

## NARVA-OLGINA BUSINESS PARK & AERODROME



## NARVA-OLGINA BUSINESS PARK & AERODROME

A feasibility study for a  
sustainable and  
competitive business  
ecosystem



Redstoneaero

DESTIA  
A COLAS COMPANY



Funded by  
the European Union



# Foreword

This feasibility study is a main part of the project ER201 «Preparations for establishing an industrial and logistics complex "Olgina Industrial Park/Airfield" in order to start regular flights between the border regions of North-East Estonia and South-East Finland, as well as to increase the investment and tourist attractiveness of the border region Narva, Narva-Jõesuu, Sillamäe» which is implemented under the European Neighborhood Instrument and co-financed by the European Union.

The geopolitical environment of Estonia has changed drastically during recent years. At the same time there is an urgent need to renew the industrial sector to align with EU emission reduction goals. In a difficult situation, there are many possibilities to create new business opportunities regarding green technology and advanced digital solutions. In the new operational environment, Ida-Viru requires new connectivity to western countries to boost the regional industry and form new business connections. To serve this need, the development of Narva-Olgina Business park & Aerodrome is suggested.

This study is done to improve the knowledge of the impact and opportunities of the planned Narva-Olgina Business park & Aerodrome to business and tourism in Narva and the Ida-Viru area. The whole country of Estonia will benefit of it.

The feasibility study is made by Redstone AERO in collaboration with Destia Ltd. Redstone AERO is an aerodrome developer and operator in Finland. Destia is the biggest infrastructure company in Finland planning, building and maintaining transport and energy infrastructure.



# KEY HIGHLIGHTS

1

## **Aviation is changing for the better**

Zero emission and dynamic aviation services are coming – this opportunity should be used and made the most of. The change will first happen in smaller aerodromes.

2

## **Ida-Viru's operational environment is changing**

Whether it is economical or geopolitical, there is a new possibility to renew industry and create better connectivity with modern technology. The start of hydrogen production and the production of sustainable aviation fuel in Narva could significantly increase the competitiveness and attractiveness of the entire region for new investments.

3

## **Narva-Olgina business park and aerodrome**

Creating state of the art facilities to a greenfield destination is an advantage as there are limited barriers for development. An optimal future aerodrome can be created from the ground up. The central pillar of technical infrastructure must be the availability of renewable source of energy (solar or wind)

4

## **Narva-Olgina business park and aerodrome vision in three phases**

1. Business park with 23 separate plots and 24/7 aerodrome for unscheduled aviation.
2. Regional zero carbon aerodrome with development accelerating economic environment in the business park
3. State of the art future aerodrome integrated with business park

5

## **A unique business model that benefits the whole region**

A combination of public and private co-operation enables the efficient aerodrome and sustainable flight operations

6

## **The development includes business park development, aerodrome facilities and aviation services**

These three functions create an ecosystem with other industrial parks that improves the region's attractiveness and competitiveness.

# SUGGESTED OPERATIONAL MODEL AND IMPACTS OF NARVA-OLGINA BUSINESS PARK & AERODROME

## KEY DRIVERS

Industrial transformation

Geopolitical changes

Critical raw materials and electrification

Sustainable energy

Technological development

Estonia as a forerunner in digitalization

## SOLUTION

Developing a business park and aerodrome to boost the economic situation of Eastern Estonia.

Corner stones of development

- Sustainable development from the beginning
- High efficiency with newest technology
- Goal to create user friendly and agile services that benefit the regional and national economy

## OPERATIONS MODEL

An operations model built around public infrastructure and private operations

- IVIA will own the infrastructure that will be funded by public authorities
- Business park will be formed by companies that have synergy with the aerodrome and aviation services
- Aerodrome will be operated by a private operator that will focus on profitable operations and marketing the aerodrome

## IMPACTS

Better international connectivity with sustainable aviation

Leads to:

- Increased business activity
- Increased tourism attraction
- Increased population and labour force

Investments resulting from the development of the business park & aerodrome can cover all the costs of running the aerodrome. It is important to understand the wider economic impacts.



