



**e-Governance Academy  
Yearbook 2022/2023**

# **20 Years of Championing Digital Societies**

# eGA Journey 2002–2022

**2002** / eGA was founded as a joint initiative of the Government of Estonia, Open Society Institute (OSI) and the United Nations Development Programme. Initiators were **Linnar Viik, Ants Sild and Ivar Tallo**.

**2003** / eGA hosted 3 delegations in Tallinn, Estonia and presented the Estonian interoperability framework and ICT coordination in the public sector and e-government solutions like e-Cabinet. The first delegations came from **Armenia, Kyrgyzstan and Ukraine**.

**2003** / Launch of the **Central e-Government Program** that focuses on e-government policy and planning issues, organisational and management frameworks, legal regulations, budgeting of ICT implementation, and basic concepts of e-government interoperability and architecture.

**2004** / Launch of the **e-Democracy Program** that focuses on citizen participation in decision-making processes.

**2004** / Launch of the Programme ICT in Education to share the knowhow of Estonian 'Tiger Leap'.

**2005** / Creation of the **best practices of i-voting**.

**2005** / Launch of the **Local e-Governance Program** with the focus on ICT use in local decision-making process and engagement of citizens.

**2007** / Drafting of the **Digital Transformation Agenda** in Estonian Municipalities.

**2007–2008** / Georgia's Schools Computerization Program '**Deer Leap**'. The program was officially adopted by the Georgian Ministry of Education and Research.

**2008** / Launch of the **Mobile Governance Program** and consultations on Geographic Information Systems in Public Administration.

**2011** / Organization of the **5th ICEGOV**. More than 300 delegates participated during the 5th ICEGOV in Tallinn, Estonia.

**2012** / First **large-scale project with Armenia** to develop electronic tools for combating corruption and communicating with the general public.

**2012–2013** / First time in twinning project as junior partner in **Montenegro**

**2012** / Start of the collaboration with the **Western-Ukrainian local governments** within the project "e-Governance Support to Ivano-Frankivsk Oblast".

**2013** / eGA advised the Tartu City in implementation of the **participatory budgeting**. Tartu City became the first Estonian municipality that gave citizens possibility to decide over a small part of the city budget.

**2013** / Launch of the **Cybersecurity Program** with the focus on cybersecurity capacity building among national governments and development of frameworks.

**2014** / **100th e-governance training**. Since 2002, more than 1500 public officials and NGO leaders from 45 countries have been hosted in Estonia.

**2014** / The first large-scale collaboration project with the **Ukrainian government** in central level.

**2014** / Agreement with the government of **Namibia** for the implementation of a data exchange platform in collaboration with Cybernetica AS.

**2014** / The large-scale development took place in **Armenia, Ukraine, Moldova, Kyrgyzstan and Palestine**. The far-flung territories that showed an interest in the e-state included the **Faroe Islands, India and Bhutan**.

**2015** / The first **e-Governance Conference** in Tallinn, Estonia for 250 e-governance experts from 36 governments.

**2015** / Update of the best practices of i-voting.

**2015** / First time as a **leading partner of a Twinning project**. The twinning project strengthened the institutional capacity of the LEPL Data Exchange Agency (DEA) of the Ministry of Justice of Georgia and enhanced the necessary skills and knowledge of the Agency's staff.

**2016** / The second e-Governance Conference hosted 340 participants from 50 countries.

**2016** / Launch of the **National Cyber Security Index (NCSI)**. Find out more [ncsi.ega.ee](https://ncsi.ega.ee)

**2016** / Launch of the data exchange platform **Tunduk** in Kyrgyzstan and **Heldin** in the Faroe Island.

**2016** / Publication of the first edition of the handbook '**e-Estonia: e-Governance in Practice**'.

**2016** / eGA joined **Secure Identity Alliance**, the global identity and secure e-Services advisory body as an Advisory Observer.

**2017** / eGA was awarded with **Quality Management Standard ISO 9001:2015**.

**2017** / The third e-Governance Conference hosted 350 participants from 115 countries.

**2017** / Co-Organisation of EU presidency event '**e-Partnership Conference**', which gathered over 150 participants in Tallinn from 6 countries of EaP countries.

**2017** / E-governance research, analysis, guidelines and roadmap for **African countries**.

**2018** / The fourth e-Governance Conference "Governance for digital citizens" hosted 387 participants from 76 countries

**2018** / The handbook "e-Estonia: e-Governance in Practice" was published in **Russian**

**2018** / **Participatory budgeting** reached to **Georgia** while eGA helped two Georgian cities - Kutaisi and Akhaltsikhe implement this engagement solution.

**2018** / Collaboration with National Information Systems and Services Agency (ASSI) of **Benin Republic** to design and implement the data exchange platform for enhancing secure data exchange between government authorities and developing e-services for the citizens of Benin.

**2019** / The fifth e-Governance Conference, "Same Goals, Different Roadmaps" hosted 400+ participants from 110 countries.

**2019** / eGA set a new record by providing **44 e-government study visits** to Estonia.

**2019** / The handbook 'E-Estonia: e-Governance in Practice' was published in **Japanese**.

**2020** / Launch of the data exchange system **Trembita** and information system **Vulyk** to empower decentralization and public services provision in Ukraine. The development and implementation was done within EGOV4Ukraine project.

**2020** / Launch of the project EU4DigitalUA, the **largest bilateral EU e-governance and digital programme** in any EU partner country. The project continued Trembita system development and implementation.

**2020** / Launch of tailor-made e-governance **e-courses**.

**2020** / The sixth e-Governance Conference 'Giant Leaps Start With Small Steps' went online and hosted - 1100+ participants from 135 countries and territories.

**2020** / Launch of **Digital Government Podcast**. Tune in at [ega.ee/digital-government-podcast/](https://ega.ee/digital-government-podcast/)

**2020** / The handbook '**National Cyber Security in Practice**'.

**2020** / The NCSI measures the countries' preparedness to prevent cyber incidents and fight cyber threats in **160 countries**.

**2021** / Collaboration initiatives on cybersecurty with **USAID, ENISA and GFCE**.

**2021** / Within the EU-supported EU4DigitalUA project eGA has made **Trembita data exchange platform fully functional** in Ukraine.

**2021** / eGA leads the twinning project in **Kyrgyzstan** to increase the capacity of the Ministry of Digital Development.

**2021** / Establishment of a subsidiary – the **e-Governance Academy for the Caribbean (EGA4C)**.

**2021** / eGA completed the **pillar assessment** of the European Commission and is now able to implement large-scale digital projects supported by the European Union.

**2021** / The handbook "e-Estonia. e-Governance in Practice" is available in the **Thai** language.

**2021** / The seventh e-Governance Conference 'A digital Decade in One Year' hosted a record number of participants – **1200+ participants from 140 countries** and territories, and presented lessons learned of 13 countries.

**2022** / eGA helps to **keep Ukraine online**. Since the beginning of the full-scale Russian aggression, the eGA is running four EU-supported projects in Ukraine with total budget of € 41 million.

**2022** / The eight e-Governance Conference 'Resilient and Seamless Governance' hosted 300 e-governance developers from 75 countries.

**2022** / eGA hosted a high-level **digital security forum** for six Western Balkan partners.

**2022** / The NCSI publication '**Upgrading National Cyber Resilience**'.

**2022** / The handbook "e-Estonia. e-Governance in Practice" is published in **Spanish**.

e-Governance Academy  
Yearbook 2022/2023

# 20 Years of Championing Digital Societies

© e-Governance Academy 2023

Compiled by Anu Vahtra-Hellat

Proofreading by Radu Serrano

Design by Dada AD

Photos by Egert Kamenik, eGA, Raigo Pajula, Adobe Stock

# Contents

<b>Increasing the prosperity and openness of societies</b>	<b>6</b>
<b>Highlights of 2002–2023</b>	<b>7</b>
<b>20 years of championing digital societies. What's next?</b> / Hannes Astok	<b>8</b>
<b>2022 at a glance</b>	<b>10</b>
<b>Highlights of the year 2022</b>	<b>11</b>
<b>Work around the world: What did we achieve?</b>	<b>15</b>
Digitalization is an investment in social cohesion and prosperity / Marit Lani	16
Digital transformation is not about technology! / Heiko Vainsalu	19
Crowdsourcing social innovation: Towards a co-creative problem solving and policymaking / Kristina Reinsalu	22
Countries are becoming strategic about cybersecurity / Kadri Kaska	25
The NCSI: An Ever-Evolving Tool / Radu Serrano	29
e-Governance Trainings online and onsite / Annela Kiirats	32
<b>eGA in Ukraine</b>	<b>34</b>
Even the war can't stop us and digital transformation! / Yurii Kopytin, Kateryna Rudenko	34
A year of resilience: how our team works in wartime / Anatolii Martynovskiy	38
<b>Digital Government Podcast: Best Talks of 2022</b>	<b>41</b>
Perhaps, the AI revolution is not as loud as we thought / Federico Plantera	42
Digital identity – types, approaches, lessons learned / Federico Plantera	45
Five reflections on effective digital government from Ireland / Federico Plantera	47
Will people make policy digitally? / Federico Plantera	49
Addressing digital vulnerabilities to empower citizens / Federico Plantera	52
<b>eGA's Activities in Figures 2002–2023</b>	<b>55</b>
<b>We are the e-Governance Academy!</b>	<b>59</b>
eGA Team in Estonia	60
eGA Teams in Ukraine	62



# Increasing the prosperity and openness of societies

The year 2023, marks the 20th anniversary of the e-Governance Academy. Driven by our mission, we have worked with more than 280 organisations and 141 countries around the world to build successful digital societies that improve their citizens' lives, strengthen their economies, and deliver transparent, democratic and effective public administrations.



The e-Governance Academy (eGA), is a centre of excellence founded in 2002 to increase the prosperity and openness of societies through digital transformation.



eGA's management system for its project management, study visits and consulting services have been independently certified to ISO 9001:2015 standard.



## Trusted partner

eGA completed the pillar assessment of the European Commission and is now able to implement large-scale digital projects supported by the European Union in the fields of smart governance, cybersecurity, e-democracy,

and technology. eGA has conducted successful collaborations with donors such as USAID, World Bank, UNDP, SIDA, EBRD, ESTDEV, and many others. eGA works also together with ENISA and GFCOE to enhance countries' cybersecurity.

# Highlights of 2002–2023

## 9000

government leaders have participated in our training programs between 2002 and 2022

eGA has collaborated with more than

## 280 organisations and 141 countries

on digital innovations worldwide.

## 51 million €

constitutes the donor support to Ukraine's digital transformation in 2014 - 2023 and implemented by the e-Governance Academy.

## 313

projects successfully conducted around the world. eGA teams' remarkable success stories are assisting **Benin, the Faroe Islands, Georgia, Moldova, Kyrgyzstan and Ukraine** in their digital transformation. **The Kingdom of Tonga** is the most distant undertaking.

## 17,4 million €

The largest e-governance and digital project is the DT4UA launched in 2021 in Ukraine with the support of the EU.

## 5

The handbook "e-Estonia. e-Governance in Practice" is available in five languages: English, Russian, Japanese, Thai and Spanish.

## I-voting

eGA has headed the creation and implementation of the best practices of i-voting in Estonia.

## 2013

in collaboration with Tartu City, eGA launched participatory budgeting in Estonia.

## 8

eGA has organized eight e-Governance Conferences. The seventh e-Governance Conference 'A digital Decade in One Year' hosted in 2021 a record number of participants – 1200+ participants from 140 countries and territories, and presented lessons learnt of 13 countries.

## Trembita & Tunduk & Heldin

the most successfully implemented data exchange platforms. Trembita is implemented in Ukraine, Tunduk in Kyrgyzstan and Heldin in the Faroe Islands.

## 163

The NCSI measures the countries' preparedness to prevent cyber incidents and fight cyber threats in 163 countries (by 2023). Find out more at [ncsi.ega.ee](https://ncsi.ega.ee).

## 4 Twinning projects:

in Montenegro (2012 – 2013), in Bosnia& Herzegovina (2013-2015), in Georgia (2015 – 2017), in Kyrgyzstan (2021 – 2023).

## 4 offices

eGA has three country offices: Tallinn & Tartu in Estonia; Kyiv in Ukraine; Bishkek in Kyrgyzstan and Chişinău in Moldova. Moreover, eGA has established a subsidiary in Jamaica, the e-Governance Academy for the Caribbean (EGA4C).

# 20 years of championing digital societies. What's next?



**Hannes Astok**

Executive Director  
of the e-Governance Academy

The year 2022 was an exceptionally nasty year for the entire world. Russia's unjustified aggression against Ukraine was a wake-up call to the whole world that we must continue to protect democratic values in the 21st century, both in the physical and virtual world.

The entire eGA team supported Ukraine, both professionally and in their private capacity. We also witnessed how crucial are digital services and capacities to cope with the worst crises. Ukraine's digital society and online services have helped Ukraine to function well as a nation and society even in war conditions. We are proud that eGA experts have contributed a lot to building the foundation of Ukraine's digital society.

Globally, resilience became the keyword in 2022. Digital resilience is the main challenge for most governments in the coming decade as well. Governments have not invested enough in the cybersecurity of national information systems. Security-as-an-afterthought is costlier than investing in cybersecurity from the outset.

We are proud that eGA experts have contributed a lot to building the foundation of Ukraine's digital society.

Hannes Astok

More attention should be paid globally to the digital divide and the upgrade of services. The mantra of eGA's experts for years has been the simplification of the online services, based on the re-use of the existing data. In principle, online services should be so simple that every grandmother or grandfather with a smartphone can use them. In 2022, many countries made good progress on this topic, but the big goal for most countries is still to make online services simple and, if possible, even proactive – provided by the government, according to the citizens' life events and without the need to apply to services.

