

# Selected Topics IT-Security 1

## eGovernment

eGovernment  
Introduction, Motivation, Demonstration

[Kevin Theuermann](#)

[kevin.theuermann@egiz.gv.at](mailto:kevin.theuermann@egiz.gv.at)

Graz, 02.10.2019



E-Government Innovation Center  
[www.egiz.gv.at](http://www.egiz.gv.at)



 Bundesministerium  
Digitalisierung und  
Wirtschaftsstandort



Head of  
Research Group

Arne Tauber  
arne.tauber@egiz.gv.at



PhD Area:

- E-Government Infrastructure
- Electronic Identity Management Systems

Thomas Lenz  
thomas.lenz@egiz.gv.at



PhD Area:

- Security for Cloud Services
- Privacy-Preserving Techniques

Felix Hörandner  
felix.hoerandner@egiz.gv.at



PhD Area:

- Blockchain for Identity Management
- Distributed Ledger Technology

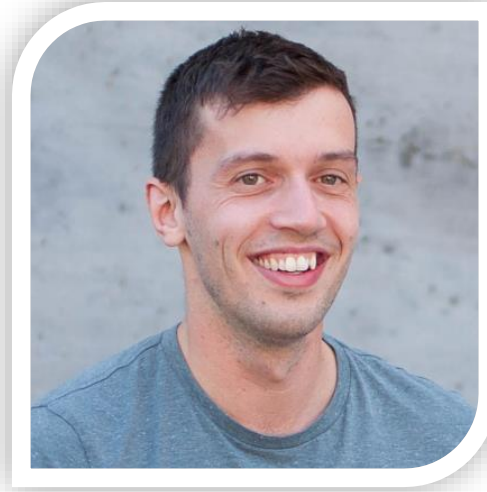
Andreas Abraham  
andreas.abraham@egiz.gv.at



PhD Area:

- Secure and Trustworthy Service Composition
- Privacy-Preserving Composition

Kevin Theuermann  
kevin.theuermann@egiz.gv.at



- Security for Cloud Services
- Projects for Identity Management in Austria

Christof Rabensteiner  
christof.rabensteiner@egiz.gv.at



- Qualified PDF Signing
- Development and Testing

Emina Ahmetovic  
emina.ahmetovic@egiz.gv.at



- Development and Testing

Stephan Keller  
Stephan.keller@egiz.gv.at

If you have any  
organizational questions  
please contact me by email.



Kevin Theuermann  
kevin.theuermann@egiz.gv.at



# Contents

## Administrative Stuff

Lecture (705.052)

Practical (705.053)

## Motivation

Definition &

Fundamental Terms

eGovernment in Austria

## Demonstration

# Lecture

Region ▶ Stadt ▶ Gebäudebereich ▶ Gebäude ▶ Stockwerk

Stockwerk Inffeldgasse 16a, Erdgeschoß (IFEG), 15 Räume / 382,89 m<sup>2</sup>

Ansicht Punkt Plantyp Grundrissplan



Wednesday, 11:00 – 12:30  
Seminarraum IAIK (IFEG042)  
Inffeldgasse 16a ground floor

No special office hours  
IAIK 2<sup>nd</sup> floor  
On appointment (E-mail)  
Anytime

Register for the lecture until  
03.10.2019 (tomorrow)

Lecture

# Course Material

<https://teaching.iaik.tugraz.at/egov/start>

Slides

## Additional Stuff

Administration on the web –

The ABC guide of eGovernment in Austria

<https://www.digital.austria.gv.at/the-abc-guide-of-egovernment-in-austria>

Papers for specific topics



# Lecture Schedule

02.10.2019	Course-Organization, Motivation and Challenges eGovernment	Kevin Theuermann
02.10.2019	Practical Exercise	Kevin Theuermann
09.10.2019	Electronic Signatures	Andreas Abraham
16.10.2019	Identity Management	Felix Hörandner
23.10.2019	Austrian Citizen Card Concept/Infrastructure	Kevin Theuermann
30.10.2019	IdM Austria, Electronic Mandates	Christof Rabensteiner

