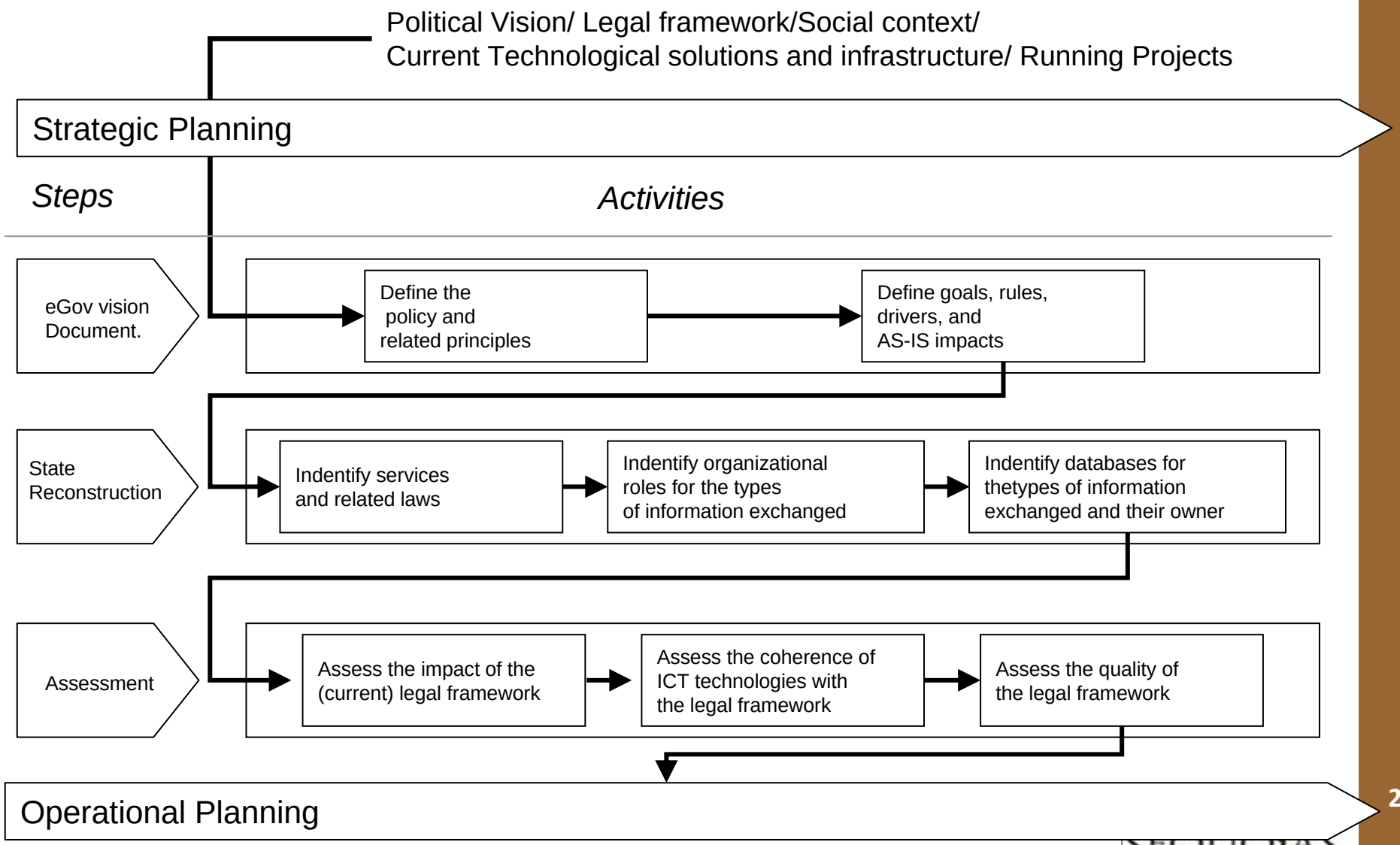
Strategic planning



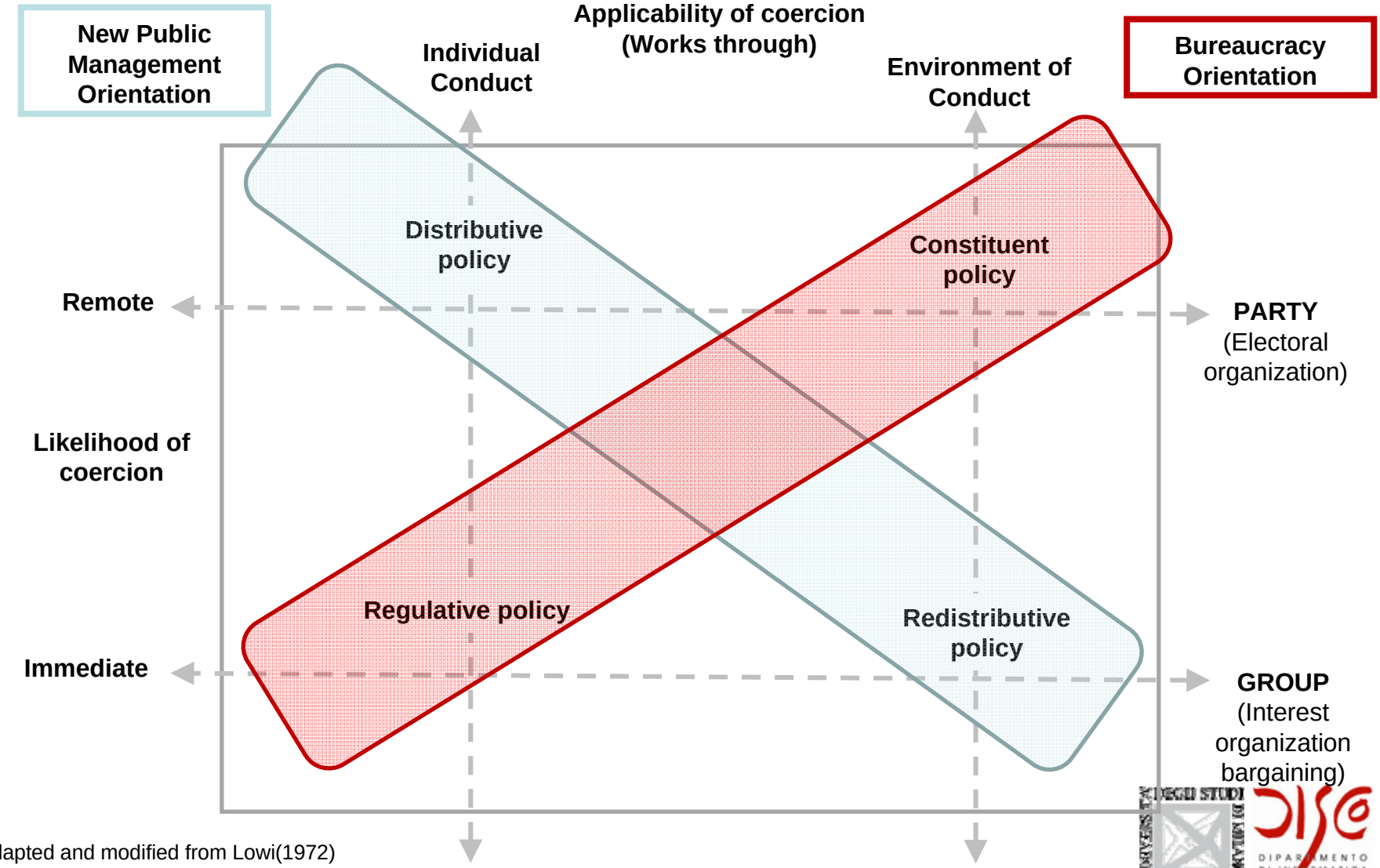
Principles, Policies, Rules

- **Policies** can be considered as **intention(s)**, **action(s)** or as composed both by intention(s), action(s) (Page, 2006)
- **Principles** are "**general views** about how public affair should be arranged or conducted (Principle can be considered a specific Policy intentions) (Page, 2006)
- **Public policy** can be considered synonymous with law, rule, statute, edict, and regulation, when considered as "an officially expressed intention backed by a **sanction**" (Lowi, 1998)
- Nevertheless, even if all public policies must be understood as coercive, coercion is only one of the characteristics of rules and law besides coercion may **confer powers or privileges** without imposing obligations (Hart, 1961)

Legal systems and rules

- Legal system scan be considered as a systems of rules (Hart, 1961), where rules can be classified in terms of
  - ***primary rules*** that express rules of conduct (Hart, 1961)
    - a primary rule as a rule (policy) that imposes an obligation on citizens and then applies a sanction for nonperformance
  - ***secondary rules*** that define the roles of the civil servants who have to administer the rules of conduct (Hart, 1961)
    - a secondary rule (policy), in contrast, imposes no direct sanctions but, instead, empowers or enables citizens to act in their own behalf or interests