The rapid development of new technologies is continuing. Sometimes we may think that technology does everything for us, but this is a delusion. The more complex information systems become, the smarter governments' employees need to govern and manage these systems. For this reason, digital transformation is also tightly linked to human resources and needs a capacity-building mindset. Therefore, all organizations, including governments, must increasingly ensure that competent and motivated staff members work with modern information systems. Only the continuous development of digital competences in every sphere of life will make societies competitive and ultimately more prosperous.





For two decades, eGA has inspired governments across the planet to make their activities more digital, transparent, and inclusive. Therefore, we are convinced that digital democracy and citizens' engagement continues to deserve as much attention as digital services. When planning digital transformation, governments must not limit themselves to technology, but must have a holistic view of the digital society. And in the centre of a digital society should be the people. That means citizens should be empowered by and engaged to the digital agenda – or by putting it short – nothing for people without people. Democratic processes must be as strong in the digital society as in the analogue society.

Only the continuous development of digital competences in every sphere of life will make societies competitive and ultimately more prosperous.

Hannes Astok

In 2023, eGA enters its third decade stronger, more resilient, and bigger than ever. More than 300 projects successfully implemented in two decades, in cooperation with 280 organizations, and in 141 countries, speak for themselves. 75 eGA experts and staff members ensure the availability of leading global expertise to all our cooperation partners.

We believe that together we can make the world a better place for everyone.

# 2022 at a glance

## DT4UA

the largest project by activities and funding that reaches a total of 17,4 M euros

## The Kingdom of Tonga

the most distant undertaking

## Ukraine

the most supported country with five running projects

# 16,7 M

euros in turnover

# 17 000

times have Digital Government podcast episodes been downloaded

# 904

days were spent by eGA employees in expert missions

# 900

participants from 130 countries at the e-Governance Conference

# 430

people participated in e-governance trainings in 2022

# 280

partner organisations has eGA collaborated with since 2003

# 161

countries were ranked by the National Cyber Security Index (NCSI) at the end of 2022

# 120

consultations onsite by digital engagement, cybersecurity, smart governance, and technology experts.

# 100

procurements conducted for a total of 10 M euros

# 57

projects implemented in 45 countries

# 30

study visits organized to Estonia

# 15%

increase in the number of eGA employees in relation to 2021. In total, eGA has **73** employees working in Estonia, Kyrgyzstan, Moldova and Ukraine

# Highlights of the year 2022



## eGA helps to keep Ukraine online

Since the beginning of the full-scale Russian aggression, eGA's team in Ukraine continues its work in Ukraine and for Ukraine, within the EU4DigitalUA project and other projects supported by the European Union. Currently, the e-Governance Academy is running four projects in Ukraine with total budget of € 41 million. Our team is excited to continue our joint efforts, with the European Union and the Ministry of Digital Transformation of Ukraine, of making Ukraine one of the most digitized societies in the world. We stand with Ukraine and continue to work as one highly motivated team and help keep running e-government and e-services in the country, amidst all of this.



## The twinning project of supporting digitalization of Kyrgyzstan

The goal of the twinning project is to build the capacity of Kyrgyz national authorities to govern and participate in e-government, promoting transparency and accountability. The project is implemented as a twinning project between the Kyrgyz Republic and a consortium of EU member states – Estonia, Finland and Italy. eGA has been cooperating with the government of the Kyrgyz Republic since 2016, advising it on the implementation of the Tunduk secure digital data exchange platform.



## The Partner of the Year 2022 – the Government of Benin

The prize was forwarded to the Government of Benin for high-level political will and contribution to digital transformation and public e-service provision in the country. The Government of Benin has achieved a lot in close collaboration between the government and its implementation agency, the e-Governance Academy, the Estonian company Cybernetica and the local IT company Open SI. After three years of fruitful collaboration, an e-governance architecture framework, e-governance legal acts, secure data exchange between government agencies, and a citizen portal are now fully up and running. All this allows the public administration to serve its citizens more efficiently.

**Photo:** Afiss Bileoma, Director of Dematerialization at the Information Services and Systems Agency of Benin and Hannes Astok, Executive Director of the e-Governance Academy



## impact



### The e-Governance Conference hosted 300 e-governance developers from 75 countries

Over the last eight years, the e-Governance Conference has become a meeting place for digital leaders of developing countries, Estonian e-government decision-makers, and international donors. Many digital collaboration projects have been inspired by this conference. For example, the data exchange platform in Djibouti, the creation of a digital roadmap for Pacific Island countries and cooperation with the governments of Aruba, Dominica, and the Cayman Islands. In 2022, the conference was focused on digital governments' resilience during war and crises and explored the future of public services. The conference was held physically in Tallinn, Estonia, and online at [egovconference.ee](https://egovconference.ee).



### A high-level digital security forum for six Western Balkan partners

On 15 June 2022, the Western Balkan Digital Security Forum attracted cybersecurity leaders and decision-makers of the European Union and the Western Balkans to Tallinn, Estonia, to discuss cybersecurity in the region and to explore the best practices of the European Union. In addition to discussions on secure digitalization and efforts to ensure cyber resilience, Merle Maigre presented the cybersecurity study on the Western Balkans that included an overview of the state of affairs, gaps, needs and recommendations for further development.

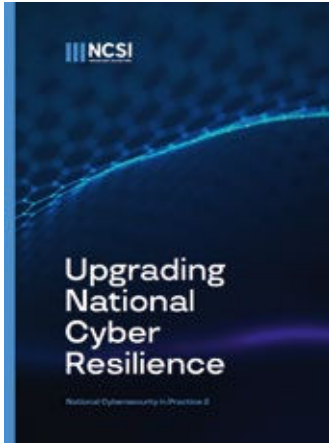


### Office in Moldova

eGA opened a new office in Moldova to run cybersecurity rapid assistance for the Moldovan government. The project supports national competent authorities in aligning their operations with the EU NIS Directive, in increasing cyber resilience and in supporting cybersecurity incident and risk management. Additionally, eGA has offices in Estonia, Kyrgyzstan and Ukraine.

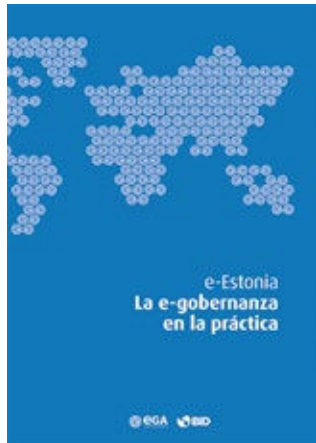


# Publications



## NCSI: Upgrading National Cyber Resilience

The second edition of the NCSI publication takes a closer look at more advanced areas of national cybersecurity: strategic leadership, global engagements, a stronger legal framework for cyber resilience, and crisis preparedness. This publication also presents the outcome of the NCSI methodology update conducted during 2021–2022 and describes how the NCSI has developed throughout the years. The publication is supported by the Ministry of Foreign Affairs of Estonia.



## The handbook “e-Estonia. e-Governance in Practice” is published in Spanish

“e-Estonia. La e-gobernanza en la práctica” has a great value for all who are leading digital transformation projects or are supporting them,” said Miguel Porrua, Coordinator of the Data and Digital Government Cluster of the Inter-American Development Bank. The book presents fundamental aspects of the Estonian digital society and explains how state-level technologies, legislation, citizen, and private sector systems support electronic governance. Besides English, Russian, Japanese, and Thai, it is the fifth language in which the handbook has been published so far.



# Memoranda of Understanding



## Mongolia

The Ministry of Digital Development and Communications of Mongolia and the e-Governance Academy signed a Memorandum of Understanding on 8 April 2022 to support the digital transformation of Mongolia. "The next stage of our collaboration includes digital skills, digital identity and digital signature development, as well as the re-design of e-services to provide citizens with proactive and certificate-free public services," said Hannes Astok. "Supporting the digital development of Mongolia, we take the Estonian and Ukrainian examples of public service provision as best practices."

**Photo:** B. Bolor-Erdene, State Secretary of the Ministry of Digital Development and Communications, and Hannes Astok, Executive Director of the e-Governance Academy



## Tunisia

The Ministry of Communication Technologies of Tunisia and the e-Governance Academy signed a Memorandum of Understanding to further the collaboration on digital transformation and on the development of the eID ecosystem.

**Photo:** Faycal Sboui, Director General of the Tunisian Centre of Informatics, Aile Kullerkupp, Member of the Management Board of the e-Governance Academy

Partnership



# Work around the world: What did we achieve?

# Digitalization is an investment in social cohesion and prosperity



**Marit Lani**

Programme Director  
of Smart Governance

**In the next decade, digital skills, accessibility of services, and digital engagement will become the keywords for digital transformation. Only all these aspects combined can ensure citizens' trust and participation in digital government and a digital society.**

## What the last decades has taught us

There is no denying that ICT and digital government have been in a whirlwind of development over the last two decades. The advances have mostly been driven by the business sector that is quicker to transform and react to the changing environment, also more innovative and less risk averse. However, governments have followed suite, looking for efficiency and higher citizen satisfaction. Over the years, this also means that the government-to-citizen and government-to-business interactions have significantly changed.

Digitalization is no longer simply a matter of efficiency but an investment in social cohesion and prosperity.

In the years to come, there will need to be even more focus on making digital opportunities available also to vulnerable groups and countries.

Marit Lani

In general, we have referred to the 2000s as the era of cross-institutional connectivity and back-office efficiency, to the 2010s as the era of interoperability and citizen-centric services, with the 2020s now focusing on digital transformation of the economy and the society. In the past years, this development has to some extent been disrupted by COVID-19, which has tested the digital resilience of even those countries who are considered to be frontrunners in digital transformation. For those countries lagging behind, fast digitalization of their services related to health, education and social benefits has been crucial and decisions have often been made based on urgent needs rather than participatory planning and long-term interoperability.

As a result of the increased digitalization during the pandemic years, but also significant investments into telecommunications infrastructure and the general development of human capacity in the past years, we can see the average performance of countries on the rise in the most recent UN e-Government Development

Index (EGDI). For many people this is clear in our everyday lives, since we have often dropped the 'e-' from the beginning of the word when talking about 'services' or 'government', even if we no longer have any physical contact with government officials. However, large disparities remain, and a digital divide exists, as also seen in the EDGI values which average 0.8305 for Europe and just 0.4054 for Africa.

## More attention to the digital divide and the upgrade of services

Ultimately, what we want and need out of ICT and digital transformation is to support sustainable human development across the globe. In the years to come, there will need to be even more focus on making digital opportunities available also to vulnerable groups and countries. International cooperation will be boosted as more countries will be looking to replace legacy systems or simply look for solutions and frameworks already successfully applied elsewhere.

Most countries will move towards maturing their digital services, upgrading their digital services that currently just offer information and partially digitalized services. However, this requires embracing change and creating a culture of innovation in the public sector. Not only is this about solving the issues related to digital identity and digital skills, but making sure that e-services are affordable and there is a clear focus on engagement and inclusion so that everybody can benefit from a digital society. Digitalization is no longer simply a matter of efficiency but an investment in social cohesion and prosperity.

In our work at eGA, we feel the readiness of countries and donors to embrace the analytical and anticipatory opportunities offered by AI, big data and other emerging technologies. Yet, in most countries there still remains a need to revisit and strengthen the foundational elements of a digital society: high-quality digital data, interoperability, digital identity, data protection, digital skills, and citizen engagement.

In all of our projects, regardless of whether they focus on digital readiness reviews, strategy development, or capacity building, our team has insisted on a comprehensive approach of taking all the key building blocks of digitalization into account, paying attention not just to technology and infrastructure, strategy and coordination, data and cybersecurity, but also to digital skills, accessibility of services, and digital engagement. Only all these combined can ensure citizens' trust in digital government and a digital society.

## Key projects in 2022–2023

### Advisory services and capacity building for African countries within the AU-EU D4D Hub cooperation

2021–2023



The project contributes to closing the digital divide

and leveraging digital innovations for inclusive sustainable development in Africa. The specific objective is to strengthen African national and regional partners' capability to identify and implement priority actions in response to digitalisation challenges. The project is carried out in three selected African countries and include three main activities: development of the Digital Maturity Assessment, knowledge sharing and a study visit to Estonia. The activities are part of the African Union-European Union (AU-EU) Digital for Development (D4D) project.



Funded by Enabel



## Migration Management Digital Maturity Assessment methodology for the International Organization for Migration

2022



Digital maturity assessments can also benefit international

organizations and contribute to the sustainability of their operations. Within the project eGA experts developed a useful tool for the IOM to identify the current digital governance situation and areas for improvement in specific countries when starting to implement projects there.

Funded by the International Organization for Migration



## E-government strategy and action plan for the government of Kosovo

2022



The creation of a digital state begins with mapping the cur-

rent situation and developing a strategy based on it. eGA experts consulted the government of Kosovo, who is developing a strategic framework for public administration and the e-government strategy is a key component in this framework. The outcome has strategic importance for Kosovo's ICT future, as the decisions made in this process will have long-lasting influence over the coming decades.

Funded by GIZ



## E-government and Digital Public Services Capacity Building for Uzbekistan

2021–2022



The project supported the Ministry

for Development of IT and Communications of Uzbekistan to build the capacity of Uzbekistan civil

servants to develop e-government platforms and digital public services and roll them out for the citizens and businesses.

Within the project, eGA provided expert assistance and knowledge transfer between Uzbekistan and Estonia to support Uzbekistan in the Digital Uzbekistan – 2030 strategy implementation and related digitalisation reforms.

Funded by the USAID and Ministry of Foreign Affairs of Estonia



## Decades of digital transformation

2000s

the era of cross-institutional connectivity

2010s

the era of interoperability and citizen-centric services

2020s

the era of digital transformation of the economy and the society

### Facts & Figures

942

pages of strategies, roadmaps, guidelines, policies, and procedures written

32

consultations onsite

21

projects implemented, involving 26 countries



# Digital transformation is not about technology!



**Heiko Vainsalu**

Programme Director  
of Technology

e-Government has not rooted well in countries who have taken some vendor specific approach or have ignored the human factor from the implementation and operational aspects.

