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Lessons from 77 European Good-Practice Cases

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Preface

In the e-government research community as well as in many national e-government programs *interoperability* is widely seen as a key factor in developing effective and attractive e-services for citizens and business. Also, researchers agree that interoperability is about more than mere technical standards and interfaces; rather it encompasses organizational, legal, and cultural aspects as well. Most importantly perhaps, interoperability might present a challenge to traditional ways of governance in the public sectors by requiring new ways of intergovernmental cooperation. So far, however, little is known about which configurations of information technology (IT) governance have evolved in practice over the years to achieve interoperation in e-government and how governance of the public sectors might be impacted by interoperability within the broader frameworks of connected or networked government.

Several interoperability frameworks have been introduced on national and international levels. Recommendations have been made for the adaptation of enterprise architectures in the public sector. Also, maturity models have been proposed, some of which introduce various degrees of formal and abstract categories for setting up a governance structure for interoperability in government. Common to these contributions is their top–down deductive approach, which seemingly does not connect well to the real world of e-government projects. In contrast, in this volume, based on empirical research, we introduce and present a bottom–up inductive approach to understanding the challenges of interoperability-related governance. Based on so-called "good-practice" cases of interoperability in e-government we derive concepts and classifications, which help uncover and assess similarities and differences between the cases. As a result, we were able to put forward an empirically based conceptual framework that details the options for IT governance of interoperability in government. Our findings also allow us to critically discuss, assess, and re-conceptualize the existing frameworks and determine how those could be improved.

We conducted the research study in three phases. The first two authors were part of a consortium, which collected, assessed and documented good-practice cases of

interoperability in e-government for the European Commission. In the first study on back-office reorganization, which had been carried out in cooperation with the Danish Technological Institute, a total of 29 cases were identified and documented. In the second project, the Study on Interoperability at Local and Regional Level additional cases were collected, written up and published on the e-practice portal of the European Commission as well as on a special website, offering a searchable data base of 177 cases from all over Europe. This study had been conducted in the MODINIS program of the European Commission in cooperation with the European Institute of Public Administration (EIPA) in Maastricht, Netherlands, and the Center for Research and Technology Hellas/Informatics and Telematics Institute (CERTH/ITI) in Thessaloniki, Greece.

The aim of both studies was to document and publish the cases such that lessons learned would be shared among interested governments and practitioners. These studies, however, would not satisfy the strict criteria of a scientifically designed comparative analysis.

The opportunity for comparative coding of the individual descriptions came only when the Deutsche Forschungsgemeinschaft (the national research funding organization in Germany) funded this research in 2008 for 2 years. The first two authors developed a conceptual framework and a coding scheme for recoding more or less successful cases of interoperation, presented this framework at several conferences, revised it and together with the support of a Master's student applied it to 77 cases.

In the final phase, the third author joined the team, introduced additional theoretical foundations, which were used for additional coding. This also initiated a dialogue about how these empirical findings relate to recent concerns regarding IT governance and enterprise architectures in government. Combining different thematic foci as well as a European and a US background this volume puts empirical research into the broader context of theoretical and political reflection.

We want to thank our colleagues with whom we cooperated in the back-office and in the MODINIS study, Jeremy Millard, Jonas Svara Iversen and Hilmar Westholm, Christine Leitner, Sylvia Archman and Immanuel Kudlacek (EIPA) as well as Efthimios Tambouris, Konstantinos Tarabanis, Vassilios Peristeras and Naoum Liotas (CERTH/ITI), Thomas Schröder for his support in coding, Rebecca Romppel for setting up the database, Anne Bausch for producing several versions of the typescript, and the DFG for funding an important part of this research.