- A complementary distinction (Searle, 1995)is made between
  - ***regulative norms*** which describe obligations, prohibitions and permissions,
  - ***constitutive norms*** that regulate the creation of institutional facts like property or marriage, as well as the modification of the normative system itself. These latter are related to secondary rules

Policies, Politics and types of coercion



Adapted and modified from Lowi(1972)

Principles/Policies checklist

Principle/Policy	Market-Oriented	Bureaucracy Oriented
Impersonality		X
Fairness		X
Equality		X
Personalisation	X	
Decentralisation	X	
Delegislation	X	
Subsidiarity	X	
Wholeness	X	
Disaggregation	X	
Cooperation	X	X
Integration		X
Uniformity		X
Efficiency	X	X
Simplification	X	
Productivity	X	
Effectiveness		X
Adequacy	X	X
Accountability	X	X
Transparency	X	X

(Retrieved among others from Cordella,2006 – Du Gay, 2000 – Dunleavy, 2006)

Principle, goal, related rules, enabling technologies, socio-organizational impact

Principle	Goal	Rule	Driver	Socio-organizational Impact (AS-IS)
Efficiency	Embedding administrative procedures in ICT	Simplification laws	Cooperative architectures	Improve administrative processes
Effectiveness	Information management and coordination	Laws on digital signature	Digital signature technology	Reducing Burden on citizens

.

