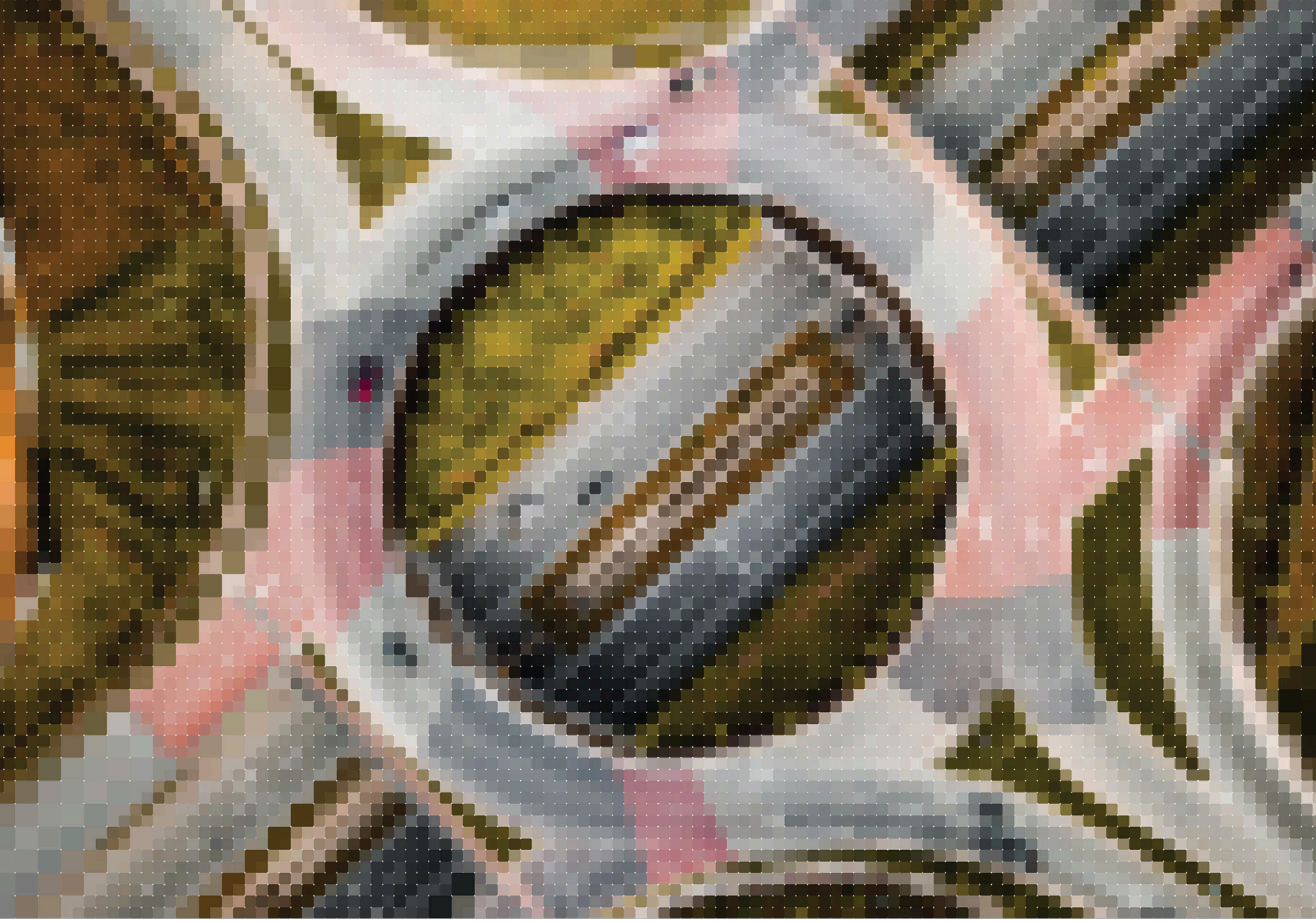


Unified eXchange Platform (UXP)

Interoperability and data exchange technology for secure digital states

CYBERNETICA

Interoperability: the backbone of any digital society

Interoperability and secure data exchange are the key foundation of any digital state or ecosystem. Overcoming fragmented data silos enables the provision of seamless digital services, creating value and new business models. Whether you are taking your first steps towards digitalisation or want to redesign your current systems, we are there to assist you.

