

The Belgian e-ID and its complex path to implementation and innovational change

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Abstract This article provides a critical view on the development and deployment phase of the e-ID in Belgium since 1999. It is based on extensive desk research and fifteen in depth-interviews with experts and stakeholders from government, administration, academia and industry who have been key in the development of the e-ID. The article identifies different elements that influenced, both in a positive and negative way, the societal, technical and political aspects of the Belgian e-ID. It shows that no severe problems occurred during the initial deployment phase, which came to an end in 2009 providing over eight million Belgian citizens with an e-ID. The pre-existence of a National Register and the preliminary experiences with the exchange of digital information between administrative entities in the field of Social Security enabled and facilitated the development and the distribution of the e-ID. However, the research also reveals that usage of the e-ID by citizens and uptake of e-ID based services by administration and business remains limited due to multiple factors. The complex system of state structures in Belgium and as a consequence the dispersion of competences across different governmental entities makes that no unified approach to e-government and e-ID based services has been developed. From the industries' point of view the privacy framework and the strictly regulated use of the National Registration Number provides no clear view on the allowed use of data accessible through the e-ID hampering take up in this area.

Keywords e-ID · e-commerce · e-government · e-signature · Path dependency

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Abbreviations

CBSS	Crossroads Bank for Social Security
CBC	Crossroads Bank for Companies
ESAT-COSIC	Department of Electrical Engineering—Computer Security and Industrial Cryptography
Fedict	Federal Public Service for Information and Communication Technologies
FOD	Federal Public Service
FOD IBZ	Federal Public Service Home Affairs
ICRI	Interdisciplinary Centre for Law and Information & Communication Technology
NMBS	National Railway Company
RRN	National Registration Number
SIS-card	Social Security Card

Introduction

By the end of 2009 every Belgian citizen above the age of 12 will have received an e-ID card including an electronic identity (eID) for online authentication as well as an electronic signature with the possibility to opt out. This means that more than eight million Belgian citizens will be in the possession of an e-ID.¹ In contrast with some other countries—such as Germany where discussions on the future concept of the e-ID have taken several years—the process of conceptualization, development and deployment of the e-ID in Belgium was uncontested and went remarkably well. The first steps towards the introduction of the e-ID were taken in 1999 with the establishment of a Commission to oversee the opportunities and barriers of the Information Society and the development of an e-government policy at the federal level (see Fig. 1). A small team of five core individuals was selected on the basis of their prior experiences in identity management, the exchange of digital information between administrative entities, computer security and legislation.² A feasibility study on the e-ID was launched which resulted in the approval of the e-ID project by the Council of Ministers in 2001. Certipost was assigned as the Certification Authority and engaged itself to the delivery of 16,4 million certificates. In contrast to other European countries, the Belgian government was able to negotiate a very profitable deal for the delivery of the necessary certificates. In Belgium the price is approximately one Euro per certificate for a period of five years. Zetes was assigned as the Card Provider. The company already used to produce the Social Security Card. The first pilot project started in 2003, followed by the complete rollout in the same year.

Since then several ministerial decisions have been taken to broaden the scope of the e-ID. The idea of a foreigners-ID was introduced with the goal of 1) replacing the different kinds of paper-based cards for foreigners by one unique card; 2) offering

¹ <http://godot.be/eidgraphs>

² Respectively Luc Vanneste, Head of FOD IBZ, Federal Public Service of Internal Affairs; Frank Robben, Head of CBSS, the Crossroads Bank for Social Security; Bart Preneel & Danny De Cock, Research Centre ESAT-COSIC Catholic University of Leuven; Jos Dumortier, Research Centre ICRI Catholic University of Leuven.

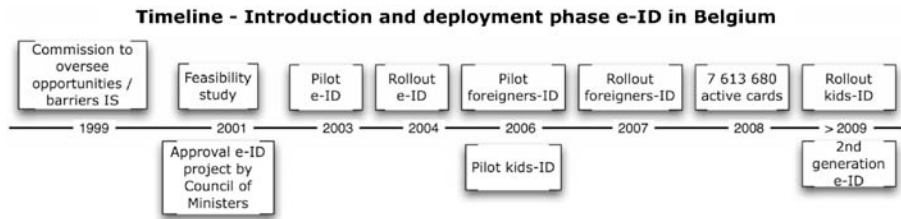


Fig. 1 Timeline—Introduction and development of eID in Belgium

foreigners the same opportunities to e-government services as Belgian citizens and 3) ensuring access to Social Security services. In 2007 the administration started with the rollout of the foreigners-ID providing every foreigner living in Belgium and registered in the Belgian National Register with an e-ID (FOD IBZ 2008). At about the same time the Council of Ministers decided the introduction of a kids-ID that allows for an easier and more efficient way for the identification of children abroad and the protection of minors in both the online and real world (Fedict 2010). The kids-ID is an e-ID for children under the age of 12 and as of 2009 it is obligatory for children travelling abroad but not for children living and staying in Belgium.

