DATACENTER FORUM

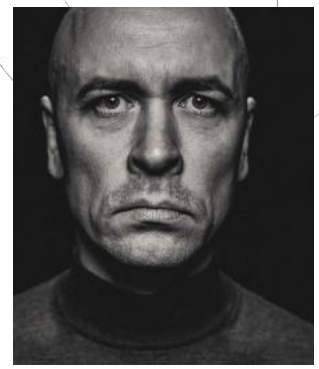
Data Embassy

Trusted Connectivity on a strategic level

Üllar Jaaksoo

GREENERGY DATA CENTERS

ÜLLAR JAAKSOO



BANKING

TELECOM

INVESTING

DIGITAL

ADVISORY

GREENERGY
DATA CENTERS

DIGITAL / COMMON SENSE

INNOVATION / STRATEGY

TRUST / FUTURE-PROOF

TRUSTED
CONNECTIVITY
GREENERGY
DATA CENTERS

GLOBAL STATUS

BRI

BDN

B3W

Trusted Connectivity

BLUE DOT NETWORK

Blue Dot Network

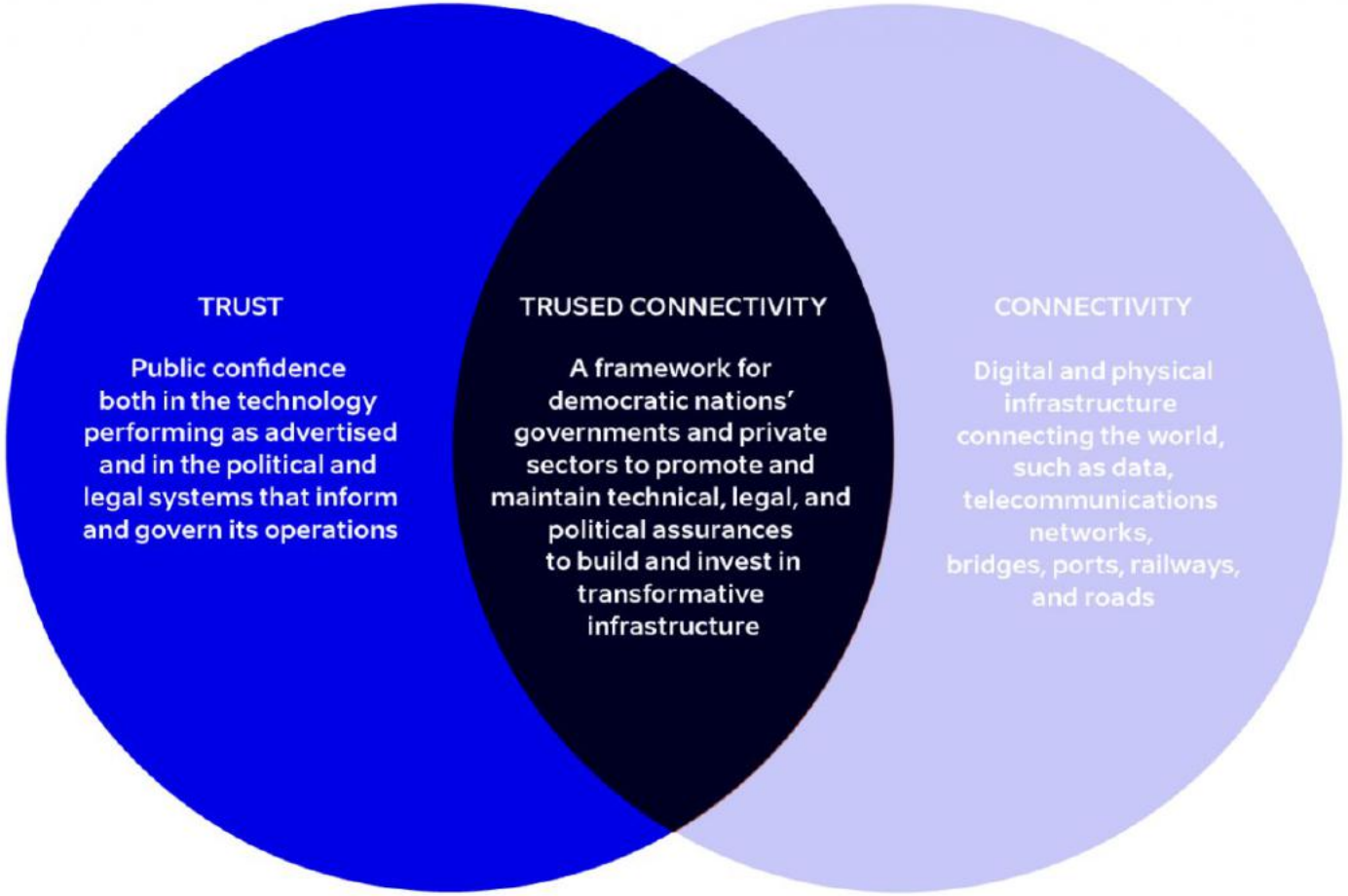
G7 2021 - B3W

G7
BUILD BACK BETTER FOR THE WORLD
INVESTING IN GLOBAL GREEN INFRASTRUCTURE

G7 Cornwall

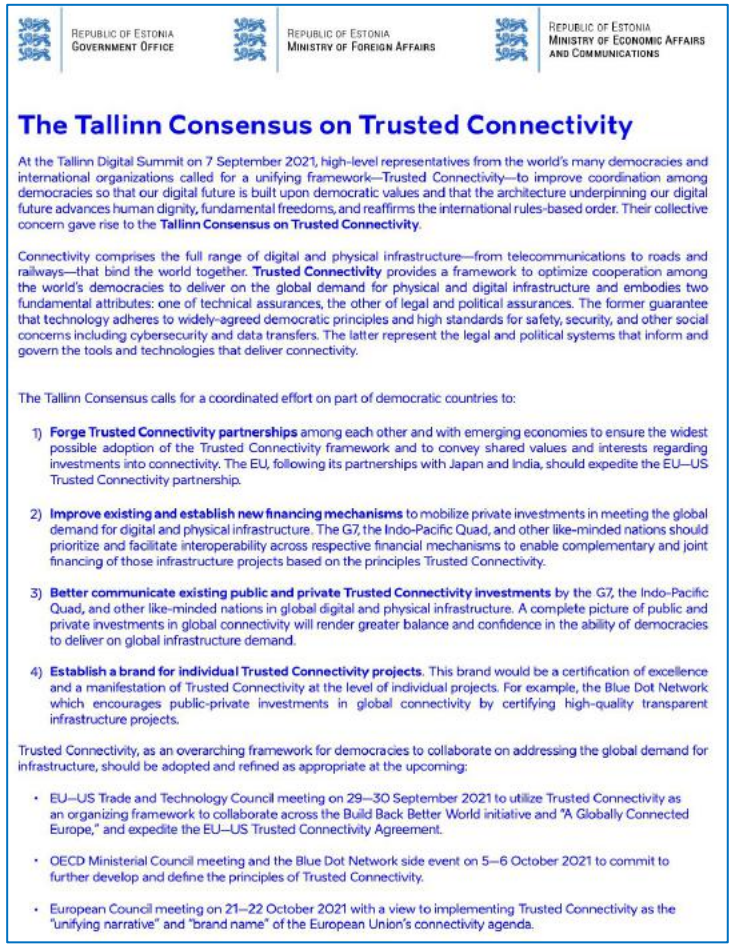
TRUSTED CONNECTIVITY

TRUSTED CONNECTIVITY



TRUSTED CONNECTIVITY

The Digital Summit presented the first opportunity for a high-level, multi-stakeholder discussion of recent infrastructure initiatives, among them the G7's Build Back Better World and the OECD's Blue Dot Network.



Republic of Estonia
Government Office

Republic of Estonia
Ministry of Foreign Affairs

Republic of Estonia
Ministry of Economic Affairs and Communications

The Tallinn Consensus on Trusted Connectivity

At the Tallinn Digital Summit on 7 September 2021, high-level representatives from the world's many democracies and international organizations called for a unifying framework—Trusted Connectivity—to improve coordination among democracies so that our digital future is built upon democratic values and that the architecture underpinning our digital future advances human dignity, fundamental freedoms, and reaffirms the international rules-based order. Their collective concern gave rise to the **Tallinn Consensus on Trusted Connectivity**.

Connectivity comprises the full range of digital and physical infrastructure—from telecommunications to roads and railways—that bind the world together. **Trusted Connectivity** provides a framework to optimize cooperation among the world's democracies to deliver on the global demand for physical and digital infrastructure and embodies two fundamental attributes: one of technical assurances, the other of legal and political assurances. The former guarantee that technology adheres to widely-agreed democratic principles and high standards for safety, security, and other social concerns including cybersecurity and data transfers. The latter represent the legal and political systems that inform and govern the tools and technologies that deliver connectivity.