R&D driven technology provider

Cybernetica has developed and productised the mission critical interoperability technology Unified eXchange Platform (UXP). Our strong focus on R&D places our technology at the forefront of technical innovation.

From creators of digital societies

With over 20 years of experience in driving digital transformation, we are the architects of the Estonian X-Road, the backbone of the world's most advanced digital society.

Trusted implementation partner

Achieving interoperability can be a complex task. We offer knowledge and support from initial consulting to licensing, technology set-up and configuration.

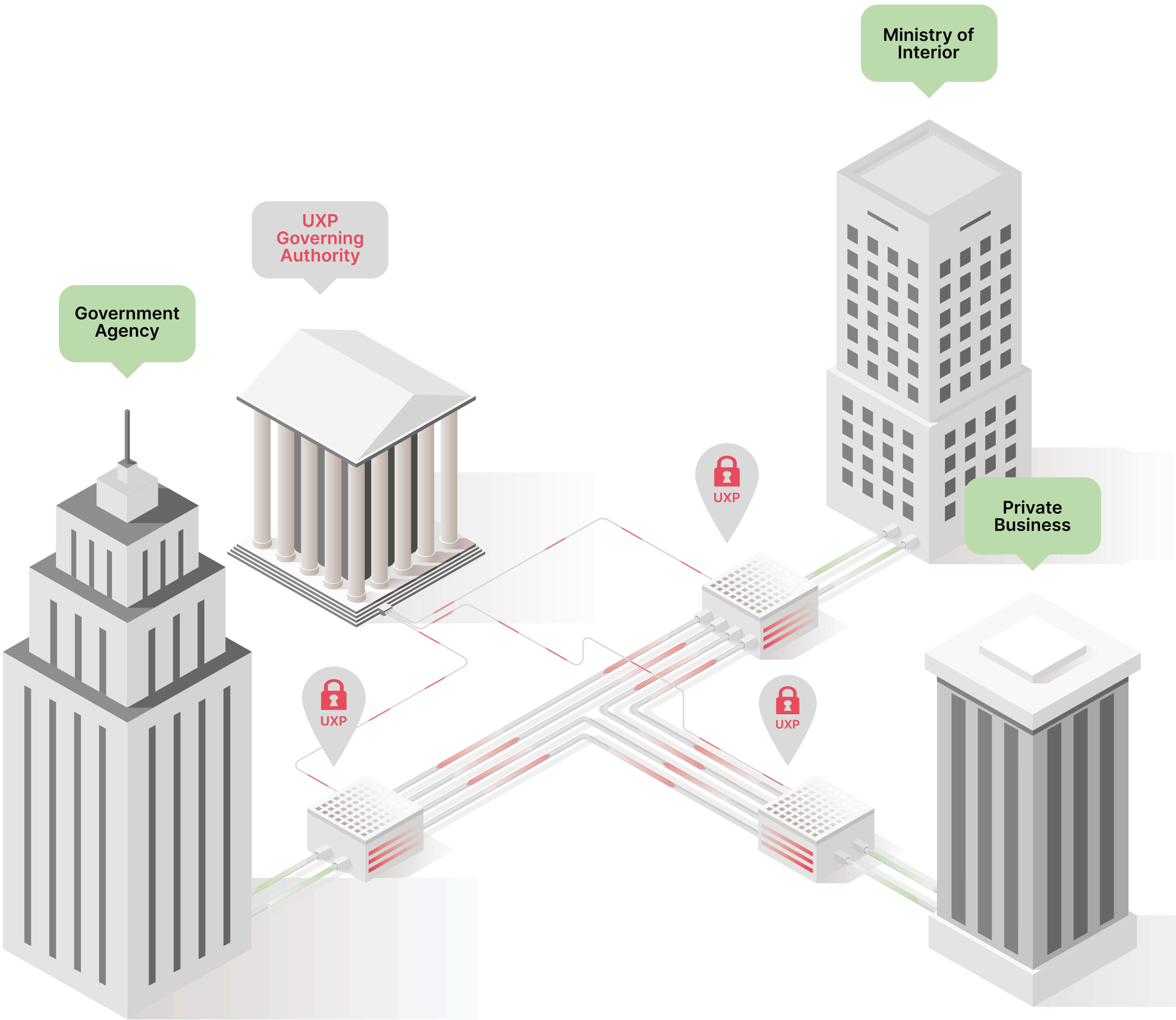
Best practices from global deployments

Each digital transformation journey is unique. Our successful deployments across the world, give us the insights to offer a customised approach based on best practices.

UXP-based digital state ecosystem

Cybernetica's interoperability offering is based on our UXP (Unified eXchange Platform) technology.

UXP as the technical foundation of interoperability brings together data of different organisations and information systems for state-wide connectivity. This decentralised infrastructure platform is governed, maintained and monitored by a central authority. The security of the ecosystem is assured by encryption and the use of trust services.



Infinitely scalable and secure technology

UXP enables the development of seamless digital services in a decentralised, secure and infinitely scalable way. By standardising the exchange of data between both public and private sector organisations, UXP allows to achieve increased work efficiency and significant reductions in overheads.

- Peer-to-peer data exchange over encrypted and mutually authenticated channels.
- Distributed architecture with centralised governance enables to operate mission-critical infrastructure in a trusted way.
- Avoidance of a “super-database” simplifies data management and decreases risks for a debilitating data breach or data leak.
- No central point of failure and no central bottleneck, resulting in greater resilience, availability, and scalability.
- Security by design principle reinforced with cryptography, trust services and PKI-based authentication.
- Legally binding message transaction records through strong authentication of organisations, as well as time-stamping and signing of each communication.
- Sovereignty of participating organisations is retained by allowing members full control of their data and services.
- UXP privacy tools enable the creation of a transparent and privacy-preserving digital society.

Interoperability offering

Unified eXchange Platform (UXP)

Interoperability technology that empowers organisations to collaborate and provide digital services by securely connecting their data on a trusted platform. UXP software is licensed with flexible models to suit the unique needs and preferences of customers.

Interoperability as a Service

Managed UXP is a cloud-based interoperability service that allows full-scale interoperability without investment in physical infrastructure or excess operational overhead. Hand over complexity and risk so you can focus on value generating activities.