Map model

C0: <Start, G_k, $S_{start\ k}$>

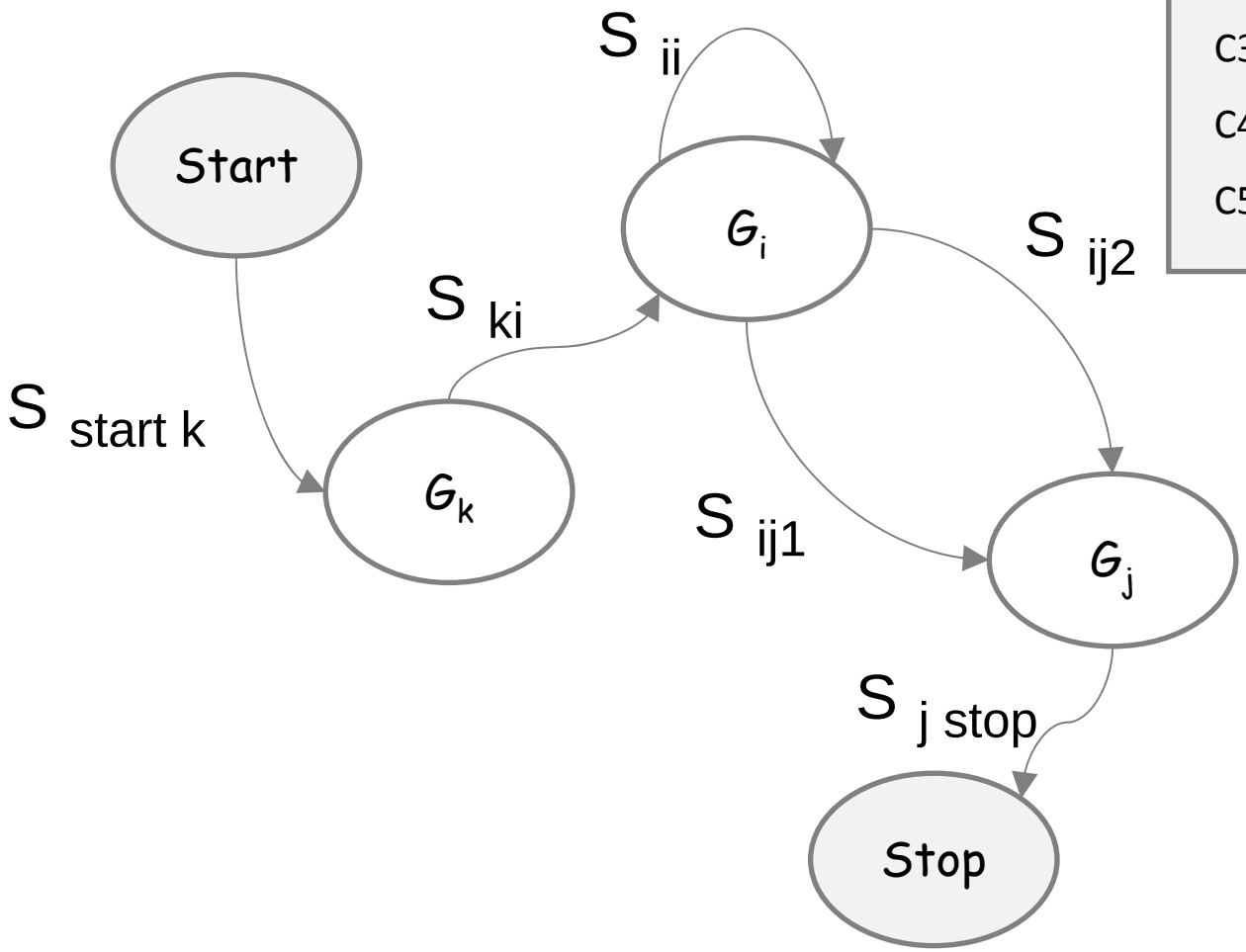
C1: <G_i, G_j, S_{ij1} >

C2: < G_i, G_j, S_{ij2} >

C3: < G_i, G_i, S_{ii} >

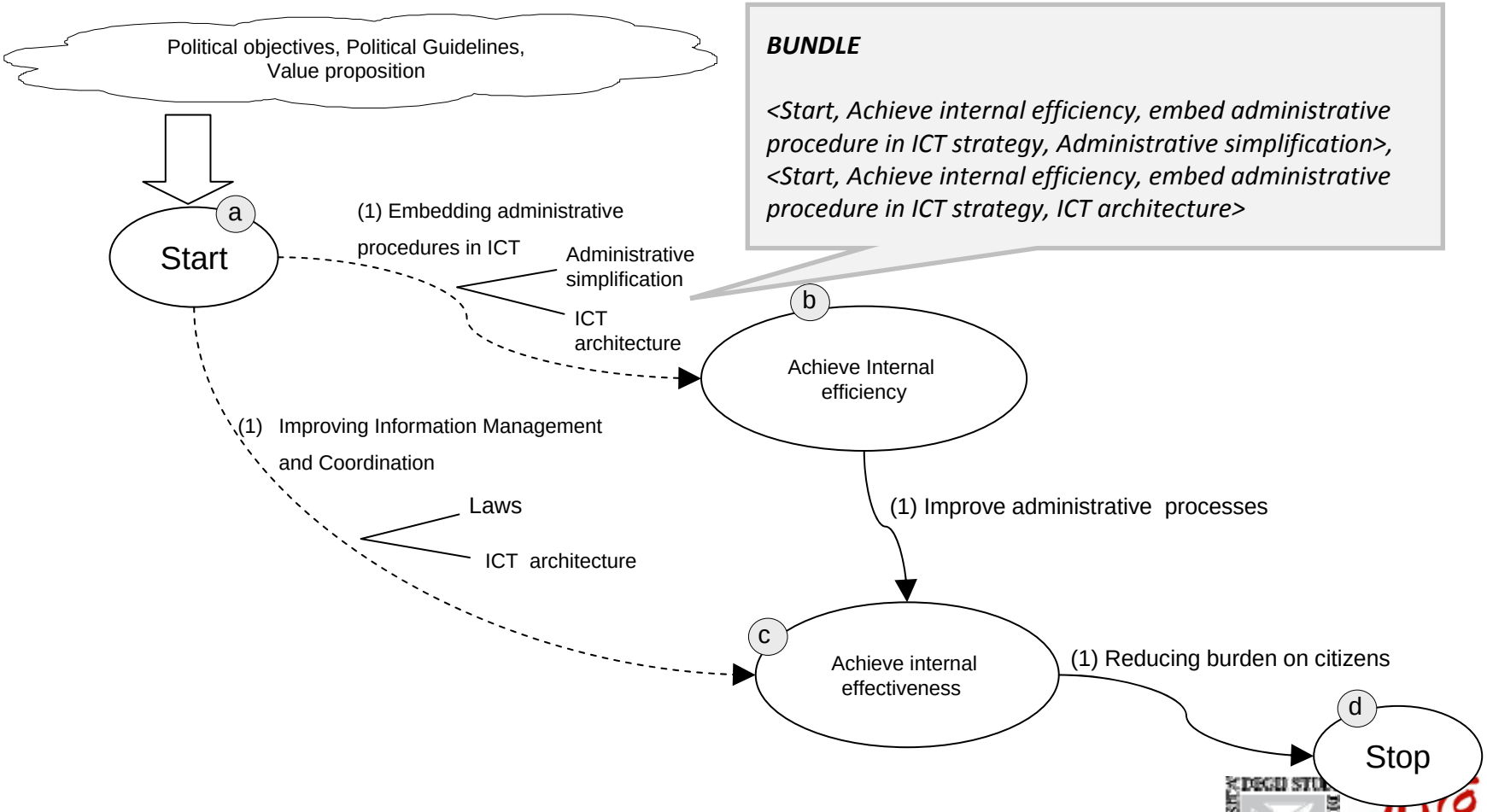
C4: < G_k, G_i, S_{ii} >