The Tallinn Consensus calls for a coordinated effort on part of democratic countries to:

1) **Forge Trusted Connectivity partnerships** among each other and with emerging economies to ensure the widest possible adoption of the Trusted Connectivity framework and to convey shared values and interests regarding investments into connectivity. The EU, following its partnerships with Japan and India, should expedite the EU—US Trusted Connectivity partnership.

2) **Improve existing and establish new financing mechanisms** to mobilize private investments in meeting the global demand for digital and physical infrastructure. The G7, the Indo-Pacific Quad, and other like-minded nations should prioritize and facilitate interoperability across respective financial mechanisms to enable complementary and joint financing of those infrastructure projects based on the principles Trusted Connectivity.

3) **Better communicate existing public and private Trusted Connectivity investments** by the G7, the Indo-Pacific Quad, and other like-minded nations in global digital and physical infrastructure. A complete picture of public and private investments in global connectivity will render greater balance and confidence in the ability of democracies to deliver on global infrastructure demand.

4) **Establish a brand for individual Trusted Connectivity projects.** This brand would be a certification of excellence and a manifestation of Trusted Connectivity at the level of individual projects. For example, the Blue Dot Network which encourages public-private investments in global connectivity by certifying high-quality transparent infrastructure projects.

Trusted Connectivity, as an overarching framework for democracies to collaborate on addressing the global demand for infrastructure, should be adopted and refined as appropriate at the upcoming:

- EU—US Trade and Technology Council meeting on 29—30 September 2021 to utilize Trusted Connectivity as an organizing framework to collaborate across the Build Back Better World initiative and "A Globally Connected Europe," and expedite the EU—US Trusted Connectivity Agreement.
- OECD Ministerial Council meeting and the Blue Dot Network side event on 5—6 October 2021 to commit to further develop and define the principles of Trusted Connectivity.
- European Council meeting on 21—22 October 2021 with a view to implementing Trusted Connectivity as the "unifying narrative" and "brand name" of the European Union's connectivity agenda.

