Comparing Electronic Identities in Austria, Belgium, Germany & Spain

Cases of Path Dependency

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Project Data

Systemic Change of the Identification of Citizens by Government

Electronic Identity Management as a Complex Technical Innovation and its Organisational, Legal and Cultural Matching in Selected European Countries

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in cooperation with
eID (electronic identity) is a set of attributes of a person defining their identity in a certain context.

National identity is a set of attributes defined by a state to create and assess the citizenship of persons, in most cases registered in a national citizens register and proved by a national ID card.

National eID cards are issued for authentication of citizens when accessing government services online. Because for many government services, e.g. claiming social benefits online, assessing the identity of a beneficiary is crucial.

National eID cards may or may not be used for authentication in eCommerce services as well.

In most countries national eID is defined by the national identity and proved by a token which is to be used in the online- and the physical world, i.e. an national eID card for online authentication and visual inspection at the same time.

### Research Questions

1) What are the differences between various national eID cards in Europe?

Four Countries have been selected for comparison because of differences in approach and results: Austria, Belgium, Germany and Spain.

2) How can these differences be explained?
Subject of comparison: eID(-cards)

- Online-Authentication
- Electronic signature of documents

Functions

National ID-document (visual and electronic inspection)

European Travel-document (visual + electronic inspection)

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The virtual Austrian Citizens Card (Bürgerkarte)

- Online-Authentication
- Electronic signature of documents

Optional, only 10% of population

National ID-document (visual and electronic inspection)

European Travel-document (visual + electronic inspection)

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Technical differences

RFID Chip

larger picture

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Differences on the backside

Home adress printed on card

Home Adress not printed on card, only in the chip

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## Differences between eID cards

<table>
<thead>
<tr>
<th></th>
<th>AUT</th>
<th>BEL</th>
<th>GER</th>
<th>ESP</th>
</tr>
</thead>
<tbody>
<tr>
<td>carrier card</td>
<td></td>
<td></td>
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<tr>
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<td></td>
<td>x</td>
<td>x</td>
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<tr>
<td>authentication (visual)</td>
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<td>(X)</td>
<td>x</td>
<td>x</td>
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<tr>
<td>e-signature</td>
<td></td>
<td>x*</td>
<td>x**</td>
<td></td>
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<tr>
<td>card attribute</td>
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</tr>
<tr>
<td>national register number</td>
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<td>–</td>
<td>x</td>
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<td></td>
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<tr>
<td>- address</td>
<td></td>
<td>x***</td>
<td>–</td>
<td>x</td>
</tr>
<tr>
<td>- owners photograph</td>
<td></td>
<td>x***</td>
<td>x</td>
<td>x</td>
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<tr>
<td>contact/contactless chip</td>
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<td>PIN-protected data</td>
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<tr>
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<td>–</td>
<td>–</td>
<td>x</td>
</tr>
<tr>
<td>face</td>
<td></td>
<td>–</td>
<td>–</td>
<td>x</td>
</tr>
<tr>
<td>fingerprints</td>
<td></td>
<td>–</td>
<td>–</td>
<td>x</td>
</tr>
</tbody>
</table>

* opt-out-solution
** opt-in-solution
*** depending on carrier card

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## An eID System is more than cards, it includes the card distribution process + infrastructure as well

### The Benefit of BELPIC

1. **Card-Manufacturer**
2. **National Register**
3. **Municipality**
4. **steria**
5. **CA**
6. **Pin**
7. **Zetes**

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Distribution of Spanish eID Card

Decentralized issuing and personalization of the Spanish eID Card (at 400 police stations)

Research Questions

What are the differences between various national eID cards in Europe?

How can these differences be explained?

Actor oriented approach:
• referring to different interest constellations of political actors in the respective countries
• referring to different policy fields as points of emergence
• referring to influences of different economic and societal actors

Sociocultural approach:
referring to different cultural norms and values
Explaining differences by emergence out of different policy fields

In each of the 4 countries, authentication in eGovernment online services was one initial motivation, but in some countries political actors from other policy fields tried to take advantage and influence the development in favour of their policy field (e.g., security).