At the end of 2008 over 7,6 million cards had been issued. The distribution of the second-generation e-ID starts in 2010 as the e-ID expires every five years instead of every ten years, as was the case with the previous paper based ID.

The first goal of this article is to analyze the reasons why the introduction and the distribution of the e-ID have met with little resistance and problems in Belgium. Starting from a theoretical framework related to path dependency and innovation systems, the article identifies the different elements that have influenced, both in a positive and negative way, the development of the e-ID process.³ It specifically focuses on those structures and elements that preceded the e-ID and thus enabled or hampered the evolution of the e-ID.

In contrast to other European countries Belgium preferred an opt-out strategy in relation to the functions on the e-ID. This means that the certificates for authentication and the e-signature are activated by default. Only on specific demand of the e-ID cardholder the certificates are deactivated and therefore not usable for e-ID based services. Notwithstanding the large number of distributed and activated e-ID cards recent figures indicate that citizens rarely use their e-ID for communication or interaction with government, administration or business (Walrave et al. 2006). In spite of innovative features as the e-signature only a small number of business-oriented services were developed so far (Kerschot et al. 2006).

The Belgian e-ID concept

Functionalities of the e-ID

From the beginning of the e-ID process all core members of the Commission to oversee the opportunities and barriers of the Information Society agreed upon the

³ See chapter conceptual framework and research design in this edition/issue.

conceptualization of the e-ID as 1) a tool for identification, and 2) a tool for communication and interaction with government, administration and other third parties such as business and the service industry.⁴ This was not mentioned explicitly in the first proposal on the e-ID, but the optional use of the e-ID for interaction with business was and remains one of the principle goals behind the concept of the e-ID. For this reason the Belgian e-ID card—the foreigners-ID card included—contains not one but two certificates, one for authentication and one for e-signature. The certificate for e-signature is legally binding for online communication and interaction, except in the case of minors, as they cannot legally sign documents or contracts. Therefore the certificate for e-signature is only activated at the age of 18. For the same reason the kids-ID card only contains a certificate for authentication, which is activated from the age of 6. Yet the kids-ID card has an important new feature i.e. the ‘Hallo Ouders’ cascade system.⁵ This feature allows third parties to enter a list of preset phone numbers by way of a unique phone number and the child’s RRN, both visible on the kids-ID card. If a child is injured or is in an endangered situation the parents can easily be contacted. Only the parents of the child can determine the preset list of phone numbers via a secure online database (FOD Economie 2008).

Numerous discussions took place on the integration of additional services and functionalities. Legal, technical and financial aspects or differences in opinions between stakeholders have hindered such integration of services. For example, one idea was to integrate the Belgian drivers license with the e-ID, putting all necessary information on the chip. At the time of conceptualization however the legal framework was inapplicable. As citizens are obliged to carry their ID with them at all times, the police was legally unable to withdraw the drivers license in case of severe infraction. Another example was the idea to integrate the functionalities of the SIS-card—social security—into the new e-ID. Although technically feasible, at the political level it was considered to be too high an infringement on personal privacy and the integration was blocked.

Also the idea of inserting biometrics was nearly immediately abandoned by all stakeholders and this for several reasons. First, there was the financial aspect of biometrics, which was the main cause for not considering it. Inserting biometrics would imply providing the financial means necessary for the registration of biometric data for over 8 million citizens. It would also imply the development and distribution of new and expensive fingerprint encoding systems. Second, at a political level fear existed that Belgian citizens would show resistance to the introduction of biometrics. In general inserting biometrics was considered unnecessary and financially unfeasible.

Characteristics of the e-ID

The external characteristics of the citizen’s e-ID are to a high degree similar to the old paper-based ID. A major difference is that the e-ID is developed according to smartcard standards whereas the previous ID was nearly double this size. Apart from that the layout, style, color and other graphics have mainly been retained. Both the

⁴ Five core members: Frank Robben (CBSS), Luc Vanneste (FOD IBZ), Bart Preneel & Danny De Cock (ESAT-COSIC), Jos Dumortier (ICRI).