Bremen and Seattle, June 2011

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Contents

Abbreviations

ADP	Automatic Data Processing
AEAT	Agencia Tributaria, Spanish Tax Administration Data Portal
ARPANET	Advanced Research Projects Agency Network
BPML	Business Process Modeling Language
CAD	Codice dell'Amministrazione Digitale, Italy
CBSS	Cross Roads Bank for Social Security
CEC	Commission of the European Communities
CERTH/ITI	Center for Research on Technology Hellas/Informatics and Telematics Institute
CIO	Chief Information Officer
CIOC	Chief Information Officer Council
CNIPA	Centro Nazionale per Informatica nella Pubblica Amministrazione (National Center for Informatics in Public Administration) Italy
CNMSI	Centre for the Management of Information Society, Romania
COBIT	Control Objectives for Information and Related Technology
CRR	Central Registration Register, Austria
CRS	Central Records System, Ireland
CTG	US Center for Technology in Government
CTO	Council, Chief Technology Officer Council, UK
DISC	Departmental Integrated Services Connector
DSFA	Department of Social and Family Affairs, Ireland
DVDV	Deutsches Verwaltungsdiensteverzeichnis, Directory of the German Administration Services
DoH	Department of Health, UK
DOL	Deutschland Online (Germany Online)
DSFA	Department of Social and Family Affairs, Ireland
DWP	Department of Work and Pensions, UK
EA	Enterprise Architecture
EAG	E-Government Enterprise Architecture Guidance

EAN	European Article Number
ebMS	E-Business Message Service Specification
EDI	Electronic Data Interchange
EDIAKT	Electronic Data Interchange Akt, Austria
EDIFACT	Electronic Data Interchange For Administration, Commerce and Transport
eGif	E-government Interoperability Framework, UK
EIF	European Interoperability Framework
EIPA	European Institute for Public Administration
EIS	European Interoperability Strategy
ELAK	Elektronischer Akt, Austria
EPAN	European Public Administration Network
EPS	Electronic Payment Standard
eSDF	e-Services Development Framework
ETSI	European Telecommunications Standards Institute
EU	European Union
FRAND terms	Fair, reasonable, and non-discriminatory terms
FTP	File Transfer Protocol
GOSIP	Government Open Systems Interconnection Profile, USA
GRO	General Register Office, Ireland
GtoB	G2B, Government to Business
GtoC	G2C, Government to Citizens
GtoG	G2G, Government to Government
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
IAMS	Inter Agency Messaging Service, Ireland
ICT	Information and Communication Technologies
IDABC	Interoperable Delivery of European eGovernment Services to public Administrations, Businesses and Citizens
IF	Interoperability Framework
ifib	Institute for Information Management Bremen, Germany
IOP	Interoperability
IOS	Inter-organizational Information Systems
IS	Information System
ISA	Interoperability Solutions for European Public Administrations, European Commission
ISDN	Integrated Services Digital Network
ISO	International Standards Organization
IT	Information Technologies
ITGI	IT Governance Institute
KIS	Kunden-Informations-System
KoopA ADV	Kooperationsausschuss von Bund und Ländern automatisierte Datenverarbeitung, Germany

LETS	Leeds Electronic Tendering Service, UK
MF	Ministry of Finance, Denmark
MoA	Memorandum of Understanding
MODINIS	
MSTI	Ministry of Science, Technology and Innovation, Denmark
NIF	National Interoperability Framework
NIFO	National Interoperability Framework Observatory
NIST	National Institute of Standards and Technology, USA
NORA	Nederland Overheidsreferentie Architectuur
ODETTE – OFTP	Odette File Transfer Protocol
OECD	Organization for Economic Co-operation and Development
OIO Committee	Open public Information Online Committee, Denmark
OMB	Office of Management and Budget of the Executive Office of the President of the United States
OPAC	Online Public Access Catalog
OSCI	Online Services Computer Interface
OSI	Open System Interconnection
OSS	Open Source Software
PIN	Personal Identification Number
POSIT	Profiles for Open Systems Internetworking Technologies
PPP	Public–Private Partnership
PPSN	Personal Public Service Number, Ireland
RTA	Road Traffic Accident UK
s-TESTA	Secured Trans European Services for Telematics between Administrations
SAGA	Standards und Architekturen für E-Government-Anwendungen
SLA	Service Level Agreement
S/MIME	Secure/Multipurpose Internet Mail Extensions
SMTP	Simple Mail Transfer Protocol
SNA	System Network Architecture
SOA	Service-Oriented Architecture
SPC Italy	Public Connectivity and Cooperation System
SPO	State Planning Organization, Turkey
SSL	Secure Sockets Layer
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TAN	Transaction Number
TCP/IP	Transmission Control Protocol/Internet Protocol
TERREGOV	Impact of E-Government on Territorial Government Service, EU Project
TIEKE	Tietoyhteiskunnan Kehittämiskeskus Ry, Finnish Information Society Development Centre

UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNCTAD	United Nations Conference on Trade and Development
UN/ECE	UN Economic Commission for Europe
UPC	Universal Product Code
VAN	Value-Added Network
VPN	Virtual Private Network
WSDL	Web Services Definition Language
XML	Extensible Markup Language
ZMR	Zentrales Melderegister Österreich (Central Registration Authority, Austria)

Chapter 1
Introduction

For more than 10 years, expectations about the Internet's potential to change the relations between citizens and their governments at the political, democratic level and with regard to public services for citizens and business have been high.