UXP Data Privacy tools

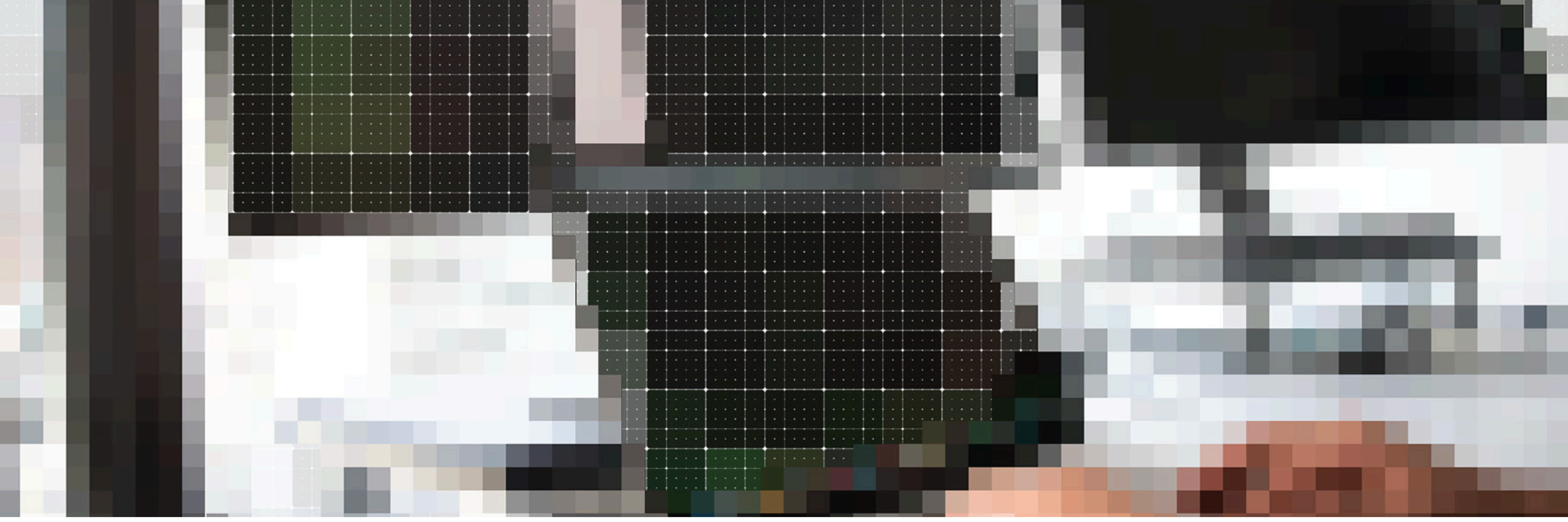
Transparency-enhancing Access Tracking and Consent Management technologies for data protection and privacy compliance. Providing users full control over data use allows to increase trust within the digital ecosystem.

Advisory services

Full suite of consulting services to complement technical implementation. Ensuring a successful transition with expert support for use-case discovery, capacity building, and more.

Custom software development

We also build tailor-made solutions based on customer needs to add value to the UXP data exchange layer, such as a citizen portal for increasing access to digital services.



Why Cybernetica’s UXP?

Developed for states

UXP has been specifically designed to support state-level interoperability and data exchange. UXP meets the state-level demands for security, scalability, privacy, governance and legal-grade proof value of message exchange, relative to other integration platforms.

Security-by-design

In the UXP, data is exchanged peer-to-peer over mutually authenticated and encrypted channels. The security of communication is ensured and standardised through the use of security components by all member organisations.

Connects an ecosystem of sovereign actors

Over the UXP, data is exchanged peer-to-peer between independent actors. Without any central nodes, the UXP avoids the creation of a super database or a “big brother”, enabling all organisations in the ecosystem to retain sovereignty and control over their data.