C5: <G_j, Stop, S_{jstop}>

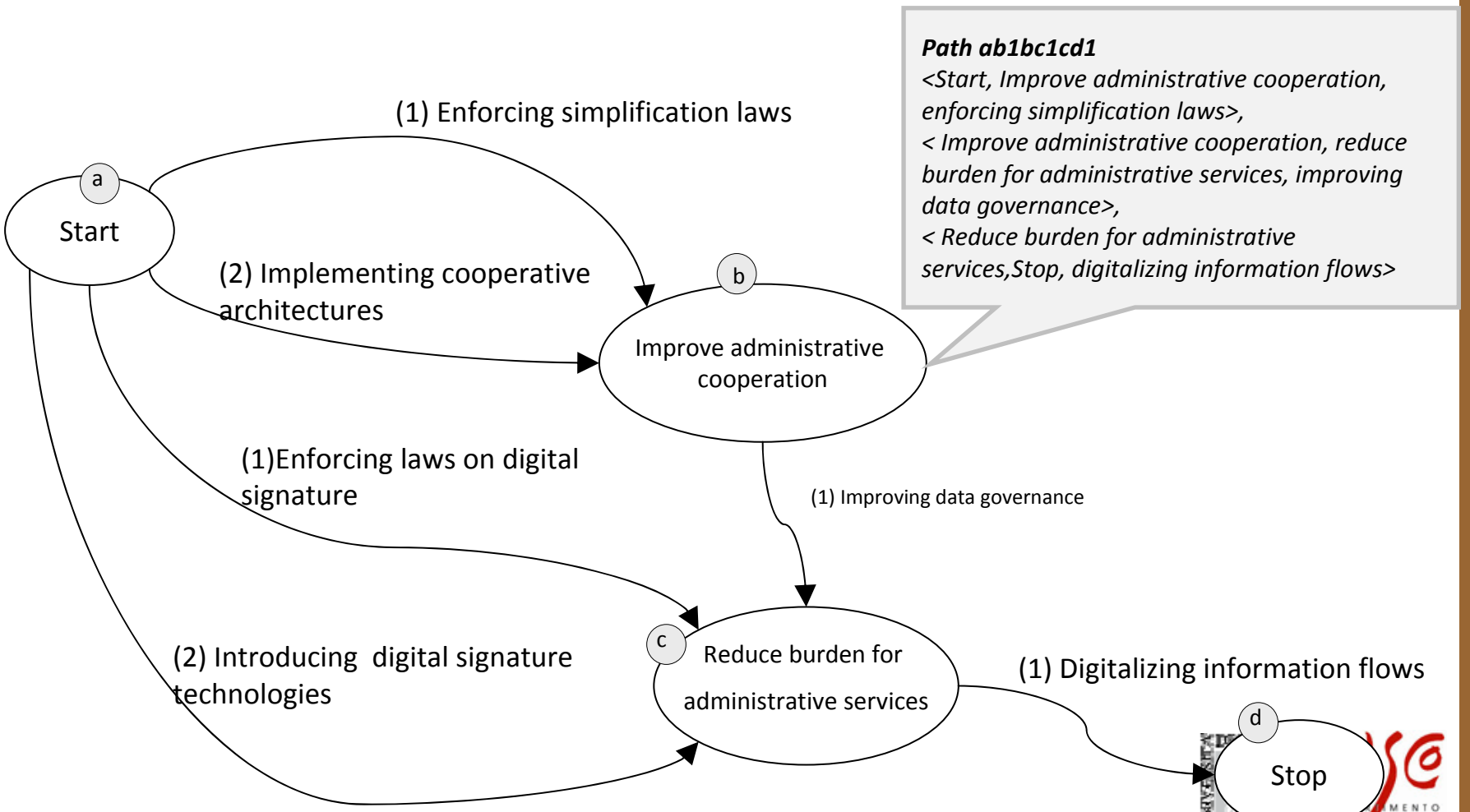


(Adapted from Rolland, 2007)

Map A (Improve public administration service quality)



Map B (Improve cooperation and digitalization in public administration)