Heiko Vainsalu

**The year 2022 was challenging for eGA's technology programme - there was a shift in the projects that reach us and there was a lot to learn even for those who have worked in the field for more than 20 years.**

This calls for a reflection of the year and even of a longer period. The most significant transition exposed in 2022 was related on how governments approach and implement digital transformation - e-government is not something to dream about but instead the inevitable and necessary dimension of any government. And most of governments have seen their first - or even on some occasions second or third - mistake on that path. Altogether governments are becoming more pragmatic with digital transformation.

When eGA started about 20 years ago, most of the world governments were on the green field - something existed, and everything could be built and done. The beginning of the third decade of the 2000s shows the good and bad of building digital governance. Seems that winners are those who have had a technology and solution neutral vision of the future. Also, the countries that are doing better have introduced solutions with interoperability and long-term maintenance in mind. E-government has not rooted well in countries that have taken

some vendor specific approach or have ignored the human factor from the implementation and operational aspects. Within the last 20 years practically all countries have made at least initial steps and are now wondering... is it the right path? Quoting popular media, the simple answer would be ... "Just keep swimming!"

## Smaller steps to ensure better delivery and acceptance

This tendency toward a practical approach is something we expect to see in the upcoming years also. What does it mean?

- Governments implement their digital transformation in smaller steps to ensure better delivery and acceptance in society;
- As initial digital legacy has emerged, it becomes critical to recognize which components from the legacy are worth preserving and what must be removed;
- What must be preserved, must be maintained. Keeping existing solutions, technology stacks and infrastructure operations and meeting their users' needs requires extra effort, and therefore, technology related projects in digital transformation projects will be like enhancing cars while driving.

Although eGA's technology team focuses on projects that have strong technical components it is important to address humans. The year 2022 has shown that while technology stacks needs to be used and maintained by professional people, and occasionally also be replaced, it also comes down to recognizing what are the limits related to people working with those solutions.

Surprisingly, very often the need for competent workers is underestimated. In these scenarios it is difficult to identify the right balance of what a government should do by themselves, with internal manpower, and what should be left for the market to handle and provide. Accepting and managing that relationship is becoming a critical aspect for future digital transformation projects.



Within the last 20 years practically all countries have made at least initial steps and are now wondering... is it the right path? Quoting popular media: "Just keep swimming!"

Heiko Vainsalu

## Key projects in 2022–2023

### Twinning Project: Support to Digitalisation Agenda in Kyrgyzstan

2021–2023



The project supports the digital development of

Kyrgyzstan by increasing the capacity of the national authorities, especially the Ministry of Digital Development, to manage and lead the digital transformation and to promote transparency and accountability. Within the next two years, the twinning project will assist the Ministry of Digital Development and other stakeholders in the development of digital skills, enhancement of access to public services, enhancement of citizen privacy and data protection, and improvement of national cybersecurity in Kyrgyzstan.



Funded by the European Union  
Partners: Ministry of Digital Development of Kyrgyzstan, Haus, CSI-Piemonte

## Roadmap for the development of the digital eco-system in Montenegro

2022

The development of the digital government starts from the review of existing infrastructure and software platforms, and the creation of a roadmap based on that. Within the project, eGA experts compiled the roadmap for the development of the digital eco-system and a modern e-Citizen portal for Montenegro.

Funded by the UNDP



## Tonga enterprise architecture for the development of ICT infrastructure

2020–2022



Within the project, eGA developed and maintained the Tonga Enterprise Architecture Framework (TEAF) and created specific business architecture models that reflect and comply with the government's strategic goals of developing ICT infrastructure. The models included the interoperability strategy, secure data exchange, shared services, data strategy, catalogue of interoperable systems, eID and PKI ecosystem, cloud computing, data centres, etc. Moreover, eGA analyzed ways to reduce government costs and IT expenses, and developed a processes to evaluate the information systems of public authorities and local governments.

Funded by the World Bank



## Study to develop public service centres in Timor Leste

2022

The project increased the capacity of the municipal authorities in Timor-Leste to provide public services. Based on the study, the municipality administrations of Timor-Leste can pilot a public service centre based on a one-stop-shop approach. Within the project, eGA experts conducted a study to recommend for Timor-Leste municipalities feasible options for public service centres based on a one-stop-shop approach.

Funded by the UNDP

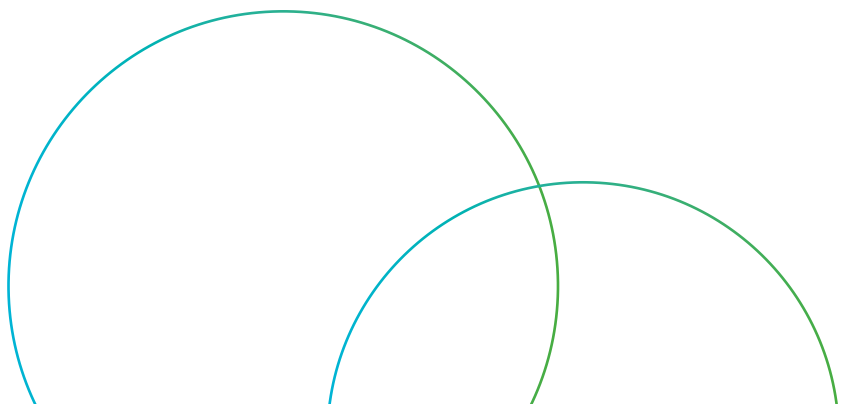


### Facts & Figures

<b>9050</b>	number of e-mails sent
<b>1601</b>	number of meetings
<b>25</b>	onsite consultations

Team increased

**50%**



# Crowdsourcing social innovation: Towards a co-creative problem solving and policymaking



**Kristina Reinsalu**

Programme Director  
of e-Democracy

But maybe this bunch of crises is the best moment for innovating and giving a bigger role to citizens in finding solutions to complicated problems and shaping long-term plans and policies?

Kristina Reinsalu

**The past 20 years has brought fundamental changes to the technology in hand and how we use it. Just think back – a mobile phone was largely present, however compared to the services one can use on a smartphone the change is almost from zero to infinity. Yet the biggest challenge is to combine technological revolution with social innovation.**

The challenge can be faced with changing problem-solving and policymaking. Starting from simple processes, such as participatory budgeting, to crowdsourcing ideas to co-create solutions and policies to address complex and wicked problems in societies. Whereas crowdsourcing and co-creation is already a daily practice for many cities, governments have yet to learn and find courage to risk implementing it.

The current situation does not support e-democracy and e-participation. The multiple crises – the pandemic, the war in Europe and the geopolitical tensions all over the world – leaves less room for letting citizens design policies and

decisions. Many decisions that governments of today are taking are about raising the taxes to increase defence costs, while the citizens are struggling with everyday costs. No wonder then that trust and hope diminish. But maybe this bunch of crises is the best moment for innovating and giving a bigger role to citizens in finding solutions to complicated problems and shaping long-term plans and policies?

## Making digital participation a success

In order to make citizens' digital participation a success, one of the biggest challenges is the low level of trust. Trust in democracy, and as such, trust in digital participation and lack of inspiring success stories of digital participation's real impact and consequences.

Thus, one of the main challenges governments need to address is on how to make their processes more understandable and transparent

to the citizens, create active citizens by improving their civic skills, media literacy and critical thinking abilities, and address better the of user experience of governmental digital platforms.

## Principles for digital transformation

There are three main principles which should not be forgotten when planning and going through digital transformation:

1. **Digital democracy deserves as much attention as digital services.** Technology has an amazing potential to amplify and support democratic practices, and create new ways for citizens and any other stakeholders to participate in decision-making, service design and solving societal problems. Governments and actors who do not recognize and apply this principle, fail in building a secure, transparent, inclusive, well-functioning, and efficient digital society.
2. **The key to success lies in partnerships.** Civil society is powerful, can and is ready to share the tasks and responsibilities when engaged and empowered (e.g. taking the lead and crowdsourcing input for anticorruption advocacy activities in Moldova).
3. **Digital tools are not enough.** Real digital engagement success-stories combine user-friendly digital tools with a set of supportive activities such as active campaigning, creating networks and alliances with key stakeholders, capacity building programmes, and empowering civil society organizations.

## Pushing digital social innovation

Last year, we gave a push to digital social innovation in the following way:

**First**, we created a tool to plan digital participation initiatives and assess their impact. It should help any planner and evaluator of digital participation to set up correct success criteria and design activities and the respective digital platforms to meet them.

**Secondly**, we have addressed digital responsibility and vulnerability. We trained civil society organizations both in the Western Balkans and in Georgia to kickstart grassroots social innovation initiatives, and train and empower digitally vulnerable citizens, who are currently not benefiting from rapid digital development.

**Thirdly**, we have been hands-on in experimenting with crowdsourcing and co-creation. Together with our European partners we crowdsourced ideas from citizens on air quality in European cities and co-created legislation for that.

The main lesson from these experiences for our future activities is – by co-creating we can solve even the most complex societal challenges such as digital vulnerability or climate challenges.

## Key projects in 2022–2023

### PHOENIX: The Rise of Citizens Voices for a Greener Europe

2022–2025

The European Green Deal's (EGD) transition pathway has been one of the major challenges for Europe since the start of the 21st century. The PHOENIX project is centred on the idea that, when dealing with environmental issues, participation is an absolute pre-condition for institutional policies and projects' success. PHOENIX connects a multidisciplinary group of 15 partners across 10 EU countries to design an iterative process for increasing the transformative potential of citizens' participation. PHOENIX tailors and tests democratic innovations in 11 pilots in 7 countries, including city of Tartu (Estonia) and based on that develops policy recommendations for further participative activities.





## Co-Deciding Europe: Civic Tech for Good Governance and Active Citizenship

01/2021–12/2023

The CODE Europe project



empowers citizens to co-create policies with decision

makers through crowdsourcing. Crowdsourcing is a participatory democracy mechanism that takes advantage of the availability of technological solutions to solicit and analyse “the wisdom of the crowd”. We want to empower citizens by giving them the opportunity to learn from each other, collaborate and participate in the decision-making. The CODE Europe project piloted crowdsourcing on air quality in six European cities. We chose this specific topic because of its transnational nature and the problems associated with it.



Funded by Iceland, Liechtenstein and Norway through the EEA and Norway Grants Fund for Regional Cooperation

## DRIVE: Digital Research and Impact for Vulnerable E-citizens

09/2021–08/2023



The project improves public authorities' and civil

society organisations' skills to engage vulnerable groups in Ukraine and Georgia for preventing and overcoming the digital divide, and thus engage groups in political decision-making and services, by providing them with the necessary conditions, awareness and skills for that.



Funded by Luminate

## Increasing civic engagement in the digital agenda – ICEDA

2020–2023



The project contributes to increase

the engagement of civil society organisations in the shaping and implementation of the Digital Agenda in the Western Balkans, or more specifically in North Macedonia, Albania, Serbia, Montenegro and Kosovo.

Funded by the European Commission



## Open Governance Workshops for Local Government Leaders

04/2021–12/2023



The open governance workshops increase

the awareness and capacity of Estonian local governments in implementing open governance principles and using digital tools. As a result of the training, Estonian local government leaders are more capable leaders who can transform local governments into smarter users and procurers of digital solutions.

Funded by the State Support Services Centre of Estonia



### Facts & Figures

- 15 key notes at conferences (both offline and online)
- 11 consultations onsite
- 10+ workshops
- 6 Reports and policy papers
- 1 Nomination of Best Paper at the 2022 Human Side of Service Engineering Conference

# Countries are becoming strategic about cybersecurity



**Kadri Kaska**

Senior Expert  
of Cybersecurity

**Over the past 20 years, cybersecurity has risen from a technical task for organisations' IT personnel to the core of their business continuity and an integral part of national and international security.**

Cyberattacks against governments and critical infrastructure, the cost of cybercrime, and online disinformation have made cybersecurity an all-of-society concern. Almost two thirds of the world's countries have adopted cybersecurity strategies to establish coherent goals and actions for improvement at the national level.

The past two decades have also underscored that cybersecurity is a collaborative effort. The interconnected nature of cyberspace, where risks are shared and responsibilities intertwined, means that cybersecurity cannot be attained in a-sum-of-individual-parts approach, where everyone only seeks to meet their own duties and interests. Collaboration and information sharing between governments and the private sector, as well as between international counterparts, boosts stronger preparedness, quickens incident detection and mitigation, and ultimately makes everyone safer. Effective collaboration is only possible through building and sustaining trust.



resilience

## A risk-based approach to cybersecurity

Another fundamental shift that has taken place over the past 20 years is one away from shielding everything and towards cyber resilience. Protecting everything, all the time, is impossible, and the costs of such attempt might outweigh the benefit. A risk-based approach to cybersecurity entails identifying the risk of digital compromise or disruption to the organisation, its customers or citizens and to the society, assessing their likelihood and impact, and investing appropriate technical and organisational measures to prevent them and minimise adverse effects. Preparedness is also more and more understood as having a plan for when things go wrong and regularly testing those plans in cyber exercises to improve.

The past two decades have also underscored that cybersecurity is a collaborative effort.

Kadri Kaska

## Three key lessons for governments

What are the key lessons for governments to bring into the next decade as they seek positive change in the society through digital innovation?

**1** **Security-as-an-afterthought is costlier** than investing into cybersecurity from the outset. Investing resource and talent into creating and maintaining trustworthy public services goes a long way beyond trust in the service – it upholds trust in public authorities and societal stability itself. This means consideration for security by design in developing digital services, but also establishing and equipping national capacities for cyber incident prevention and response.

