



## **BALTIC JOURNAL OF LAW & POLITICS**

A Journal of Vytautas Magnus University

VOLUME 8, NUMBER 2 (2015)

ISSN 2029-0454



Cit.: *Baltic Journal of Law & Politics* 8:2 (2015): 71–90

<http://www.degruyter.com/view/j/bjlp>

DOI: 10.1515/bjlp-2015-0019

## **LEGAL IMPEDIMENTS IN THE EU TO NEW TECHNOLOGIES IN THE EXAMPLE OF E-RESIDENCY**

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Received: November 11, 2015; reviews: 2; accepted: December 28, 2015.

#### **ABSTRACT**

Estonia has created of itself the image of an e-state that is being supported with novel ICT-solutions, the perhaps most renowned of which is e-residency. However, created as a governmental start-up in the national best interest, e-residency could be of marginal relevance in light of global digital identity management. Purely national digital identity or an e-residency grants its holder several rights unknown to, or at least unapplied in a majority of the EU Member States and in the world more generally. But currently it lies on a vacillating legal pedestal which has resulted in copious administrative issues and proposed legal

amendments already during its first year of implementation. Concerns, such as the administrative capacity of Estonia to handle potentially 10 million customers of national e-services, arise due to contingent legal footing. On this basis, efficiency of e-residency is critically analysed from the perspective of an autoschediastic regulatory framework presuming high-level administrative competence yet leaving the scope and limits of the functions of the public authorities legally unfurnished and isolated from the EU legal space.

#### **KEYWORDS**

E-residency, Digital Single Market, digital identity management, e-governance, ICT-enabled services, governmental start-up

## INTRODUCTION

One of the current European Commission's ten priorities is to make the European Union compatible with digital technologies and services that would create a Digital Single Market similar to the existing single market for the four economic freedoms. For this, the Commission sees the digital way as a driver for growth, as enabling an online environment where digital networks and services can contribute to economic growth as well as provide the citizens with access to digital goods and services with the greatest convenience. However, even though the Commission, with the strong support from the European Parliament as well as from the Council, has launched a Digital Single Market Strategy, the digital divide existing between the Member States decelerates the pace of innovation. This leads to the fact that some Member States launch initiatives that remain challenging, both from a legal as well as from a technical viewpoint, to the Union as a whole. Therefore, some Member States with well-advanced e-government systems may be way ahead of the regulative framework of the Union. This article argues that the innovative initiatives of the Member States should not be seen as expanding the digital gap within the European Union, but could rather be used as a supranational model for homogenising the digital Union. One such initiative could contribute to the sought-after digital single market for electronic identification and digital signatures in the example of an existing national digital identity management system.

The example in questions is the e-residency programme, a governmental start-up, launched by Estonia at the end of 2014, which corroborates the country's image of a digitally advanced society. The article introduces e-residency and provides an overview of its concept and its place in the Estonian legislative and administrative frameworks with a larger view to the Digital Single Market of the European Union. While introducing the potential of such innovations, emphasis is put on the reciprocity of technological advancements and legislative impediments, considering whether, in fact, law could obstruct innovation.

The first part of the article provides insight into the introduction of the concept and its implementation to the national regulatory framework as well as the motives behind e-residency scheme, clarifying the three-tiered speculative purposes of it. The paper further assesses the intelligence of policy choices. The administrative capacity of Estonia and the Police and Border Guard Board of Estonia in terms of handling the applications and actions of prospective and existing e-residents is analysed, while giving an overview of the application procedure.

In the second half of the article, we juxtapose e-residency with the EU-wide and worldwide need for an effective digital identification management scheme. We recognise that the EU's eIDAS regulation, seeking for effectuation of mutual recognition of eID-s within the EU, could directly benefit from the national innovations, such as e-residency, under certain conditions. Thus, we look for a communally efficient method for making the Member States' ICT-enabled initiatives, such as the e-residency – the Estonian governmental start-up – in order to fit it in EU Digital Single Market.

The conclusion presents whether the technologically more advanced Member States potentially interfere with the digital initiatives of the European Union, or could rather be formulated to serve as prototype for making the digitally-enabled market of the EU proficient.

## 1. E-RESIDENCY – THE ESTONIAN GOVERNMENTAL START-UP

Estonia's rapid technological developments since the restoration of its independence have attracted attention globally. The uptake of information and communications technologies (ICTs) in establishing a comprehensive e-governance system has induced the Estonian people to lead a quasi-digital lifestyle with which they are apparently content. Towards the very end of year 2014, Estonia became the first country in the world to render accessible some of the e-government services to non-Estonians. The programme launched for that purpose is a government-supported scheme termed e-residency, which foresees the issuing of e-residencies – the Estonian equivalent to digital identities – to foreign nationals. Based on the pre-existing system of national digital identity cards<sup>1</sup>, backed by the state as a Public Key Infrastructure (PKI),<sup>2</sup> the e-residency as a state-proven digital identity dispensed by the government of this tech-savvy European Union Member State is intended to grant its users a secure access to world-leading digital services via a smart identity card, but does not entail citizenship nor even full residency.<sup>3</sup>

On the official website, the initiators of the idea define e-residency as "a transnational digital identity available to anyone in the world interested in administering a location-independent business online. E-residency additionally

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<sup>1</sup> Estonian national identity cards are in use since 2002. The first-ever digitally signed document was signed between the then majors of Estonian Capital city and city of Tartu. The major of the latter, curiously enough, was the current European Commission Vice-President for the Digital Single Market, Mr Andrus Ansip. See more of the history of the ID card at their official website at: <http://www.id.ee/?lang=en&id=30674>.