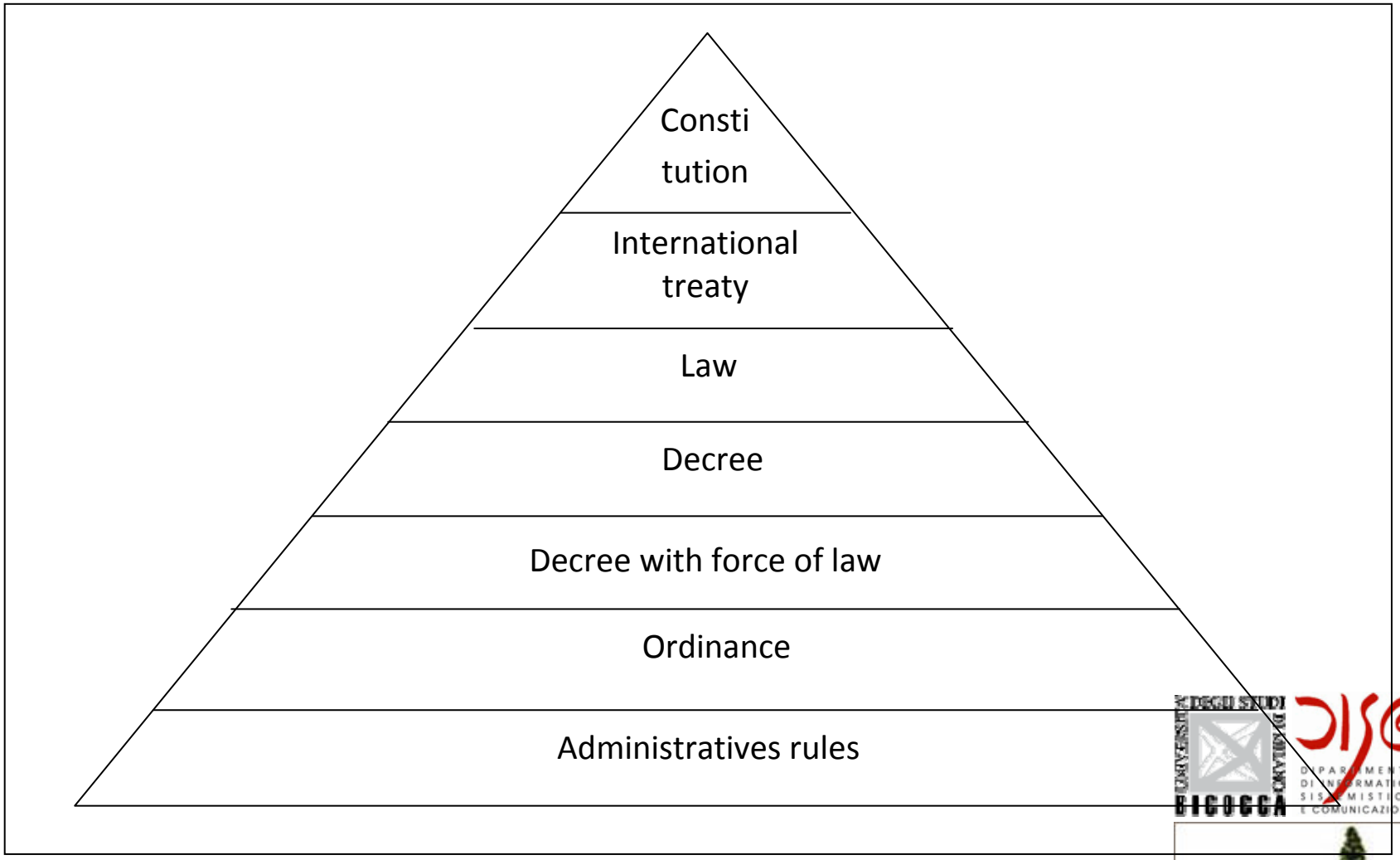
Common goals and strategies

# of Principles	# of Goals	#of Strategies
2	4	13
Principles	**Common Goals**	**Common Strategies**
<Efficiency, Effectiveness>	2	6
Map A	<Achieve internal effectiveness>	<Improving Administrative processes, Improving information management and coordination by means of laws, Improving information management and coordination by means of ICT architecture>
Map B	<Reduce burden for administrative services>	<Improving data governance, Enforcing laws on digital signature, introducing digital signature technologies

Macro-Micro objectives definition

Common Goals	Common Strategies	Macro-Objective	Micro-objective
<Achieve internal effectiveness>	<Improving Administrative processes, Improving information management and coordination by means of laws, Improving information management and coordination by means of ICT architecture>	1. Effectiveness of the Administrative activity (Organization-Process) 2. Simplification of administrative activities (Laws) 3. Reduce burden for administrative services (Service) 4. Use innovative ICT technologies (Technology)	Services accessible with multiple channels
<Reduce burden for administrative services>	<Improving data governance, Enforcing laws on digital signature, introducing digital signature technologies>		

Legal framework
(an example based on Italy and Tunisia)



Services and related existing laws (Tunisia)

Issue	Type of rule	Year	Objective
Privacy	Constitution	2002	Modified an article to introduce the principle of personal data protection
Privacy	Law	2004	An organic guidance law on privacy
Privacy	Decree	2007	Creates a National Authority to govern the privacy principle
Digital economy	Law	2007	An organic guidance law on digital economy
Digital economy	Decree	2007	List of activities included in digital economy
Digital economy	Decree	2007	Institution of the Higher Boaurd of digital economy
Electronic administration	Law	2000	Juridical validity of electronic documents
Electronic administration	Decree	2005	Creation of the electronic administration unit in the Prime minister Cabinet Office
Electronic Commerce	Law	2000	An organic guidance law on electronic commerce
Electronic Commerce	Decree	2000	Creation of the National Certification Agency
Electronic Commerce	Decree	2001	Rules for the Certification provider activity

Services and related existing laws (Italy)

Service	Law reference	Year	Main issues addessed
Certificate of residency	Law 1228/1954	1954	-The Municipality ownership of registry office. -The information to be held by the registry office. -The definition of rules for personal data and certificates
	Legge 470/1988	1988	- **The institution by the Ministry of Interior of the National Record of the Registry Office**
	Law 59/97	1997	-The semplification of laws, rules, and administrative processes -**The legal validity of electronic data and documents** - Rules for the change of the organization of public managers
Driving licence provision	Decrees with the force of law 396/2000 285/1992	1992/2000	-**The Municipality ownership of the registry office for civil status** - The creation of a digital archive for civil status in the municipality -The creation of a nation digital archive for civil status - **The obligation for local public administration to exchange data in electronic format through the national public network** -The creation of a digital archive for the roads by the Ministry of transports - The creation of a digital archive for vehicles
Driving licence update	Law 326/2003	2003	- Rules for the suspension of the driving licence
Health card provision	Law 23/12/1978 n. 833 Decree 437/1999	1978/1999	-The rules for the registration to the national health system -Role and ownership of local office of the Ministry of Health - Rules for the electronic health card
Health card update	Law 1228/1954 Law 23/12/1978 n. 833 Decree 437/1999	1954/1978/1999	-The rules for the registration to the national health system - Role and ownership of local office of the Ministry of Health - Rules for the electronic health card
Obtaining a doctor	Law 59/97 Decree 270/2000	19972000	-Roles of the physicians in the public administration -Rule for obtaining a doctor

