Future-proof technologies for secure digital societies.

Essential facts

Technologies exported to 35+ countries, incl. **USA, Japan, UAE, Ukraine, Indonesia, Malaysia and more**

Roots in academia **since 1960**

Architects of **e-Estonia ecosystem**

Cybernetica AS established in **1997**

460+ research articles published since 1992

Partnerships include **EY PwC European Commission EDF DARPA ESA ENISA**

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Clients in 35+ countries

USA
Malaysia
Tunisia
Ukraine
Japan
Benin
Greenland
Azerbaijan
Switzerland
Bahamas
Germany
and many more!

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Architects of e-Estonia

Estonia is known as the world's most advanced digital society.

Cybernetica has been a key partner in developing the world-renown e-governance solutions such as X-Road, SplitKey, e-Customs, Estfeed and more.

![CYBERNETICA logo]

Architects of e-Estonia

1998
Time stamping

2000
Digital Signature Act

2001
X-Road

2004
eCustoms for joining the EU

2005
Internet voting

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Architects of e-Estonia

2006
Sharemind pilot

2009
Estonian blue border surveillance

2011
Strategic alliance on crypto-graphic security

2014
UXP secure data exchange

2014
National GMDSS system

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Architects of e-Estonia

2017
SplitKey mobile identity

2018
Estfeed Smart Grid platform

2020
Cyber threat intelligence platform between Estonia and US

2022
Secure Digital Military Mobility

2023
SplitKey CSP

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Values

Integrity

Continuous learning

Accountability

Sustainability

Meaningful innovation

Creating future technologies

Solutions with real impact

Top experts in the industry

Novel ways to execute

Resilient partnerships

Turning customers into partners

Support throughout entire journey

We are delivery-oriented

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Information Security Research Institute

Our accredited Research Institute focuses on information security, cooperating with both private and public sectors.

R&D partners include DARPA, ONR, EU Commission, EDF, ESA, Estonian Research Council and Enterprise Estonia.

R&D is in our DNA

- 40+ researchers
- 10+ PhDs
- Consulting
- Advanced projects
- Open source code

- Contractual research
- Publishing research publications
- Teaching and training
- Product and technology development

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Our research domains

Digital identity

Threshold cryptography

Zero knowledge proofs

Foundations of trust

Protocol research

Internet voting

Post-quantum cryptography

Secure MPC protocols

Privacy and AI

AI systems with end-to-end security

Synthetic data generation

Legal aspects of privacy tech

Cybersecurity

AI-based network anomaly detection

Threat finding

Asset and threat management

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Solutions

- Digital identity

- Interoperability

- Cybersecurity

- Privacy enhancement

- Tax and customs systems

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Digital identity

Next generation smart phone based digital identity
solution with unbreakable security.

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A holistic digital identity value proposition

Technology

Ongoing development of **SplitKey provides hardware agnostic solutions** in accordance with the highest regulatory standards.

Product

Three different SplitKey products offering **smartphone based digital identity** technology for secure **electronic signing and authentication**.

Knowledge

In depth knowledge of digital identity infrastructure through research projects with multi- national consultancy history.

Experience

Vast experience with **large scale projects at state level**. Providing risk and security assessments, strategy and roadmaps as well as issuance procedures.

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Digital identity products

SplitKey

Smartphone based digital identity technology for secure electronic signing and authentication.
In accordance with European Union regulation (eIDAS directive).

SplitKey+

SplitKey with additional authentication methods for SplitKey – biometrics and pattern.

SplitKey CSP

SplitKey for digital identity wallets to compliment the emerging European Union Digital Identity Wallet (EUDIW) ecosystem.

Consulting

Consulting service to advise and analyse the current landscape and provide meaningful input for the digital transformation journey.

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i-voting in Estonia

- First election online held in 2005

- Estonia is the first, and currently, the only state in the world where citizens can elect the government online

- Local government units, state government and European Parliament

- Over 50% of governmental election votes were cast online in 2023

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Smart-ID

Baltics and Iceland

Digital identity technology is used all over the Baltics and Iceland in collaboration with the Smart-ID service operator.

