# Cyber Citizen Skills and Their Development in the European Union

The European Union member states clearly have a willingness to develop, teach and train cyber citizen skills. Cyber citizen skills are not only considered as everyday skills and a way of preparing for threats, but also as enablers for individuals, organisations, and societies in a digitalising Europe. Cyber citizen skills are a significant factor for the European Union in the global technology race. It is worth developing cybersecurity competence both on the individual level and more widely in society. The Cyber Citizen initiative will create a cybersecurity civic skills learning model and a learning portal for all Europeans. The portal will contain content targeted at citizens and different audiences. We are building European-wide cooperation on cybersecurity!

## Cyber Citizen Initiative

- **Duration: 2022–2024**
- **Funding: Five million euros from the EU recovery instrument for a three-year period**
- **Commissioner: Finnish Ministry of Transport and Communications**
- **Executor: Aalto University**
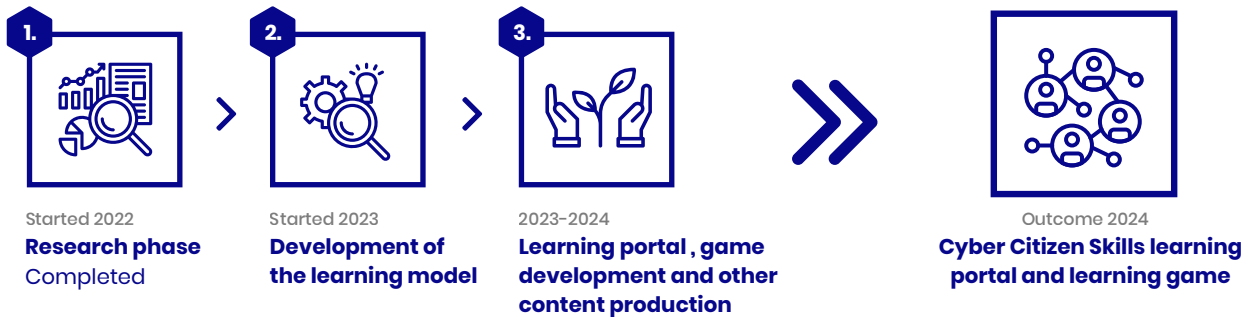- **Project Director: professor Jarno Limnéll, Aalto University**

## Contact Us

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## Phases in the initiative's progress

**1.**

Started 2022
**Research phase**
Completed

**2.**

Started 2023
**Development of
the learning model**

**3.**

2023-2024
**Learning portal , game
development and other
content production**

Outcome 2024
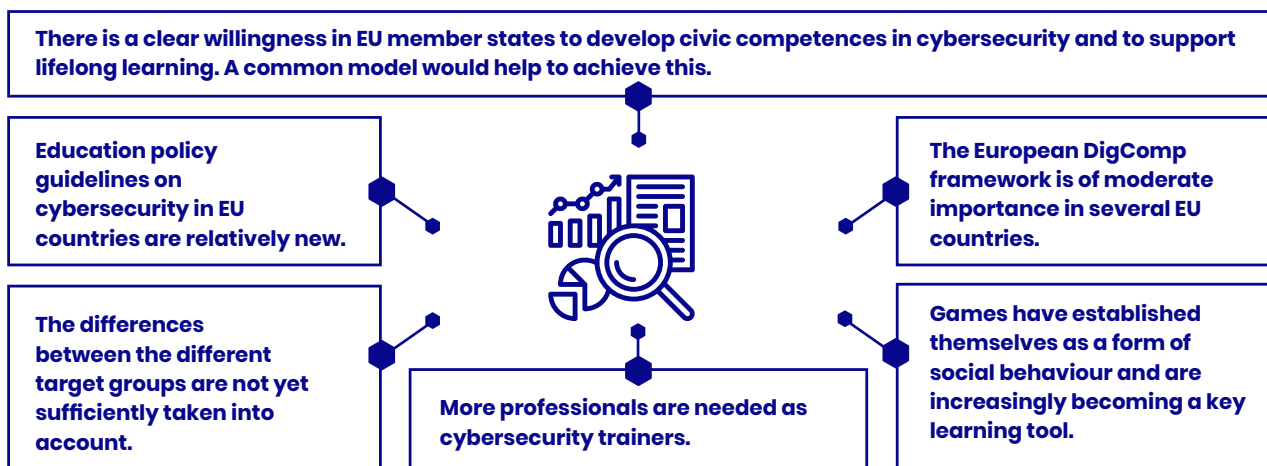**Cyber Citizen Skills learning
portal and learning game**