OECD - FRAMEWORK

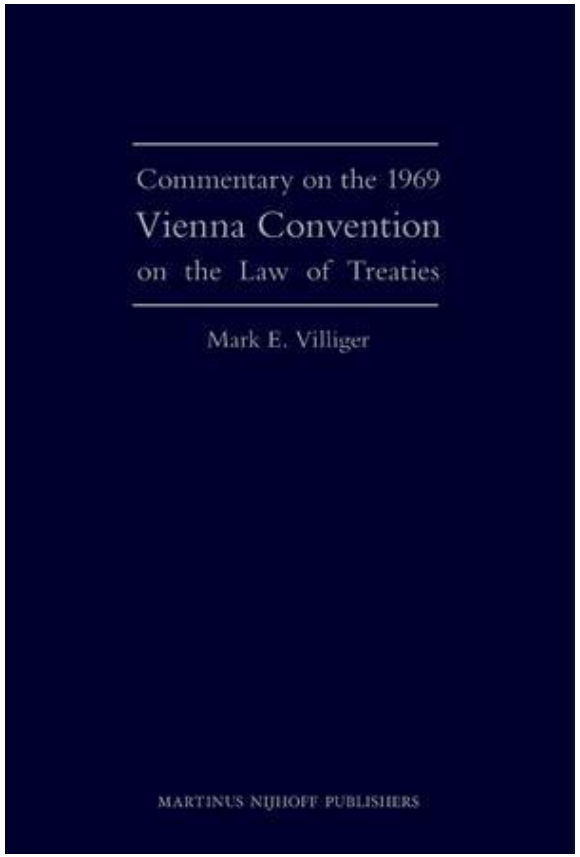
DATA EMBASSY CONCEPT

GREENERGY
DATA CENTERS

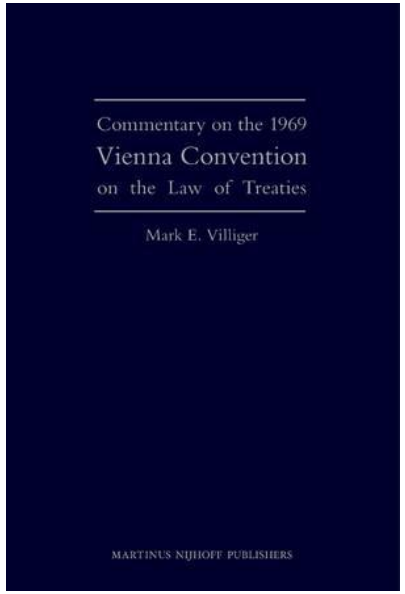
DATA ROOM

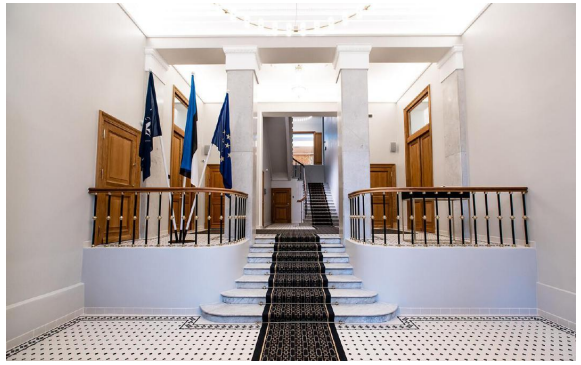
EMBASSY

VIENNA CONVENTION



DATA EMBASSY





CASE STUDY
ESTONIA

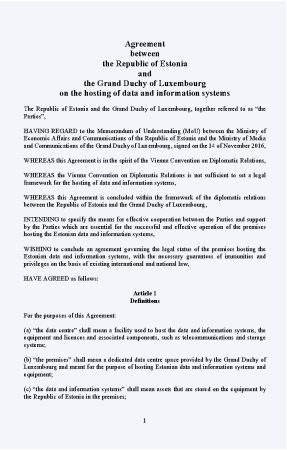
GREENERGY
DATA CENTERS

DATA EMBASSY

Figure 24: **Signing ceremony between Estonia and Luxembourg** Source: Government of Estonia

Estonia to open the world's first data embassy in Luxembourg

Estonia's pilot project — the world's first data embassy — could set an example for the rest of the world.



Agreement
between
the Republic of Estonia
and
the Grand Duchy of Luxembourg
on the hosting of data and information systems

The Republic of Estonia and the Grand Duchy of Luxembourg, together referred to as "the Parties",

HAVING REGARD to the Memorandum of Understanding (MoU) between the Ministry of Economic Affairs and Communications of the Republic of Estonia and the Ministry of Media and Communications of the Grand Duchy of Luxembourg, signed on the 14 of November 2016,

WHEREAS this Agreement is in the spirit of the Vienna Convention on Diplomatic Relations,

WHEREAS the Vienna Convention on Diplomatic Relations is not sufficient to set a legal framework for the hosting of data and information systems,

WHEREAS this Agreement is concluded within the framework of the diplomatic relations between the Republic of Estonia and the Grand Duchy of Luxembourg,

INTENDING to specify the means for effective cooperation between the Parties and support by the Parties which are essential for the successful and effective operation of the premises hosting the Estonian data and information systems,

WISHING to conclude an agreement governing the legal status of the premises hosting the Estonian data and information systems, with the necessary guarantees of immunities and privileges on the basis of existing international and national law,

HAVE AGREED as follows:

Article 1
Definitions

For the purposes of this Agreement:

(a) "the data centre" shall mean a facility used to host the data and information systems, the equipment and licences and associated components, such as telecommunications and storage systems;

(b) "the premises" shall mean a dedicated data centre space provided by the Grand Duchy of Luxembourg and meant for the purpose of hosting Estonian data and information systems and equipment;

(c) "the data and information systems" shall mean assets that are stored on the equipment by the Republic of Estonia in the premises;

1

Data security meets diplomacy: Why Estonia is storing its data in Luxembourg

Estonia is entrusting terabytes of information on its citizens to an ally in the hope of improving the security of its crucial government systems.

DATA EMBASSY

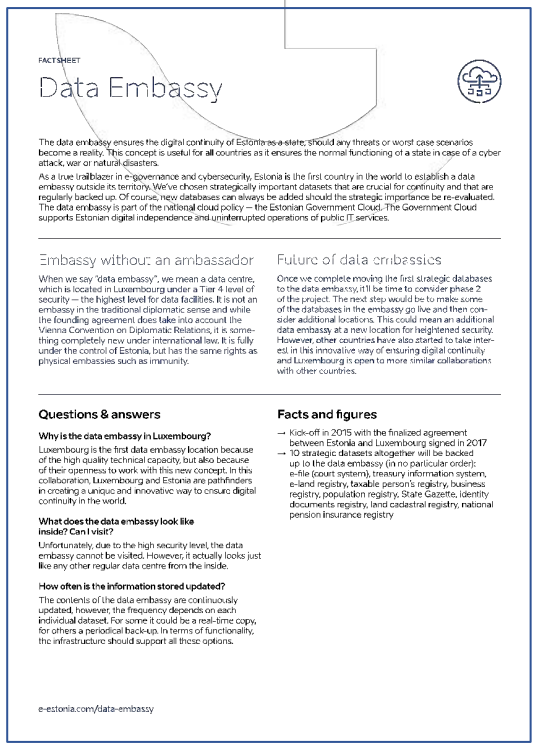
Start	2017
Location	Luxembourg
Security	Tier 4 level, the highest level for data facilities.

The cost is approximately €2.2 million to set up and maintain over a period of five years.

- Establishment of the embassy will cost € 1,000,000 euros
- Rental, Connectivity and Support budget is € 300,000 euros yearly
- Contract for 5 years
- 85% of the funding will come from the European Regional Development Fund
- 15% percent out of the budget of the government.

10 strategic datasets altogether will be backed up to the data embassy.

DATA EMBASSY



FACTSHEET

Data Embassy

The data embassy ensures the digital continuity of Estonia as a state, should any threats or worst case scenarios become a reality. This concept is useful for all countries as it ensures the normal functioning of a state in case of a cyber attack, war or natural disasters.

As a true trailblazer in e-governance and cybersecurity, Estonia is the first country in the world to establish a data embassy outside its territory. We've chosen strategically important datasets that are crucial for continuity and that are regularly backed up. Of course, new databases can always be added should the strategic importance be re-evaluated. The data embassy is part of the national cloud policy – the Estonian Government Cloud. The Government Cloud supports Estonian digital independence and uninterrupted operations of public IT services.