1.1 High Expectations for E-Government

By providing public services via the Internet, it was thought that public services would become more customer-centered and efficient. Already in 1995, US President Bill Clinton and Vice President Al Gore had promised in their Agenda for Action a government that works better and costs less (IITF 1993, see also Kubicek and Dutton 1997 as well as Kalil 1997).

The terms "digital government", "electronic government" or "e-government" were coined in the US and Europe respectively (see Scholl 2010) and became both a political objective and part of action plans all over the world (OECD 2003; United Nations 2003). In Europe, not only the Member States but also the European Commission and the European Council developed their e-government objectives and work programs (CEC 2000, see also Alabau 2005 for a summary). As these have to be approved by the ministers of the Member States, these decisions reflect some kind of common understanding of this field in Europe.

The European Commission defines e-government as "the use of information and communication technologies in public administrations – combined with organizational change and new skills – to improve public services and democratic processes and to strengthen support to public policies" (CEC 2003, p. 7). According to Commission documents, by e-government public administrations will become

- More open and transparent, reinforcing democratic participation;
- More service-oriented, providing personalized and inclusive services to each citizen;
- More productive, delivering maximum value for taxpayers' money (p. 8).

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By information and communication technologies (ICT or IT) all kinds of hardware, software, and networks are summarized, but particular relevance is given to internet and mobile technology and their application.

1.2 Front-Office and Back-Office Public Services

Public services are services delivered by government agencies to the public, in a broad sense including sectors such as public education, healthcare, transportation, broadcasting, waste management, social welfare, public safety among others. In e-government, public services and the respective communication can be grouped in the following ways:

- *Government to Citizens (G2C)*, e.g. tax declarations, applications for social benefits, requests for birth certificates or driver's licenses;
- *Government to Business (G2B)*, e.g. social contributions for employees, declarations of corporate tax, and different kinds of permits for export, environmental emissions;
- *Government to Government (G2G)*, e.g. access to central registries by local authorities, sharing of information resources

1.3 The Importance of G2G Reorganization

Many G2C and G2B services depend on well functioning G2G communication. This relationship can be explained by distinguishing between front-and back-offices (see Fig. 1.1). Citizens and businesses as customers apply for a service at a physical or virtual front office of a public agency that provides that particular public service. In order to provide this service, in some cases another unit of the same agency has to confirm certain data, or a unit of another agency has to be consulted. Therefore another unit in this agency or another computer program forwards data or starts a request to another agency. Thus intra- and/or interagency exchange of data between back-offices, i.e., without involving the customer, is necessary in order to provide the service to the citizen or business.

The above-mentioned objectives of better service quality and more effective delivery can be improved if the services are not simply supported electronically in the way they were produced and delivered in the past, but if a reorganization of front- and back-office communication takes place. Three examples from a study

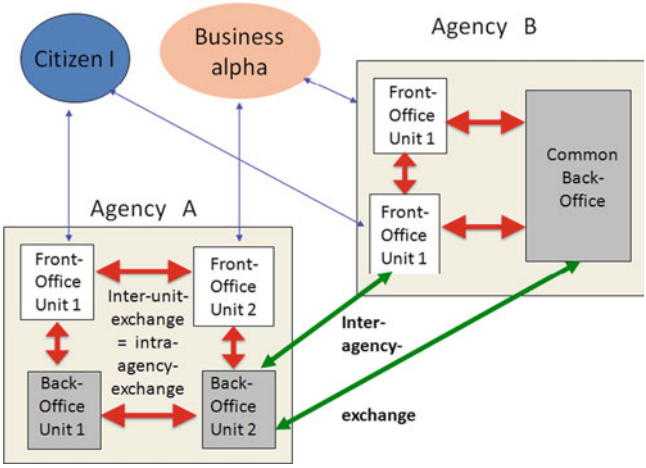

Fig. 1.1 Front- and back-office communication in e-government

conducted for the European may illustrate the potential that back-office reorganization entails.[1]

Prior to back-office reorganization, when applying for child allowance in Ireland (case no. 1), parents had to submit a document from the hospital about the birth of their child to the registrar who officially confirmed the birth by issuing a birth certificate. The parents then had to take this certificate to their local civil registration office, which registered the new citizen in the civil registry and provided a registration confirmation. Only with this document were parents entitled to apply for a child allowance (Fig. 1.2, left box).