<sup>2</sup> Taavi Martens, "Electronic identity management in Estonia between market and state governance," *Identity in the Information Society* 3 (1) (2010).

<sup>3</sup> Sandra Särav and Tanel Kerikmäe, "E-Residency – a Cyberdream Embodied in a Digital Identity Card?"; in: Tanel Kerikmäe and Addi Rull, eds., *The Future of Law and eTechnologies* (Springer-Verlag Heidelberg, 2016). In given reference, the authors of given article have previously analysed the e-residency concept from a legal perspective.

enables secure and convenient digital services that facilitate credibility and trust online.”<sup>4</sup> Such services include digitally signing and verifying the authenticity of digital documents and contracts, which is legally equivalent to hand-written signatures; encrypting and transmitting such documents; conducting e-banking, whereas for opening an account, the e-resident must currently still travel to Estonia and identify oneself physically;<sup>5</sup> using X-Road, and many other Estonian e-(government)services.<sup>6</sup>

E-residency is surrounded by a judicially interdisciplinary framework that embodies fundamental rights and freedoms, legal principles of public international law, data protection law as well as administrative law<sup>7</sup>. In order to gain a more organised understanding of the concept of e-residency with regard to its underlying reasons, its status and position in the Estonian regulatory context must be assessed. First, attention must be drawn to the fact that for the execution of the e-residency programme, no new legal acts were introduced at the national level. Instead, the Estonian Identity Documents Act was amended, categorising the documents issued to non-nationals as e-resident’s digital identity cards and integrating the necessary legal framework for the concept into the Act. The official concept of e-residency in the form of an Appendix to explanatory memorandum (only available in Estonian)<sup>8</sup> to draft legislation of the Estonian Identity Documents Act<sup>9</sup> provides the necessary insight and scope of application of the idea of e-residency as seen by its drafters and serves as the most ample document providing the comprehension of e-residency.

The implementation of the notion of e-residency itself originates from an Estonian Development Fund prize-winning development idea presented in 2014 by the Estonian chief information officer (CIO), et al, aspiring to have 10 million Estonians by the year 2025.<sup>10</sup> This concept was subsequently inserted into Digital Strategy 2020 for Estonia, which in turn indicated the issuing of virtual residencies to foreign nationals to serve the purpose of retaining the image of Estonia as a technologically advanced country.<sup>11</sup> Another motive behind issuing the e-

<sup>4</sup> Estonian e-Residency. Official website available at: <https://e-estonia.com/e-residents/about/>.

<sup>5</sup> However, a draft of amendments has been sent for coordination by the Ministry of the Interior, which would enable future easier processes for, *inter alia*, opening bank accounts for e-residents.

<sup>6</sup> See website at *supra* note 4.

<sup>7</sup> Sandra Särav and Tanel Kerikmäe, *supra* note 3.

<sup>8</sup> Issuing digital identities to non-residents: creating e-residency. Concept. Appendix to explanatory memorandum to draft legislation of Estonian Identity Documents Act and State Fees Act. Appendix 1. [Mitteresidentidele digitaalse isikutunnistuse väljaandmine: e-residentsuse loomine. Kontseptsioon. Isikut tõendavate dokumentide seaduse ja riigilõivuseaduse muutmise seaduse eelnõu seletuskirja juurde. Lisa 1.] 2014. Hereinafter referred to as the Concept.

<sup>9</sup> Estonia Identity Documents Act, RT I, 23.03.2015, 16 // <https://www.riigiteataja.ee/en/eli/513042015004/consolide>.

<sup>10</sup> Information retrieved from the Estonian Development Fund website:

<http://www.arengufond.ee/2014/06/arenguideo-konkursi-2014-loppurituse-salvestused/>.

<sup>11</sup> Digital Agenda 2020 for Estonia. Ministry of Economic Affairs and Communications. Chapter 5.4 // [https://e-estonia.com/wp-content/uploads/2014/04/Digital-Agenda-2020\\_Estonia\\_ENG.pdf](https://e-estonia.com/wp-content/uploads/2014/04/Digital-Agenda-2020_Estonia_ENG.pdf).

residencies for Estonia pursuant to the same Agenda is to support the Estonian aspiration to become as renowned for e-services as Switzerland is for its bank services.<sup>12</sup> The legislative footing for the e-residency, the Identity Documents Act of Estonia,<sup>13</sup> currently states as the objective of issuing the e-residencies the promoting of “the development of the Estonian economy, science, education or culture by providing access to e-services with the Estonian digital document; whereas the potential e-resident must prove either a legitimate interest in the use of e-services or indicate a previous relationship with Estonia”.<sup>14</sup> Therewith, the potential e-resident would be someone keen to open up a company online, or someone who would promote Estonian science or education, for instance, a Latvian professor teaching courses and grading students online; or a foreigner potentially contributing to the Estonian cultural scene, such as a producer from Canada who would like to digitally sign contracts with the Estonian companies and the State. Cumulatively, e-residency ought to serve a third objective stemming from its official Concept, namely, a contribution to Estonian compatriot policy by making it easier for the migrant Estonians to maintain a connection to their home country.<sup>15</sup>

In reality, ever since the introduction of the concept, we maintain that the multifaceted tasks mandated to e-residency have been reduced to one principal aim: to attract investment to Estonia by registering a company in Estonia with the e-residency card (yet another Estonian success story – a company can be possibly registered online within 18 minutes<sup>16</sup>). This has been indicated in the main information site related to e-Estonia and e-residents,<sup>17</sup> by promoting services related to business administration<sup>18</sup>; in the speeches of the initiator, Taavi Kotka, the Deputy Secretary General for Communication and State Information Systems from the Estonian Ministry of Economic Affairs and Communication, and the

<sup>12</sup> *Ibid.*

<sup>13</sup> Estonian Identity Documents Act. RT I, 23.03.2015, 16, for provisions directly related to e-residency, see Chapter 5<sup>2</sup> E- resident’s Digital Identity Card, which came into force 01.12.2014.