# Lecture Schedule

06.11.2019	Austrian Experience – eGovernment Status quo	Prof. Reinhard Posch (CIO of Austria)
13.11.2019	Legal Framework	Bernhard Karning (Federal Chancellery)
20.11.2019	mGovernment – Modern Technologies	Kevin Theuermann
27.11.2019	Blockchain	Andreas Abraham
04.12.2019	eHealth	Kevin Theuermann
11.12.2019	Cash Registers	Thomas Zefferer
08.01.2020	Recap: Exam preparation	Kevin Theuermann
15.01.2020	EXAM	Kevin Theuermann

A close-up photograph of a person's hand holding a blue pen, writing on a notebook. The person is wearing a grey, textured sweater. The background is slightly blurred, showing a desk with a white cup and other papers. The overall scene is well-lit, suggesting a study or work environment.

# written **EXAM**

next exam **15.01.2020**  
**THREE** examination dates  
per semester (beginning, middle, end)



# Contents

## Administrative Stuff

Lecture (705.052)

Practical (705.053)

## Demonstration

## Motivation

Definition &

Fundamental Terms

eGovernment in Austria

# eGovernment ???



# eGovernment

## Definition

*“eGovernment is about applying information and communication technology to all aspects of a government’s business where it makes sense to improve efficiency and effectiveness in the achievement of policy and program outcomes.”*



# eGovernment

## Definition

*“eGovernment is the transformation of government to provide efficient, convenient and transparent services to the citizens and businesses through information and communication technologies.”*

# eGovernment

## Definition

*“...the simplification of work routines and processes through the application of information and communication technologies (ICT) in the areas of information, communication and transaction within and between state institutions as well as between the government and citizens or businesses.”*

(Source: <http://www.digitales.oesterreich.gv.at/site/6506/default.aspx> )

*“eGovernment is about applying information and communication technology to all aspects of a government’s **business** where it makes sense to improve **efficiency** and **effectiveness** in the achievement of policy and program outcomes.”*

*eGovernment is the transformation of government to provide **efficient** convenient and transparent services to the **citizens** and **businesses** through Information and Communication Technologies.*

*“...the **simplification** of work routines and processes through the application of information and communication technologies (ICT) in the areas of information, communication and transaction within and between state institutions as well as between the government and **citizens** or **businesses**.”*

# eGovernment

## Definition

Several similar definitions exist in the literature

These definitions have in common that eGovernment provides public sector services to different stakeholders by using information and communication technologies (ICT) providing various **benefits** to its stakeholders.

# eGOVERNMENT

# Stakeholders

??

??

??

??

# Stakeholders

## **Citizens**

(natural persons)

## **Governments**

(and all corresponding public entities)

## **Businesses**

(legal or natural persons)

## **Employees**

(public servants, etc.)



## Differentiation

### Internal eGovernment

...using ICT in the public sector without contacting the citizen directly

e.g. electronic act (ELAK - Elektronischer Akt), internal applications, etc.

### External eGovernment

...web services and applications for citizens, companies and customers

# eGovernment **Categories**

## **G2C** (Government-to-Citizen)

Interactions between the government and citizens

Information services or fully-fledged transactional services

## **G2B** (Government-to-Business)

Communication between governments and businesses

Tax services, services for renewing or obtaining permits,...