Embassy without an ambassador

When we say "data embassy", we mean a data centre, which is located in Luxembourg under a Tier 4 level of security – the highest level for data facilities. It is not an embassy in the traditional diplomatic sense and while the founding agreement does take into account the Vienna Convention on Diplomatic Relations, it is something completely new under international law. It is fully under the control of Estonia, but has the same rights as physical embassies such as immunity.

Future of data embassies

Once we complete moving the first strategic databases to the data embassy, it'll be time to consider phase 2 of the project. The next step would be to make some of the databases in the embassy go live and then consider additional locations. This could mean an additional data embassy at a new location for heightened security. However, other countries have also started to take interest in this innovative way of ensuring digital continuity and Luxembourg is open to more similar collaborations with other countries.

Questions & answers

Why is the data embassy in Luxembourg?

Luxembourg is the first data embassy location because of the high quality technical capacity, but also because of their openness to work with this new concept. In this collaboration, Luxembourg and Estonia are pathfinders in creating a unique and innovative way to ensure digital continuity in the world.

What does the data embassy look like inside? Can I visit?

Unfortunately, due to the high security level, the data embassy cannot be visited. However, it actually looks just like any other regular data centre from the inside.

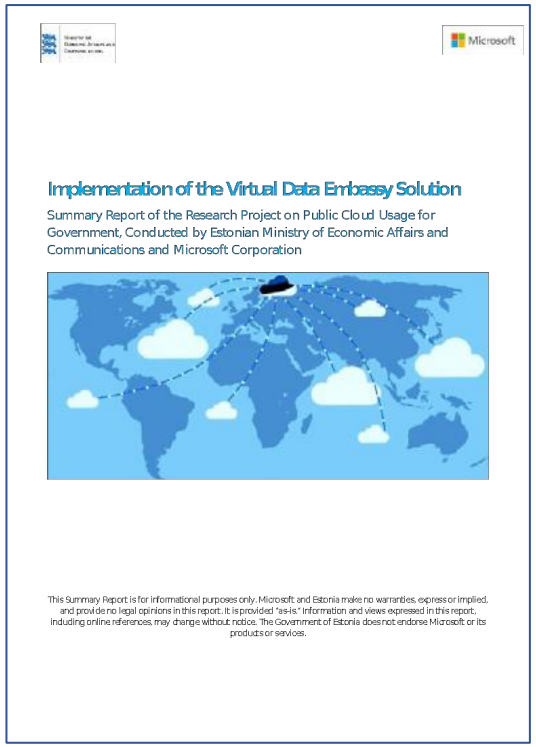
How often is the information stored updated?

The contents of the data embassy are continuously updated, however, the frequency depends on each individual dataset. For some it could be a real-time copy, for others a periodical back-up. In terms of functionality, the infrastructure should support all these options.

Facts and figures

- Kick-off in 2015 with the finalized agreement between Estonia and Luxembourg signed in 2017
- 10 strategic datasets altogether will be backed up to the data embassy (in no particular order): e-file (court system), treasury information system, e-land registry, taxable person's registry, business registry, population registry, State Gazette, identity documents registry, land cadastral registry, national pension insurance registry

e-estonia.com/data-embassy



Microsoft

Implementation of the Virtual Data Embassy Solution

Summary Report of the Research Project on Public Cloud Usage for Government, Conducted by Estonian Ministry of Economic Affairs and Communications and Microsoft Corporation

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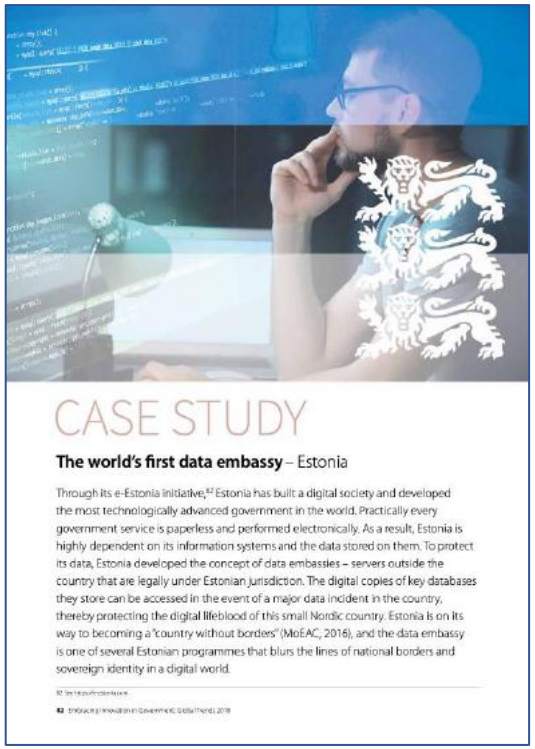
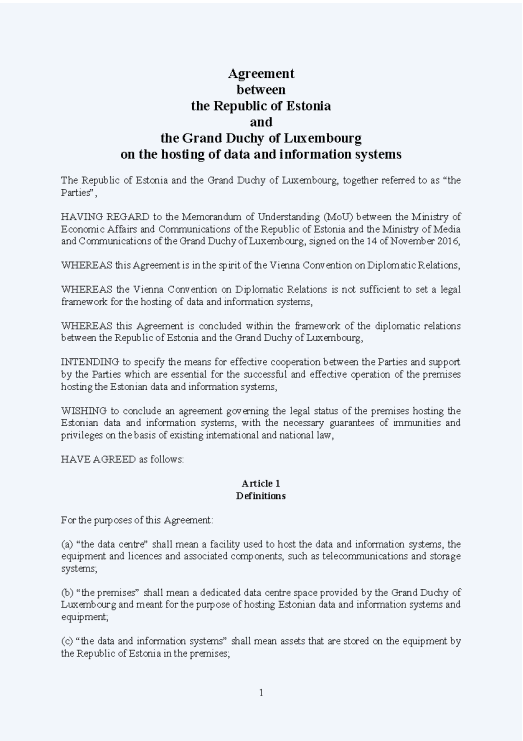


CASE STUDY

The world's first data embassy – Estonia

Through its e-Estonia initiative,[82] Estonia has built a digital society and developed the most technologically advanced government in the world. Practically every government service is paperless and performed electronically. As a result, Estonia is highly dependent on its information systems and the data stored on them. To protect its data, Estonia developed the concept of data embassies – servers outside the country that are legally under Estonian jurisdiction. The digital copies of key databases they store can be accessed in the event of a major data incident in the country, thereby protecting the digital lifeblood of this small Nordic country. Estonia is on its way to becoming a "country without borders" (MoEAC, 2016), and the data embassy is one of several Estonian programmes that blurs the lines of national borders and sovereign identity in a digital world.