**2** The second lesson is related: **treat cybersecurity as an enabler instead of a hindrance**. Trustworthy public services lead to a more trusted economic environment for businesses, and more societal integrity and stability for the citizens and civil society.

**3** Perhaps the most important lesson is this: regardless of technological advances, **people are still the weakest – and the strongest links**. Building a cybersecurity culture through empowering people and organisations with understanding, tools and skills to act safe online produces resilience that can outlast current technology. Developing a strong and diverse cybersecurity workforce, investing in research and advanced technologies gives a country a competitive advantage in today's environment and allows it to stay ahead of evolving cyber threats.

## eGA cybersecurity services

Let's develop and strengthen your national cybersecurity capacities in the areas of...

### Cybersecurity governance and policy

- Cybersecurity maturity assessment
- National cybersecurity strategy and action plan
- Organizational framework
- Cybersecurity crisis management system
- Processes, procedures and policies
- Executive-level cybersecurity exercises

### Cybersecurity legal framework

- Legislative gap analysis and revision, including harmonization with EU law
- Development of cybersecurity legislation
- Legislative impact assessments
- International law and cyber norms

### Cybersecurity of critical information infrastructure

- Conceptualizing and mapping critical information infrastructure (CII)
- Baseline cybersecurity frameworks
- Cyber risk assessments and continuity plans for CII operators

### Cyber incident response

- Skills, gaps and needs assessment
- National CSIRT organizational framework and community building
- CSIRT technical capacity and professional training
- Technical cyber range-based cybersecurity exercises

### Cybersecurity awareness-raising

- Executive tabletop exercises
- Design of awareness-raising programs
- Cybersecurity competencies in ICT curricula
- Awareness-raising activities

eGA offers assessments, consultation and coaching, workshops, training, and tabletop and hands-on exercises to support you in your digital transformation journey.

Contact us at



At the e-Governance Academy, we offer countries cybersecurity expertise and practical solutions in the strategic, organisational, regulative and technical aspects, for strengthening their national cyber resilience. We have helped more than 40 countries assess their national readiness to prevent and respond to cyber threats,

establish cybersecurity governance and risk management mechanisms, draft the relevant legislation, strengthen incident prevention and response capacities, or take stock of the best practices in cybersecurity awareness raising. Contact us and let's make your country's cyber space more safe!

## Key projects in 2022–2023

### Cybersecurity Study on the Western Balkans

2022



The project supported the EU's actions in

strengthening and improving the cyber resilience capacities of the Western Balkan countries in order to better address the challenges of cyber threats and improve their overall security, in compliance with EU acquis and best practice.

Funded by the European Union



### Moldova Cybersecurity Rapid Assistance

2022–2023



The European Union introduced a Rapid

Assistance Project in Moldova to increase the cyber resilience of public sector organisations and key critical infrastructure sectors. Within the project, eGA experts supports national competent authorities in aligning their operations with the EU NIS Directive.

Funded by the European Union



### Cybersecurity Consultancy for Tonga

2020–2022



eGA assisted the Tongan Government

in the expansion of the Cybersecurity Program by developing operational and administrative standards, and assurance, monitoring, audit and cyber security emergency response (CERT) capabilities. Moreover, eGA conducted comprehensive security trainings and awareness-raising for more than 120 government officials, IT and security professionals, executive management, and the private sector.

Funded by the World Bank



### National Cyber Security Index

2018–2020 and 2020–2022



The NCSI, launched in 2016, helps to systematically measure and build the countries' cyber security capacities. The project continued developing secure digital societies in developing countries by evaluating their current cyber security situation, defining capacity gaps and sharing recommendations. The National Cyber Security Index currently displays 160+ countries' rankings with their corresponding evidence.

Funded by the Estonian Ministry of Foreign Affairs through development cooperation





Josep Borrell Fontelles  
@JosepBorrellF  
EU official

Today @DefenceU opened a Cyber Lab financed under European Peace Facility. Providing a realistic virtual environment for real-time simulations, it will help advance hands-on skills of military cyber defence professionals. We keep making #Ukraine stronger.

[europa.eu/!BpGFFw](https://europa.eu/!BpGFFw)

6:11 PM · Dec 2, 2022

## Assistance measure under the European Peace Facility to support Ukrainian Armed Forces-Cyber Defence Component

2022–2023



The European Union has supported capabilities and resilience of the Ukrainian Armed Forces with the European Peace Facility (EPF) assistance measures since the beginning of Russia's war of aggression against Ukraine. The project enhances the overall resilience of Ukraine and helps strengthen the capacities of the Ukrainian Armed Forces. The project procured the security software and hardware, conducted online cyber threat hunting exercise, and opened, with CybExer Technologies, a cyber lab for onsite trainings, which strengthened the capacities and improved practical skills in detecting and responding to cyberattacks. Funded by the European Union.



## Cybersecurity Rapid Response for Albania, Montenegro and North Macedonia

08/2022–07/2023



Within the EU-supported project "Cybersecurity Rapid Response project for Albania, Montenegro and North Macedonia" eGA experts contribute to the improvement of cyber resilience in compliance with EU acquis and best practice for these beneficiaries. The primary beneficiaries are public sector cybersecurity stakeholders in Albania, Montenegro and North Macedonia. The outcome of the action is strengthened governance structures and improved cybersecurity incident and risk management of Albania, Montenegro and North Macedonia.

Funded by the European Union

### Facts & Figures

161	countries in the NCIS
52	missions in total
15	reports/publications
9	procurements





# An Ever-Evolving Tool



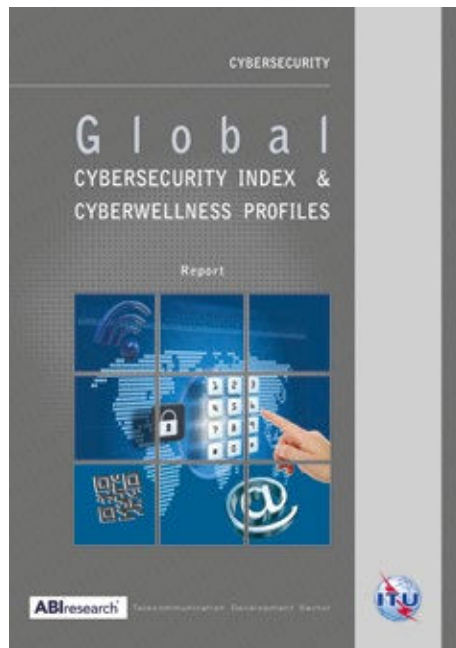
## Radu Serrano

Project Manager, NCSI Data Lead,  
e-Governance Academy

The NCSI ([ncsi.ega.ee](https://ncsi.ega.ee)) is a **global live index** that assesses the preparedness of over 160 countries to prevent cyber threats and manage cyber incidents. However, it was not so extensive from the beginning. With the advent of the updated methodology, the NCSI team thought it would be interesting for our readers to learn about how the NCSI was born and its consequent evolution throughout the years.

Let us travel back almost a decade, to 2014, when the ITU began developing its Global Cybersecurity Index (GCI). The first iteration of the GCI was dated April 2015 and contained the results of the 2014 survey, to which 105 countries had responded.<sup>1</sup> At the same time, Estonia's Cyber Security Strategy 2014–2017 expressed the country's vision of becoming one of the global leaders in cybersecurity policy through, among other things, the development of an international Cyber Security Index, as presented in the corresponding Implementation Plan.<sup>2</sup>

Therefore, in March 2015, the eGA was selected to develop a national cybersecurity assessment methodology and implement it in Moldova. This mini-project lasted seven months and was



**Figure 1.** The first Global Cybersecurity Index (GCI) 2014

funded by Estonia's Ministry of Foreign Affairs.<sup>3</sup> In addition to the assessment methodology and its pilot, the project would also deliver the web-environment for this future index. Moldova had been chosen for the pilot because the eGA had been helping develop the country's information society and security for years; it had created the national cybersecurity development plan in 2013–2014. Therefore, this mini-project was a continuation of the improvement of Moldova's cybersecurity capabilities.

1 GCI 2014. Available online at: <https://www.itu.int/en/ITU-D/Cybersecurity/Pages/GCI-2014.aspx>

2 Estonia's Cyber Security Strategy 2014–2017

3 Development of a National Cyber Security Index. Available online at: <https://ega.ee/project/implementation-of-a-national-cyber-security-index/>

Having successfully completed a pilot of the methodology, in January 2016, the NCSI received funding from Estonia's Ministry of Foreign Affairs for a two-year global implementation project. On 31 May, version 1.0 of the NCSI was officially launched at the 2016 e-Governance Conference.<sup>4</sup> Quite similar to the current version, version 1.0 had four categories, 12 capacities and a total of 60 indicators.

General Cyber Security Indicators
1. Policy development
2. Threat assessment
3. Cyber security education
Baseline Cyber Security Indicators
4. Baseline cyber security
5. Protection of e-services
6. E-identification and e-signature
7. Critical information infrastructure protection
Incident and Crisis Management Indicators
8. Incident detection and management 24/7
9. Cyber crisis management
10. Fight against cyber crime
11. Military cyber operations
International influence indicators
12. International cyber security

**Figure 2.** NCSI v1.0 categories and capacities

It set the base principles for the NCSI: the index would focus on clearly measurable aspects of national cybersecurity (i.e., legislation, units, cooperation formats, and outcomes); its methodology would take into consideration only publicly available information; and it would also double as a database and tool for national capacity building in the field.

This version would then be used to review the cybersecurity situation and capacity of Eastern Partnership countries in 2017.<sup>5</sup> Vestiges of this iteration of the NCSI can be found in the project's corresponding publication, *Situation Review: Safety and Security of Cyberspace and e-Democracy in the Eastern Partnership Countries*.<sup>6</sup> By the end of 2017, the NCSI website contained information about 40 countries.

In March 2018, the NCSI received funding for a further two-year period, to continue its international application.<sup>7</sup> This extension allowed the NCSI methodology to be updated to version 2.0, which had been in the works since 2017 and could now be implemented. The index had been restructured into three categories, 12 capacities and 46 indicators, and its visual identity was modernised. Although it was designed to be a live index, a one-off publication was drafted to commemorate the eGA's 15th anniversary and to introduce the new NCSI methodology iteration. Thus, a snapshot of the national cybersecurity status of 100 countries as of May 2018 was compiled in the NCSI 2018 booklet.<sup>8</sup> For the remaining period of the project, the team focused on adding more countries to the

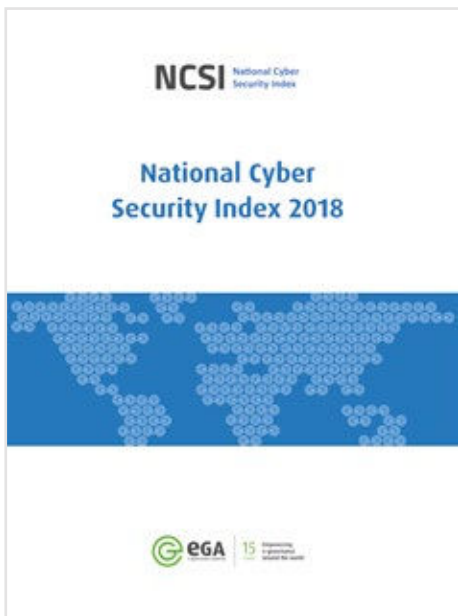
5 Situation Review of EU's Eastern Partnership countries. Available online at: <https://ega.ee/project/situation-review-of-eus-eastern-partnership-countries/>

6 Situation Review: Safety and Security of Cyberspace and e-Democracy in the Eastern Partnership Countries. Available online at: <https://ega.ee/publication/situation-review-safety-and-security-of-cyberspace-and-e-democracy-in-the-eastern-partnership-countries/>

7 Shaping of Trusted Information Societies in Developing Countries. Available online at: <https://ega.ee/project/shaping-trusted-information-societies-developing-countries/>

8 NCSI booklet 2018. Available online at: <https://ega.ee/publication/ncsi-booklet-2018/>

4 Raul Rikk, Cyber Security Programme Director, e-Governance Academy Estonia. Available online at: <https://www.youtube.com/watch?v=bM1aNbmQHyk>



**Figure 3.** NCSI 2018 Booklet

index and drafting the National Cyber Security in Practice handbook.<sup>9</sup> By the end date of the project in April 2020, 160 countries figured in the NCSI, thanks to the team and 116 representatives from 77 countries who provided us with data during that time.

The global pandemic brought about the rapid digitalisation of governments and a massive increase in the use of the Internet and teleworking. However, with e-solutions being developed very fast, there was no guarantee that they included a high level of security. National cybersecurity was now more important than ever. The NCSI was funded once again for a period of two years in October 2020, with the main objectives: maintaining and updating in a timely manner the large database of country evidence, updating the NCSI methodology, and piloting the Cybersecurity Maturity Assessment.<sup>10</sup> A Cybersecurity Maturity Assessment enables target countries to identify strengths, gaps, and

areas of improvement in their cybersecurity posture, and accordingly improve their resilience against cyber incidents and attacks.

The Cybersecurity Maturity Assessments are conducted using the NCSI methodology and the results are also used to update the relevant country data in the NCSI. Alongside the maturity assessments, the eGA also supports the set-up and implementation of capacity building programmes in the target countries. The assessments can also be potentially followed by a series of specific workshops for the main stakeholders in the target countries, focusing on sharing best practices for implementing cybersecurity reforms and providing examples of different services from various other countries. The pilot Cybersecurity Maturity Assessments focused on Armenia, Botswana, Georgia, Jamaica, Kyrgyzstan, Moldova, Northern Macedonia, and Uganda.<sup>11</sup>

As of 2022, the NCSI has over 160 countries, the maturity assessments have been successfully piloted, and the NCSI methodology has been updated and elaborated once more. We will strive to keep this tool available and relevant for the benefit of the global community.