# eGovernment **Categories**

## **G2G** (Government-to-Government)

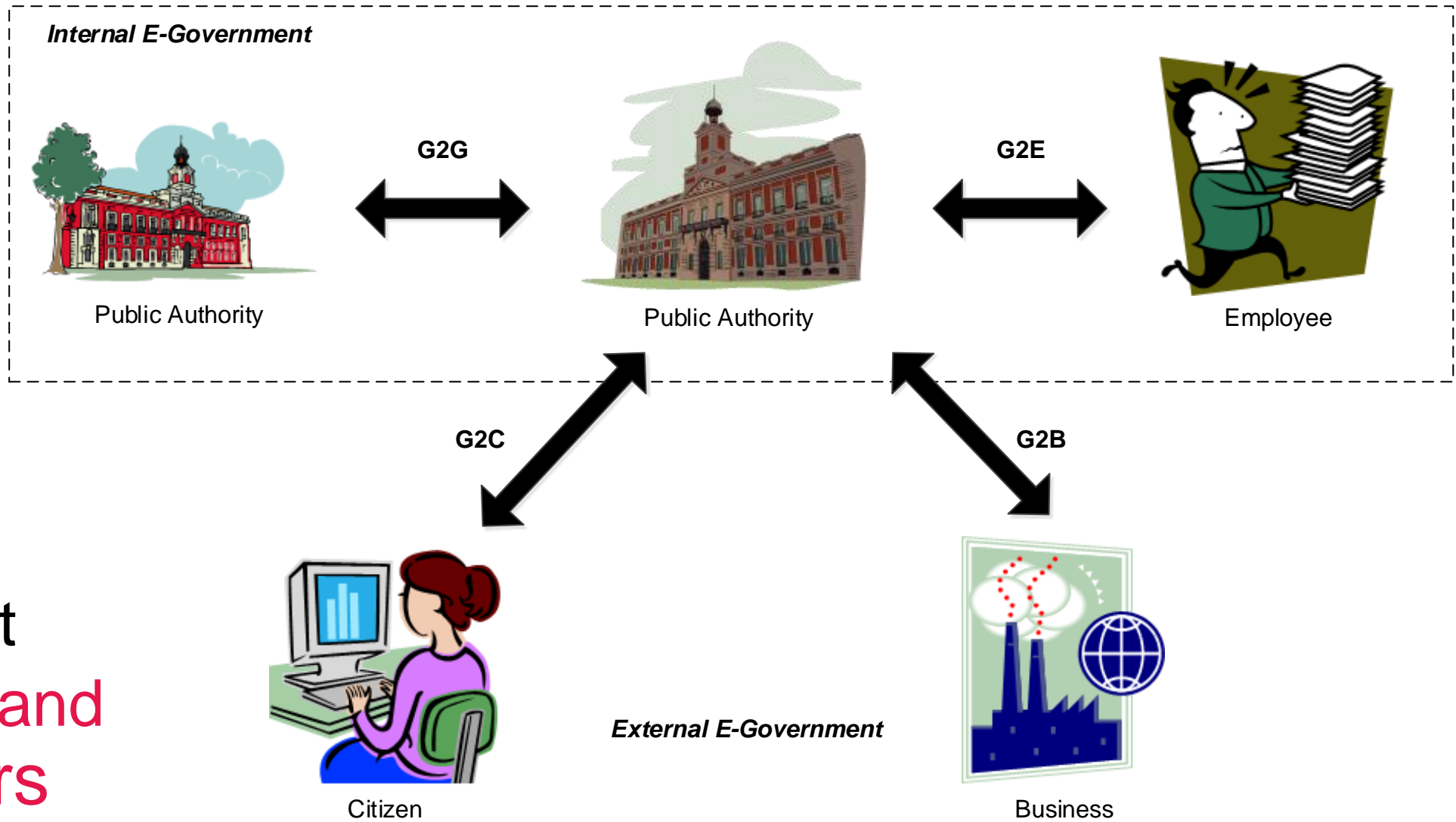
E.g., the communication between local governments and federal or national governments

## **G2E** (Government-to-Employee)

Internal or external eGovernment

Governments can offer their employees several applications facilitating access to internal services such as reviewing salary payment records or other services

# eGovernment Categories and Stakeholders



Again...

What is **eGovernment** about?

Who are the **Stakeholders**  
and the associated interaction

**Categories?**



What are  
the  
**BENEFITS**  
???



What are  
the  
**BENEFITS**  
???