# REPORT STRUCTURE

The feasibility study is separated in four chapters

## CHAPTER 1 - BACKGROUND

### The future of aviation

- Background
- New low emission technology
- Technology development

### Operational environment of Ida-Viru

- Geographical context
- Operational environment analysis
- Ida-Viru business region
- Industrial and business parks
- Identified needs of different stakeholders: residents, industry, tourism, other actors
- Narva aerodrome current situation
- Catchment area
- Operational range of next gen aircraft

### Benchmark of Finland

- Airports and aerodromes in Finland
- Finnish airports outside Finavia network
- Case Lappeenranta airport
- Case Helsinki-East aerodrome

## CHAPTER 2 - VISION AND PREREQUISITES

### Background

- Vision for Estonian aviation
- Key drivers for development of the Narva-Olgina business park and aerodrome
- Examples of future aircraft

### Aerodrome vision

- Aerodrome vision phases
- Vision for the energy system

### Phase 1 next steps

- Phase one illustration
- Five-year plan for business park and aerodrome development

## CHAPTER 3 - OPERATIONS MODEL

### Introduction

- General information on aerodrome development
- The synergic functions of the aerodrome

### Benefits and impacts of the aerodrome

- Understanding the benefits
- Beneficiaries of the business park & aerodrome development

### Operational model

- Principles and guidelines
- Roles of different stakeholders
- Recommended operating model and financing solution
- Role of the aerodrome operator
- Business model
- Marketing suggestions and funding opportunities
- Legal framework

## CHAPTER 4 - CONCLUSIONS

### Feasibility summary for phase one

### Opportunities and risks

### Checkpoints for success





# CHAPTER 1

## BACKGROUND

- What is happening in aviation?
- How has the operational environment changed in Ida-Virumaa?
- What is the starting situation for developing the Narva aerodrome?
- What is going on in Finnish aerodrome and airport discussions?



# THE FUTURE OF AVIATION



# GET RID OF THE OLD IMAGE OF AVIATION AND AIRPORTS

Black and white mentality is typical

- We are stuck in old mental images (**black icons**)
- Development is happening in the middle ground (**green icons**)

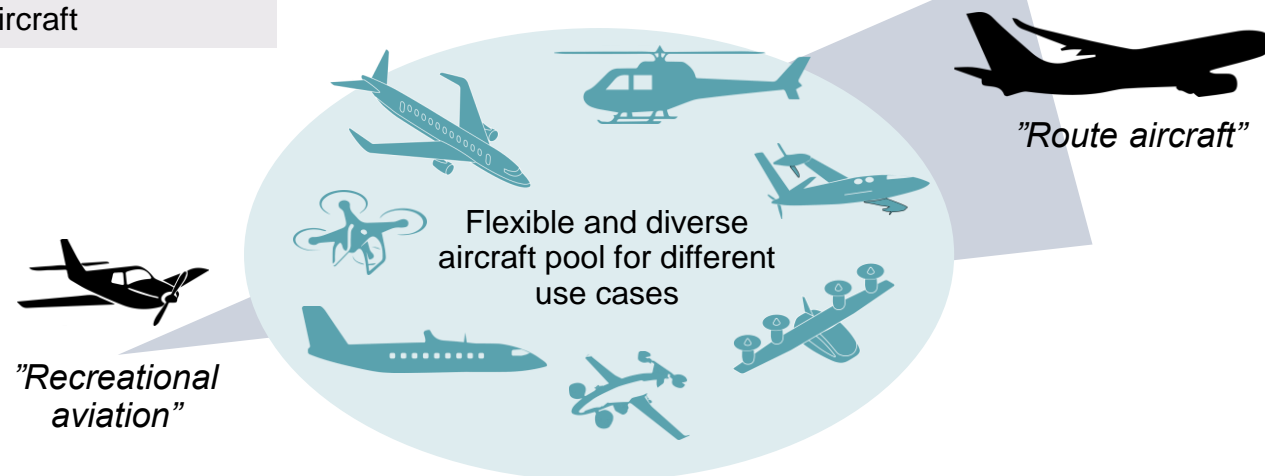
## OLD WORLD

- Large, crowded airports
- Pollution
- Large airplanes
- Fixed routes
- Slow processes and lead times