<sup>14</sup> *Ibid.*: § 20<sup>5</sup> (2) and § 20<sup>6</sup> (1).

<sup>15</sup> Mitterresidentidele digitaalse isikutunnistuse väljaandmine: e-residentsuse loomine. Kontseptsioon. Isikut tõendavate dokumentide seaduse ja riigilõivuseaduse muutmise seaduse eelnõu seletuskirja juurde. Lisa 1. (Issuing digital identities to non-residents: creating e-residency. Concept. Appendix to explanatory memorandum to draft legislation of Estonian Identity Documents Act and State Fees Act. Appendix 1). 2014.

<sup>16</sup> In 2009, an Estonian entrepreneur established a private limited enterprise in 18 minutes, 3.05 seconds in front of participants at the InnoEstonia 2009 conference. He registered the private limited company using via the Estonian e-Business Register. According to the Estonian Center of Registers and Information Systems, the Company Registration Portal is an environment which allows to submit documents to the Business Register electronically, without the need to use a notary’s services. The portal allows submitting applications for registering a new company, amending registry data, liquidating a company and deleting a company from the registry. One can also prepare and submit annual reports via the portal. Every e-Resident can log into the Company Registration Portal and use the portal. See more at: <http://www.rik.ee/en/company-registration-portal>.

<sup>17</sup> See website at *supra* note 4.

<sup>18</sup> See website at *supra* note 4: by the official e-Estonia site, the e-services that ought to cajole e-Residents are, besides digitally signing documents and contracts and digital authentication, the establishment of an Estonian company online within a day; administering the company from anywhere in the world; conducting e-banking and remote money transfers; declare Estonian taxes online.

promotion of e-residency scheme;<sup>19</sup> as well as by the official Concept.<sup>20</sup> This surmise proved to be accurate with the proposal of amendments to several legislative acts, including the Identity Documents Act which was only amended a year before new draft proposal by the Ministry of the Interior towards the end of 2015. It has been proposed that the requirements of having a “legitimate interest of using the e-services” or a “previous relationship” with Estonia will be declared invalid<sup>21</sup> as they are difficult to be demonstrated upon application.

Even though it may be argued that law impedes technological and economic advancement to some point, in the case of e-residency, the lack of sufficient legal basis creates a situation of overregulation which in turn harms the reputation of innovation altogether. Instead of carefully deliberating over the place of this governmental start-up in the Estonian national legal framework at its introduction, the scheme was adopted on the run and thus results in several amendments to legal acts already within the first year after its introduction. The aforementioned requirements to be invalidated are justified by the fact that most future e-residents might not, upon application, know the necessity of use of digital-ID.<sup>22</sup> The deliberation over whether the proposed previous relationship or legitimate interest (none of which had been defined anywhere – hence the difficulty with proving) is claimed by the explanatory memorandum to cause excessive work and time consumption. The latter was already seen as a gross problem by the authors of this text in their previous research.<sup>23</sup> This in turn draws attention to another major problem related to e-residency, resulting from lacking aforethought provision of legal basis; namely, the efficiency of implementing the scheme with a view to assessing the e-residency applications.

The rush with introducing e-residencies and subsequent inefficient legal framework resulted in lacking “discussion space” that has initiated a “creative

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<sup>19</sup> See for instance his speech at the Nordic Digital Day 2015, available at: [https://youtu.be/8IS\\_RqQ6JQg](https://youtu.be/8IS_RqQ6JQg), as well as the official e-residency website <https://e-estonia.com/e-residents/about/>.

<sup>20</sup> It is apparent that the focus is almost entirely on people with a financial interest in Estonia. The official Concept includes a list of people who Estonia would like to attract becoming e-Residents. As there is no mention of former Estonian citizens who have emigrated, the aim of contributing to the compatriot policy becomes obsolete. Additionally, apart from foreign researchers, scholars and students, it is difficult to find a target group who would promote Estonian culture, science or education. Furthermore, the Ministry of Economic Affairs and Communications introductory page to e-residency, under title “Why are we doing it?” declares – „Registration of businesses will bring investments to Estonia and create jobs and will thus accelerate the economic growth.” There is no mention of cultural, educational or scientific advancement. Considering the latter, it is quite explicit that the most desirable e-resident is a business oriented person, boosting foremost the economic development.

<sup>21</sup> Isikut tõendavate dokumentide seaduse, krediidasutuste seaduse ning rahapesu ja terrorismi rahastamise tõkestamise seaduse muutmise seadus (Draft proposal for amendments to Identity Documents Act, Credit Institutions Act and Money Laundering and Terrorist Financing Prevention Act), Eelnõu, 18.11.2015 (Bill, 18.11.2015).