Improved and better service delivery

Reduction of time for all stakeholders

Reduction of costs for all stakeholders

Increased convenience

More effective and efficient  
processing (higher productivity)

# eGovernment Challenges

Technical



Organizational



Legal





Heterogeneous  
IT infrastructures

Security  
(Usable Security)

Privacy

Technical  
challenges





## Organizational challenges

Support and acceptance of the adoption of eGovernment services

Weak collaboration and cooperation between involved stakeholders

## Legal challenges

Governments need to provide their services to **ALL** social classes e.g., including elderly or disabled people.

**Data protection**  
(e.g., only a minimum amount of data should be processed in e-Government services)

# eGovernment

## Types of interactions

**Transaction**

**Communication**

**Information**



# eGovernment

## Types of interactions

### Information

Making information available online, for example, on the Web site of a public authority.

Office hours etc.

# eGovernment

## Types of interactions

### Communication

The ability to interactively access and exchange information.

Email, forms, etc.

# eGovernment

## Types of interactions

### Transaction

The actual carrying out of services, including the signation of application forms and electronic delivery of official documents and notifications.

## **Personalization**

Proactive services

## **Transaction**

Continuous on-line procedures

## **Communication**

Email, forms, etc.

## **Information**


Office hours etc.

# eGovernment

## Types of interactions

### **Personalization**

Citizen's interest are pushed to the foreground, Proactive services




???

How do we proof our **Identity**  
in the internet?

# eGovernment Services

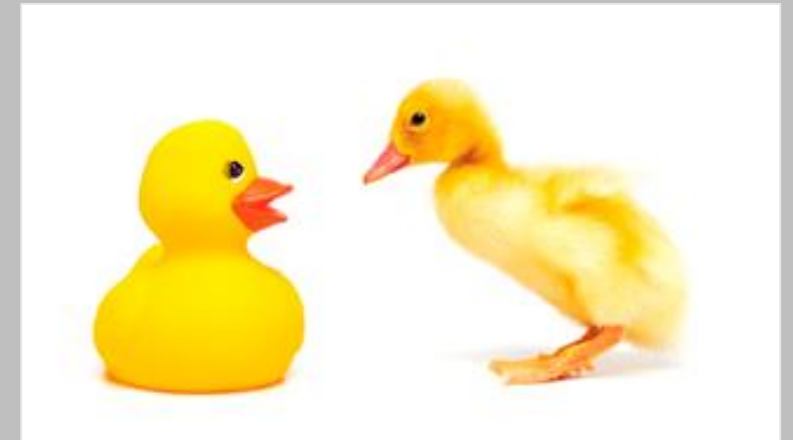
## eSignature

	<b>Signatory</b>	Max Mustermann
	<b>Date/Time-UTC</b>	2016-08-31T11:38:10+02:00
	<b>Verification</b>	Information about the verification of the electronic signature can be found at: <a href="https://www.signaturpruefung.gv.at">https://www.signaturpruefung.gv.at</a>
<b>Note</b>	Dieses mit einer qualifizierten elektronischen Signatur versehene Dokument hat gemäß Art. 25 Abs. 2 der Verordnung (EU) Nr. 910/2014 vom 23. Juli 2014 ("eIDAS-V0") die gleiche Rechtswirkung wie ein handschriftlich unterschriebenes Dokument.	

## eDocuments



## eID



# eGovernment Services

## eSignature

Valuable means to ensure **integrity**, **authenticity** of eDocuments.

	<b>Signatory</b>	Max Mustermann
	<b>Date/Time-UTC</b>	2016-08-31T11:38:10+02:00
	<b>Verification</b>	Information about the verification of the electronic signature can be found at: <a href="https://www.signaturpruefung.gv.at">https://www.signaturpruefung.gv.at</a>
<b>Note</b>	Dieses mit einer qualifizierten elektronischen Signatur versehene Dokument hat gemäß Art. 25 Abs. 2 der Verordnung (EU) Nr. 910/2014 vom 23. Juli 2014 ("eIDAS-V0") die gleiche Rechtswirkung wie ein handschriftlich unterschriebenes Dokument.	