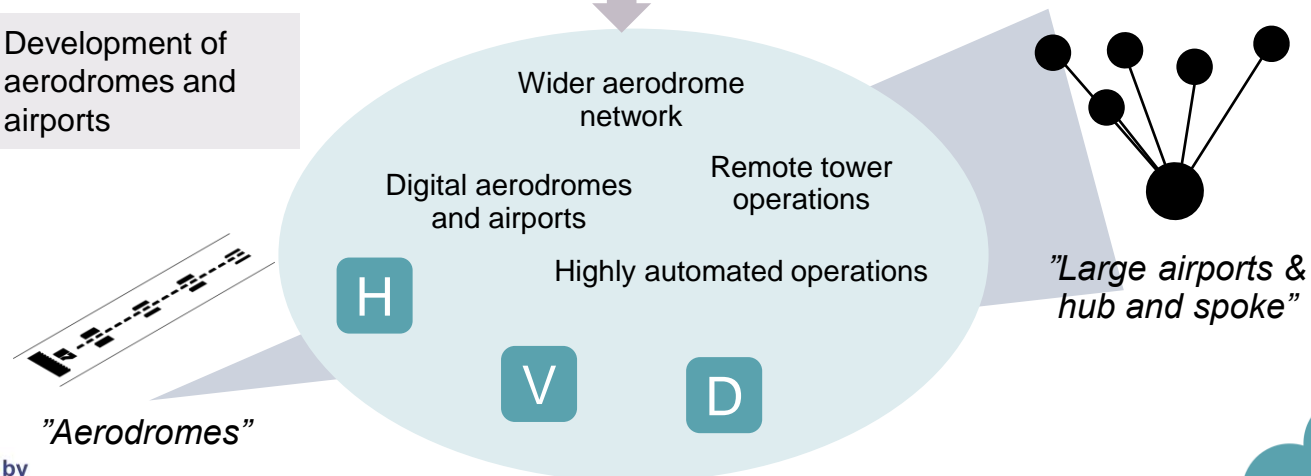
## NEW ERA

- Small and agile aerodromes and airports
- Carbon neutral operations
- Varied size of aircraft
- Dynamic matching of demand and supply
- Short lead times and added value

Development of aircraft



Development of aerodromes and airports





# AVIATION EMISSIONS CAN BE REDUCED A LOT

























Most of aviation emissions originate from long haul flights – technology is developing in all segments

	2025	2030	2035	2040	2045	2050
<b>Regional aviation</b> < 1 500 km 74 % of flights departing from EU airports 25 % of CO <sub>2</sub> -emissions	SAF	SAF	SAF Hydrogen Electric	SAF Hydrogen Electric	Hydrogen SAF Electric	Hydrogen Electric SAF
<b>Short haul flights</b> 1 500 – 4 000 km 20 % of flights departing from EU airports 23 % CO <sub>2</sub> -emissions	SAF	SAF	SAF	SAF Hydrogen	SAF Hydrogen	Hydrogen SAF
<b>Long haul flights</b> > 4 000 km 6 % of flights departing from EU airports 52 % CO <sub>2</sub> -emissions	SAF	SAF	SAF	SAF	SAF Hydrogen	SAF Hydrogen

SAF= sustainable aviation fuel

# COMPARISON OF CLIMATE IMPACT AND SCALABILITY

Sustainable aviation fuels, hydrogen and battery electric are all options for aviation but use cases will vary

	Reduction in climate impact			Scalability in the whole aviation sector	Key challenges	Example companies that are developing suitable aircraft
	Direct CO <sub>2</sub>	NO <sub>x</sub>	Water vapour & contrails			
Battery electric					Weight of batteries must be carried and requires regular battery replacements. Charging infrastructure and in some cases grid investments are required.	Wright Electric
Hybrid-electric with SAF					Weight of batteries must be carried, requires regular battery replacements and two technologies makes the system more complex.	Heart-Aerospace
Bio-SAF					Bio feedstock sustainability and adequacy.	Airbus, Boeing
Synthetic SAF					Production costs and lack of carbon capture technology.	Airbus, Boeing
Hydrogen electric (fuel cell)					Weight of the powertrain (for ex. fuel cells) and higher volume fuel tanks are required. Treatability of liquid hydrogen and new infrastructure requirements.	ZeroAvia
Hydrogen combustion					Treatability of gaseous or liquid hydrogen and new infrastructure requirements. Higher volume fuel tanks required.	Airbus