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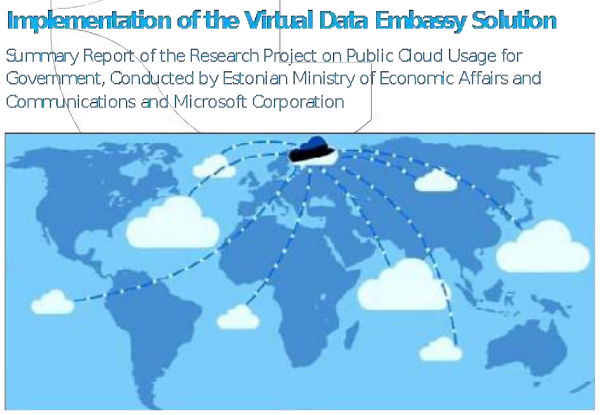
DATA EMBASSY



Estonia had considered putting government data in a privately-owned public cloud. The option was tested in 2014 when the country embarked on a trial with Microsoft, but it didn't provide the level of control that Estonia was looking for.

"We didn't want to use a random cloud that's somewhere around the world, where we don't know what sort of rules and laws apply to the data we put there," Sikkut said. "We wanted to have full jurisdiction over the data. No private cloud partner can really do that."

DATA EMBASSY

Implementation of the Virtual Data Embassy Solution

Summary Report of the Research Project on Public Cloud Usage for Government, Conducted by Estonian Ministry of Economic Affairs and Communications and Microsoft Corporation

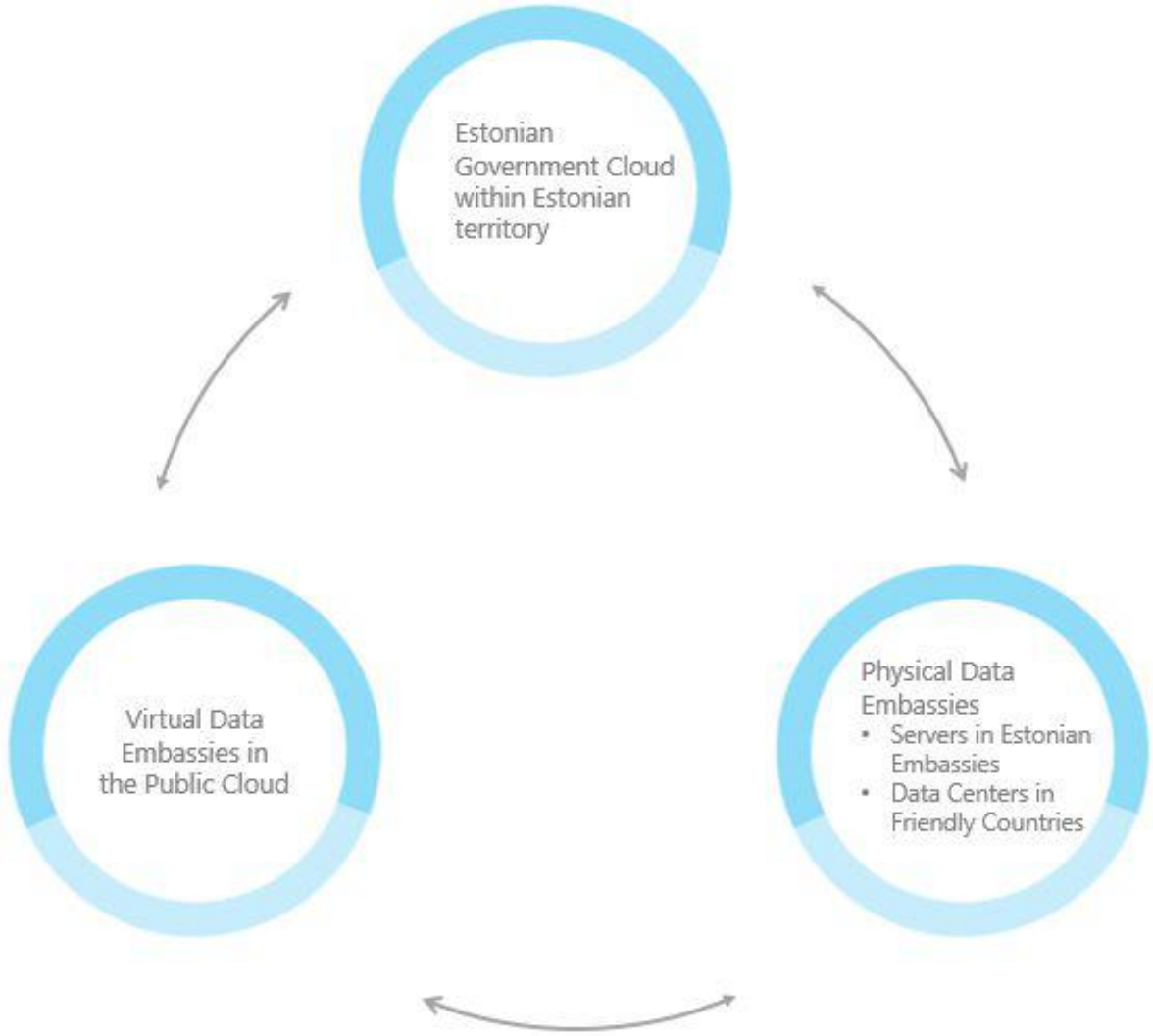
#	Hypotheses to be tested
Hyp 1	Services migrated to the public cloud and able to run successfully.
Hyp 2	Minimal architectural changes required to migrate the services.
Hyp 3	A number of areas for improvement to be identified, given that existing services were originally developed to run on-premises.
Hyp 4	Minimal time and effort required to modernize the government services after migration.
Hyp 5	Cloud built-in capabilities, such as auto-scaling, Distributed Denial of Service (DDoS) protection, etc., leveraged to enhance the performance, stability, security of, and public trust in the services.
Hyp 6	Design of the operational procedures, such as failover and fail-back processes, are key to the services running in the cloud.
Hyp 7	Estonia's ISKE security standard should be updated to address public cloud.
Hyp 8	Legal basis exists for asserting international law protections against compelled disclosure of data stored in a Virtual Data Embassy.
Hyp 9	Under Estonian domestic law, non-restricted data can be migrated to the public cloud.