To relieve the bureaucratic burden on parents and offices, an integrated work flow between the back-offices of the three agencies involved needed to be constructed: Now, the parents apply for child allowance in the hospital; the hospital adds the data of the birth and forwards the electronic application form to the registrar; the registrar registers the birth, adds the data, and forwards the form to the civil register; the civil register states this on the form and, finally, forwards it to the Office of Family Affairs (Fig. 1.2, right box).

The second example is the compilation of income tax declarations in Spain (case no. 2) and all Scandinavian Countries. As in many other countries, taxpayers have to collect documents confirming their salaries, social benefits, and interest from bank accounts and attach them to their income tax declaration (Fig. 1.3).

In Spain, employers, banks, and social welfare agencies have been obliged to send these data directly to a newly established central Spanish tax administration data portal (AEAT). Citizens as taxpayers can download the data and confirmations

[1] Numbers refer to short summaries in Annex 1. There, reference is made to a full case description delivered to the e-practice portal.

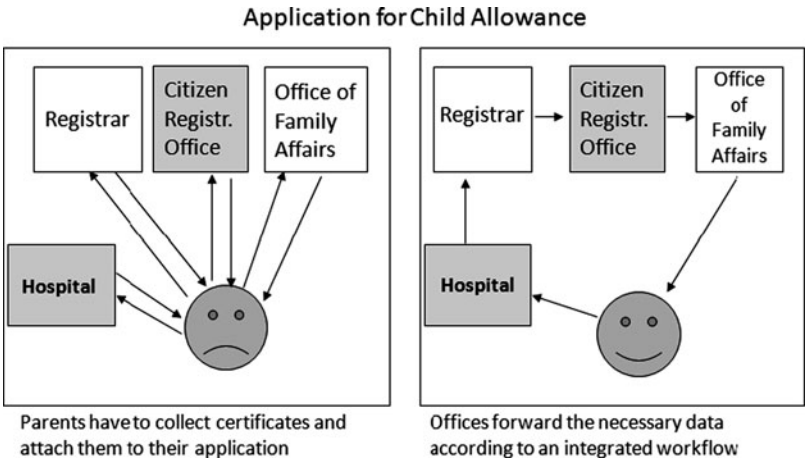

Fig. 1.2 Applying for child allowance in Ireland – before and after back-office reorganization

from this portal. The regional tax offices also have access to the data and therefore no longer require documents from the taxpayer (Fig. 1.3, right box).

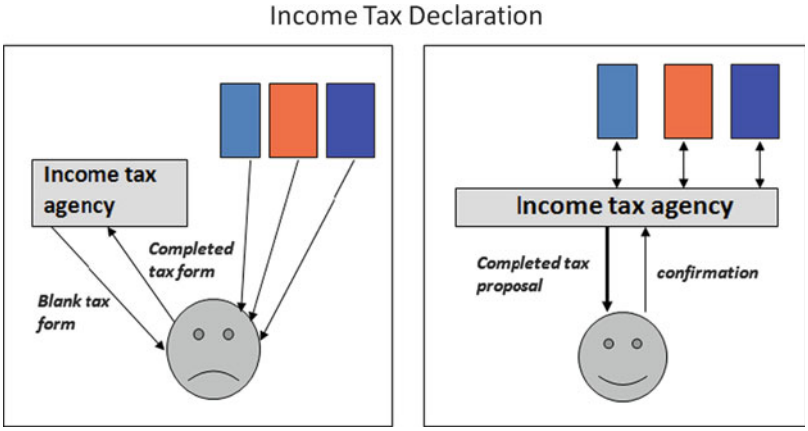

Fig. 1.3 Provision of documents for income tax declarations

The pro-active compilation of income tax declarations in the Scandinavian countries is even more convenient. Employers, banks, and social welfare agencies send their data to the tax office, which produces a proposal for each citizen's tax declaration and sends it to the citizen. If the citizen does not demand any corrections or claim any expenses as tax-deductible, he or she may confirm this proposal by e-mail or telephone. On average, between 70% and 80% of all proposals are confirmed, leading to savings of several million Euros each year.