**CONTACT US!**

 [ncsi.ega.ee](https://ncsi.ega.ee)

 [ncsi@ega.ee](mailto:ncsi@ega.ee)

9 National Cyber Security in Practice. Available online at: <https://ega.ee/publication/national-cyber-security-handbook/>

10 Advancing Cybersecurity Capacities for Digital Transformation. Available online at: <https://ega.ee/project/advancing-cyber-security-capacities-for-digital-transformation/>

11 Ibid.

# e-Governance trainings online and onsite



**Annela Kiirats**

Director of  
e-Governance Trainings

Let's think about the modern mall – we can order clothes online and make online payments. At the same time, the parking slots are again full of cars, as people want to see the clothes and try on outfits before buying them, testing for the most suitable option in the fitting room and perhaps even the shop staff helping them to decide. The same with learning about e-government concepts, planning, and/or implementation.

eGA provides the possibility to take online sessions, e-courses, arrange online meetings for further planning, and ask for advice by calling via various channels. Nevertheless, planes are still full of travelling people – as we still need that something that is called the human factor – real face-to-face communication. And that is something that has not changed over those 18,5 years I have been working at eGA, and will not change as long as there are countries that need our advice and support.

eGA's team is still working mostly with developing countries. People of those countries, prefer our experts' physical presence at least partially – confirmation of what they are doing, support in decision-making and friendly nodding when the course is set right.

inspiration

eGA's trainings are more than about attending a course here or there – they are about communication to prepare the most suitable, tailored content, they are about open discussions and experience sharing, talks to draw conclusions and ideas how to move on.

Annela Kiirats

## Tailored content

eGA's trainings are more than about attending a course here or there – they are about communication to prepare the most suitable, tailored content, they are about open discussions and experience sharing, talks to draw out conclusions and ideas on how to move on. It is also about consultancy and meetings with respective authorities in beneficiary countries and understanding the local context before our experts make suggestions. It is about talking and explaining, helping to define what the country wants or dreams about – exercise to put in words which e-government is needed, or how to create the e-governance concept correctly, taking into account all necessary security, integrity and engagement aspects.



There are different bottlenecks in governments, among political decision-makers, between government agencies, under knowledge and skills, and motivation. So, therefore it is always important for us to create efficient, trusted communication with the partner organizations and remind them that they should in parallel also deal with general awareness for their country's people about plans to move on with creating a future digital society.

We at eGA can illustrate the future for you, but by the end of the day it's you who must keep the digital government running and functional!



## Key projects in 2022



### Mauritania

E-course, followed with mini-project to explore the e-government situation in Mauritania, suggestions on e-procurement.



### Suriname

In-country initiative to boost e-government development via special working group, e-course on e-government, followed by a mini-project in Suriname.



### Ukraine

Multi-year project that includes many trainings in Estonia and in Ukraine, engaging different international experts.



### India

Cooperation with the **Indian Institute of Management Vishakhapatnam**-International best practice study visits are part of the Master's Programme for students to get practical know-how. Students are already high-level government officials in India.



### Finland

Cooperation with HAUS on training top civil servants of Finland and exchange experiences via study visits to Estonia.



### Austria

Exchange of experiences in the field of e-health and modern technologies.

### Facts & Figures

# 9000

government leaders have participated in our training programmes in 2002-2022

# 430

people participated in e-governance trainings in 2022

# 115

working days in 2022 we had the pleasure of communicating face-to-face with our groups around the world

# 30

study visits organized to Estonia in 2022



# Even the war can't stop us and digital transformation!



**Yurii Kopytin**

Deputy team Lead  
of eGA's Team in Ukraine



**Kateryna Rudenko**

Head of the  
Administrative Unit

**Since February 24, 2022, Russia has been waging an unjustified and unprovoked full-scale war against Ukraine and has caused terror, devastation and an unprecedented humanitarian catastrophe for Ukraine and its people. This has obviously affected all international technical assistance projects in Ukraine, and also our activities.**

When the war began, the EU4DigitalUA project immediately started providing emergency and resilience assistance to the Ukrainian authorities. One of the top priority tasks was securing the people's data from physical or cyberattack destruction by the Russian invaders. Fast reaction was crucial when critical infrastructure was under attack every day; thus, project experts and Ukrainian partners managed in very short time to relocate data servers to secure places, to organise the migration of some registers to the cloud, and to find opportunities to host registers in different locations.

Taking into account the destroyed infrastructure and Administrative Service Centers, and the millions of internally displaced people and Ukrainian refugees abroad, the demand on e-services is only growing.

At the same time, project experts kept Trembita running, so that the Ukrainian authorities could further exchange information and ensure stable delivery of public services online. The demand on e-services has only been growing in Ukraine, taking into account the destroyed infrastructure and Administrative Service Centers.

The Ukrainian team continues running at full speed and has already covered half of the way, despite the extremely difficult and insecure situation in the country.

## Digital technologies save lives

Digital technologies help Ukrainians a lot in this difficult time. Thanks to digital documents in the Diia mobile application, citizens who lost all their belongings as a result of the war can confirm their identity. This is possible due to electronic registers and electronic interactions through the Trembita system.

Moreover, our team develops digital government infrastructure even during the war. Within the EU4DigitalUS project, data quality of 5 key public registers was evaluated; the Registers Platform and several registers were developed; and several public registers were connected to the Trembita system to develop an ecosystem





for e-services development. By the end of 2022, the Trembita interoperability system has carried out more than 1,7 billion transactions and will be upgraded to version 2.0 in our next project – DT4UA. Moreover, our experts drafted the legal background for the Trembita system (including Regulations, Procedure for connecting to the system, Procedure for building electronic interactions).

## Towards mutual recognition of trust services

In 2023, a big step forward towards mutual recognition of trust services and electronic identity was made. The Verkhovna Rada of Ukraine adopted a law on mutual recognition of qualified electronic trust services and implementation of EU legislation in the field of electronic identification. It is important for all Ukrainians as this decision allows Ukrainians to sign documents, conclude contracts, and order electronic services remotely, and sign contracts with private entities from the European Union digitally. We are very excited that Ukraine will be the first non-EU country whose electronic identity is recognized by the EU!



## E-services are crucial during war time

During the last year, 12 e-services were developed by the EU4DigitalUA, and 11 of them were already launched. Many Ukrainians lost their documents when their houses were destroyed, or forgot them during evacuation. 10 e-services developed by the EU4DigitalUA project now allow them to conveniently receive duplicates of lost documents and extracts from state registers online. In total, project experts currently have 69 e-services in work. Thanks to electronic and mobile services, citizens and businesses continued to receive the services they need from the state, from any corner of Ukraine and the world, despite the war.

## Empowering Ukrainian cybersecurity capacities

The year-long war posed new challenges for Ukraine: communication outages, blackouts, cyber-attacks, restoration of de-occupied territories, new technologies for the army, etc. Considering the growing need to support Ukraine during these challenging times, in 2022 eGA has launched three new projects for digital transformation and strengthening cybersecurity in Ukraine. Two of them were launched in March 2022. All activities are supported by the European Union.

Our team is excited and very happy to contribute to the continuation of Ukraine's digital transformation. Together we can prove that there are no limits if the government is passionate and devoted to keep country running, even during wartime.



## Key projects

### EU4DigitalUA

2020–2024



EU4DigitalUA is part of the broader

support of the European Union to Ukraine and is a continuation of the EGOV4UKRAINE project, implemented in 2016-2020 within the U-LEAD with Europe programme. In the EU4DigitalUA project, eGA's team is focused on further development of digital government infrastructure, interoperability, public e-services and cybersecurity-related tasks. The project is implemented by the e-Governance Academy (EGA, Estonia) and the International and Ibero-American Foundation for Administration and Public Policies (FIIAPP, Spain) in close collaboration with the Ministry of Digital Transformation of Ukraine.

Funded by the European Union



### Assistance Measure to support the Ukrainian Armed Forces – Cyber Defence Component

2022–2023



The project is enhancing the overall resilience of Ukraine

and helps strengthen the capacities of the Ukrainian Armed Forces. For that purpose, the project has procured security software and hardware, conducted online cyber threat hunting exercises, and opened a cyber lab for onsite trainings, which has strengthened the capacities and improved practical skills in detecting and responding to cyberattacks.

Funded by the European Union



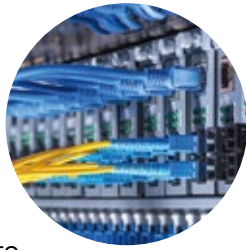


## EU Support to Strengthen Cyber Security in Ukraine

2022–2023



The project is focused on procurements to



provide rapid response to Ukrainian cybersecurity and data security needs. Technical support provided by the project ensured further functioning of the digital state during the war. It secured state registers and created backups, ensured the functioning, and in some cases the resuming of provision of public e-services, improved the security and stability of internet connection, and improved the capacity to tackle cyber threats and secure data confidentiality, integrity, and availability.

Funded by the European Union

## EU Support for Digital Transformation of Ukraine (DT4UA)

2022–2025



The project aims to improve the efficiency



and security of public service delivery and their access to citizens and businesses in Ukraine, in line with EU requirements, and provide rapid response to the needs caused by the war. Additionally, the e-Case management system will be developed to empower governance and enable a more effective, efficient and transparent processing of criminal cases.

Funded by the European Union

### Facts & Figures

- 4** ongoing projects in Ukraine
- 35** EUR is total budget of ongoing projects
- 35** partner organisations among governmental institutions
- 1,7** billion transactions in Trembita, which has been supported by the project team
- 1,5** million services provided through the Vulyk information system for administrative service centres since the launch of the system
- 69** e-services are under development, 12 of which were developed in 2022
- 25** core team members in Ukraine
- 21** legal acts that support digital transformation were drafted

We are very excited that Ukraine will be the first non-EU country who's electronic identity is recognized by the EU!

Yurii Kopytin



# A year of resilience: how our team works in wartime



Anatolii  
Martsynovskyi

heroism

**The start of the war on February 24, 2022 brought to Ukraine the feeling of brutal interruptions of work and personal plans, alarming uncertainty. For the staff of the eGA in Kyiv, this was no exception. In this story, you will witness the daily heroism that every Ukrainian has to have to keep the country going.**

"The flashes and glow from the rocket explosions could be seen from the windows of my apartment. Our anti-aircraft defense and planes worked. The first emotions felt were some kind of animal fear, in combination with stupor, for a few minutes," recalls Oleg Burba, head of a EU4DigitalUA project component, the beginning of the war. "Around 9 am, we tried to get out of Kyiv for the first time, but didn't get beyond the first crossroads. Then there was a pause, the explosions decreased. I went to the project office, glued the windows with tape, took away the work documents, and wrote 'Glory to Ukraine!' on the board."

On February 25, 2022, the deputy team leader Yurii Kopytin was supposed to go on a business trip to Estonia. The trip did not happen. "In the first days of the war, I had to work 17 hours a day or more," says Yurii. "The biggest inconveniences were related to the long time it took to get from the suburbs to Kyiv, and the long curfew. This also led to certain peculiarities in

the organization of life. During the day, I also had to look for food that quickly disappeared in supermarkets during the first days of the war, and had to work in queues and then also at night."

The war destroyed the usual rhythm of life of Ukrainians, but the project employees continued to work. Finding relatively safe places to live and work became an urgent issue. The team stuck together and helped each other. For example, Dmytro Savranchuk and Denys Prygarin moved from a more dangerous place to Nataliia in Vasylkiv, where it became relatively quiet after the first bombings. Later, they moved together to other regions. Kyrylo Shepachev came to live with Yurii Kopytin in the suburbs of Kyiv. "On the first day, I moved my family to a relatively safe place in Ukraine and immediately returned home and joined various volunteer activities," says Roman Matviichuk, a senior e-services expert.

Almost all experts have started regularly coming to the office to work there. It became such a point of indomitability.

Yurii Kopytin





Photo:  
eGA Team in Ukraine  
meets with Luukas Ilves,  
Estonian Government CIO

## First task: keep data running

The most urgent tasks in the first two weeks of the war were strengthening cybersecurity and ensuring that the Trembita data exchange system and the data of state registers continued to work and make e-services available.

"The biggest challenge was the need to provide backup infrastructure to support key services," Oleksandr Kozlov, a senior expert in electronic identification, says remembering his experience. "It was often not easy to organize this, as many enterprises were closed, and the logistical chains were interrupted or overloaded. But we looked for a way out and found a solution."

About a month after the Russian invasion, the situation stabilized somewhat. The aggressor fled from Kyiv. The project returned to fulfil daily tasks - of course, considering the requirements and realities of wartime.

"The availability of electronic services has become very relevant," says Roman Matviichuk. "After all, many people lost their documents, millions were forced to change their place of residence. Thus, e-services would allow to overcome these and many other problems. For example, ten e-services related to civil status were created with the help of the project. These are duplicate birth, death, marriage, etc., certificates and their corresponding extracts. They became available from July 2022."

## Second task: secure cyberspace

For the Ukrainian government organizations, cybersecurity had become urgent from the first minutes of the war, as they were constantly under cyber-attack. The European Union already launched in the first weeks of the war the critically important support project on strengthening cybersecurity. "This was the quickest decision-making process that I have seen. No more than a week or two passed from the decision of financing to the start of the project," says Oleg Burba, about the work of a new cybersecurity project.

The period of relative calm and stability lasted until mid-October, when the massive Russian shelling of the energy infrastructure began. Then came the times of prolonged absence of electricity, light, Internet, and often mobile communication. And, of course, increased personal danger.

"Oh, the rocket is moving in the direction of Nataliia - you could read this in the chat of our component at that time," recalls junior cybersecurity expert Nataliia Matiash.