⁵ Translation of ‘Hallo Ouders’ is ‘Hello Parents’.

kids-ID and the foreigners-ID have another look with different background colors, this to create a noticeable distinction between the existing cards. However, the foreigners-ID for citizens from within the European Union is nearly identical to the e-ID of Belgian citizens. Here a different color is only used for the e-ID of citizens from countries outside of the European Union. This type of foreigners-ID has an additional difference. The chip is placed on the back of the card and not on the front, as is the case with the citizen's e-ID and the kids-ID.⁶

In terms of the information the card carries there are only a few differences between the previous ID and the e-ID. First, the address of the cardholder is no longer visible on the exterior of the e-ID thus avoiding renewal of IDs due to relocation.⁷ Second, the unique identification number of each Belgian citizen (the so-called National Registration Number or RRN) is integrated as default on the e-ID because it is used for means of identification by different administrative services, for example Social Security and Employment. On the previous ID it was only added on the specific demand of the cardholder. All visible data on the exterior of the e-ID is also inscribed on the chip, together with all necessary data linked to the use of the two certificates.⁸

Privacy framework

In Belgium the privacy framework regulates the use of personal data. In general Belgium has a privacy framework, which could be considered rather strict. In the case of the e-ID the issue is even more complicated as there is a direct link between the e-ID and the unique RRN. As already mentioned the RRN is an identification number that is unique for every Belgian citizen and is used by the administration to access authentic sources such as the National Register or the CBSS. Authentic sources store personal and thus privacy sensitive information. The Privacy Commission was established in order to supervise the use and the exchange of personal data. It functions by way of several sectoral committees that need to authorize every automated and systematic exchange of personal data, for the government, the administration as well as the private sector. Citizens need to authorize every non-systematic use and storage of personal data. The Privacy Commission has to grant permission to entities that want to use and store the RRN. As the e-ID certificate contains the RRN by default, each organization or entity that wishes to use the e-ID or develop e-ID based services needs to request permission from the Privacy Commission (FOD IBZ, DAV/ASA 2006).

The Privacy Commission adheres to a very strict interpretation of allowed use of the RRN based on the principle of proportionality, meaning that no more data should be obtained than what is indispensable for the purpose of use.⁹ It is very rare that

⁶ A complete overview of the different types of e-ID cards can be found on the website of the FOD IBZ Internal Affairs. <http://www.ibz.rrn.fgov.be/index.php?id=143&L=1>

⁷ The following information is shown by default on the exterior of the card: Name & Given names, Place & Date of birth, Nationality, Gender, Card Validity, Card Number, Holder's signature, Picture, RRN, Place of issue, Authority who issued the card.

⁸ Each certificate contains the following information: Identification number of the certificate, RRN, Name & Given names, Creation date and validity of the certificate, Public key.

⁹ Website Privacy Commission: <http://www.privacycommission.be/nl/>

private companies are allowed to use and store the RRN. The main reasoning is that the RRN is not a neutral number as it indicates age and gender of citizens. Thus the Privacy Commission considers the risk for abuse and misuse too high, especially in the case of private companies who could use the information for direct marketing strategies. As a result very few private organizations develop or implement e-ID based services or online e-ID data capturing features. The necessary effort is considered too high compared to the return on investment.

Rather contradictory however is that present e-ID card readers automatically show the RRN, as selective reading of the data on the e-ID card is not yet possible with current card readers. This means that every entity, government, administration or private sector that uses e-ID card readers has access to the RRN and has the possibility to store the RRN and all additional data in a personalized database. By using the RRN it would not be difficult to link these data to other significant data.

Interesting to note is that the Privacy Commission only grants—or refuses—the permissions for the use of data, it does not execute any form of control on the effective use or protection of data afterwards. As a consequence institutions that are allowed to use or store the RRN could easily link it to other meaningful data thus infringing the preset privacy regulations.

Elements preceding the e-ID

Identity management system

The previous experiences in Belgium with identity management were a major enabling factor in the deployment of the e-ID project. No real effort, financial or in terms of manpower, had to be invested in the development of new databases or new identity management systems. With the National Register a centralized national (digital) database already existed at the Federal level, thus supplying the necessary and already functioning back-office database (FOD IBZ 2004). The National Register is based on the use and storage of the unique identification number or RRN of each Belgian citizen. This number is linked to personal information on the identity of citizens, the civil status, the employment status or the family constellation of the citizens.¹⁰

Belgium has a long tradition of an obligatory ID (i.e. registration) and ID card for every citizen over the age of twelve. Citizens are also compelled to carry their ID with them at all times. Thus citizens are accustomed to having an ID card. As there is very little distinction between the previous card and the e-ID no changes in attitudes or experiences of citizens were brought about by the introduction of the e-ID.