<sup>22</sup> See *ibid.*: Explanatory Memorandum to the Bill.

<sup>23</sup> Sandra Särav and Tanel Kerikmäe, *supra* note 3.

delay"<sup>24</sup> in constructively effectuating the e-residency scheme. The dearth of such positive delay as discussed by Drechsler and Kostakis, in the implementation of this governmental start-up, focusing on legal (fundamental rights of the applicants and e-residents) and administrative (the capacity of Estonia to handle up to 10 million e-Residents) viewpoints, policy or stakeholders' discussions (for whom, to what extent and for what purpose is it created in the first place), has raised next to judicial questions and abrupt legislative changes also challenges to the administrative capacity of the Estonian Police and Border Guard Board, who are subjected to unexpected discretion in handling the e-residents' applications. This will be treated below.

The plan to have 10 million e-Estonians by 2025 – though certainly an unheard execution of innovation – is a rather ruthless one. Based on hitherto seen practices of e-residency, it is challenging, if not impossible, to see whether the system, both from legal as well as technical aspects can endure the prodigious burden on the system. Nevertheless, by the aforementioned proposals of amendments and based on what the authors of given article had assessed before, it has been apparent since the introduction of the concept that due to lack of harmonisation between the legal, administrative and policy capacities, the e-residency scheme is already facing obstructions. At this point, the role of the Estonian Police and Border Guard Board assigned to the premature regulation of e-residents' application process has been undervalued and their actual capacity overvalued by the developers of e-residency, thereby rendering the policy choices related to e-residency not utterly successful. The discrepancies have not only left room for further critical assessment of the topic but have already, and potentially will in the future, demand legislative changes which could have been prevented by more thorough judgment of the scheme.

The first thing to consider is the application procedure. The future e-resident of Estonia has, as mentioned above, heretofore been required either to have a previous relationship with the Estonian state or a legitimate interest in the use of its e-services<sup>25</sup>; whereas both of the latter are, until passing the proposed amendments, required to be indicated in the application under the section "motivation". The applications are scrutinised by the Estonian Police and Border Guard Board (one of the biggest state agencies, working in the name of internal safety of Estonia), who, oddly enough, in addition to their ordinary work tasks with regard to issuing identity documents (taking biometric information and issuing the identity documents, background investigation, exercising supervision over the

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<sup>24</sup> Wolfgang Drechsler and Kostakis Vasilis, "Should Law Keep Pace with Technology? Law as Katechon," *Bulletin of Science, Technology & Society* 34(5-6) (2014).

<sup>25</sup> See *supra* note 9: Estonian Identity Documents Act, § 20<sup>6</sup> – to be invalidated.



activities), must assess the future e-residents' applications from the perspective of their motivation, judging whether the applicant, by his or her activities, is able to contribute to the advancement of Estonian economy, science, education or culture.<sup>26</sup> But nowhere does it state what is regarded as a genuine previous relationship or legitimate interest. Thus, the Police and Border Guard Board have been assigned to assess whether a person who, for instance, was previously married to an Estonian, is sufficiently linked to Estonia and thus, by one's actions, capable of furthering national cultural, scientific or educational scene. Once more, it is easier to evaluate the potential leverage when referring to a statement in the "motivation" in reciprocity with economic development (impact assessment is done with no determined gauge), which, by current promotion of the e-residency, seems to be the essential objective of it. While additionally considering that when the Police and Border Guard Board refuses to grant the e-residency title to the applicant, there is no requirement to specify the reason thereto, the Board has been potentially increasing their own administrative burden, provided that the applicant will re-apply, ignorant of what he or she had blundered on in terms of the previous application.

Moreover, the aptitude of the Board has not been increasing merely because they must analyse the development impact of applicants' engagements to Estonia. At the beginning, the prospective e-resident was required to travel to Estonia twice: first, for submitting the application and identifying oneself; the second time for obtaining the document; however, as e-residency strives for a "hassle-free" e-lifestyle,<sup>27</sup> the system of application was altered a few months from the launch. At present, in addition to Police and Border Guard Board Offices in Estonia, applications can be submitted and digital identity cards of e-residents collected from 38 Estonian embassies and consulates around the world;<sup>28</sup> and as of May 2015, applications can also be submitted online.<sup>29</sup> In all cases, the applications are sent to Estonia for the Board to review (and to conduct background check). Thus, if during the first month and a half, 650 applications were submitted altogether<sup>30</sup>, i.e., people who were willing to travel to Estonia twice in order to strive for e-residency, the Board is now facing a gradually increased load of applications (at the time of writing this article, 7821 applications)<sup>31</sup>. In fact, if the Police and Border

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<sup>26</sup> *Supra* note 9: § 20<sup>5</sup> (2).

<sup>27</sup> According to the official e-Estonia website, "e-Residency is designed to make your life easier and hassle-free."

<sup>28</sup> See website at *supra* note 4: provides also information on application procedures.

<sup>29</sup> See *ibid*. Application can be submitted via the official e-Estonia website.

<sup>30</sup> The Minister of the Interior of the Republic of Estonia, Mr Hanno Pevkur at 05.02.2015 weekly press conference of the Government of the Republic of Estonia. It must be noted that up-to-date statistics on the number of applicants and e-residencies issued is not available to public.

<sup>31</sup> See the e-residency Dashboard in terms of application volumes and other data at: <https://app.cyfe.com/dashboards/195223/5587fe4e52036102283711615553>.