Matrix Organization/Type of Information

Information/ Organization	**Type of Public Administration**	**Residency**	**Driving Licence**	**Health card**
Municipality	Local	Certifies/ Provides	-	-
Traffic Authority	Central	-	Certifies/ Provides	-
Regional Health Authority	Local	-	-	Provides
Local Health Authority	Local	Uses	-	Provides
Ministry of Interior	Central	**Governs**	-	-
Ministry of Finance	Central	**Certifies/ Uses**	Uses	**Certifies/ Governs**
Ministry of Health	Central	Uses	-	**Governs**

Matrix Type of Information/DataBase

Database / Information	National registry of residents	Local registry of residents	central tax registry	Central registry of the road traffic office	Regional health registry	Local health registry
Residency	Ministry of Interior	Municipality				
Driving licence				Traffic authority		
Health card			Ministry of finance		Region health authority	Local health authority

The coherence of ICT technologies with the legal framework

ICT Technology /Legal framework	Digital Signature technologies	Centralized DBMS technologies	Distributed DBMS technologies	Publish& Subscribe	Channel technologies
Law 59/97	Relevant_for_law: yes Operating: no	Relevant_for_law: yes Operating: yes			
Decree with the force of law 396/2000	Relevant_for_law: yes Operating: no		Relevant_for_law: yes Operating: no	Relevant_for_law: yes Operating: no	Relevant_for_law: yes Operating: no
Decree 437/1999			Relevant_for_law: yes Operating: no	Relevant_for_law: yes Operating: no	Relevant_for_law: yes Operating: no

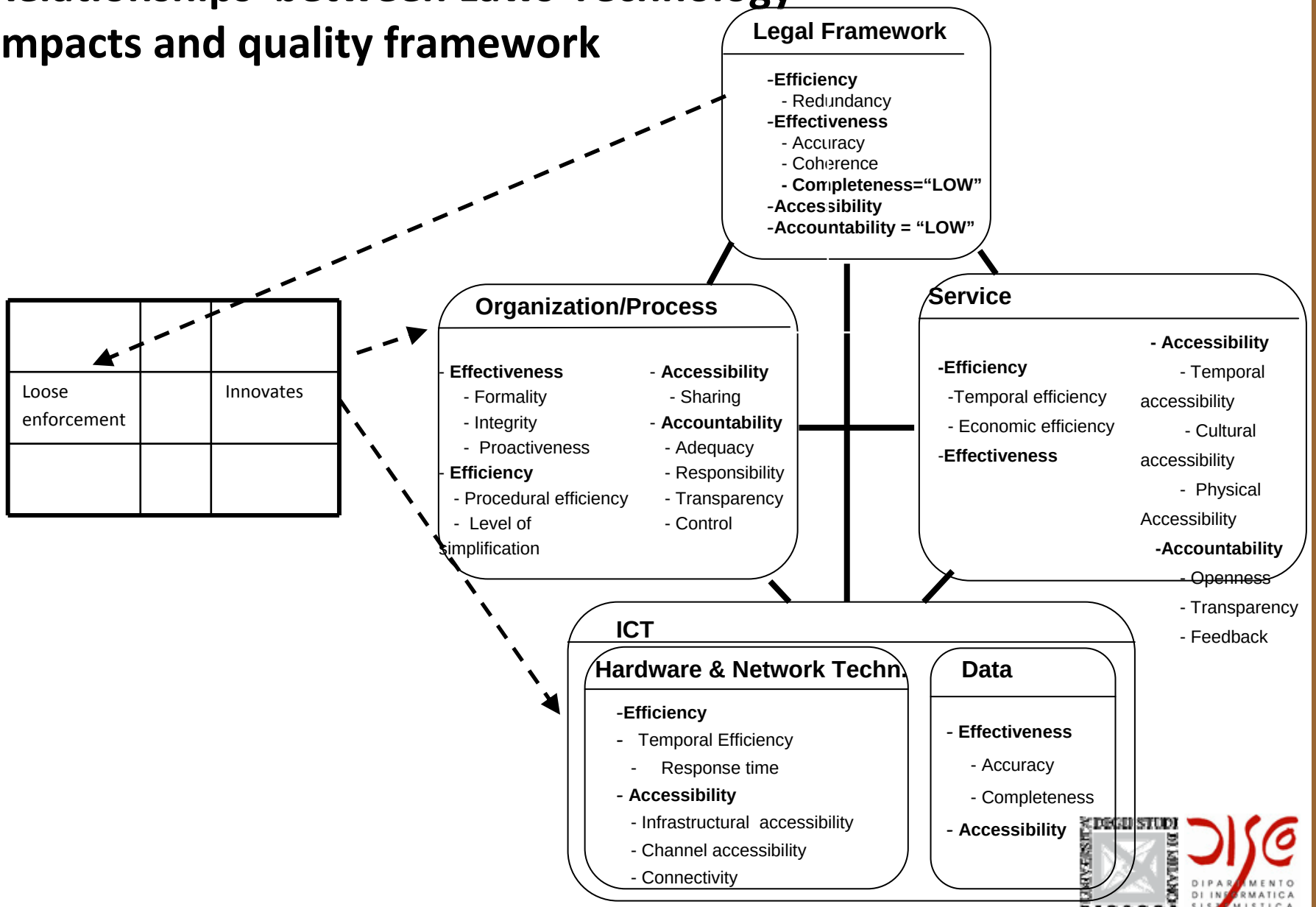
The impact of the current legal framework

Legal framework	Organizational impact	Technological Impact	Enforcement Status
Law 59/97	Enables	Enables	Strong enforcement
Decree 437/1999	Binds	Enables	Strong enforcement
Laws for digital signature	Innovates	Innovates	Loose enforcement
Decree with the force of law 396/2000	Enables	Enables	Strong enforcement