# eGovernment Services

## eID

Allow for unique **identification** and secure **authentication** in electronic processes.



# eGovernment Services

## eDocuments

Electronic **documents** to be **exchanged** between stakeholders and the government



Again...

What are **benefits** of eGovernment?

What **challenges** do we face?

What are the **types of interaction**?

# eGovernment Applications



eParticipation



eDelivery



eVoting



eProcurement



eJustice



eHealth

eGovernment applications

# eParticipation



Enables **citizen involvement** into **political decision making processes**

(e.g., by social networks, forums, wikis, etc.)

eGovernment applications

# eVoting



Electronic means are used to place votes or to count votes

eGovernment applications

# eDelivery



Reliable and **secure transfer** of **electronic data** (or eDocuments) between entities or stakeholders



eGovernment applications

# eProcurement



Purchase goods and services over the Internet.

eGovernment applications

# eJustice



Simplify administrative procedures of judicial systems by using ICT

e.g., the communication between courts and public authorities as well as professional representatives (lawyers, notaries, etc.), citizens, and businesses.

eGovernment applications

# eHealth



Electronic processes that support healthcare

# Contents

## Administrative Stuff

Lecture (705.052)

Practical (705.053)

## Demonstration

## Motivation

Definition &

Fundamental Terms

**eGovernment in  
Austria**

**Citizen-oriented** **Transparency**  
**Usability** **Cooperation**  
**Trust and security**  
**Privacy** **Accessibility**  
**Interoperability** **Sustainability**  
**Convenience through efficiency**  
**Technological neutrality**

# eGovernment in Austria

## Principles

### Citizen-oriented

#### Convenience through efficiency

- No need to show up in person

- No closing times

- No waiting in line

- Automated systems in the background

#### Trust and security

- Trust electronic public authorities as much as traditional ones



# eGovernment in Austria

## Principles

### Transparency

Transparency for new technologies and development

### Accessibility

Accessible to everyone without discrimination

### Usability

### Privacy

Data protection

### Cooperation

All levels of government work together  
e.g (local authority up to the ministry)

# eGovernment in Austria

## Principles

### Sustainability

Modular structure

Simple integration of new components

### Interoperability

International standards

Open interfaces

### Technological neutrality

# E-Government in Austria

## General Objectives

Based on the vision and eGovernment strategy defined in 2000:

Assure trust in provided services by appropriately informing citizen on the **security-**, **privacy-**, and **transparency-preserving** features of provided solutions.

# E-Government in Austria

## General Objectives

Include all relevant authorities to avoid silo solutions, i.e. separated solutions of different authorities, which hinder **interoperability** between them.

Iteratively transform services to achieve complete **transactional** and **integrated services** without media breaks.

Again...

Can you name some eGovernment **applications**?

What are **principles** again?