### Importance of policy fields

<table>
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<tr>
<th>Policy field</th>
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<th>AUT</th>
<th>ESP</th>
<th>BEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administr. reform /eGovernment</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Police/security/interior</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Business/industry/commerce</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Finance/tax</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Social benefits/health</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

(1=low, 3=high)
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Practical problems in applying this framework

• Obviously there are differences between the four eID-system related to privacy regulations and privacy considerations.
• Austria has rejected an unified citizen identity number and instead introduced a complex system of sector-specific identity numbers in order to follow the purpose-binding requirements of its privacy law while Spain and Belgium are using their national identity numbers which were on the previous identity cards.
• But in Belgium the number may not be used for authentication in eCommerce. Is this more or less privacy than in Austria? In both countries the Privacy Commission has been consulted and agreed to the respective solution.
• It seems that the qualitative differences in the privacy regulations and culture and the way these are considered in developing the national eID systems can not be captured by a rank order scale with more or less, stronger or weaker privacy regulations or privacy considerations.
First revision: Importance of previous ID-system (Path dependency)

Previous non-electronic systems to a large extent determine the path for the follow-up system.

For example: storing fingerprints. Belgium NO, Spain YES.

Because in Spain fingerprints were on the paper ID card before.

Decentralized personalization. Belgium NO, Spain YES.

Because paper ID cards in Spain have been personalized at the police station before.
Path dependency

Path dependency means that a set of decisions one faces for any given circumstance is limited by the decisions one has made in the past, even though past circumstances may no longer be relevant.

Some authors use path-dependence to mean simply "history matters" - a broad concept; others use it to mean that institutions are self reinforcing - a narrow concept.

Path dependency is the view that technological change in a society depends quantitatively and/or qualitatively on its own past.

Later decisions can be explained by former ones, but the initial move is most relevant.

Path dependency of eID systems

In some cases there are technological innovations within the same organizational structure and under the same regulatory pattern, in other cases minor technological changes have been connected with large scale organizational changes. Therefore we distinguish a technological, an organizational and an institutional/regulatory path:

- The technological path refers to the technical means, in particular the card and the chip (contact or contact less), security features but also software standards etc.
- The organizational path refers to processes for producing, issuing and applying the eID means, including the data stored on the card (i.e. finger prints, fotos)
- The institutional or regulatory path deals with the responsibilities for defining technical and organizational issues and with the norms to be considered.
We have to describe in detail the previous system and the „initial move” in order to explain the new system. But do we also have to explain the pervious system?

How long has a path to be traced back?

How shall the context factors and the interaction system be considered?

As each eGovernment application in each country has its own history the chances for identifying common context variables with explanatory power are quite low. Will comparative eGovernment research come close to historical and ethnographic studies?
Second Revision: Comparing path dependencies

Adopting a path-dependency-perspective we can explain the developments in Austria, Belgium and Spain very well.

But we can not explain, why Germany had planned to store fingerprints on the chip by any reference to the previous citizen card.

Interviews showed that the electronic identity card has been planned by the same actors who before had planned and introduced the digital passport and had not encountered any problems with storing fingerprints on the chip of this travel document. In this case they could refer to US requirements, European regulation.

When the draft bill for the electronic identity card was discussed with members of parliament, they maintained that there are important differences between passports and identity cards, relevant for the intervention into basic civil rights: while the passport is for travel only and optional, the ID-card is an obligatory document.

So we have to consider the choice of actors of the reference system defining the path they want to follow as well as decisions to leave a path or change a path.
Second Revision:
Comparing and explaining path dependency

The comparison of four similar innovation processes allows for new insights into path dependencies by comparing differences in this dependency.

Perhaps there is a chance of identifying common influence factors on a meta level, which explain the choice of reference systems and the likelihood of path conformity or outbreak. At present increasing returns, lock ins, sunk costs are considered as main reasons in the literature. In the case of e-identity the expectation of public or political resistance and other factors might be more relevant.

We will look further for this kind of explanation.

However we already dare the hypothesis that it is worthwhile not only to consider path dependency as an explanation of innovation but also as a strategy of actors which has to be explained itself.

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