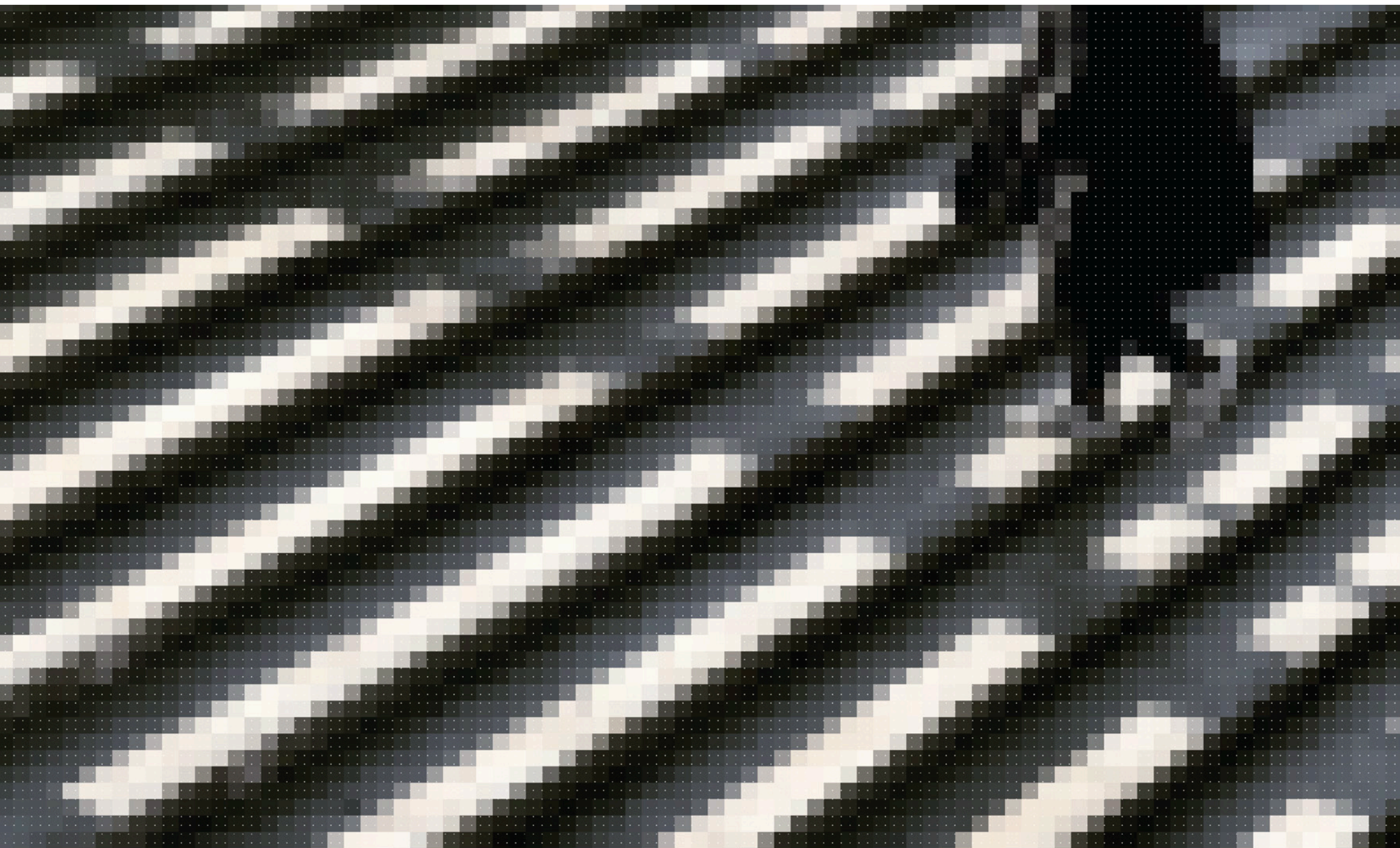
Supports phased deployment

Building a data exchange ecosystem is a long-tern endeavour. UXP’s decentralised architecture supports the swift scaling of the ecosystem by a select number of organisations at a time, without the need for major modifications in information systems.

Benefits of UXP

As a foundation for e-governance and an enabler of digital service provision, the UXP interoperability and secure data exchange platform allows:

- enhanced **trust and cooperation** between sovereign organisations;
- improved **service delivery** and **service quality** contributing to citizen satisfaction;
- enhanced **operational resilience and security**;
- **automation** of manual and repetitive tasks for higher work efficiency;
- considerable **cost savings** and freeing up resources;
- **transparency and compliance** with data protection regulation.



Phased and context-driven approach to interoperability

We deploy our systems depending on customer requirements and digital readiness. A strong focus on a phased approach and tangible results ensures a successful deployment. Considering local context is also paramount to keep the transition smooth and seamless.

1. Discovery

We assess the current situation with all contextual nuances to uncover most valuable use cases for demo purposes. The discovery session can include compiling an implementation plan and a roadmap, identifying the gaps as well as milestones to achieving full-scale interoperability.

2. Proof of Concept

We guide the selection of the most impactful services to start with and set up a technical PoC to test the interoperability implementation approach. A PoC typically takes 6 months to a year over which the fit and feasibility of the selected solution is assessed before the full implementation.