Based on Clean Sky –report and ZeroAvia estimates



Significant



Moderate

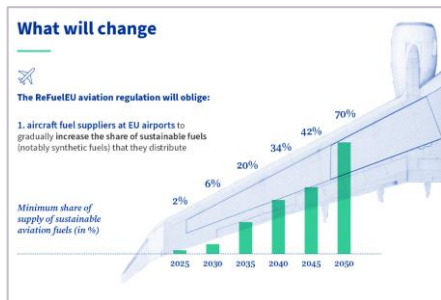


Limited



# TECHNOLOGY IS DEVELOPING RAPIDLY VIA AMBITIOUS GOALS

The future of aviation consists of liquid sustainable fuels, hydrogen and electrification



## SUSTAINABLE AVIATION FUELS

### ReFuelEU Aviation – Council adopts new law to decarbonise the aviation sector

The main objective of the ReFuelEU aviation initiative is to increase both demand for and supply of sustainable aviation fuels (SAF), which have lower CO<sub>2</sub> emissions than fossil fuel kerosene. The obligation for aviation fuel suppliers to ensure that all fuel made available to aircraft operators at EU airports contains a minimum share of SAF from 2025 and, from 2030, a minimum share of synthetic fuels, with both shares increasing progressively until 2050. Fuel suppliers will have to incorporate 2% SAF in 2025, 6% in 2030 and 70% in 2050. From 2030, 1,2% of fuels must also be synthetic fuels, rising to 35% in 2050.

Source: EU Commission and SKYNRG

### POSSIBILITY FOR ESTONIA

It is estimated that to meet the goals of the new law, over 100 new factories producing sustainable aviation fuels are needed in the EU alone.



## HYDROGEN

### ZeroAvia Successfully Completes Initial Dornier 228 Flight Test Campaign

UK-based testing campaign sees ten successful flight tests of retrofitted aircraft. Installed prototype ZA600 hydrogen-electric engine meets highest anticipated performance threshold, paving way for successful certification work.

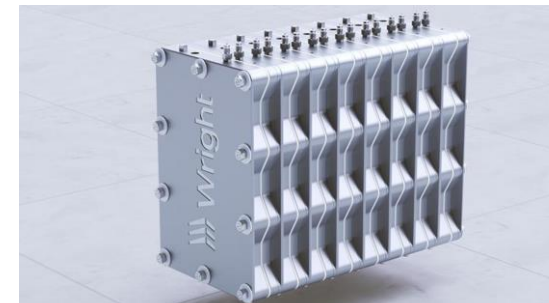
ZeroAvia's Dornier 228 flight testing programme is part of the HyFlyer II Project, which is part funded by the UK Government via the Aerospace Technology Institute, in conjunction with Innovate UK and the Department for Business and Trade.

Hydrogen-electric engines use hydrogen in fuel cells to generate electricity, which is then used to power electric motors to turn the aircraft's propellers. The only emission is low temperature water, with studies finding above 90 per cent total climate effect reduction.

Source: ZeroAvia

### POSSIBILITY FOR ESTONIA

Possibility to be a nation that enables the use of new hydrogen electric aviation.



## BATTERY ELECTRIC

### Wright Electric Targets 1 000 Wh/Kg Batteries for Electric Aircraft

The company is working with partners such as easyJet, NASA, Y Combinator, the Department of Energy's ARPA-E program, and the Defense Department. The goal is to produce an electric airplane that can carry 100 paying passengers on short flights of an hour.

The company is looking into new battery technology called molten battery technology. Wright's proprietary batteries would be four times more energy dense than the lithium-ion batteries that power today's electric vehicles. Such batteries would enable the electrification of hard to decarbonize transportation and mining sectors and make electric aircraft that can carry 100 passengers possible. High temperature batteries will likely be used first to help decarbonize the mining industry but could eventually be incorporated into aircraft.