Guard Board advertises on their website that the decision of issue or refusal of e-residency takes up to 10 working days after commencing the proceedings of the application, then today, according to the official website of e-Estonia, the average processing time of the application has been extended to one month due to high volume of applications. This speaks to the miscalculated capability of the Board and Estonia to handle the flow of applications.

Thus, if we are to refer to policy capacity as the “ability to make intelligent policy choices” and regard administrative capacity to be a contributing factor and a substance to policy capacity of the Estonian state,<sup>32</sup> it becomes apparent that from the efficiency perspective, the policy framework and legislative basis of e-residency have not proven their intelligence. Even though the government involvement in the e-residency scheme is first-hand connexion – the initiators of the process are the Deputy Secretary General in the Ministry of Economic Affairs and Communication, and the ICT Policy Advisor at the Government Office of Estonia, while e-residency itself is regarded as a “governmental start-up” – the policy actions are mostly business-oriented and the involvement of scientific, educational or cultural policies have not been distinguishable since the beginning (might this provision also be invalidated?). The adeptness of the Police and Border Guard Board, who accepts, handles the inquiries, decides upon issuing and exercises control over the applications and supervision over the e-residents, lacks consideration from the legal as well as administrative viewpoint. A fine example can be derived from the Nordic Digital Day 2015 conference, where an American student residing in Estonia inquired whether, if her residence permit expires after the studies, she would automatically qualify to become an e-resident, insofar as, clearly, there exists a previous relationship with Estonia and the Government already has access to her data. A reasonable approach, yet the response must be a straightforward “no”. A minor yet burdensome addition to the workload of the Police and Border Guard Board who would have another set of applications to review (the students’), although the system is encumbered as it is. The aforementioned discussion leads to the conclusion that the introduction of innovative concepts, at least when we are referring to state-owned innovations, must be much more carefully premeditated in order to be sustainable.

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<sup>32</sup> Erkki Karo and Rainer Kattel, “Public Management, Policy Capacity, Innovation and Development,” *Brazilian Journal of Political Economy* 34(1) (2014).

## 2. DESIDERATUM FOR INNOVATION IN THE EU ECONOMIC SPACE

If the previous section indicated that in order to avoid overregulation and sustainability, the novel ICT's must stand on a firm legal and political framework, it must also be made clear that, currently existing policy and legislative framework drawbacks aside, the technological innovation that created e-residency has been much sought-after. As previously mentioned, there has been a rapid development of the digital economy in Estonia – perhaps due to its small size, but mostly by virtue of the fact that country had to re-build its governance after the restoration of independence, where implementing e-solutions has played a marginal role. Estonia's strong technical framework surrounding the microchip on the back of the nationally successful Estonian digital identity card enabled an opportunity that most countries are still searching for, namely, secure means of digitally identifying their citizens.<sup>33</sup> But it would not have come into effect without certain flexibility in terms of the implementation of such novelties.

The rush with the introduction of the concept of e-residency can be explained by the Government seeing the need to hold this status of e-Estonia. Other European Union Member States are following in Estonia's pioneering footsteps. For instance, in November 2015, Finland partially took over the X-Road system<sup>34</sup> that was developed in Estonia in 2001; based on the system, the databases in those countries can be compatible, thus enabling cross-border e-services and intergovernmental digital document exchange, for instance.<sup>35</sup> Finland has taken a leap with Estonia. Continuous international, supranational and national cooperation between different public-private authorities has provided Estonia the possibility to take up and to teach the effective implementation of e-governance solutions and contribute to sharing best practices in a systematised way at the EU level, providing

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<sup>33</sup> There are currently 1 261 408 ID cards issued in Estonia, thus with a population of ca 1 313 271, it means that Estonia with 96% of its population having ID cards, has the largest population percentage actively using electronic identification – actively because there have been 260 441 220 digital signatures given and the eID has been used for electronic authentication 404 005 304 times while 99.6% of the bank transactions are done online and 33% of eligible voters voted online during the 2015 national parliamentary elections. Read about the e-voting in Ülle Madise and Priit Vinkel, "Internet Voting in Estonia: From Constitutional Debate to Evaluation of Experience Over Six Elections. Regulating eTechnologies in the European Union"; in: Tanel Kerikmäe, ed., *Normative Realities and Trends* (Springer, 2014).

<sup>34</sup> The data exchange layer X-Road is a technical and organisational environment, which enables secure Internet-based data exchange between the state's information systems. The X-Road is not only a technical solution – pursuant to the Public Information Act, the exchange of data with the databases belonging to the state information system and between the databases belonging to the state information system shall be carried out through the data exchange layer of the state information system. See <https://www.ria.ee/en/x-road.html>.