## Daily challenge: teamwork

"Last months has been and even now it is a real challenge," says Yurii Kopytin. "It has become much more difficult to work online. The electricity and Internet connection disappear at different times and affect different employees, thus making it difficult to organize teamwork. But this brought a positive side at the same time. Almost all experts have started regularly coming to the office to work there. It became such a point of indomitability," Yurii jokes, drawing a parallel with the government's initiative to arrange public places for internet and electricity usage.

In 2022, the project ended with intensive work and celebrated the results achieved together with partners, against all odds. Many affairs were already aimed not at extinguishing the "fires" caused by the war, but at the further



development of Ukraine and at "peaceful" digitization: the Parliament adopted a law on the mutual recognition of qualified electronic trust services of the European Union; the Diia portal began beta testing the application for marriage registration; the work continued on the Trembita's development; and Ukrainian government organizations are more equipped with hard- and soft-ware that helps to manage cyber-attacks.

**Our Ukrainian team survived in difficult conditions. We have accomplished our planned tasks and even more, responding to the wartime needs and requests of our partners.**

**Mari Pedak**

"Our Ukrainian team survived in difficult conditions. We have accomplished our planned tasks and even more, responding to the wartime needs and requests of our partners", concludes team leader Mari Pedak. "After such tests, there is confidence that we will overcome all the challenges and difficulties that will arise in the future".



# Digital Government Podcast: Best Talks of 2022



# Perhaps, the AI revolution is not as loud as we thought



**Federico Plantera**

WordsMatter OÜ

It seems almost physiologically that the latest tech buzzwords, with time, undergo some sort of resizing. Technology advances, **consulting firms and market actors take the leap** envisioning how the latest development could change everything, and then we notice how such upheavals are slower to unfold than expected – or they even underachieve, compared to the initial expectations.

In this sense, the **case of artificial intelligence is peculiar**. Is AI happening? For sure. Algorithms have increasingly been integrated in how both the public and private sectors provide products and services. But until recently most observers found that **the AI revolution was less disruptive** than what was thought to be likely when the technology first became known. The arrival for public use of ChatGPT changed the impression and suddenly it looks like AI is really taking over the role of humans in many areas. Or is it?

A less rapid and dramatic advent of AI may have been **good news**, because it also means we are taking time to evaluate its proper use cases. On the other hand, though, a more silent revolution could bring **an undesired side-effect**. That is, while giving room for more thought-through considerations on how to deploy new tech, some key reflections over its ethical use risk of being side-lined because the change is not as disruptive as it initially appeared.



## Velsberg: AI empowers data-driven decision making in the public sector

How are governments approaching the use of artificial intelligence in public service provision? Consider Estonia, as a case study – and let **Ott Velsberg**, Chief Data Officer (CDO) of the Estonian Government, be our guide. The country's AI plans are rooted in words and deeds that started already in 2019. "Our AI strategy aims to make government more proactive, seamless, and automated. **The end goal is zero bureaucracy**, and AI plays a key part in moving meaningfully towards that direction," Velsberg begins with.

In broad terms, this translates into making the life of citizens and companies as good as possible. A way to achieve that is using data to **increase the quality of living, employment**, and so on. Artificial intelligence is being used in the Estonian public sector already for both **simpler and more complex tasks**. "From simultaneous transcriptions of governmental meetings or the national podcast, to analysing and classifying the content of texts to understand citizens' sentiment towards different public services. Or to assign specific risk factors to a wide array of emergency situations," Velsberg explains. The list goes on, as the Government CDO says in the Digital Government Podcast.

Outside the digital world, **remote sensing** is being used in agriculture to understand if farmers mow the land and are eligible for grants and benefits; to see where ice-breaking vessels should go; to keep track of trees' height in different areas. "It's all in the service of avoiding unnecessary extra work, automating straightforward tasks, getting recommendations and a better overview of a given situation."

The potential of artificial intelligence and interoperability, already tried and tested by the Estonian government – **80 completed case studies, 30 ongoing projects** – will soon be channelled through **Bürokratt**.<sup>\*</sup> (Estonia is one of the few (maybe only?) countries in the world with a 'home-made' word for AI, coming from an old Estonian mythological creature, the Kratt. This creature worked for humans but had a mind of its own and could be good or bad. The Kratt working for the public sector thus becomes the bürokratt...the modern bureaucrate.) "In short, it is a **government virtual assistant**. It will enable citizens to access public services through voice-based interactions. And these services are highly personalized – we are talking passport and driving license renewals, applications for benefits. **So, everything the government does, but more citizen-friendly**," Velsberg says.

## Can proactive public services ever get too zealous?

All goes in the direction of a more proactive way of managing the public administration, **leveraging the power of data and reimagining unfit-for-purpose organizational processes**. For example, if the government knows of one's eligibility for **childcare benefits**, it should proactively **reach out** to the potential recipients and provide them with the benefit, without the need for any application. Particularly in the case of government support that might, otherwise, remain untapped – be it for healthcare, unemployment, old age, and such – this will make a real difference.

## However, not all that glitters is gold

One year ago, a European government crisis and resignation had been triggered by a **welfare benefits scandal centred around algorithmic misbehaviour**. In **the Netherlands**, as it emerged, an overzealous mechanism of automated checks on benefits recipients deemed as fraudsters some 26,000 parents receiving childcare support. Applicants' wrongdoings were **minor errors in compiling paperwork**, like missing signatures on certain pages of the application forms. The administrative rulings resulted in the benefits being revoked, and thousands of euros of unjust fines to households, which disproportionately affected poorer and minority households that may have had more problems with filling out the paperwork correctly.

**Mark Rutte**, then (and to this day) Prime Minister of the country, called it "a colossal stain" on the government, an unprecedented injustice. Even more so when, just one year earlier, a Dutch court had ordered the immediate **suspension of an automated surveillance system** for detecting welfare fraud because it violated human rights. While this instance does not halt the exploration of AI use cases in the public sector, it sets off alarm bells.



Yes to AI, but in an ethical way.

## Nyman-Metcalf: Evaluating information triggers ethical challenges

The Dutch case, in fact, shows how the decision resulting from an automated process depends on the information fed to the computer. "Through machine learning you also **bring in bias** from those who create the system. But even without that – and here is where it gets interesting – certain outcomes might not make sense even if the supporting facts are not wrong," **Katrin Nyman-Metcalf** says, Senior Expert on Legal Framework at the e-Governance Academy. In a recent episode of the Digital Government Podcast, we extensively addressed the ethical challenges of automating public services.

While using fairly basic IT tools to automate specific tasks does not present ethical challenges, **two problems** arise in other situations. First, if the public sector decides to provide a given service with full automation, citizens may not have a choice to access the service in a different way – which in the instance of a private service provider is always there, instead, by simply opting for a different one and the market will provide that if there is a demand. Secondly, the big question on **when and what to automate** comes into being when the machine is taking the decision, so when the outcome of a process involves **degrees of discretion**. We have already seen how ChatGDP has been limited at least for a time, as it provided some undesirable results. For public services, such risks have to be seen in a different manner than for private services that people can just avoid if they do not like them.

"Tech would allow much more automation than what currently exists in use in public services. Limitations do not pertain to questions of feasibility, as much as of opportunity. Is it ethical for a machine to fully take charge of a given process? **Is this a good thing?**" Nyman-Metcalf asks. "It's not a legal issue, it's not a technical question. Machines make fewer mistakes than



humans, but what is considered a mistake? For many public services, it is just a matter of looking at facts A-B-C and making a decision. But some cases require an evaluation of these facts – and machines do not act quite like humans there, yet," Nyman-Metcalf explains.

## In the build-up of futuristic public services, let's keep an eye on principles

Artificial Intelligence for years seemed the next big thing to take the world by storm – luckily, not in a literal sense. "But is '**the AI singularity replacing humans**' around the corner? We are very, very far from it. We may talk about classifying email texts, providing recommendations, but with these cases we are nowhere near replacing humans," Velsberg says.

As his examples have shown, automation is already being deployed for **data input and backroom tasks** in many countries. "But this **implementation is incremental**, not a change that happens suddenly from something to everything. Evaluating the convenience of using AI should happen step-by-step on the path to its implementation. Yes, we may have a machine that can do that – but should it do it?" Nyman-Metcalf concludes. A friendly reminder, rather than a warning, to go beyond the hype and reflect on (only seemingly) collateral issues around all tech and innovation.

# Digital identity – types, approaches, lessons learned



Federico Plantera

WordsMatter OÜ

We could never say it enough – **digital identity is a must-have** to make societies more digital. It has been around for some time already, so it is natural that types and approaches to its development vary, between contexts and country specificities.

To explore these, **Mark Erlich** is the speaker of choice for a mini-series of podcast episodes on digital identity. He is the new **Senior Expert on Digital Identity at the e-Governance Academy**. And with his 15+ years' experience on the matter at Estonia's Information System Authority, we take a deep dive into typologies, use cases, and lessons learned from Estonia's – one of the most digital countries – own journey.

## Why we need digital identity in the first place

The short answer is rather intuitive. For the same reason we need identity and means of authentication at all, even in the physical environment – to identify an individual in the digital environment.

But what is the purpose? “Especially in the electronic environment, we need it to access services. Services that give us some kind of benefit or need to access our personal information to



do so. All but those that don't need to identify their customers, starting from an online shop and ending with a government portal, need to **understand who you really are**. And that you actually are the person you claim to be,” Erlich explains.

“Also, from the user's perspective, we don't want someone else to get access to our **records or personal information**, or the benefits we may be entitled to.”

## A thousand and one ways to authenticate oneself

There is not one, single way to make and use identity. "Take a look at your regular life, at your wallet. You have many different loyalty cards there – each is an authentication tool, for this and that shop chain, or sports club. It identifies you as that **specific person for that specific service** provided. The same thing happens for government services in an online, electronic environment," Erlich says.

But some identities, in fact, are less **service-specific** and more **universal**. "Such as a document issued by the government, be it a passport, a national ID, or the driving license." In this line of thought, we see that **digital identities may take many shapes and forms** – depending on the purpose, depth of personal information needed, and universality.

As Erlich explains, three different categories differentiate usage and end goal of digital identities:

- **Private sector-owned**, used only for sector-specific services like banking, with potential bridges to other industry-related services too;
- **Provided by companies, but more widely accepted** by the public sector almost as equal as government IDs;
- **Government-issued IDs**, usually accepted for all public services, and often bridged for use to private sector service providers too.

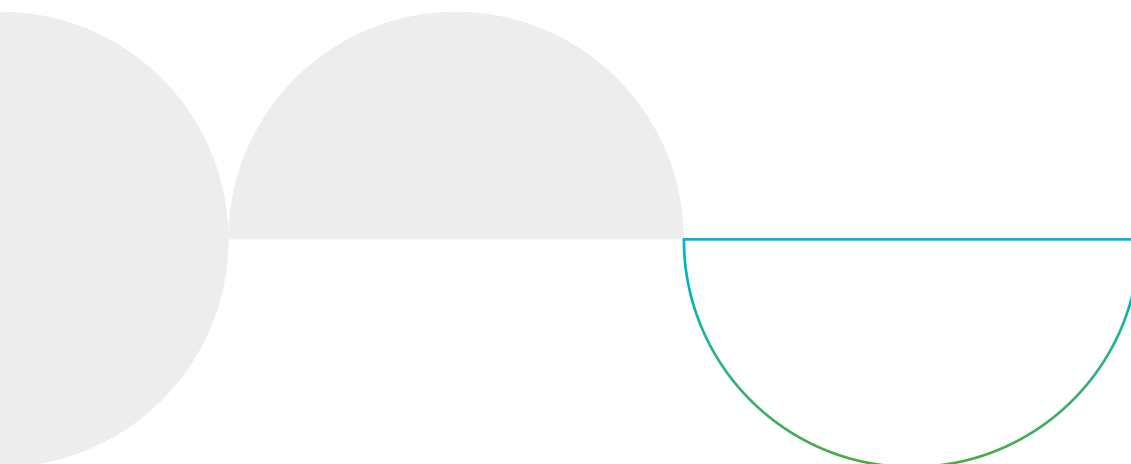
## Three key ingredients for effective digital identity development

Different types of digital identity imply also different approaches to their development. "Because everything is situation-based, it is not possible to just take one country's model and copy/paste it to another context," Erlich warns.

In **the case of Estonia**, the third instance among those mentioned, government-issued IDs were not the news – it was, instead, the high level of penetration in society reached within just three years' time from their deployment (~80%). "Back then, in 2002, the second element of novelty was the development of eID as an open-source platform. No direct restrictions were put in place on anyone to simply start using it for authentication," Erlich explains.

But **three prerequisites**, Erlich concludes, are to be kept in mind for anyone starting to develop digital identity today:

- A functioning **population registry**, because you need to know who your residents are and who you are issuing an ID to;
- Some **services already available online**, the most important ones from both the public sector and citizens' perspective;
- Enough capacity and resources to establish **a framework of management for digital identity** – with clarity on responsibilities regarding supervision, liability, and transparency.



# Five reflections on effective digital government from Ireland



**Federico Plantera**

WordsMatter OÜ

How does effective digital transformation look from above? From the perspective of those who need to inspire, guide, and organize teams so that plans become policies, and then action. Let's take a look at five lessons learnt through the lens of **Barry Lowry**, Chief Information Officer of the Irish Government, and Chief Adviser to the government on all things digital.

## Understand the diversity of users and journeys

With many new technologies available, we can completely rethink the ways we deliver services. That is one of the main possibilities that digitization releases. "Digitization lends itself to understanding what the user is trying to accomplish when they are interacting with the government. And then you are using technology to enable them to do it," Lowry explains.

But do you treat every user the same? "The answer is: absolutely not! Because we are not the same. We are a diverse society. So, you have got to think about the diversity of journeys, and try and develop the means that allow different users to interact with government as easily as possible."