# eGovernment in Austria

## Main Pillars



Efficient and collaborative organizational structures are required



Relevant for successful and sustainable eGovernment in Austria



Implementation of the organizational and legal framework using ICT

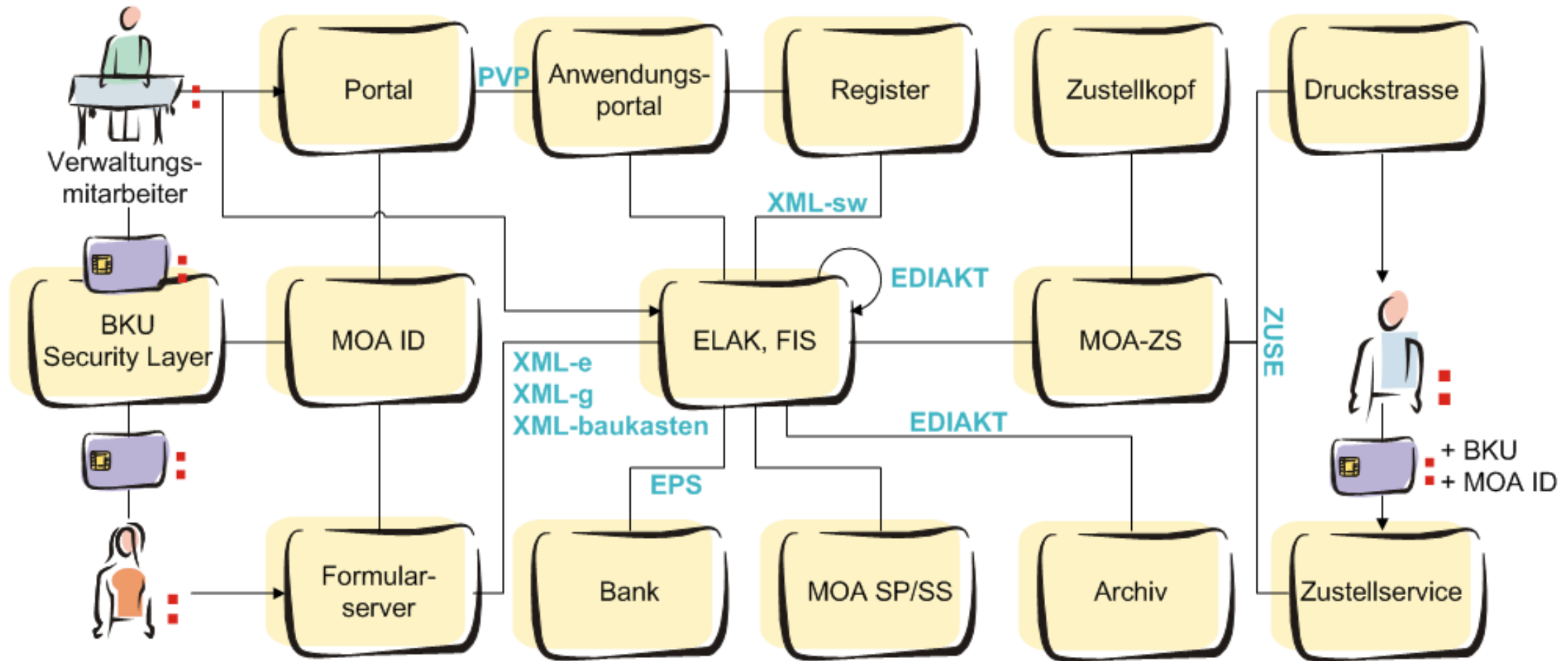
# eGovernment in Austria

## Legal Framework

- » E-Government Act (*"E-Government Gesetz"*)
- » eIDAS regulation („Electronic identification and trust services for electronic transactions in the internal market“)
- » Signature Act (*"Signaturgesetz"*)
- » General Administrative Procedures Act (*"Allgemeines Verwaltungsverfahrensgesetz"*)
- » Service of Documents Act (*"Zustellgesetz"*)