<sup>35</sup> Estonian Information System Authority (hereinafter: RIA), "Estonia creating conditions for transnational data exchange," 02.11.2015 // <https://www.ria.ee/en/estonia-creating-conditions-for-transnational-data-exchange.html>.

the necessary scheme for safe electronic authentication and digitally signing of documents based on an existing initiative.<sup>36</sup>

The need for innovative solutions such as the digital identity management systems is evident and the prominence of the topic is manifold. Firstly, by following the scope and progress, it can be rightfully stated that although the idea for the need of virtual citizens is not a novel one, there are neither comparable programmes in which a country has opened its public and private sector services to foreign nationals, nor situations in which two countries successfully enforce the compatibility of respective national e-services. Although identity management with the use of privacy-enhancing tools has been considered to increase the control over "online identities" since 2000s, there has been no globally effective system developed as yet.<sup>37</sup> In fact, lack of common secure digital identification methods has led some authors to write about an era of a "global identity crisis".<sup>38</sup>

At the EU level, the Digital Agenda for Europe (Europe 2020 strategy)<sup>39</sup> is one of the priorities of the European Union, supported by large-scale gradually developing regulation in systematised fields. In the context of this article, the most relevant Pillars of the Europe 2020 are the legal framework of the Digital Single Market (one of the initiatives of the current European Commission<sup>40</sup>) and the ICT-enabled benefits for EU society, the respective action plans 8 and 83 which were combined to adopt the eIDAS regulation laying down desideratum for secure cross-border electronic identification and trust services (a solution similar to e-residency, but for EU-wide use, based on all national existing schemes).<sup>41</sup> It has been established that by facilitating and encouraging digital communication between Member States, the system of IT-managing private and public sector e-services contributes to a Digital Single Market which, according to the Digital Single Market

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<sup>36</sup> See more about the Estonian success in implementation of e-government services and centralised IT solutions Ingrid Pappel and Ingmar Pappel, "Implementation of Service-based E-government and Establishment of State IT Components Interoperability at Local Authorities," *3rd International Conference on Advanced Computer Control (ICACC)* (2011) // <https://www.infona.pl/resource/bwmeta1.element.ieee-art-000006016434>.

<sup>37</sup> See, for instance, Marit Hansen, Peter Berlich, Jan Camenisch, Sebastian Claus, Andreas Pfitzmann, and Michael Waidner, "Privacy-Enhancing Identity Management," *Information Security Technical Report* 9 (1) (2004).

<sup>38</sup> Steve Saxby, "Electronic identity: The global challenge," Presented at the 8<sup>th</sup> International Conference on Legal, Security and Privacy issues in IT Law (LSPI) November 11-15, 2013, Tilleke & Gibbins International Ltd., Bangkok, Thailand, *Computer Law & Security Review* 30 (2) (2014).

<sup>39</sup> Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions a Digital Agenda for Europe, COM/2010/0245 final.

<sup>40</sup> See the Commission website: <http://ec.europa.eu/priorities/digital-single-market/>.

<sup>41</sup> Regulation 910/2014, on electronic identification and trust services for electronic transactions in the internal market (eIDAS Regulation) adopted by the co-legislators on 23 July 2014 is a milestone to provide a predictable regulatory environment to enable secure and seamless electronic interactions between businesses, citizens and public authorities.

Communication, is believed to contribute €415 billion per year to the EU economy as well as generate hundreds of thousands of new jobs.<sup>42</sup>

In the world more generally, the need has also been expressed for a mobile environment, insofar as, stemming from the “agnostic” nature of the Internet with regard to the identities of users, such mobility requires common system of identification.<sup>43</sup> Besides the EU Digital Single Market, UAE Emirates Identity Authority Directorate General, Al-Khoury, argues that the lack of secure and dependable tools connecting physical and digital identities impedes development and precludes the use of full potential of cross-globe digital economy.<sup>44</sup> One should also take a look at the OECD 2011 report, which highlights the importance of evolving global digital identity management that would enable “trusted remote interactions” and further refine the online economy.<sup>45</sup> The underlying idea of all the aforementioned is to embolden national governments to develop identity management schemes, for they could harmonise each states' e-government services with others' schemes and subsequently collaborate at supranational or international level for mutual recognition of enabling cross-border digital management.

Within the EU, Estonia and other Member States have tied their e-governance architecture with the (legal) policy of the EU Digital agenda through the national Digital Agendas, ultimately striving for a borderless digital market. The problem, though, lies in the fact that currently there is no existing compatibility concerning concurrence between national ICT-enabled innovative e-services and e-solutions (even if they are in place), rendering the existing constitution of the Digital Single Market for e-signature and e-authentication to be composed of redundant multiplication of similar platforms, caused by lack of constructive administrative policies. Therefore, in order to have a supranational or international effective system in place, both the OECD Report from 2011, as well as the 2014 eIDAS regulation, the latter of which foresees mandatory mutual recognition of eIDs between Member States by 2018, are based on the expectation that Member States and national governments have their own systems in place. This in turn proves why is it important for the countries such as Estonia to have visions and ambition to take initiative.

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<sup>42</sup> Steve Saxby, *supra* note 38.

<sup>43</sup> Tobias Mahler, “Governance Models for Interoperable Electronic Identities,” *Journal of International Commercial Law and Technology* 8 (2) (2013).

<sup>44</sup> Ali Mohamed Al-Khoury, “Digital identity: Transforming GCC economies,” *Innovation: Management, Policy & Practice* 16 (2) (2014). See also Hans Graux, “Moving towards a comprehensive legal framework for electronic identification as a trust service in the European Union,” *Journal of International Commercial Law and Technology* 8 (2) (2013); Norberto Norberto Nuno Gomes de Andrade, “Electronic Identity for Europe: Moving from Problems to Solutions,” *Journal of International Commercial Law and Technology* 8 (2) (2013).

<sup>45</sup> OECD (2011), Digital Identity Management, Enabling Innovation and Trust in the Internet Economy.