This is what being an advocate of citizens and users means. "To understand the needs of your people, be empathetic to those needs, and then working out ways to make their journey much easier," Lowry says.



## Business champions to put tech to good use

The yearly appointment with the Digital Economy and Society (DESI) index publication reminds us that a digital society is not achieved by simply taking governments online. The dividends of digital transformation must be capillary and distributed – for businesses too.

“Ireland seems to be one of the most advanced countries in Europe in terms of business use of technology. But to a 50% of businesses with world class practices, corresponds another 50% with limited or zero uptake,” Lowry illustrates. “Enabling those businesses to go online opens up opportunities for them to sell those products beyond the island.”

“To champion that, we have various tools in place – educational, funding, help with technology – that will enable them to catch up.” And contribute more to the economy and to job creation.

## Cloud is critical

Among the technologies that both the public and private sectors need to be mindful of, cloud seems to stand as the most critical at the moment. “Because the difficult part of running a business and using technology is actually running the infrastructure, if you decide to do it yourself. And it can be a barrier to organizations going online,” Lowry says.

“Cloud enables you to go online very, very quickly. And to let someone else worry about the security of your data, the uptime of your systems, all of those things. Thus, cloud brings an immediate benefit.”

## “GDPR is my friend”

Even though not all regulations ‘are created equal’, so to say, one stands among others for the good it can do – and that is the GDPR. As Lowry explains with clarity, the GDPR sets up a whole new standard in Europe for how governments and other parties manage personal data. “And I’ve got a little saying that I repeat every morning and night to myself that is: ‘GDPR is my friend’.”

But other than simply enforcing rules, the GDPR also allowed for better practices about data collection and management to see the light. “It forced us in government to really think carefully about the services we provide, and the data we need to provide those services. Perhaps the first three or four years of the GDPR were a bit problematic, because governments were trying to get their head around how to use it correctly, how to deploy it. But then it was made much clearer, when we develop a technical solution, the reasons why we are doing it,” Lowry explains.

## What is innovation?

We end the talk with a rather theoretical – perhaps philosophical – conclusion about the meaning of innovation. “To me, innovation is about problem solving. It’s not invention. It’s using invention to solve problems,” Lowry says.

And sure, on the path to digital transformation we must account for failure. It’s taxpayers’ money that we’re talking about, in the end. “But if you start to talk about problems in society that you’re trying to resolve, you can try and use technology in a very honest way. For example, minimizing the investment initially to make sure that it can actually work, and then increasing it.”

“I think governments can actually be leaders in good innovation. But you’ve got to resolve a problem, and if I can’t explain to you or the person in the street why I’m using this technology, what problem I’m trying to resolve, then that’s not proper innovation,” Lowry is convinced.



# Will people make policy digitally?



**Federico Plantera**

WordsMatter OÜ

For the 2022 e-Governance Conference we decided to invite the audience to see both sides of the digital governance equation – public administration and citizens. One of the channels of communication between the two can take the form of participatory practices in budgeting and policy design.

**Giovanni Allegretti**, senior researcher and coordinator of the PhD “Democracy in the 21st century” at the University of Coimbra (Portugal), has worked for over 20 years on citizen participation in budgeting and territorial management. And despite more inclusive models of decision-making dating back three decades ago, digital tools can prove a valuable ally in making them more effective. Here is how crowdsourcing, matched with technology, can enhance and amplify people’s voice in the halls of policy design.

## Crowdsourcing, explained

First, a few words on the origins of the word. Crowdsourcing, intuitively, is a mix of the words crowd and sourcing. “That means we’re asking people to do part of the job that is usually attributed to institutions. The difference with outsourcing is that the latter refers to normally a small number of experts in a specific topic that substitute the government, for example, delivering a service or creating a policy,” Allegretti begins with.

In crowdsourcing, we are giving back to citizens an active role, since they are also the beneficiaries of policies.

Giovanni Allegretti

“The big difference is that, in crowdsourcing, we are giving back to citizens an active role, since they are also the beneficiaries of policies. It is a process of going back and forth, including those that need to be taken into account in policy formulation. Because they are also those for whom said policies or projects are designed,” Allegretti says.

The practice of crowdsourcing has taken one of its most notable shapes in participatory budgeting. 30 years ago, when it was first experimented and introduced in Porto Alegre (Brazil), it represented a significant novelty. “From a symbolic point of view, politicians had decided to not keep entirely to themselves the ultimate decision about money. Otherwise, they could have been involving citizens in the sharing of ideas, but they would have remained the gatekeepers of decision making,” Allegretti continues.



## The collective returns of participatory practices

Since then, participatory budgeting has come a long way. Examples in the world are many, from Brazil to Iceland, including Estonia itself with Tartu, as the city that pioneered it in the country. Among the benefits, we can observe greater transparency and accountability of the public sector, fairer public spending, increased levels of residents' participation. All advantages and paradigm shifts that come from a redistribution of powers, are aimed at reincluding in processes also excluded citizens and marginalized groups.

"I remember the title of the first participatory budgeting in Venice, Italy. It was called "Rovesciamo il Tavolo" – literally let's flip the table, reverse it somehow. So, the idea was that participatory budgeting was reshuffling the balance of powers in society, although partially of course," Allegretti recalls. "Participatory budgeting carries with it a certain vision of social justice and redistribution, which permeates its history, and now contributes to fuel people's expectations towards the practice," he says.

## How digital tools make participation more effective

Despite of some of the dominant narratives of digitalization in the public sector, such as those related to cost containment and spending optimization, crowdsourcing seems to go in the opposite direction. "Often the driver behind using technology is to reduce costs. But you can intervene on two types of costs: that of the mechanism of participation, and/or the production of policies," Alleghretti says.

Concerning the latter, "Participatory budgeting serves to make space, where politicians step back a little bit in their monopoly of power. So, what crowdsourcing has generated is empowered citizens, more responsible, because are part of the construction, delivery, and management of services. Politics, here, gain from people's engagement not only the end of decision making, but also with regard to projects' maintenance and co-management," Alleghretti highlights.

Technology, in this context, may have a double impact. First, "It can massify such playing field, allowing for more and more people to participate." Secondly, then, "Technology gives advantages in order to synthesize effectively the results of such participation. Technology could serve as a simple calculator, adding up individual preferences and determining who wins and who doesn't – in this case, duplicating representative democracy. Instead, more complex algorithms could be refined to better take into account how people decide based on the formation of prejudice or solidarity, how they create and negotiate compromises," Alleghretti concludes.



# Addressing digital vulnerabilities to empower citizens



**Federico Plantera**

WordsMatter OÜ

Let's face it – we are more used to talk about the results achieved through digital transformation, its success stories and business cases, rather than drawbacks or failures. Despite this, there is a growing trend of re-humanizing the digitalization processes, with private change-makers and CIOs increasingly talking about drawbacks and lessons learnt too.

But some needs still might fall between the cracks of a bright narrative. That is why, **Kristina Mänd**, in-house Senior Expert on e-Democracy, delves deeper into the theme.

## Why does digital vulnerability matter?

“When people are vulnerable, they have less command of their lives, future, and decision-making. Vulnerability can manifest by means of poverty, low educational levels, social exclusion,” and many more examples of deeply rooted social problems, Mänd starts.

As a consequence, digital vulnerability must be placed within the framework of such wider issues. “It means that,” due to such disadvantages, “people are not able to fully benefit from digital transformation, and the tools designed to make their lives better,” Mänd says.

Digital vulnerability matters, in particular if we focus on availability and usage of public services. Designed to ease the bureaucratic burden on citizens' lives, many might remain left out of such process of change and administrative development – deepening existing inequalities, tapping into already-present situations of hardship.

## Three key factors of digital vulnerability

But after introducing the issue more at large, within the context of wider societal and economic problems, we can then focus more specifically on the digital side of it. Three are the key factors to watch out for, when governments and Civil Society Organizations (CSOs) aim to fill the digital vulnerability gap.

Starting from awareness, “people might just not know about some of the tools and opportunities that digital solutions may offer. Secondly, they may lack the necessary skills to use those digital tools. And last but not least, there could be a lack of possibilities for access – in terms of devices or internet connection availability,” Mänd explains.

These three factors more saliently “prevent people from reaping in full the benefits of the life and future that the digital should offer you,” Mänd continues.

## A measure of government effectiveness and performance

Digital vulnerability may sound simply as a nice to have, something to write in strategy or policy papers as a line that looks good. Assessing and addressing digital vulnerabilities, instead, by all means could be considered as a measure of governments’ effectiveness and performance in delivering public services.

It’s a matter of both policy and delivery. A matter that, for example, e-Governance Academy is handling with care in Ukraine and Georgia, where governments and CSOs are coming together to find ways to ease the impact of such vulnerability in the weakest strata of the population.

Those affected might, indeed, see a situation, even of double disadvantage – where a digital vulnerability might add up to an existing social one. But with the right framework and cooperation in place, more and more people could be empowered in taking advantage of what digital tools have to offer them.





The poster features a vibrant blue and green abstract background with swirling patterns and clusters of small green circles. In the top left corner, the e-Governance Conference logo is displayed, consisting of a stylized green 'G' inside a circle, followed by the text 'e-Governance Conference' and 'Tallinn, Estonia'. The dates '30-31 May 2023' are centered in the upper half. The main title, 'Digital Innovation as Catalyst for Social Change', is prominently displayed in large white letters. A green circular button on the left side contains the text 'Explore more!'. At the bottom left, the website 'egovconference.ee' and the hashtag '#egov2023' are listed.

 e-Governance  
Conference  
Tallinn, Estonia

30-31 May 2023

# Digital Innovation as Catalyst for Social Change

Explore  
more!

egovconference.ee *#egov2023*

## Interested in more?

Register to the e-Governance Conference 2023  
at [egovconference.ee](https://egovconference.ee)