Source: Clean Technica

### POSSIBILITY FOR ESTONIA

Electrification will happen first in short flights and smaller aircraft that have the possibility to transform accessibility of smaller regions.





# OTHER TECHNOLOGY TRENDS IN AVIATION

Besides alternative fuels development, a lot is happening in the aviation industry that can be linked with Estonian know-how

## U-Space development

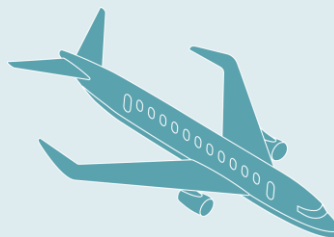
- U-space is a set of new services relying on a high level of digitalisation and automation of functions and specific procedures designed to support safe, efficient and secure access to airspace for large numbers of drones

## AR/VR

- Personalized customer service and real-time information about the flight and airport services.
- Training opportunities increase, which save costs.

## Information systems

- The cost of creating information systems significantly reduced, which enables new types and more cost-effective sales channels, e.g. for airlines and operations efficient enterprise resource planning systems to airports.
- Information system development intensified and continues to improve the operation of airports.



## Drone and air taxi development

- The drone market is developing rapidly
- The size of the eVTOL aircraft market is currently over 1 billion and is growing
- The aircraft will use U-space in most operations

## AI

- Optimization of functions, e.g. scheduling and through that cost savings
- Identifying faults before they occur, which saves costs Improving customer service information through personalization

## 3D printing

- 3D printing technology can be used to produce spare parts and components for aircraft or industry in general, reducing the time and cost of maintenance.
- This technology can also be used to create prototypes and models, allowing designers to test new ideas and improve aircraft performance.