- 3 million users and 75 million transactions per month

- Used in services provided by top Nordic banks, leading telcos and e-commerce providers

- 80% of transactions originate from the financial sector

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Partnerships

- ## PwC – Middle East

Digital identity strategy for the Saudi Arabian Digital Government Agency

- ## EY – North Africa and Estonia

Digital Transformation partnership and consulting with EY

- ## iProov

Multi-Factor Authentication (MFA) digital identity solution for government and financial services organisations across the EMEA, LATAM, and APAC regions

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The Future:
Digital Identity Wallets

- **SmartWallet**

Collaboration with our partner SK ID Solutions to provide research and development on the wallet ecosystem and development of related solutions

- **Future Estonian Digital Identity Wallet (EDIW)**

Collaboration with the EE Information System Authority, in designing the architecture of the future Estonian DIW and its compatibility with Estonia's existing eID ecosystem

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Collaboration with the Estonian Government

- Estonian eID public key Single Point of Failure projects

- CDOC 2.0 – new encryption protocol for ID

- Internet Voting Mobile Client – mobile app to support i-Voting and m-Voting

- Advisory on finding and implementing the best possible solution to bypass a possible security vulnerability with ID cards

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Privacy and AI

Protect data from unauthorised processing.

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Privacy-by-Design in AI systems

Sharemind MPC

The next generation of data-driven services with end-to-end data protection and accountability.

Sharemind HI

The Application Server provides an API for implementing privacy-preserving services using Trusted Execution Environments.

Data solutions

+ Synthetic data
+ Differential privacy
+ Federated learning
+ Zero knowledge proofs

Advisory

+ Impact assessments
+ Audits
+ Roadmaps and trainings

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Interoperability

Trust-based data exchange technology to build scalable and secure digital ecosystems.

Interoperability offering

Unified eXchange Platform (UXP)

Interoperability technology enabling peer-to-peer data exchange over encrypted and mutually authenticated channels.

Managed UXP

Cloud-based Interoperability-as-a-Service solution where the whole process from implementation to maintenance is fully managed by Cybernetica.

UXP Data Privacy tools

Transparency-enhancing Access Tracking and Consent Management technologies for data protection compliance.

Advisory

Full suite of consulting services to complement technical deployment, from capacity building to use-case discovery, and more.

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X-Road in Estonia

Estonian National Interoperability Framework

Technical architecture and implementation of Estonia's data exchange platform X-Road

- Underlying technology allowing to provide 99% of government services online

- Over 3000 e-services available

- Utilised by almost 600 enterprises and 150+ government institutions

- Saving 1885 years of working time annually

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UXP in Ukraine

National interoperability platform Trembita

- Trembita supports Ukraine's public service application Diia for e-services provision

- Utilised by 201 state bodies

- Over 300 services available

- Solves the problem of long lines for state services and helps to increase the rate of efficiency and transparency

- Reduced the number of state registers by two-thirds

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UXP in Malaysia

Migrating the existing MyGDX platform to UXP

- Highly scalable and secure interoperability technology for the Malaysian federal government

- Facilitating data sharing and cooperation between government agencies

- Ensuring that the information is accurate, up-to-date, and consistently managed by legitimate and authentic sources

- Improving the performance of government service delivery

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UXP in Benin

Full-scale interoperability platform in the Republic of Benin

- Data exchange platform and National Citizen Portal were deployed in just 1 year

- Over 40 government institutions connected

- Over 250 e-services provided

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Cybersecurity

Assessment, testing and advisory services for organisations who care about their real-world cybersecurity.

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Cybersecurity offering

Cyber situational awareness (CSA)

Cybersecurity solutions to elevate the awareness of cybersecurity matters.

Entity behaviour

User and entity behaviour analysis in the networks to gain an understanding of the usage of a system and the actions within it.