From an organizational point of view no major changes were needed in terms of the process of issuance and delivery of e-IDs (De Cock 2008). In this regard Belgium applies a pro-active policy. The local authority informs citizens that their ID is about to expire and needs to be renewed. Once this information has been sent to

¹⁰ The National Register stores the following information: Name & Given names, Place & Date of birth, Gender, Nationality, Address, Place & date of decease, Profession, Civil status, Family constellation, other residents at the citizen's address, Administrative status of citizens on the waiting list for registration, Picture (only since 2007).

the citizens the process for renewal of the old ID is launched. The process for issuance and delivery of IDs—apart from a small number of new elements—was mainly transposed to the e-ID delivery process. Again, the previous experiences in identity management facilitated the straightforward introduction of the e-ID to a high extent. As can be seen on Figure 2, steps 7, 8, 9 and 10c, illustrated by a dotted line, were additionally inserted into the process. Steps 7, 8 and 9 refer to the issuing of certificates for the e-ID by Certipost, the certificate authority. Step 10c represent the letter with the PIN and PUK code delivered at the citizen’s home sent by Zetes, the card provider.

As all citizens were obliged to have their ID replaced by the e-ID local authorities experienced a major increase in their workload. First, they were confronted with new ways of reading and managing data. Second, they had to make sure the process of delivering the e-IDs was executed correctly and in time. The Federal government found a solution in terms of seconding public servants from other institutions to the local authorities for a period of three years. These civil servants mainly came from former public parastatals such as Belgacom, the national Railway Company (NMBS) and the Belgian Post.

Digital information flows

In 1990 Frank Robben, who became one of the driving forces behind the e-ID project, had founded the Crossroads Bank for Social Security (CBSS). The CBSS

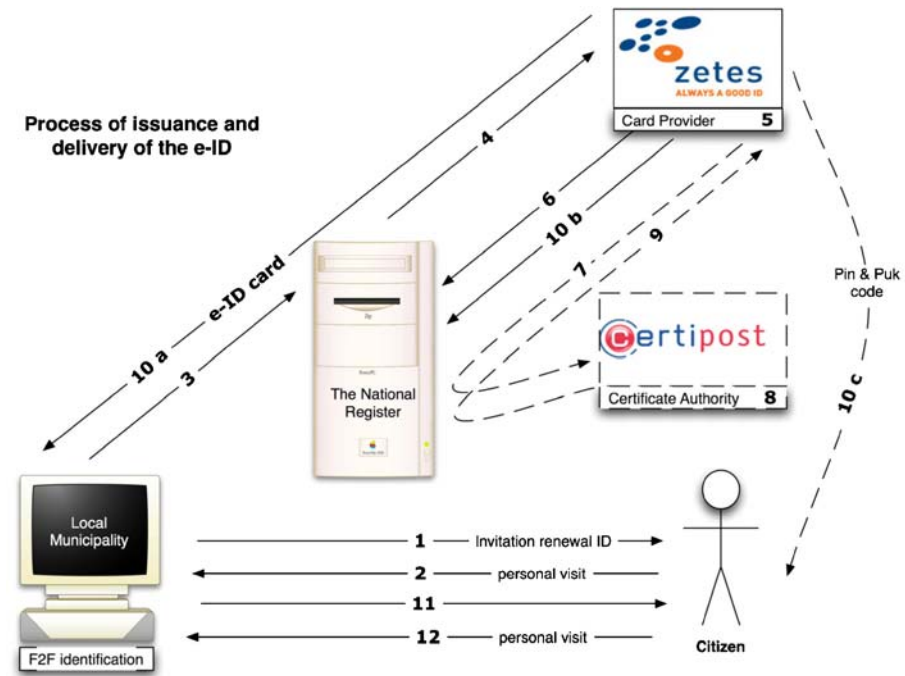


Fig. 2 Issuance and delivery of the eID card and the eID

can best be described as an actor connecting social security institutions, thus enabling these institutions to exchange information on citizens relevant to social security. Its' functionality is based on the so-called 'Only Once' principle. This means that information related to social security services can only be asked once to citizens. That information is then stored in databases and re-used by all entities linked to the CBSS (Robben 1993). This avoids different institutions asking the same information from citizens. These databases containing unique information on citizens are called 'authentic sources'.¹¹ The RRN is used for identification of the correct information of a particular citizens' data by the CBSS. At the time the CBSS was founded, there was no document that automatically mentioned the RRN as it was not by default printed on the paper ID. Therefore a new Social Security Card was introduced, also called the SIS-card. As of 1996 every Belgian citizens, children of all ages included, owns a SIS-card thus providing access to social security services.

The introduction of the SIS-card and the CBSS was accompanied by initiatives to ensure a smooth flow of information exchange. Most important were the development and distribution of card readers to social security institutions and the installation of the online infrastructure. The prior experiences in the exchange of digital information between administrative entities facilitated and enhanced to a high extent the conceptualization and implementation of vital e-ID related processes (Robben 1993).