Table 4: Hypotheses for the research project

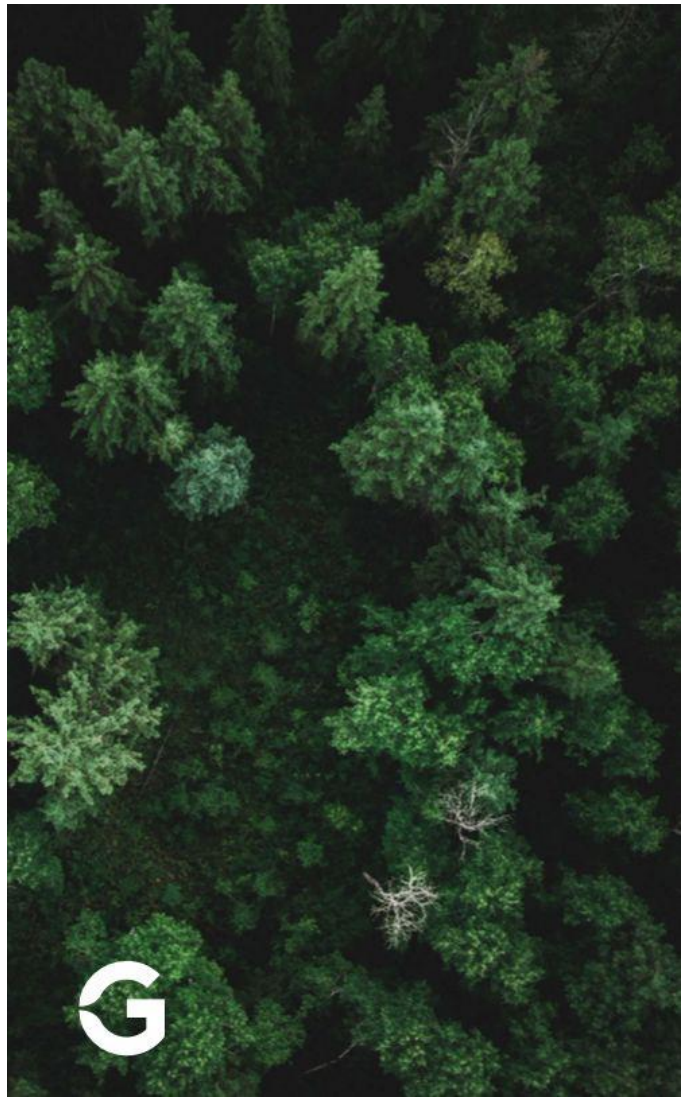
DATA EMBASSY

Implementation of the Virtual Data Embassy Solution

Summary Report of the Research Project on Public Cloud Usage for Government, Conducted by Estonian Ministry of Economic Affairs and Communications and Microsoft Corporation



ABOUT US
We make Your data green
GREENERGY
DATA CENTERS



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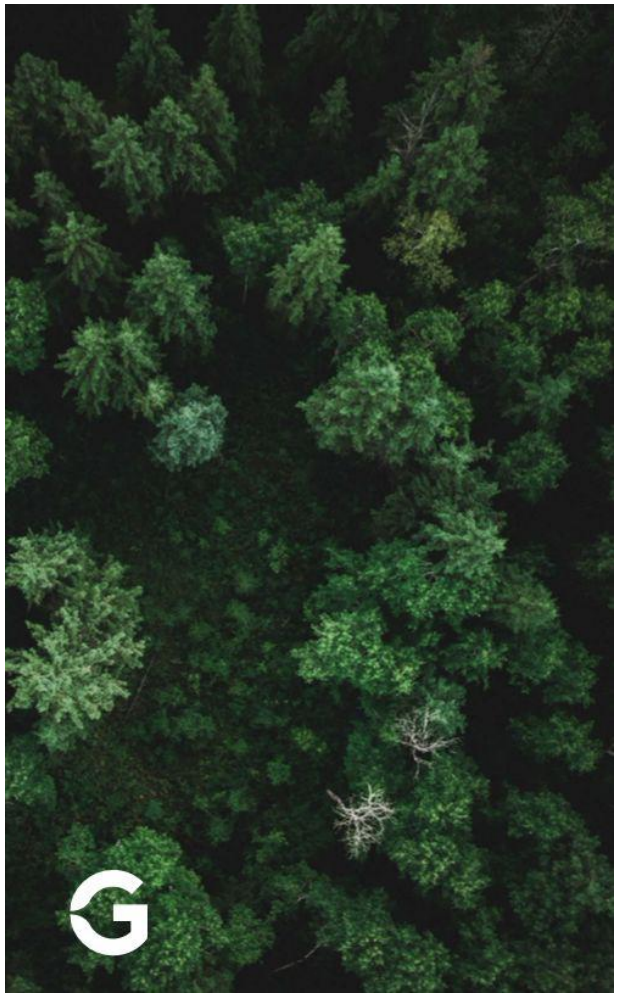
DATACENTER FORUM HELSINKI - 2021



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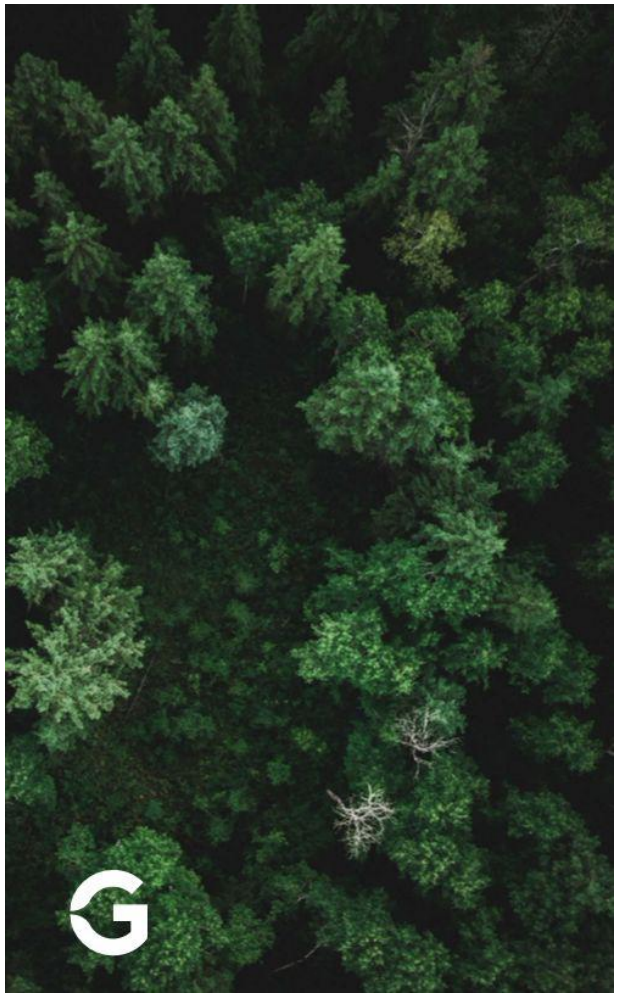
DATA CENTERS