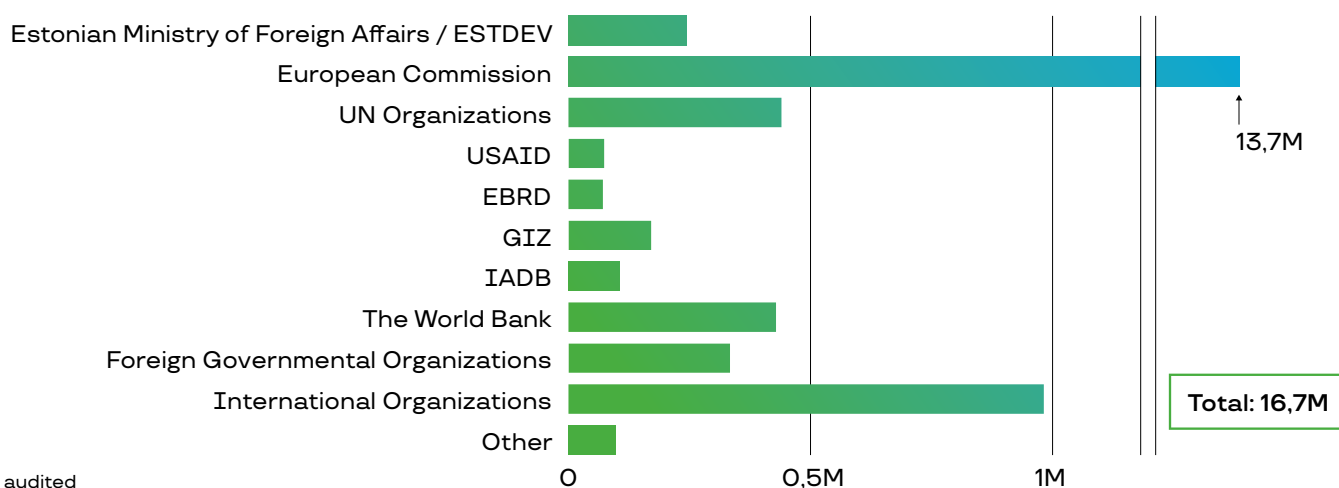




# eGA's Activities in Figures 2002–2023

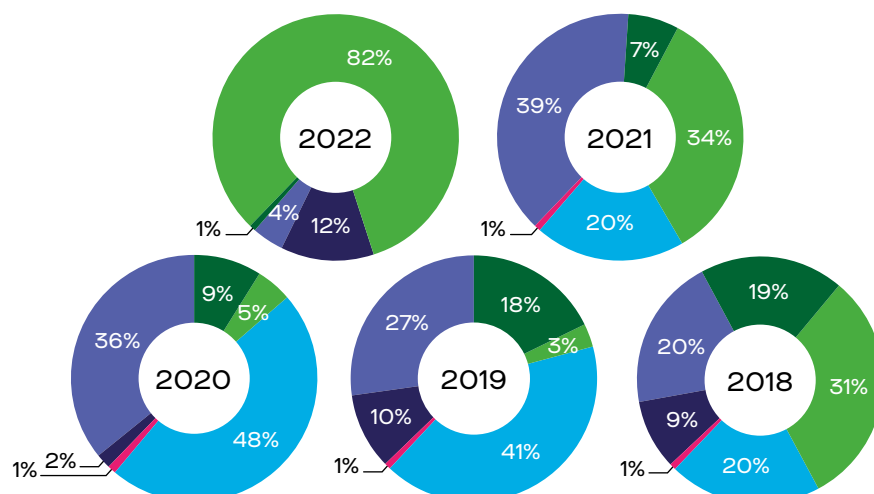
# eGA's Activities in Figures 2002–2023

## Donors in 2022\*



## Income by source in 2018–2022\*

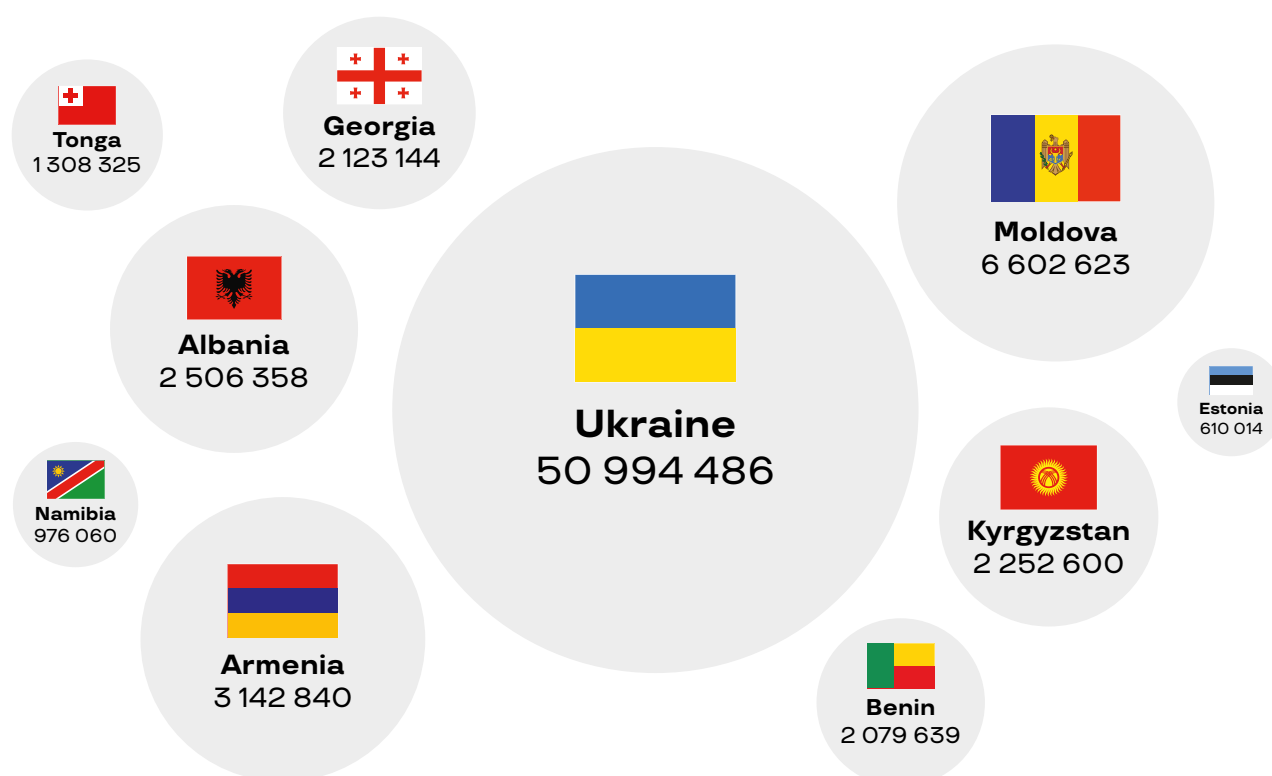
- Estonian Ministry of Foreign Affairs
- European Commission
- SIDA (Sweden)
- USAID (USA)
- Other donors
- Entrepreneurial Income



## Beneficiary countries/regions in 2022

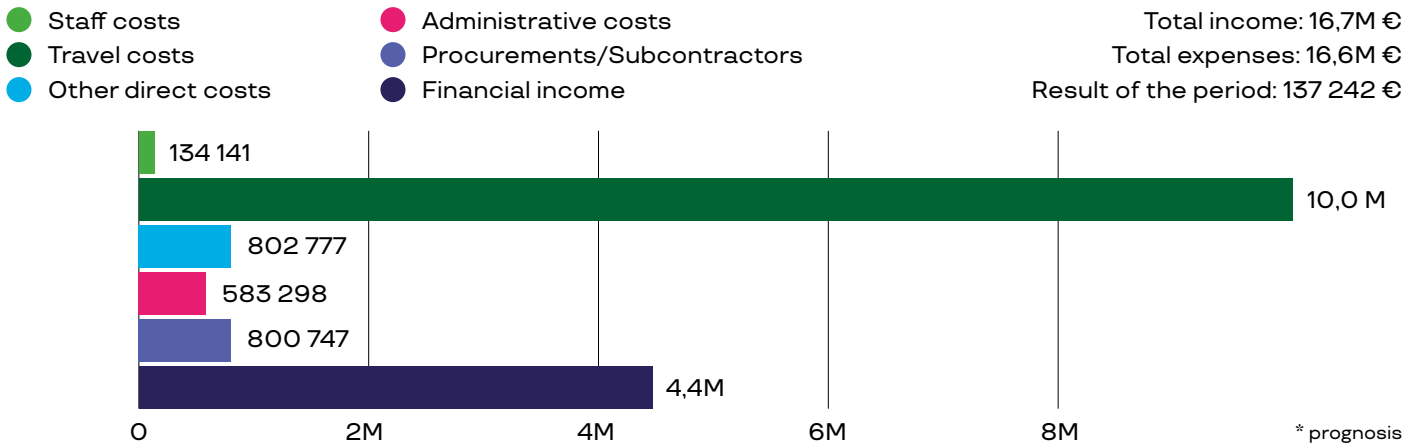


## Top 10 collaboration countries by funding (€) in 2017–2021

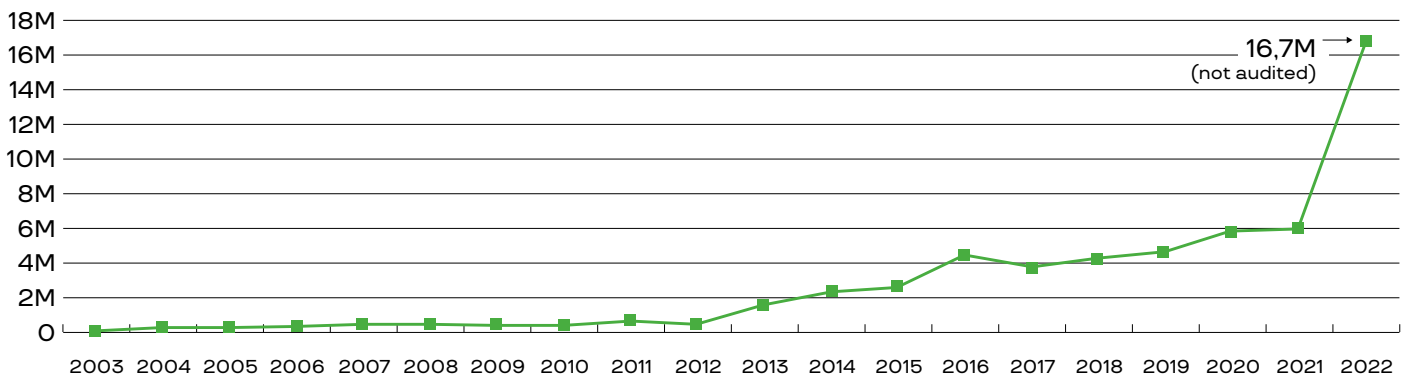




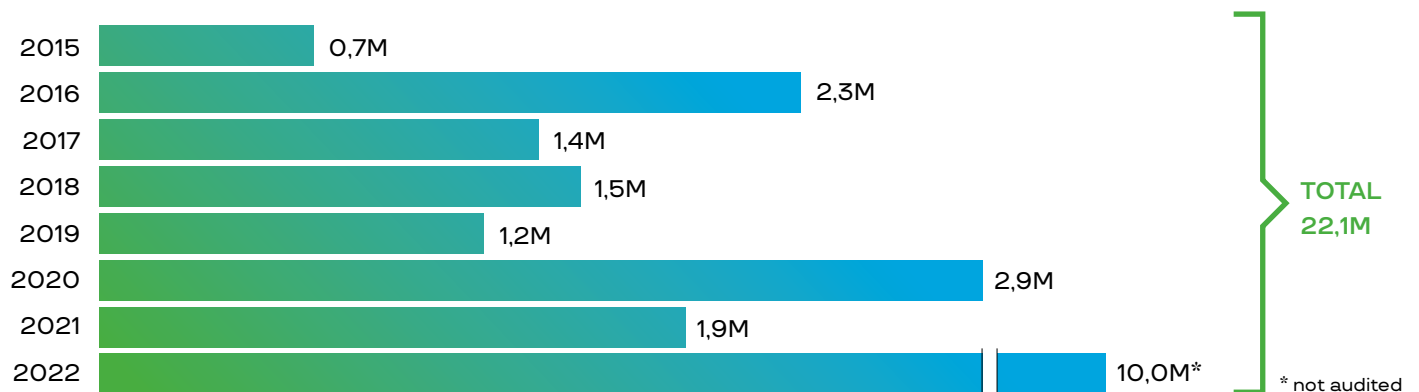
## Income and expenditure 2022\*



## Income in 2003–2022



## Procurements and sub-contracts in 2015–2022 and total



# We are the e-Governance Academy!

## Organisation at a glance

**69** 

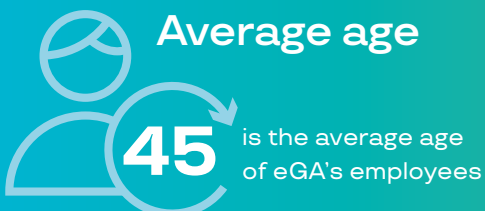
employees working at eGA  
(by December 31 2022)

22 of them in Ukraine,  
3 of them in Kyrgyzstan,  
2 in Moldova,  
42 in Estonia



increase  
in the number of  
employees within  
the year 2022

## Education



## Division by gender



**We are ready  
to meet our  
partners.  
Everywhere!**

**Expert  
missions  
2022**



by  
 **40**  
employees

## Most travelled employees (days):



Hannes  
Astok



Piret  
Saartee



Epp  
Maaten



Heiko  
Vainsalu



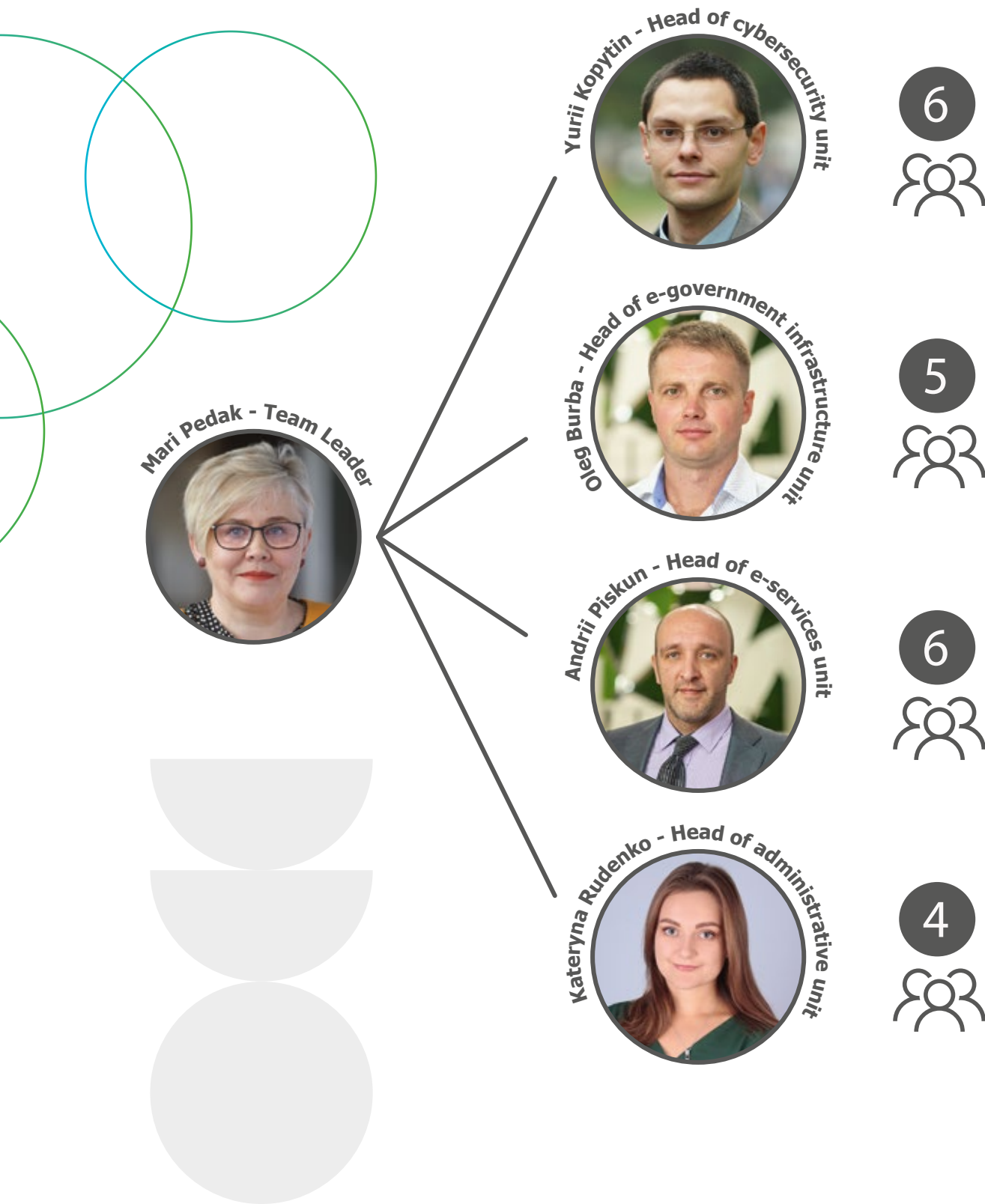
Merle  
Maigre



# eGA Team in Estonia



# eGA team in Ukraine







e-Governance Academy  
Rotermanni 8, 10111 Tallinn  
+372 663 1500 | [info@ega.ee](mailto:info@ega.ee) | [ega.ee](http://ega.ee)  
Facebook, LinkedIn, Twitter: [egovacademy](#)

 Digital Government Podcast