# eGovernment in Austria

## Technical Framework



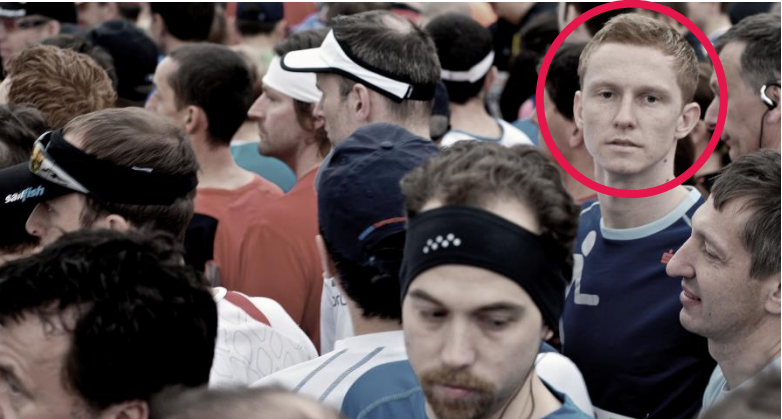


# Technical Framework

## Identification and Authentication



*"On the Internet, nobody knows you're a dog."*



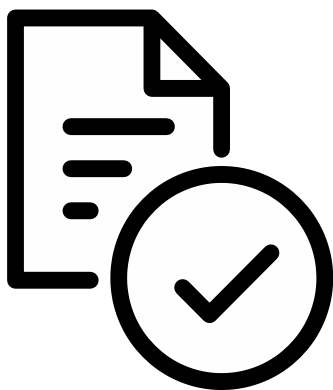
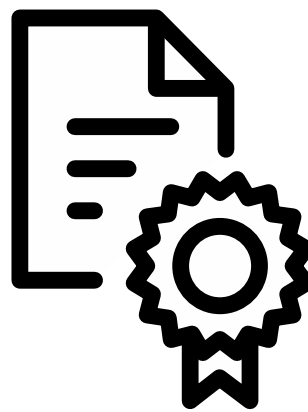
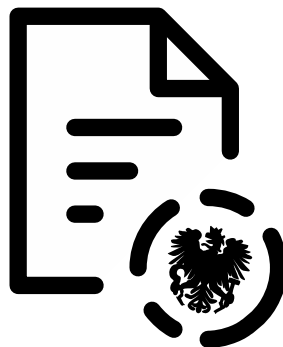
Austrian Citizen Card  
„Portalverbund“  
Electronic Mandates



# Technical Framework

## Electronic signatures

Citizen Signatures  
Official Signatures (Amtssignatur)  
Signature Verification



# eGovernment in Austria

## core Applications for Citizens

### » HELP.gv.at

First source of information regarding eGovernment services

„One-Stop-Principle“

### » Electronic signatures

Citizen signature (Qualified „electronic signature“)

Signature verification



## eGovernment in Austria

### core Applications for Citizens

- » Electronic identification and authentication
  - » Austrian Citizen Card
    - » Smart card – “Bürgerkarte”
    - » Mobile phone signature – “Handy-Signatur”
  
- » Electronic mandates
- » Electronic payments
- » Electronic delivery

# HELP.gv.at | USP.gv.at in numbers

---

- » 2016 HELP.gv.at had 20 million visits.
- » 55 million pages were accessed via HELP.gv.at
- » Average time on website: 5.06 minutes
- » 180 Live situations (e.g. marriage, passport,...)
- » 3.000 textual pages of content

# HELP.gv.at | USP.gv.at in numbers

» 2016 HELP.gv.at had 20 million visits.

» 55 million pages were accessed.

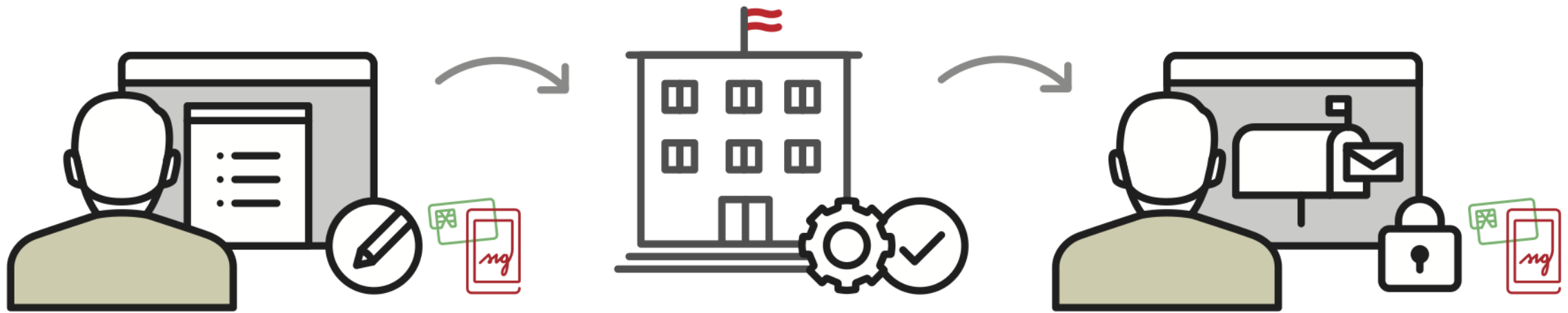
» Average

» 180 Live chat sessions per week (incl. support,...)