Quality for legal framework

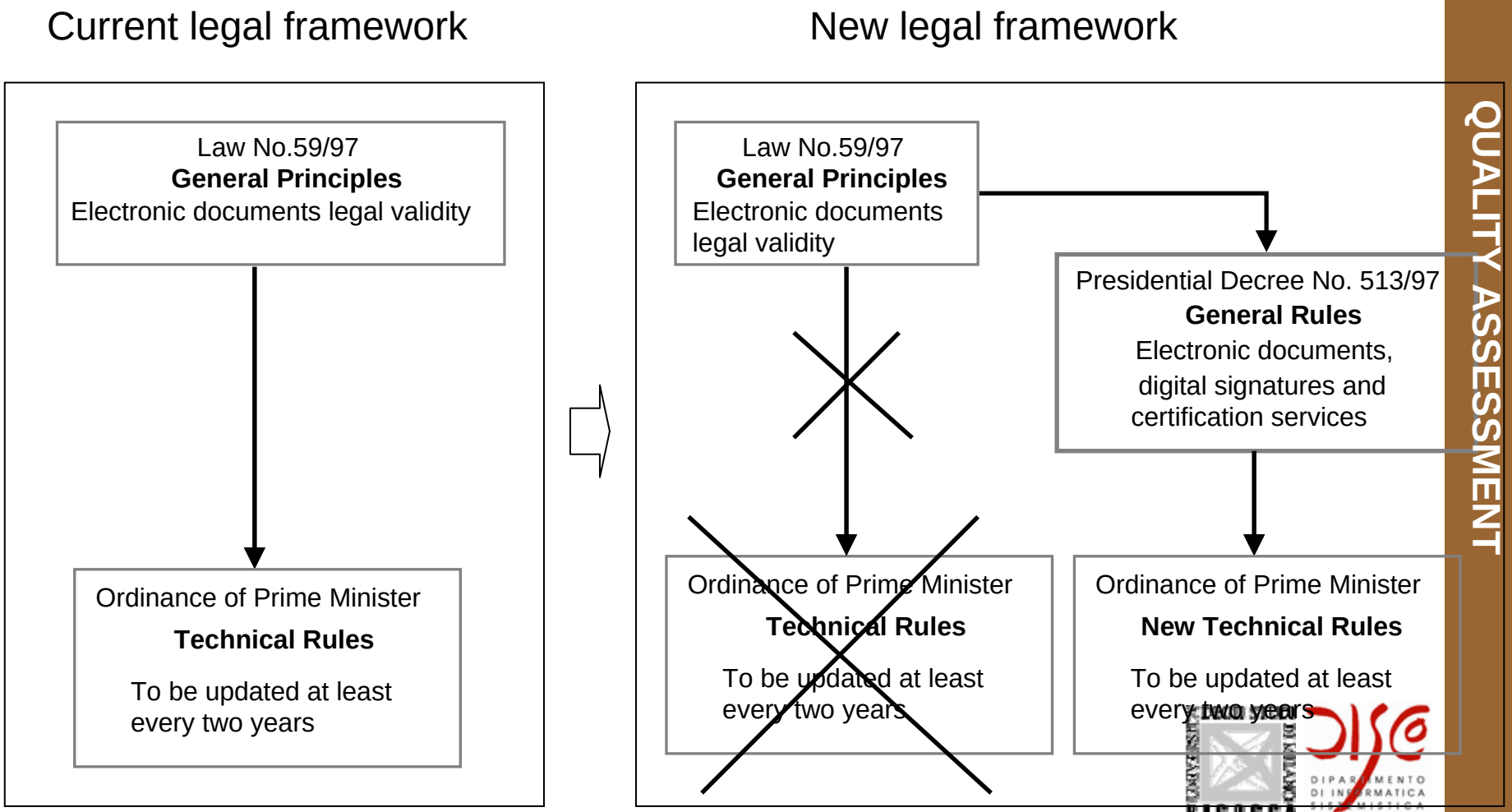
- ***Efficiency*:** the legal framework is produced with a limited use of resources (Osservatorio Legislativo Interregionale, 2007); such resources can be human, financial or temporal resources.
  - ***Redundancy***: the set of laws is minimal, namely, each issue dealt with in the legal framework is regulated by one and only one law (or parts of law) (Martin J. Eppler, Markus Helfert, & Gasser, 2004).
- ***Effectiveness***: the legal framework has been conceived in such a way that its concrete enforcement produces the results and outcomes initially planned (EU Commission, 2003).
  - ***Accuracy***: laws address precisely and non ambiguously the domain of interest and do not give rise to misleading applications in the domain (Lupo, De Santis, & Batini, 2005).
  - ***Coherence***: laws enacted over time are not contradictory to each other, and the legal terms used within different legislative domains of intervention refer to a common coherent lexicon (Bobbio, 1993). The different levels among laws are due to the fact the legal frameworks are in general structured as a hierarchy of rules; Figure 5 shows an example that generalizes the legal framework of Italy and other Mediterranean Countries such as Tunisia. Besides *International treaties*, *Constitution* is the higher set of rules governing all the other types of rules, namely, Decrees, Decrees with force of Law, Ordinance and Administrative Rules, these latter governing specific administrative procedures.
  - ***Completeness***: the legal framework addresses all the issues relevant for the considered domain of enforcement (Bobbio, 1993; Gasser, 2003), in our case the e-Government plan.
- ***Accessibility***: the users of the legal framework can easily access the whole set of norms related to their rights, duties and obligations (Gasser, 2003).
- ***Accountability***: the legal framework provides rules that govern the clear responsibility and transparency to be provided when a law is enforced (Bobbio, 1993).