DATACENTER FORUM HELSINKI - 2021



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DATA CENTERS

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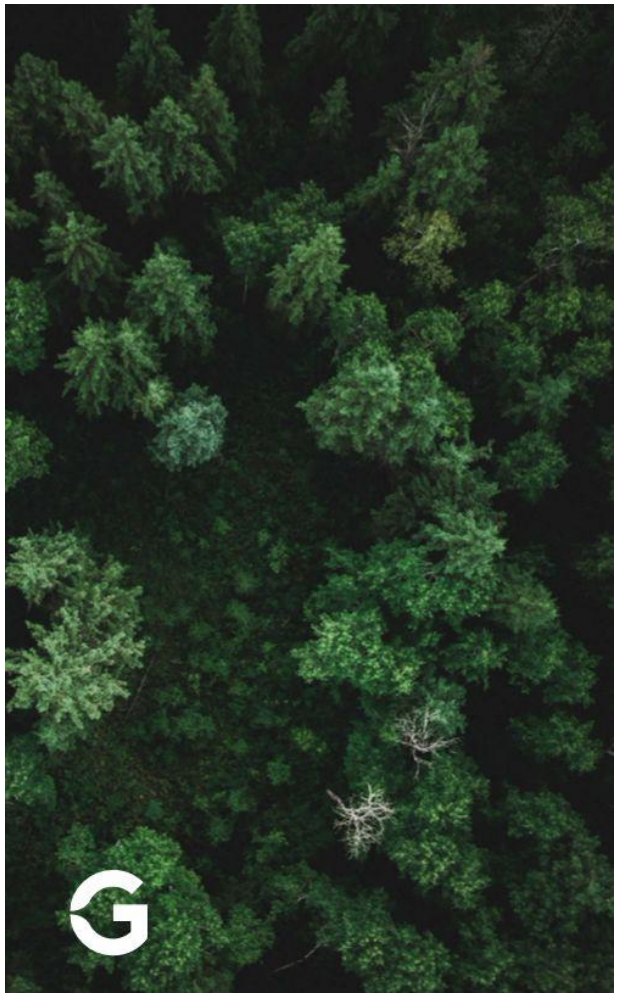


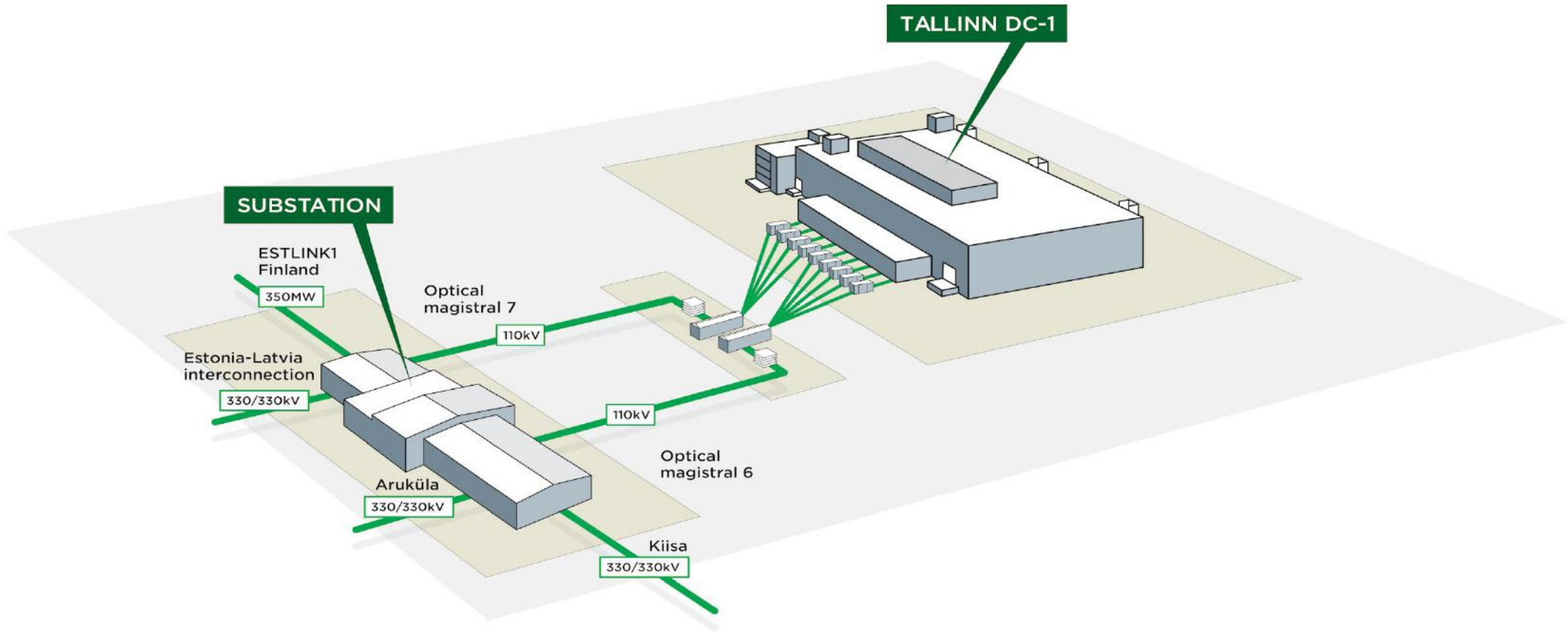
With us, your data has the smallest possible ecological footprint while utilising the benefits of secure large-scale data management.

Greenergy Data Centers (GDC) is the largest and striving to be the greenest provider of colocation and connectivity services in the Baltic region. We have the will and means to invest in the highest security, availability, and connectivity standards.

We aim to develop a network of energy-effcient data centers running on green energy throughout Eastern and Central Europe, laying ground for the digitalisation of the modern world. With us, your data is always secure, running at optimal conditions, and producing a minimal ecological footprint.