Proactive cybersecurity services

Tailored services for organisations and institutions to elevate CSA.

Industrial cybersecurity

Hybrid solutions of CSA solutions and entity behaviour applicable in industrial environments.

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Proactive cybersecurity services

Risk assessment

Tailored services

Analysis

Assessment of assets, business processes and critical systems.

Design

Assessment of security and system architecture, risk management advisory.

Implementation

Software composition analysis, secure system development support and more.

Maintenance

Systematic prevention measures incl. vulnerability scan, pentesting, threat audit and more.

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ECYSAP

European operational platform for real-time cyber situational awareness

- National and European security

- Military operations

- Monitoring and analytics of (potential) cyber threats

- Simulation and prediction of threats

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VORMSI

Cybersecurity threat sharing between Estonia and USA (USAFRL)

- Research, design and implement standards, processes, methods and rules for the exchange and processing of cybersecurity information between nations

- Goal is to improve joint cybersecurity awareness whilst ensuring national and regional expectations

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FAMOUS2

Next generation of interoperability for armoured vehicles

- Maximise synergies, standardisation and interoperability of armoured vehicles

- Study cybersecurity and threat intelligence needs

- Design a cybersecurity management system:
  - Cybersecurity situational awareness
  - Threat intelligence channels
  - Incident handling procedures

- Prototype and test the prototype's functionality and security

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EU-GUARDIAN

AI-based incident management solution

- Accurate and reliable AI-based automation
- Detect, mitigate and respond to incidents, semi-automatically or automatically
- Enhance cyber situational awareness
- Dynamically adapt strategy based on situation

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Surveillance

Elevating situational awareness at sea
through integrated border surveillance and vessel traffic
management systems.

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Future-proof technologies for safety at sea

Cybernetica provides maritime surveillance, communication and vessel traffic management systems that are utilised in more than 100 locations worldwide spanning seas in Estonia, Europe, Africa and South-East Asia.

Integrated maritime surveillance

Vessel traffic management

Maritime radio communication

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Surveillance systems offering

Border and maritime surveillance

Integrated surveillance systems for detecting, identifying, and monitoring objects on the mainland and blue borders. TDoA integration.

Vessel traffic management

Enhancing security of maritime and border environment, marine traffic awareness, and safety at sea.

Coastal radio communication

+ Based on VoIP protocol, over IP network
+ System scalability

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Maritime coastal radio communication system

Strait of Malacca

- Deployment of complete radio system for Malaysia and Indonesia across both shores of the Strait

- 78+ localised operational stations to provide central control and supervision of system's performance

- Web-based marine traffic monitoring system and radio positioning features

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Vessel traffic management system

Gibraltar Strait

- Deployment of a comprehensive vessel traffic management system on the Gibraltar Strait – over 100 000 trade ships transit annually

- Project completed within 3 years

- Turn-key solution
  - Radar system
  - VHF and VHF aero radio system
  - Server infrastructure
  - Software for various databases and more

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Border and maritime surveillance

EU and NATO external border

Strengthening the surveillance capabilities on the EU and NATO external border

- Cohesive surveillance ecosystem to raise situational awareness

- Integrated system of radars, cameras and other surveillance equipment

- Over 200 localised stations within the Eastern border of Estonia, part of the EU and NATO external border, including Romania

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Tax and customs systems

Turn-key software solutions for tax and customs based on decades-long expertise.

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Tax and customs systems offering

Software development

Custom software for all tax and customs matters: import, export, transit, VAT, excise and more. Full compliance with EU specifications.

Advisory

We have cooperated with the Estonian Tax and Customs board since 2003. Our expertise played an integral role upon admission to the EU in 2004.

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Estonian Tax and Customs Board

Strategic partner to the Estonian Tax and Customs Board since 2003

- Import/export system Complex2
  - Development partner since 2003

- Transit system NCTS

- Excise tax management system EMCS
  - Development partner since 2009

- VAT tax management system KMD
  - Development partner since 2009

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Thank you.

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