Actors' constellation

The introduction of the e-ID has been a lengthy process, starting in 1999. In this section we focus on the actors involved in the e-ID process, how the constellation of actors has changed, with what possible effects. The analysis focuses on the identifying of actors in 1) the legal field, 2) the technical field and, 3) and the production field related to the e-ID. We also look at the different stakeholders at the level of the administration and politics related to the e-ID. The timeline shown in Figure 3 provides an overview of the key actors involved from the start of the e-ID project.

The analysis clearly shows that in most fields the actors' constellation remained remarkably stable during the whole process. In terms of the production of the card, Certipost and Zetes—both private companies—are involved during the whole process. Both are recognized as valuable partners for their growing experience and expertise in relation to the e-ID. Zetes had a track record before the introduction of the e-ID. It already produced the SIS-card. To maintain its position and expertise investments were made in order to be able to independently execute each step of the complete production process of digital cards. Certipost, initially set up as a joint venture between the Belgian Post and the incumbent telecom operator Belgacom,

¹¹ Another example of an authentic source is the National Register. Also, in accordance with the CBSS, the Crossroads Bank for Companies was created to decrease the administrative burden for companies.

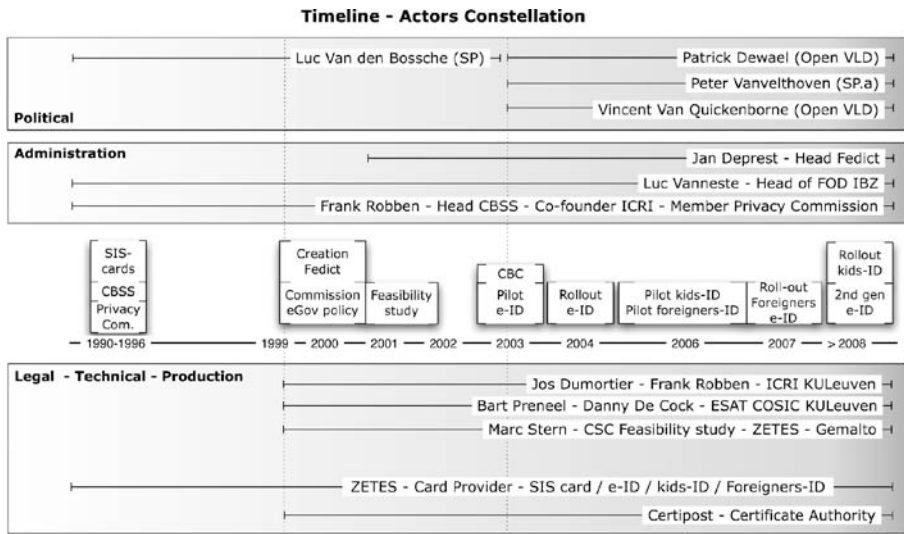


Fig. 3 Timeline and actors involved

increased its expertise by the acquisition of different companies. Apart from providing the digital certificates to government and business, Certipost also offers solutions to companies that wish to integrate the use of the e-ID in their services.

A small group of five people formed the Commission to oversee the opportunities and barriers of the Information Society in 1999. This group was responsible for the conceptualization of the e-ID. It is remarkable that this group is still the driving force of current developments of the e-ID and related fields.¹² Jan Deprest joined this group when he replaced Frank Robben as head of Fedict. However, their influence on the development of the e-ID is often limited in the sense that actors at the political level don't always accept their propositions for further integration of services. For example, since the start-up of the e-ID project, Frank Robben, head of the CBSS, was very much in favor of the integration of the SIS-card in the e-ID. By doing so the renewal of expiring SIS-cards could have been avoided which would have led to a major financial and structural advantage for the FOD Social Security. From a technical point of view the integration of the SIS-card was and still is possible. Adaptations to the legal framework could also be implemented easily. The integration however was rejected at the political level, mainly because linking the e-ID with Social Security services was considered too privacy invasive. At a political level the fear existed that Belgian citizens would react negatively to the idea of having one card that would be used by several administrative services as Social Security or the Police. A similar difference in opinion between the members of the Commission and the political level appeared with regards to the use of the RRN by private companies. By putting forward the concept of an e-ID with two certificates Frank Robben and his four partners envisaged the use of the e-ID for e-commerce and other business related services. However the use of the RRN is limited by law.

¹² E.g. Frank Robben, Luc Vanneste, Bart Preneel, Danny De Cock and Jos Dumortier.

Though technical solutions by which the RRN is scrambled whenever an e-ID is inserted in a card reader or adaptations to the legal framework are possible, the use of the RRN by business is considered ‘not done’ at the political level. In their view only the government or administration should be allowed to use the RRN.