» 3.000 terms of use, 700 terms

About **575** counters within public authorities would have to be available **7** days a week @ **24** hours a day to cover the demand...

# eGovernment process without media brake Example: Any tax payment



eGovernment  
process without  
media brake

1. Filling out application forms on the Internet.  
( [HELP.gv.at](http://HELP.gv.at))
2. The Form is filled out directly on the PC.
3. The applicant is uniquely identified and authenticated via mobile phone signature (citizen card function on the mobile phone) or card-based citizen card (e.g. on the e-card).
4. The completed form and the respective fees are displayed.

eGovernment  
process without  
media brake

5. The completed form is signed by entering the signature PIN on the card-based citizen card or the TAN code with the mobile telephone (mobile phone signature).

6. The method of payment (Paybox, Internet banking, etc.) is selected and the transfer carried out electronically



eGovernment  
process without  
media brake

7. “back-office process”, the processing of the application by the administration is done by ELAK and/or the specialist application.

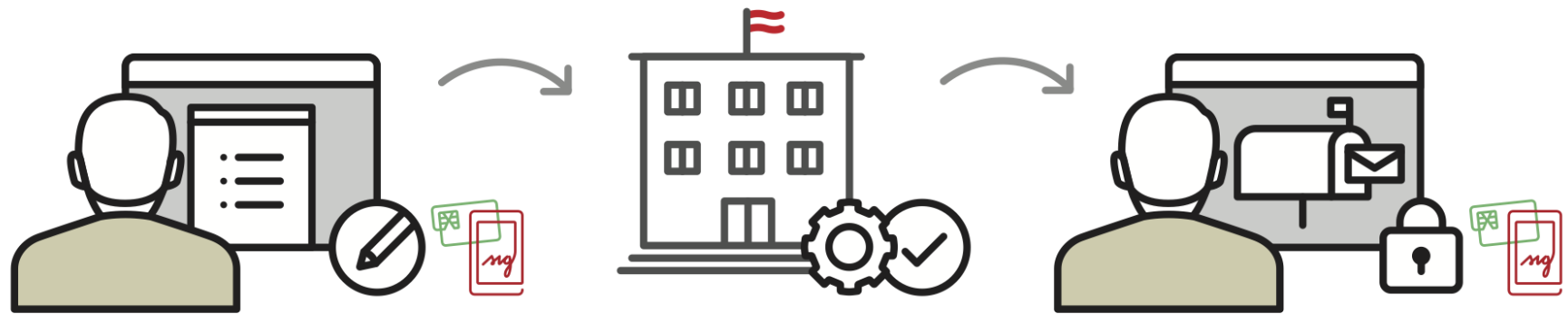
The electronic completion of the file is sent by means of electronic delivery.

8. The applicant is notified by e-mail when a document (e.g. the proof of residency) is ready to be picked up in the electronic inbox.

eGovernment  
process without  
media brake

9. When picking up the document, the user is authenticated using his or her card-based citizen card or mobile phone signature on the mobile phone.

An administratively signed confirmation is displayed that can be printed, saved or forwarded.



# E-Government Solution for electronically signing a PDF file

PDF Over



# Contents

## Administrative Stuff

Lecture (705.052)  
Practical (705.053)

## Motivation

Definition &  
Fundamental Terms  
eGovernment in Austria

## Demonstration

# E-Government Introduction, Motivation, Demonstration

Kevin Theuermann

[Kevin.theuermann@egiz.gv.at](mailto:Kevin.theuermann@egiz.gv.at)



**EGIZ**

E-Government Innovationszentrum