Relationships between Laws-Technology impacts and quality framework



QUALITY ASSESSMENT

THE ITALIAN LEGISLATION



QUALITY ASSESSMENT

User related qualities

Layer	Quality dimension	Service	Current value
Service	Temporal accessibility	Comm. of change of residency to the new mun.	30 hours a week
		Comm. of change of residency to the old mun.	30 hours a week
		Change of residency in the driving licence	20 hours a week
		Change of residency in the health card	25 hours a week
		Reservation for medical examination	15 hours a week
Service	User time	Comm. of change of residency to the new mun.	3 hours
		Comm. of change of residency to the old mun.	6 hours
		Change of residency in the driving licence	6 hours
		Change of residency in the health card	6 hours
		Reservation for medical examination	24 hours a year
Service	Service provision time	Comm. of change of residency to the new mun.	1 week
		Comm. of change of residency to the old mun.	1 week
		Change of residency in the driving licence	1 month
		Change of residency in the health card	1 month
		Reservation for medical examination	3 days
Organization/process	Level of simplification	Comm. of change of residency to the new mun.	2 interactions
		Comm. of change of residency to the old mun.	2 interactions
		Change of residency in the driving licence	2 interactions
		Change of residency in the health card	2 interactions
		Reservation for medical examination	2 interactions
ICT infrastructure (channel)	Channel accessibility	Comm. of change of residency to the new mun.	Only desk
		Comm. of change of residency to the old mun.	Only desk
		Change of residency in the driving licence	Only desk
		Change of residency in the health card	Only desk
		Reservation for medical examination	Only desk

Relationships between Macro-objectives and quality dimensions

Macro objectives	Quality dimensions				
	Temporal accessibility	User time	Service provision time	Level of simplification	Channel accessibility
Reduce burden for administrative services	Low	High	High	no	High
Effectiveness of the Administrative activity	Low	no	no	High	High
Simplification of administrative activities	no	High	Low	High	no
Use innovative ICT technologies	High	Low	no	Low	High

Macro-micro objectives related qualities

Macro Objective	Micro Objective	Layer	Quality cathegory	Dimension	Current value
Use innovative ICT technologies	Services accessible with multiple channels	Service	Accessibility	Temporal accessibility	30 hours a week
Use innovative ICT technologies	Services accessible with multiple channels	Service	Efficiency	User time	2 hours for each service on the average
Use innovative ICT technologies	Services accessible with multiple channels	ICT Technologies	Accessibility	Channel accessibility	Physical desk for 99% of services
Use innovative ICT technologies	Services accessible with multiple channels	Data	Accessibility	Physical accessibility for disabled persons	Only 2% of sites physically accessible

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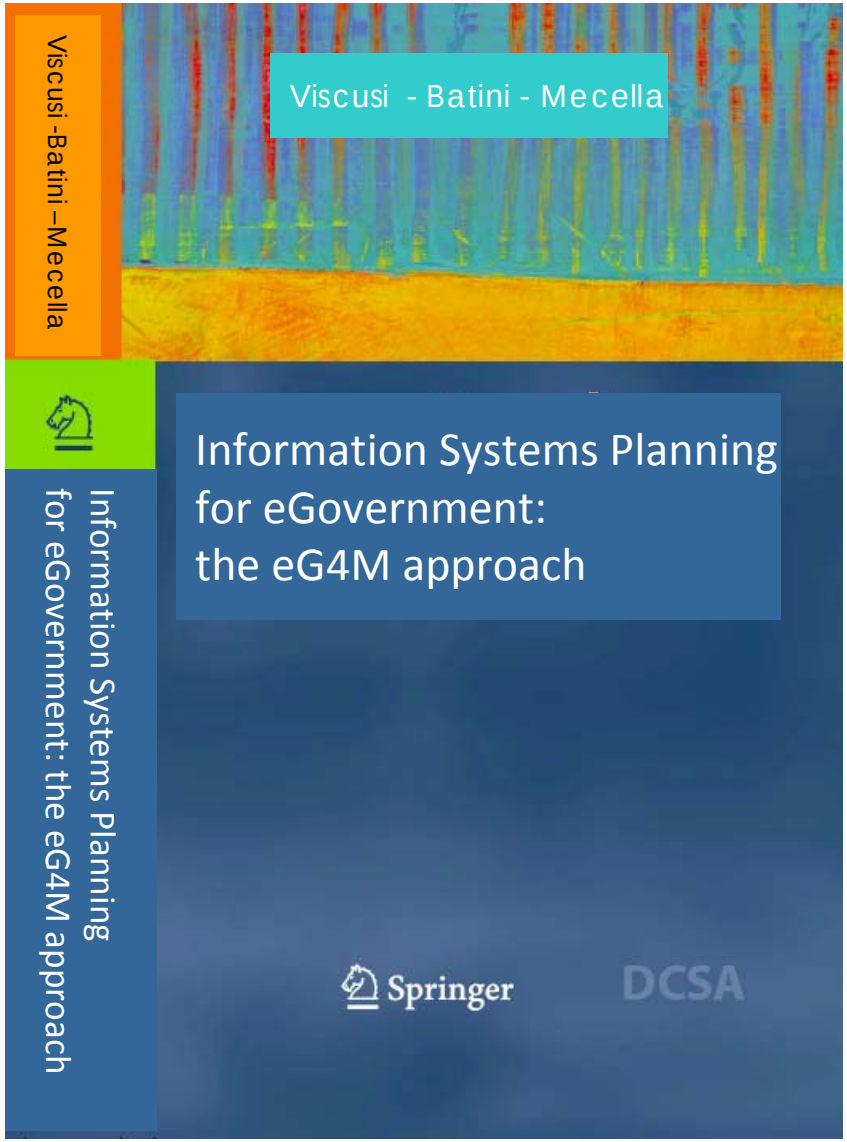
Conclusion and Future work

- The contribution provided by the paper to the information systems management is the definition of a structured methodology supporting the identification of **current impacts on ICT technology adoption** and the definition of improvement solutions, on the basis of the available knowledge on the **legal framework** in a given country.
- The **complexity of laws** analysis has required a detailed discussion of **quality dimensions** for the assessment of the legal framework, considering the structure of the **relationships between laws, principles and policies.**

- In future work we will deepen these issues in order to improve the **theoretical framework** to provide a **richer set of metrics** for the considered quality dimensions.
- Furthermore, we aim to test the methodology in complex contexts, such as **cross-border contexts**, in the planning of e-Government initiatives involving **two or more different legal frameworks** that have to be coordinated, and consequently whose technological and organizational impact has to be considered under a unified perspective.
- Finally, a **prototype of a software module** is under development in order to enrich the set of tools currently available for consulting activities related to the GovQual methodology.

Forthcoming (Winter 2010)…



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Thank for the attention…

…questions?