Changes in the actors’ constellation did occur at the political level following the elections that took place in 2003. These new actors tried to influence the e-ID process according to the interests and priorities within their policy field. Important is that each of the actors closely involved with the e-ID or with related services showed a considerable willingness and openness towards the e-ID project as such. For example, on the initiative of Patrick Dewael—Federal Minister of Home Affairs from 2003 to 2008—the kids-ID and the foreigners-ID were implemented. Another important actor is Vincent Van Quickenborne. From 2003 to 2008—as Secretary of the State for Administrative Simplification—his activities mainly focused on simplifying and reorganizing administrative processes. The use and integration of the e-ID in these simplified administrative processes was only implemented when possible and advantageous. As of 2008 when he became Federal Minister for Economy and e-government, he launched several new features that served to facilitate the use of the e-ID by citizens.¹³ Peter Vanvelthoven—State Secretary for Informatisation of the State from 2003 to 2006 and Federal Minister for Digitization of the State from 2006 to 2008—mostly focused on the development of e-government services and the distribution of card readers.

However, the results indicate that privacy issues play an important role with regards to the acceptance of proposed e-government services. For example the use of the e-ID for electronic voting or the online declaration of a child at birth were questioned by several actors from outside the field of e-government. A negative attitude towards the implementation of e-ID based services is mostly encountered amongst politicians from the French speaking part of the country. The Flemish political actors tend to be more open and receptive towards the use of the e-ID.

Take up and use of the e-ID

e-commerce and e-government

Thus far figures show that the e-ID is not frequently used as an instrument for e-government or e-commerce.¹⁴ In terms of e-commerce two main reasons can be identified for the limited use and the weak uptake of e-ID related services. First, all actors agree that the strict interpretation of the privacy framework stifles the development of services by the private sector and the service industry more particularly. Second, a lack of use by citizens and a gradual distribution of cards makes the private sector wary of investment in e-ID enable services, as the return on investment is expected to be low. This might change in the future as deployment

¹³ For example, the feature ‘Quick Install’ was launched which is an installation wizard that guides users throughout the complete set-up process.

¹⁴ For example, the e-ID is frequently used by so-called ‘mutualiteiten’. These are social security related institutions through which people can access all kinds of social security services.

reached 100% by the end of 2009. However, the Belgian market, in comparison to most other European markets, might remain too small a market for most companies to heavily invest in e-ID enabled services.

One would therefore expect that government would be the driving force of service development by stimulating e-ID enabled e-government applications and services. Even more so, as the Privacy Commission adheres to a more lenient interpretation of the privacy framework in relation to e-government services. The main reasoning is that there is a lower risk for abuse or misuse of data by governmental and administrative entities. As mentioned before most political actors involved in the e-ID process or involved in e-government have a positive attitude towards the development of new services. The last years several actions were taken in order to develop and provide e-government services such as for example Tax-On-Web or the application 'Mijn Dossier'.¹⁵ Notwithstanding the development of a certain number of services, use of the e-ID for accessing e-government services remains low (Walrave et al. 2006; Kerschot et al. 2006). Different causes can be identified.

First, the complex structure of the Belgian state has a negative influence on the deployment of e-government services. Belgium is a Federal Constitutional Monarchy where specific competencies are dispersed across three governmental levels.¹⁶ As a consequence Identity Management is a federal competence whereas e-government is predominantly a regional competence, managed by the governments of the Regions and the Communities. As there is no hierarchy in the governance system, the Federal Government cannot influence or oblige regional governments to implement specific applications. Each governmental entity develops applications according to its proper needs, conceptual framework, and financial means. This resulted in a highly scattered field of initiatives and networks. This also resulted in different service offerings in different parts of Belgium—both territorially and person related—as e.g. certain services will be available in Flanders but not in the French speaking part of the country and vice versa.

Second, users were confronted with highly user-unfriendly installation procedures in relation to the necessary hardware and software. Prior to 2009 it was almost impossible to install a card reader on your computer unless you were an IT-specialist. In order to install the client software several complicated steps had to be taken.¹⁷ No up-to-date and step-by-step installation document was available. In 2009 government launched QuickInstall software, which undoubtedly has solved this problem. Quick-install is an automated installation wizard that step-by-step guides users through the

¹⁵ Tax-On-Web is an application that enables citizens to submit their tax declarations online. My File is an application through which citizens can consult their personal file, as it is stored in the National Register. With this application citizens can also see the different administrative services that have consulted their personal data during the past 6 months.

¹⁶ Competencies at the Federal level are Finances, Justice, Social Security, Public Health and Internal Affairs. The Communities are responsible for competencies related to language, namely Culture, Education, Media and Health. The regions have more elaborate competencies in the fields of Economy, Employment, Housing, Energy, Transport and Foreign Trade. At a local level, the municipalities can be considered as autonomous authorities.