# An Initiative for Us Europeans

The cyber citizen skills initiative Cyber Citizen responds to the practical need for creating security culture in the human-centred digital environment. The initiative aims to develop a common, shared model for learning cyber citizen skills across the European Union for all Europeans.
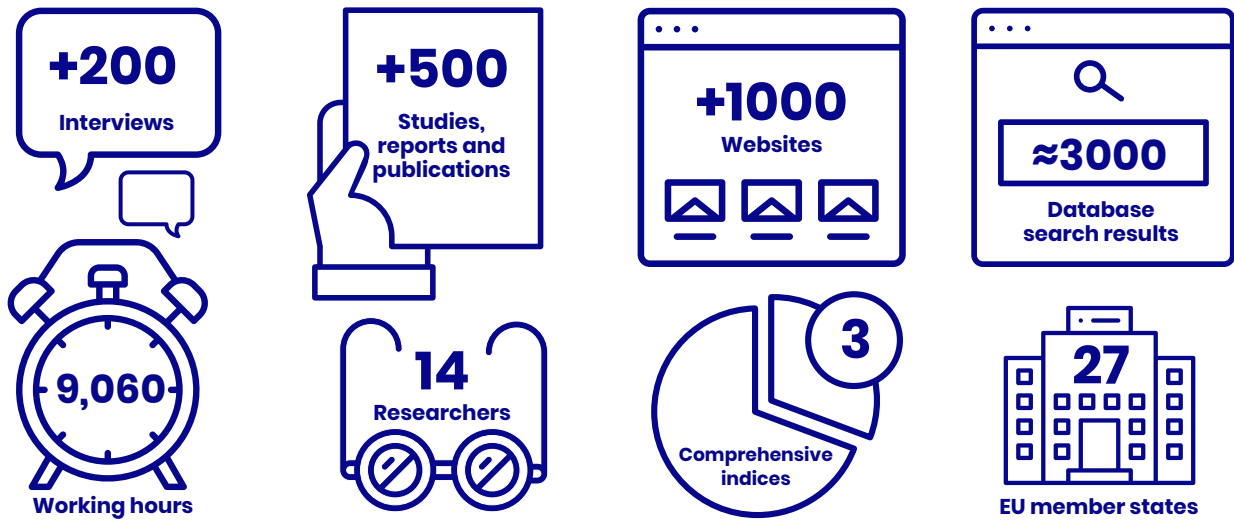
Overall, the Cyber Citizen initiative will produce a European model for cybersecurity learning which in turn will strengthen European cybersecurity and produce common practices. Based on the model, a digital learning portal will be built. This portal will make use of a wide range of e-learning methods. An integral part of the portal is a cybersecurity game that provides information and understanding in an entertaining way.

In the first phase of the initiative, the current teaching methods, views, and materials of cyber citizen skills education and training in all the European Union member states were studied. This included national characteristics and requirements of the member states. Official EU policies were also reviewed. Additionally, a game analysis, an assessment of cybersecurity indices, and a scoping literature review were part of the research. The data used was gathered from a wide range of resources. The results of this qualitative research can be found as an extensive research report here.

## Observations from the Research Report:

**There is a clear willingness in EU member states to develop civic competences in cybersecurity and to support lifelong learning. A common model would help to achieve this.**

**Education policy guidelines on cybersecurity in EU countries are relatively new.**

**The European DigComp framework is of moderate importance in several EU countries.**

**The differences between the different target groups are not yet sufficiently taken into account.**

**More professionals are needed as cybersecurity trainers.**

**Games have established themselves as a form of social behaviour and are increasingly becoming a key learning tool.**

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## Figures for the First Phase of the Project

**+200** Interviews

**9,060** Working hours

**+500** Studies, reports and publications

**14** Researchers

**+1000** Websites

**3** Comprehensive indices

**≈3000** Database search results

**27** EU member states

Cybersecurity culture in the EU member states is currently being built. Creating and strengthening culture takes time, which is why it is essential to work with determination. For this reason, we urgently need actions such as the Cyber Citizen initiative. In time, we can elevate a shared understanding and extensive competence into common culture, which has great significance to the future of the whole of society and its citizens.