3. Live environment

We then scale up the technical environment to a full-scale solution meeting high availability and performance requirements. The implementation will follow a gradual, well-defined roadmap and a suitable pace matching the digital maturity of the customer.

4. Full Support and Maintenance

We constantly upgrade and refine our technologies to ensure impeccable security and performance. Our customers can enjoy professional support service for smooth operations.

Proven track record worldwide

Hand-picked interoperability references:

X-Road in Estonia

Cybernetica was the technical architect of Estonia’s interoperability platform called the X-Road. X-Road is the backbone of secure data exchange in Estonia, supporting all digital public services since 2001. As a result of its adoption, today 99% of government services are available online, minimising bureaucracy and back-office overheads. Our UXP data exchange technology has grown out of the groundwork done with the X-Road in Estonia and by now surpasses it in terms of security and scalability.

UXP-based public services in Benin

Cybernetica implemented its data exchange technology, the UXP, as the full-scale interoperability platform in the Republic of Benin. Since 2019, a new digital government platform was set up from scratch and new public digital services were launched within just 1 year. Today, the UXP platform has become a significant enabler of improved public sector productivity, leading to phenomenal changes in the society.

UXP as the core of Trembita in Ukraine

In 2017, Cybernetica implemented UXP as the foundation for Ukraine's interoperability platform, Trembita. Among other benefits, Trembita supports Ukraine´s public service application Diia that offers wideranging digital services. Despite the full-scale war and ongoing cyberattacks, the foundation of Ukraine's digital government remains stable, resilient and constantly adding new value to the people.

Deployments timeline

2001

Estonia X-Road data exchange platform

2015

Haiti Financial Management System

2015

National Crime Agency (UK)

2016

Namibian NamX data exchange

2017

NATO HQ technology pilot

2018

Ukrainian Trembita data exchange

2018

Greenland Pitu data exchange

2019

Japan Sumitomo Mitsui Trust Bank

2019

Benin Citizen portal and data exchange

2019

USA Center for Medical Interoperability

2020

Tunisia Public Finance Management

2020

Aruba data exchange platform

2020

Bahamas data exchange platform

2021

La Reunion data exchange platform

2021

Palestine data exchange platform

2021

Namibia interoperability advisory

2022

Malaysia data exchange platform

2023

Tunisia data exchange platform

2023

Catalonia universities data exchange

Hear from our customers

“The implementation of Trembita based on Cybernetica’s Unified eXchange Platform has enabled to truly accelerate the implementation of Ukraine’s digital transformation process. Trembita 2.0 project will further enhance the Ukrainian ecosystem by implementing new features to the platform to better serve the Ukrainian citizens, including via the DIIA app.”

Oleksii Vyskub
First Deputy Minister from the Ministry
of Digital Transformation of Ukraine

“Success of the Estonian e-government model has inspired us to further develop the e-government system in Benin and redefine how we communicate with our citizens and how we build business opportunities. Launch of the secure data exchange framework is one step in our digital transformation process and it will not be the last.”

Maximilien Kpodjedo
Digital Adviser to the President of Benin

“Cybernetica has been a strategic partner to Estonian government through the years - from creation of X-Road and cybersecurity foundations to preparing for the future through R&D.”

Siim Sikkut
Former Government Chief
Information Officer of Estonia

Why Cybernetica

Cybernetica has over 25 years of experience in building future-proof products that rely on research & development. Currently our technologies are used in more than 35 countries globally.

> “We are extremely proud of our decades-long journey. We are certain that with our values, our people, and our capabilities, we will continue to be the driving force in emerging technologies.”

Oliver Väärtnõu
CEO

Essential facts

Established in **1997**

Roots in academia **since 1960**

Strong focus on **R&D**

Architects of **e-Estonia ecosystem**

Technologies exported to 35 countries, incl. **USA, Japan, UAE, Ukraine**

12% of employees **have a PhD**

Contact our team:

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cyber.ee/solutions/interoperability