¹⁷ For example one had to move the "PKCS#11 modules" into the applications folder or activate Java in the preferences of the browser.

installation process. However, the use of e-ID related services such as the digital signature for email or Pdf-files still requires additional installations and changes thus prolonging and complicating the installation.

Third, though no exact figures exist on the number of installed card readers, all stakeholders indicate that the number remains far too low. At the beginning of the e-ID project one of the main reasons for the slow purchase was without doubt the fairly high price of card readers.¹⁸ The low visibility of card readers and a lack of awareness on where to buy card readers contributed to the problem. In contrast to what was first anticipated, the integration of card readers in existing hardware remains limited. Only two hardware manufacturers, i.e. Hewlett Packard and Fujitsu-Siemens, have keyboards with an integrated card reader on the market.¹⁹ The limited distribution of card readers is met with different views in industry and government. Particularly private sector stakeholders do not really conceive this as a problem. According to them, in time, once a killer-application exists, people will be urged to buy a card reader. Thus implying that no interventions are necessary to increase the distribution rate of card readers. Research however shows that citizens who have access to a card reader are more inclined to use the e-ID for online services (Kerschot et al. 2006). This is why stakeholders in the administration and government claim that actions should urgently be conceived to stimulate the distribution of card readers. Paradoxically, government itself often contributes to the slow update of the e-ID. Fedict e.g. still produces and distributes the so-called Federal Tokens. A Federal Token is a personal card with 24 unique codes securing access to e-government services without the use of an e-ID or a card reader. The concept of the Federal Token was introduced in 2003 as an intermediate solution for providing citizens access to e-ID services and applications without the e-ID. The main goal was to increase the number of users of Tax-On-Web, an application through which citizens can submit their tax declaration online. At present, although almost all citizens possess an e-ID a large group still prefers the use of the Federal Token instead of buying or using a card reader.

Fourth, there is a severe lack of communication on the available e-ID related or e-government services. The most known and communicated application is without a doubt Tax-On-Web. In 2009 more than 1,5 million tax declarations were submitted online. According to figures delivered by Bregt Bourgeois, expert e-Gov of the Cabinet of Minister of Economics and Simplification Vincent Van Quickenborne, 241.263 citizens used the Federal Token and 61.553 citizens used their e-ID in order to access Tax-On-Web. In total 1.686.335 tax declarations were submitted digitally. Respectively 720.239 and 663.280 of these online declarations were submitted by Civil Servants and mandatories (i.e. persons or groups having the nature or powers of a mandate). Thus a vast majority of tax declarations via Tax-On-Web were not submitted by individual citizens, but by intermediates such as accountants and banks. There is a certain amount of services available using the e-ID, however they are provided by institutions at different governmental and administrative levels. It is therefore not always clear which services can be obtained where and by what means. In 2010 a nation wide e-ID road

¹⁸ At the initial stage the price for a card reader was around 70 Euros. In the meanwhile prices have dropped significantly. A simple card reader can now be purchased for approximately 10 Euros.

¹⁹ See website <http://www.cardreaders.be/nl/default.htm>

show will promote and demonstrate the possibilities of the e-ID. It remains to be seen whether this will seriously augment the use of e-ID enabled services.

e-signature: a non-existing feature

The e-signature as a supplementary feature of the e-ID card is often considered a major advantage and a main driver of innovative uses of the e-ID. Our research however shows that the expectations in relation to the e-signature are overdrawn and that it should rather be considered as a non-feature. Some of the stakeholders interviewed for this research mention that the application for signing mails, documents or online transactions is very rarely used. Different causes were identified. First, awareness of the possibilities of the e-signature is an important factor. Citizens have no idea that they can legally sign digital documents with their e-ID. Second, the e-signature has no real functionality or added value for business or government. From a business perspective the use of order forms for online transactions is considered as binding. This implies that there is no stringent need for private companies to alter the current online exchange structures by introducing the process of authentication via the e-ID or a legally binding signature via the e-signature. The financial input for doing so is too high compared to the possible return on investment in terms of higher legal security. At the level of the administration interviewees indicate that the e-Signature is largely redundant. When citizens use administrative online services, the e-ID is used for identification and authentication. From the perspective of the administration, citizens that agree to authentication also assure the accuracy of the content they are about to provide. For example, submitting a tax declaration through traditional channels, meaning on paper and by post, does require a handwritten signature. However, in case of online submission citizens are not compelled to digitally sign their tax declaration because their identity is verified at the beginning of the submission process by way of the authentication certificate on the e-ID. Thus it is supposed that citizens confirm that the provided information is accurate. Third, the user friendliness of e-signature applications is very low. Several actions have to be executed in order to make the application ready to be used; some of them very technical and difficult even for people with moderate computer skills. As usual with these types of applications, interoperability and compatibility with existing software is not optimal and may cause problems and frustration.²⁰