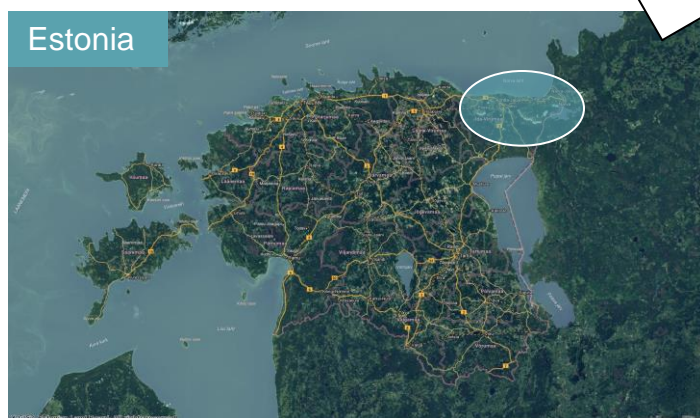
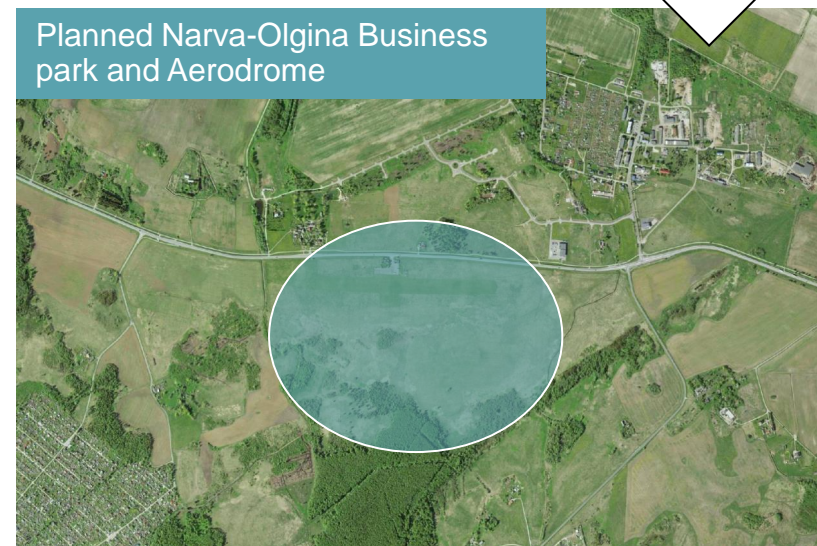
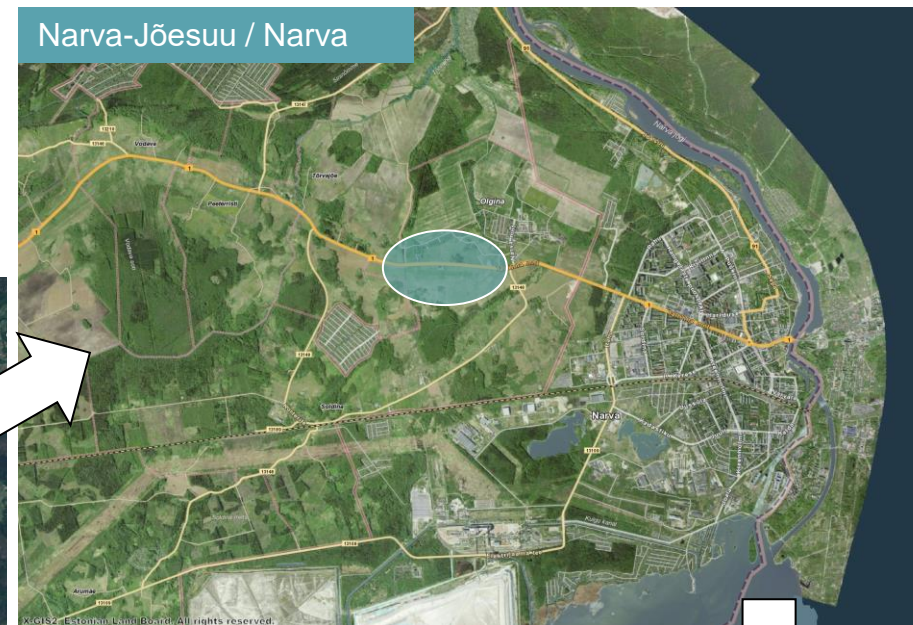
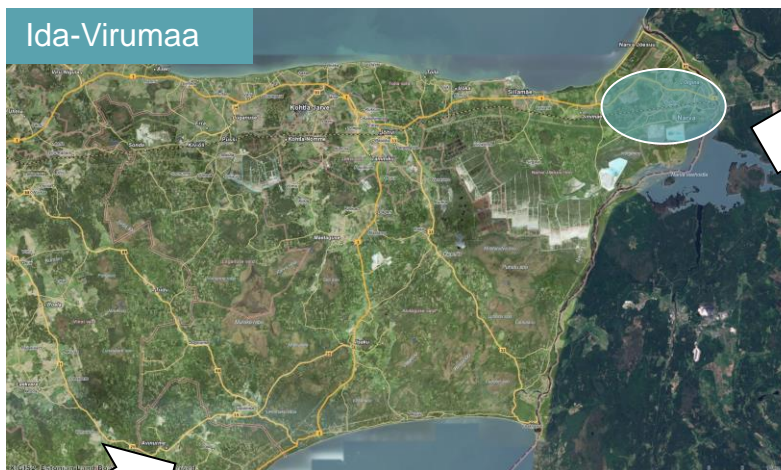


# OPERATIONAL ENVIRONMENT OF IDA-VIRUMAA



# GEOGRAPHICAL CONTEXT

Narva and the planned Narva-Olgina business park & aerodrome are located in Eastern Estonia





# OPERATIONAL ENVIRONMENT OF IDA-VIRUMAA

Drastic changes open a window of opportunity to do things differently



## Political

- Location of Ida-Virumaa in Russian border has been a significant source of business relations and tourism – from 2022 the border interaction halted because of Russian war in Ukraine.
- Political decisions in Estonia are supporting the freedom of business life and the development of technology and digitalization



## Technological

- The main industries in Ida-Virumaa are energy, chemistry, metal processing, mechanical engineering and woodworking. Most industrial enterprises are located in the cities of Narva, Kohtla-Järve and Sillamäe.
- Estonia is a forerunner in digitalization of services. In the aviation sector, a Remote Tower center is located in Tallinn, and since April 2023, air traffic control services of Tartu Airport have been provided from the Remote Tower



## Ecological

- The industry of Ida-Virumaa is based on the use of oil shale which produces large amounts of greenhouse gas emissions, air, water and soil pollution, and waste that covers large areas.
- As part of the European Union's (EU) Green Deal, Estonia has committed to reducing net greenhouse gas emissions by 70% by 2030, compared to 1990 levels, and achieving carbon neutrality by 2050.
- Work is currently underway to modernize and diversify the industry, as well as to develop alternative and renewable energy sources.