Attitude Prevention Education Awareness
Europe Communication skills Understanding
Cybersecurity Intelligence Training
Know-how Citizen skills Objectives
Actions
DigComp Cybergame
Learning portal Co-operation skills Data literacy
Reactions Motivation Mindset Improvement

# Cyber Involves Everyone

Strategic cybersecurity education and training policies are relatively new in many countries. Cybersecurity is no longer seen as the sole responsibility of professionals. Instead, it is an integral part of all social activity. Cyberspace has become more diverse and versatile – something that is now better understood in the European Union. The current situation highlights more than ever the importance of continuous learning and the extensiveness of required skills and knowledge. Cyber citizen skills are to be understood as dynamic skills that change with the context and environment, and in addition to vigilance, the need for lifelong learning cannot be stressed enough.

Everyone should have basic cybersecurity skills. The development of security culture that is based on human competence and civilization should be strengthened with determination. All age groups have different levels of competence, from digital novices to digital gurus. The question is how to take different target groups into account. The basic know-how and general level of cybersecurity knowledge vary a lot in the European Union member states. This is indicated by the great variance in indices that measure the level of cybersecurity and views on how to improve cybersecurity competence and culture.

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In the European Union member states, the offering of cybersecurity educational and training materials varies both in terms of quality and content, and the responsibility for arranging education and training has been shared in different ways. This directly impacts how widely and in what ways education and training is available and how likely citizens are to enrol in it.

High-quality education and training in cybersecurity and related cooperations should be increased and overlapping work reduced. One of the goals of Cyber Citizen initiative is to promote the harmonisation and the rationalisation of education and training.
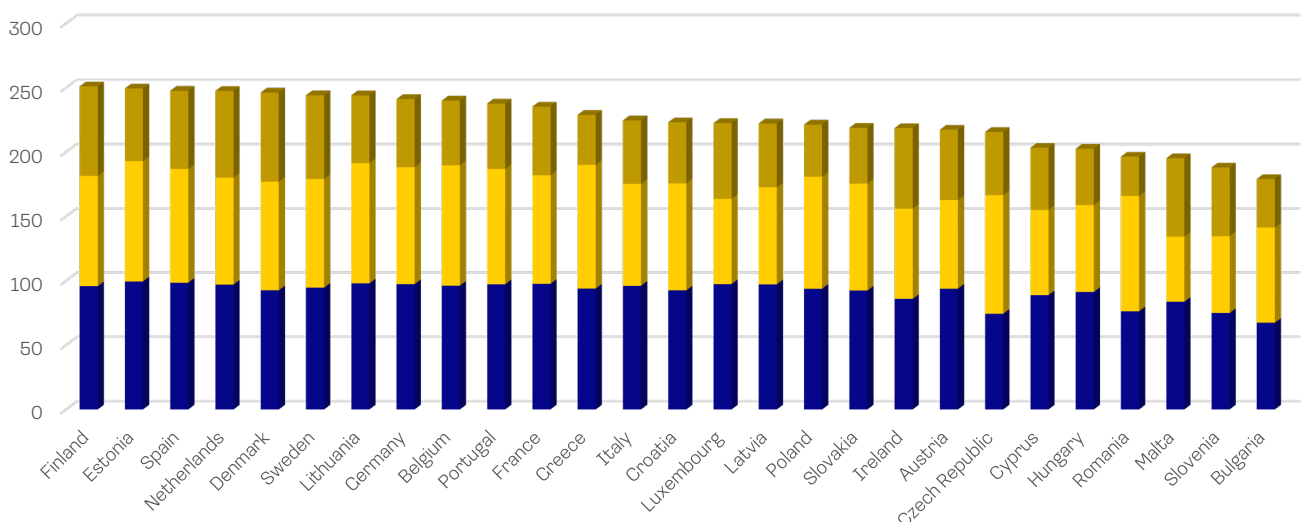
# Cyber Citizen Skills, Say What?

A cyber citizen is a person who lives permanently or temporarily in an EU member state and uses digital services or benefits from the production of these services. A cyber citizen skillset is comprised of knowledge, skills, and capabilities required in cyberspace. It is made of components that help people develop and maintain their knowledge and skills in a way that gives them the required ability and motivation to act sensibly in different situations in life. Having cyber citizen skills means taking personal and social responsibility and understanding the meaning of this responsibility in cyberspace.