Conclusion

This paper has analyzed the different elements that have enabled or hampered the introduction and deployment process of the e-ID in Belgium. Our analysis has shown that the introduction of the e-ID should not solely be seen as a process in itself, but as a process, which has important antecedents starting long before the introduction of the e-ID. These antecedents were highly favorable and most

²⁰ The e-signature application is not compatible with VISTA and e-signing Pdf-documents is impossible on Macintosh. The problems with VISTA were confirmed in the interviews, the problems with Macintosh were confirmed by a small scale experiment at the SMIT Research Institute

preconditions were met before the process started, opening a window of opportunity for the successful introduction of the e-ID. The most important enabling elements are the existence of the National Register and the National Registration Number (RRN) and established experience in the exchange of digital information between administrative entities and large-scale e-government processes at the Federal level, especially through the CBSS and the SIS-card. Belgian citizens were accustomed to the concept of an ID as Belgium has an obligatory ID card for years. Government has also smoothed the acceptance of the e-ID in two important ways. First, it has not altered the existing process of issuance and delivery of the ID at the level of the municipality. There is a new party involved, the Certification Authority, but this remains invisible for the citizens. Second, the e-ID is smaller and has the size of a bankcard, but the e-ID was conceptualized in exactly the same way as the previous paper based ID. New features such as biometrics or the integration of the SIS-card in the e-ID might have influenced the attitude of citizens in a more negative way. However, these ideas were blocked at a political level, mainly because of privacy concerns. For citizens therefore nothing really changed—at least not at first sight. One could conclude that the introduction and deployment phase of the e-ID was merely a question of slightly altering already existing elements and processes. The necessary institutions, infrastructure and processes were already in place.

Remarkable is that the process has met enduring support both from the administration and the government. At the level of the administration a surprisingly small core team of experts has driven the process from the start until today. The core team comprises three to four director generals of the essential government institutions related to the e-ID. As no fundamental changes occurred in the constellation of the core team since the introduction of the e-ID, each member of this core team has been able to expand and elaborate his expertise. At the level of the government, responsibility over the e-ID has met with change due to elections and subsequent changes in ministers and secretaries of state. However, all have endorsed the process and even have contributed to the process through new initiatives and individual accents e.g. 1) the scope of the e-ID was extended by the introduction of a kids-ID to protect children, 2) similarly a foreigners-ID was introduced to extend e-government services to foreign citizens; and 3) more attention was given to e-government related aspects resulting in the development and implementation of new e-government services.

In terms of introduction and deployment, one could say that the Belgian e-ID has been a remarkable success. However, from an innovation point of view the e-ID should be seen as a platform characterized by aspects of a two-sided market. Apart from the material and interface aspects of the platform, the platform has to be used by the two sides of the platform, i.e. by citizens using services on the one side and by government and business developing services on the other side. The value of both sides augments when both sides use the platform. The development of innovative and new applications is crucial to this reinforcing process. It is at this level that the Belgian e-ID is much less successful and one could even start to speak of failure. The level of use by citizens, government and the private sector is very low. Different elements contribute to this.

First, the strict privacy framework is a major barrier for the development of e-ID services, especially for the private sector. The main problem is the direct link between the e-ID and the RRN, a number disclosing personal information such as

age and gender. A possible solution could be to develop and implement a technical procedure to hide the RNN. By implementing such a solution the private sector might be seduced to invest in the development and use of e-ID based services.

Second, the distribution of card readers within the Belgian population remains low. The main causes are a lack of visibility on where to purchase card readers, motivational aspects, and the low integration of readers in existing hardware. A possible solution might be the development of a killer-application, giving citizens a major advantage when using the e-ID. The idea is that citizens would be much more inclined to invest in a card reader when the value of use is significantly raised. The online tax declaration *Tax-on-web* could be turned into a killer-application, if a significant added value is given by, for example, a faster handle and refund to citizens. Another possibility would be to financially reward citizens.

Third, the user friendliness of e-ID enabled applications has often been very low. In order to stimulate citizens to use applications, it is necessary that all citizens are able to use existing services. Recent interventions such as the QuickInstall application—ensuring a more easy installation of the necessary software—solve part of the past problems. Apart from this more attention should be paid to communication on the possible benefits and uses of e-ID enabled applications. The e-ID Road Show in 2010 shall demonstrate the possibilities of the e-ID and promote its application. It remains to be seen whether this will seriously augment the use of e-ID enabled services.

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