Currently, the EU's digital ID management, as pursued by the eIDAS regulation, does not seek to create a common platform for effectuating acceptance of digital signatures and trust services at the EU level, but pursues the mutual recognition of national schemes, i.e., an electronic identity issued in one EU Member State must be recognised in other Member States. Thus, the EU will potentially have 28 distinct solutions for electronic identities, instead of one common system. We are of the opinion that the national ICT-solutions for e-government, by taking technological initiative, ought to support the pillars of the Digital Agenda for Europe instead. This requires an endowment and proactivism by the European Commission for creating a policy framework in addition to the eIDAS with simultaneous innovative steps (such as the repealing of the e-signature directive<sup>46</sup> that did not prove to be effective and replacing it with a different approach by the eIDAS) and inclination of the Member States. Even though the e-residency scheme in the form of a governmental start-up operates as a closed system and does not intend to serve as *modus operandi* for global or EU-wide effectuation of mutual digital identification management, the Estonian solution of e-identity stands out in the era of proliferation of identity management systems and techniques in the marketplace.<sup>47</sup> In order to avoid overregulation when effectuating the Digital Single Market for e-services, the eIDAS with its implementing regulations ensures that people and businesses can use their own national eIDs to access public services in other EU countries where eIDs are available<sup>48</sup> and does not interfere with the exclusively closed systems resulting from national law.<sup>49</sup>

Due to lack of practical examples, it is difficult to know how the initiatives of the Member States could be exploited for the fostering of a prosperous Digital Single Market to remain in the intelligent policy capacity. From the perspective of the common market of the EU, existing national conceptions, such as e-residency, are instantiating a multi-speed and not an ever-closer union, insofar as they are striving for national prosperity, not a common goal. The digital advancement levels of the Member States, building up and applying 28 different systems (in a sketchy haste to comply with the eIDAS), potentially replicating, or worse, non-compatible with each other, cannot be regarded as the most effective and expeditious solution for the Digital Single Market, especially when there is one fully-operational scheme already existing. Thus a pioneer is called for and the authors propose prospective steps for taking the national fully-functional ICT-enabled initiatives, such as e-

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<sup>46</sup> Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures, OJ L 13, 19.1.2000, p. 12–20.

<sup>47</sup> See, for instance, Anssi Hoikkanen, et al., "New Challenges and Possible Policy Options for the Regulation of Electronic Identity," *Journal of International Commercial Law and Technology* 5 (1), (2010).

<sup>48</sup> See website at *supra* note 40.

<sup>49</sup> See *ibid.*: Article 2.1.

residency to the EU level for a model in order to most effectively implement the existing solutions for the contribution to the Digital Single Market, by taking advantage of cutting-edge innovations of Member States while putting in place a proper legal and political framework.

To test eligibility of the initiative, a model for critical assessment of ICT-enabled legal services should be worked out. A model for mutual eID solution that is technically interoperable based on the eIDAS, based on the model of e-residency, could, as a national ICT-enabled e-government initiative, be accommodated with the EU-28 to enhance the effectiveness of the EU Digital Single Market. But we do not propose to transfer the entire system of e-residency or Estonian national eID scheme to the supranational level. Rather, we suggest developing a model based on a given existing positively operational scheme as a basis for supranational technical model to serve as the common eID model at the EU level. Insofar as the European Digital Single Market is based on the same legal principles as the "physical" single market, i.e., the four freedoms, the digital divide could be potentially reduced by common e-services, if it can be supported by the e-residency-like models instead of having the most innovative cross-border ICT initiatives, such as the e-residency, theoretically restricting the rights of (digital) citizens. Therefore, due to somewhat defective systematic methodology for assessing the various aspects of e-residency and potentially other ICT-enabled e-government solutions, there is a need for a methodological approach to the challenges the new innovations, such as the Estonian e-residency, have to face, before they could serve a high-flying goal. In our estimation, the model analysis could be conducted based on criteria adjusted for that specific purpose, developed on principles initially generated for assessing the effectiveness of European various eID frameworks<sup>50</sup> and which would include the following aspects.

First, assessment is necessary of how the (Estonian) national identity management system can be made compatible with architecturally different infrastructures of other EU Member States within the meaning of mutual recognition of e-identification and digital signatures regulation of the EU, both from technical as well as regulative perspective. Additionally, we must ask which techno-legal processes must be conducted in order for the Estonian national legal and technical framework to enable the implementation and subsequent recognition of authentication processes in different Member States. There is a need for specifically drafted legal provisions on new emerging technologies.<sup>51</sup> Thus, substantial

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<sup>50</sup> Norberto Norberto Nuno Gomes de Andrade, *supra* note 44: 106.

<sup>51</sup> Katrin Nyman-Metcalf, "E-Governance in Law and by Law. The Legal Framework of e-governance"; in: Tanel Kerikmäe, ed., *Regulating eTechnologies in the European Union: Normative Realities and Trends* (Springer, 2014).



supranational level research should be conducted on the technical and legal aspects of the digital identity cards that can only be used for electronic identification purposes mutually recognisable by all Member States. Next to compatibility with the eIDAS provisions, the focus must also be on the General Data Protection Regulation<sup>52</sup> in the EU and its effectiveness to surround technological developments and EU-wide e-services.<sup>53</sup>

Additionally, the European Commission Vice-President for the Digital Single Market has emphasised that one of the key aspects of engaging European citizens in digital economy is to have their freedoms equally protected online and offline.<sup>54</sup> In identity management generally, the trend is towards moving stronger control to the user.<sup>55</sup> Thus, in combination with the techno-legal integration and requirement of coherence between technological advancements and legislation, the relationship between efficient data protection legislation and user empowerment must be coherently implemented to national systems in accordance with the EU-wide data protection rules; including the scope of rights of the e-citizen or any other end user whose data are being collected, disclosed and processed by different Member States as well as private actors on the EU arena.