In the European Union, we need a common definition for cyber citizen skills and ways to measure skill levels. Cyber citizen skills are understood differently across the EU, and only some member states have defined them in the first place. Definitions can be almost identical, but due to national and cultural differences, they are interpreted in various ways. The European Digital Competence Framework for Citizens (DigComp) has a significant influence in most of the member states. For this reason, the Cyber Citizen research team identified concrete cyber citizen skills which will support the adoption of the DigComp framework in the EU. Cybersecurity skills can be found in all of the DigComp competence areas which are information and data literacy, communication and collaboration, digital content creation, safety, and problem solving.
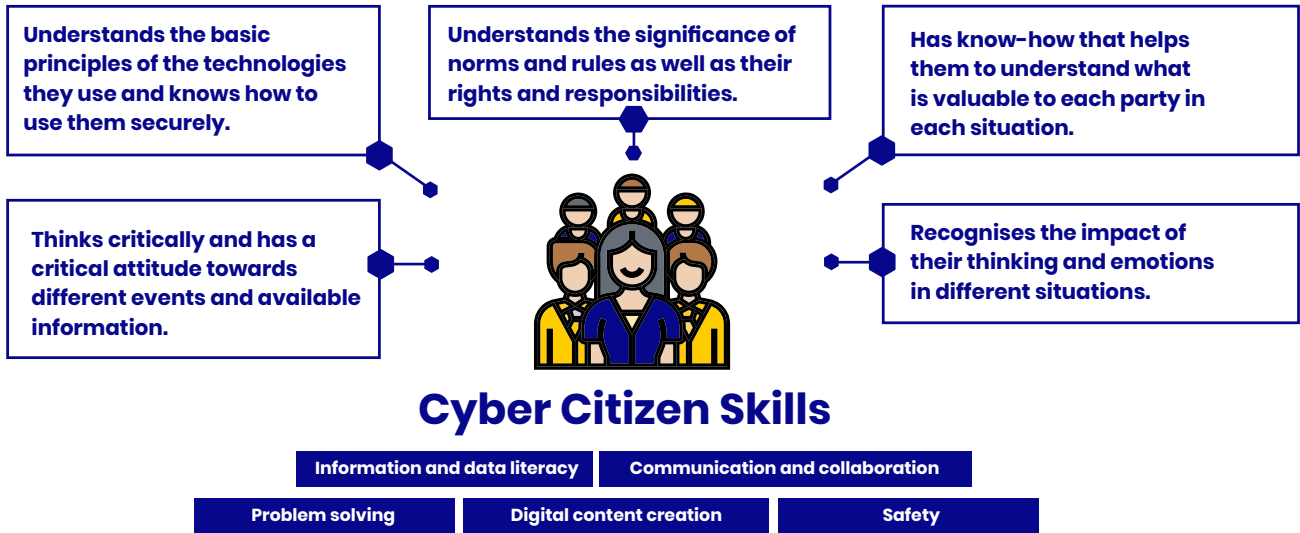
## Index Summary



DESI, GCI and NCSI are indices measuring different dimensions of cybersecurity, each of which can score 100 points. In the table, the indices for each country are summed up and indicated in different colours in the columns. The highest possible score is thus 300, with all countries below 250. The countries are listed in the table in point order. The summary gives an overview of the current situation in the European Union and the variation in the cybersecurity indices.

Understands the basic principles of the technologies they use and knows how to use them securely.

Understands the significance of norms and rules as well as their rights and responsibilities.

Has know-how that helps them to understand what is valuable to each party in each situation.

Thinks critically and has a critical attitude towards different events and available information.

Recognises the impact of their thinking and emotions in different situations.

## Cyber Citizen Skills

| Information and data literacy | Communication and collaboration |
| Problem solving | Digital content creation | Safety |

# Together Towards a Safer and More Secure Europe

When citizens have a good attitude and a sense of security based on know-how, they are more willing to use digital services. This way, the European Union will become more sustainable, competitive, and independent. Civic learning opportunities create an understanding of the environment, actors and processes that affect everyone's digital life. Improving our own, personal skills enables that our personal and collective abilities build a sense of confidence. In the second phase of the initiative, a learning concept for cyber citizen skills is created from the basis of the research report and especially the cyber citizen skills framework. In the third phase, a learning portal in line with the learning concept is designed. The learning portal will have content for all citizens, and this content, such as a cyber citizen skills learning game, will take into account different target groups.

Citizens' abilities to act in a safe and secure manner in the digital world are improved with educational and communicative elements in the learning portal. Citizens will be asked to take part in planning the educational content. The availability and accessibility of education and training is important when a shared cybersecurity culture based on improving competence is created in the European Union.

## Come and join us!

What kind of cybersecurity training and education does the EU need? The second and third phases of the Cyber Citizen initiative will create a European-wide network of cooperation, welcoming all those interested in developing cyber citizenship skills. Because the threats are common to all of us, we can respond more effectively and efficiently together. Cyber Citizen invites everyone to join us in building a safer Europe together!

🌐 cyber-citizen.eu          ✉ contact@cyber-citizen.eu

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