GREENERGY
DATA CENTERS
G 1

GREENERGY
DATA CENTERS
Tallinn


TALLINN DC-1
SUBSTATION
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Finland
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Optical
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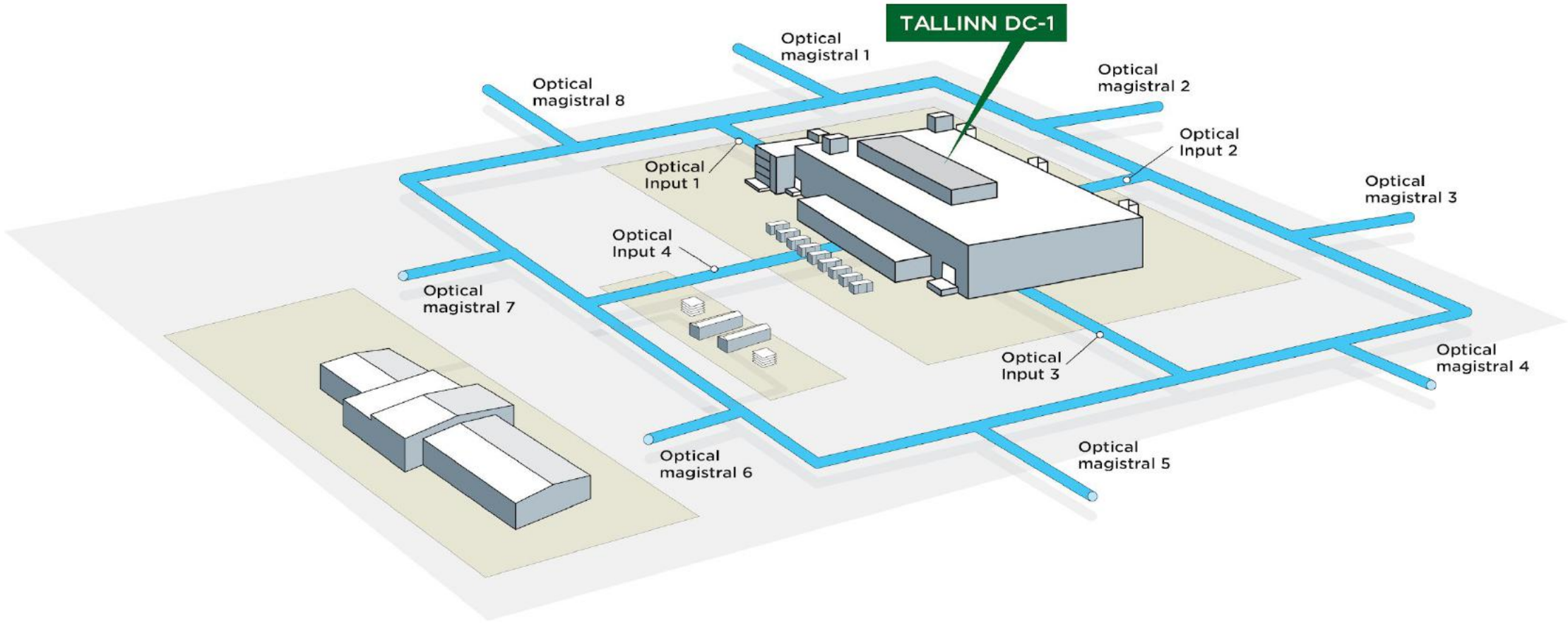
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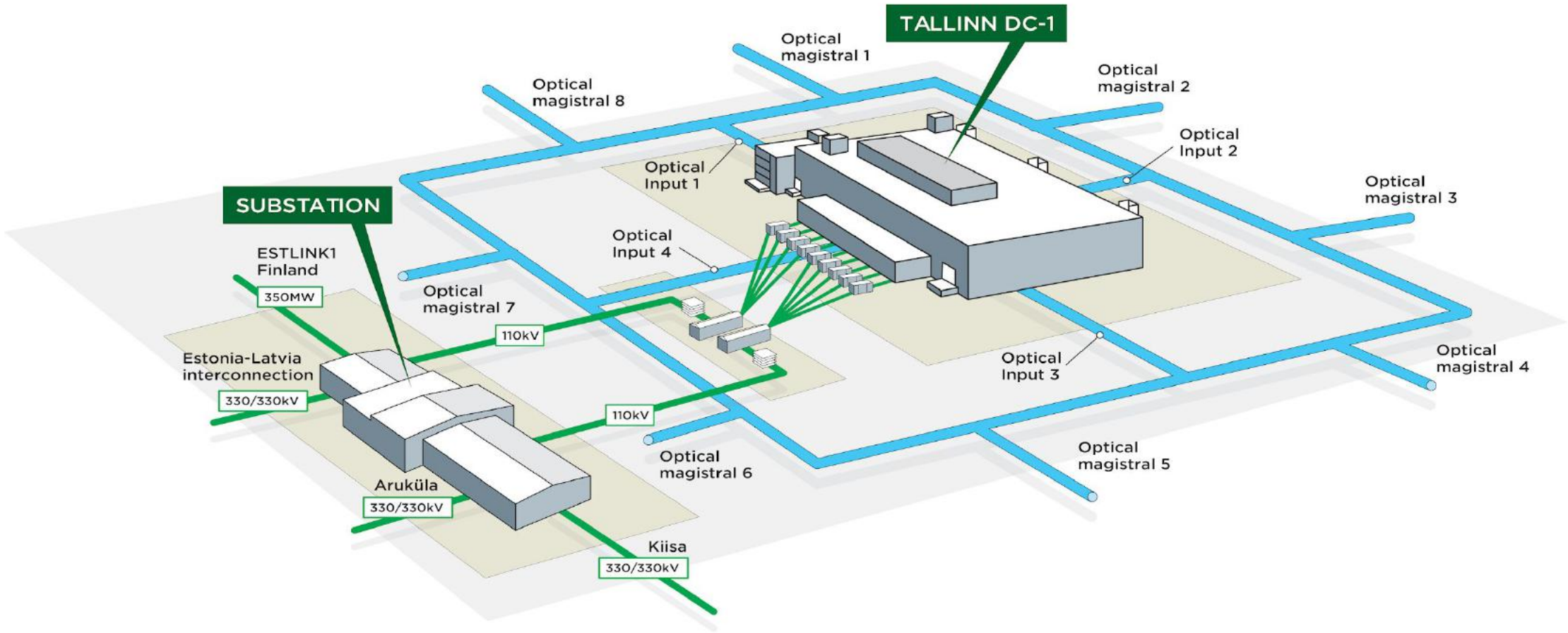
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Optical Input 4
ESTLINK1 Finland
350MW
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Aruküla
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330/330kV
110kV
110kV

COLOCATION

SUITE AND DATA VAULT

NORDIC OPPORTUNITY

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SUPPORT

THANK YOU!

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