Apparently, as established above, the EU's current challenges for the Digital Single Market, employment, fundamental rights and Justice Area could be better achieved by establishing a model that would significantly enhance legal certainty and provide clear guidance on how to turn successful national initiatives into the success of digital Europe (not to be copied but to follow the lead of those who succeed faster). Practical effects resulting from the complexity of legislation and the difficulties in getting an overview of the normative system are apparent, not least in the EU with its large mass of normative instruments applicable in 28 different countries. When the EU is criticised for being distant from citizens and everyday life, the complex legal system is often mentioned as one main aspect (potentially impeding innovation?). Finding a common techno-legal language for the Member States and the EU in this process would benefit analysis of flagship initiatives of Estonia, mainly from the perspective of mutually enforceable technological innovations. Thus, the article proposes that the hitherto fragmented

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<sup>52</sup> Including the involvement of principle of user-centricity as referring to a situation whereby it is the user not a public authority or service provider who maintains control over "what, where, when, and to whom" the user identity information and traffic is released (Paul De Hert, "Identity management of e-ID, privacy and security in Europe. A human rights view," *Information Security Technical Report* (13) (2008); also Mary Rundle, *et al.*, "At a Crossroads: 'Personhood' and Digital Identity in the Information Society," *STI Working Paper 2007/7* (2008) // <http://www.oecd.org/dataoecd/31/6/40204773.doc>).

<sup>53</sup> Kunbei Zhang, "Incomplete Data Protection Law," *German Law Journal* 15 (6) 2014). For instance, Zhang has recently pointed out the deficiencies in the EU Data Protection regulatory framework.

<sup>54</sup> Andrus Ansip, Mission Letter of the Vice President for the Digital Single Market. Brussels, November 1, 2014.

<sup>55</sup> Stefan Strauss and Georg Aichholzer, "National Electronic Identity Management: The Challenge of a citizen-centric Approach beyond Technical Design," *International Journal on Advances in Intelligent Systems* 1-2 (3) (2010).



administrative system between Member States and the EU with regard to cross-border digital authentication (or any other national initiative in terms of ICT-enabled solutions) should be based on one common techno-legal model and coordinated by the Member States on the initiative of the Commission, to serve as an example at the supranational level in order to better harmonise the Digital Single Market policies within the EU.

## **CONCLUSIONS**

This article proposes that the general idea for limiting the threats of a more fragmented digital single market arising from effectuation of e-residency is to take the course on a two-way street. First, after providing insight into the general scheme of e-residency and its position in Estonian e-society, it is clear that Estonia must conduct thorough analysis and restructure the impact assessment methods of the scheme in order to avoid unintelligent policy actions and a defective legal framework surrounding the e-residency platform. Considering that the end-goal is to have 10 million e-residents within 10 upcoming years, we propose that several aspects of the e-residency programme must be assessed and re-assessed.

Additionally, being an EU Member State, Estonia cannot undervalue the effect of such large-scale projects for the European Union itself. Member States, along with the EU institutions, should be contributing to the effectuation of the Digital Single Market of the EU by taking innovative initiatives. Thus, we insist that instead of focusing on international success, closely tied with only economic development in mind, the closer and more lucrative objectives should be prioritised in compliance with the supranational EU digital strategy for the long-term prosperity of Estonia as well as the EU by contributing to provide a techno-legal model for other Member States to fully exploit the e-services at the EU Digital Single Market.

Moreover, the architecture of the ever-closer Union indicates that the EU's role cannot be passive, waiting for national governments to create numerous decentralised platforms and expect mutual recognition and harmonisation of 28 independent systems. Instead, we argue that the flagship ICT-enabled e-government solutions already implemented at the national level ought to be assessed beyond eIDAS regulation in terms of their effectiveness, and, if remunerable, do so by adopting a model at the EU level in order to avoid unnecessary multiplication of processes. Taking into account that the citizens' Europe and digital market are unavoidably interconnected, constructing such a model should be based not only on the legal framework of a single market, but also on the inclusion of stakeholders and the general principle of user-centricity.

All in all, provided that the EU Digital Single Market will be fully effectuated by political motivation of the Member States, the concepts of effective e-governance should be compared with the best practices of other Member States. The potential applicability of the results is twofold: first, various stakeholders, i.e., public officials, decision-makers and business circles, can analyse their legal risks and challenges related to using the e-services in the form of a public-private-partnership; furthermore, the critical assessment method and the reflections by stakeholders that can be used as a basis for academic discussion, thereby creating new perspectives to support the effectiveness and legal certainty of the EU digital policy, with the outcome of providing a systematic overview of current and potential legal problems that exist or may arise from non-coherence between Estonian and EU strategies in the field. Additionally, the system design is the foundation for devising an electronic tool for European Union Digital Market strategists. Based on the latter it may be possible to develop a system design allowing the automatised assessing of legal coherence, namely, interaction of multilevel legal acts, common legal values as well as legal policy, suitable for the e-residency scheme as well as further innovative ICT-enabled Member State initiatives.

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