## Economical

- The Russian business has collapsed, and it has a significant influence on Narva area economy – a great need to seek new business relations from western countries
- The new projects of green industries create demand and opportunities for investments into the hydrogen and SAF production projects, the payback of which is based on the needs of green industry and allows to create additional conditions for using Narva aerodrome as a testbed for refueling aircraft with SAF and hydrogen in the future.
- Services is the most diverse and dynamic industry for Ida-Viru County, which in 2019 formed 51 % of the county's GRP (Gross Regional Product). The service sector employs about 77% of the county's population (including education and healthcare).
- Industry in Ida-Virumaa in 2019 formed 47 % of the GRP of the county. Industry employs about 20% of the county's population.



## Social

- Ida-Viru County had a population of 130 000 people. The average age of the population was 44,9 years, which is higher than the Estonian average (43,8 years).
- The socio-demographic structure of the population of Ida-Virumaa is characterized by low levels of education, employment and income, as well as a high proportion of Russian-speaking population.



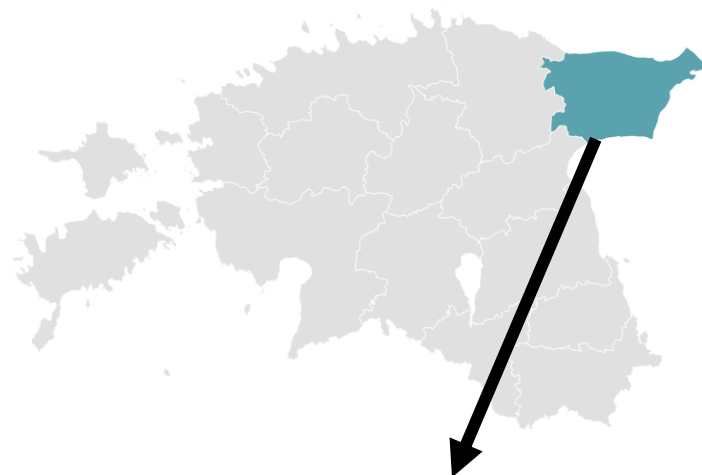
## Legal

- Extensive regulation stemming from the safety of the aviation industry can prolong the certification of new aircraft. But on the other hand, there is also pressure to speed up processes to achieve climate goals
- Tightening of environmental requirements and control in all sectors. Aviation emissions are increasingly controlled by law, not just incentives. For example, ReFuelEU Aviation will introduce a mandate for the usage of sustainable aviation fuels on European airports.



# IDA-VIRUMAA AS BUSINESS REGION

Versatile business spread across the county forms the basic potential for aviation services



THERE ARE OVER  
**6 600 COMPANIES**  
LOCATED IN THE IDA-  
VIRUMAA COUNTY

**68 COMPANIES**  
WITH 50+ EMPLOYEES



Table: Ida-Virumaa enterprises in the statistical profile by economic activity ([Statistics Estonia 2023](#))

Economic activity	Companies
<b>Economic activities total</b>	<b>6686</b>
Agriculture, forestry and fishing	415
Mining and quarrying	6
Manufacturing	611
Electricity, gas, steam and air conditioning supply	28
Water supply; sewerage, waste management and remediation activities	34
Construction	785
Wholesale and retail trade; repair of motor vehicles and motorcycles	1401
Transportation and storage	732
Accommodation and food service activities	227
Information and communication	211
Financial and insurance activities	57
Real estate activities	332
Professional, scientific and technical activities	487
Administrative and support service activities	274
Education	120
Human health and social work activities	140
Arts, entertainment and recreation	110
Other service activities	716

Ida-Virumaa  
companies:

TURNOVER IN 2021

**3 200 million €**

EXPORTS IN 2022

**943 million €**

% OF ESTONIAN EXPORTS IN 2022

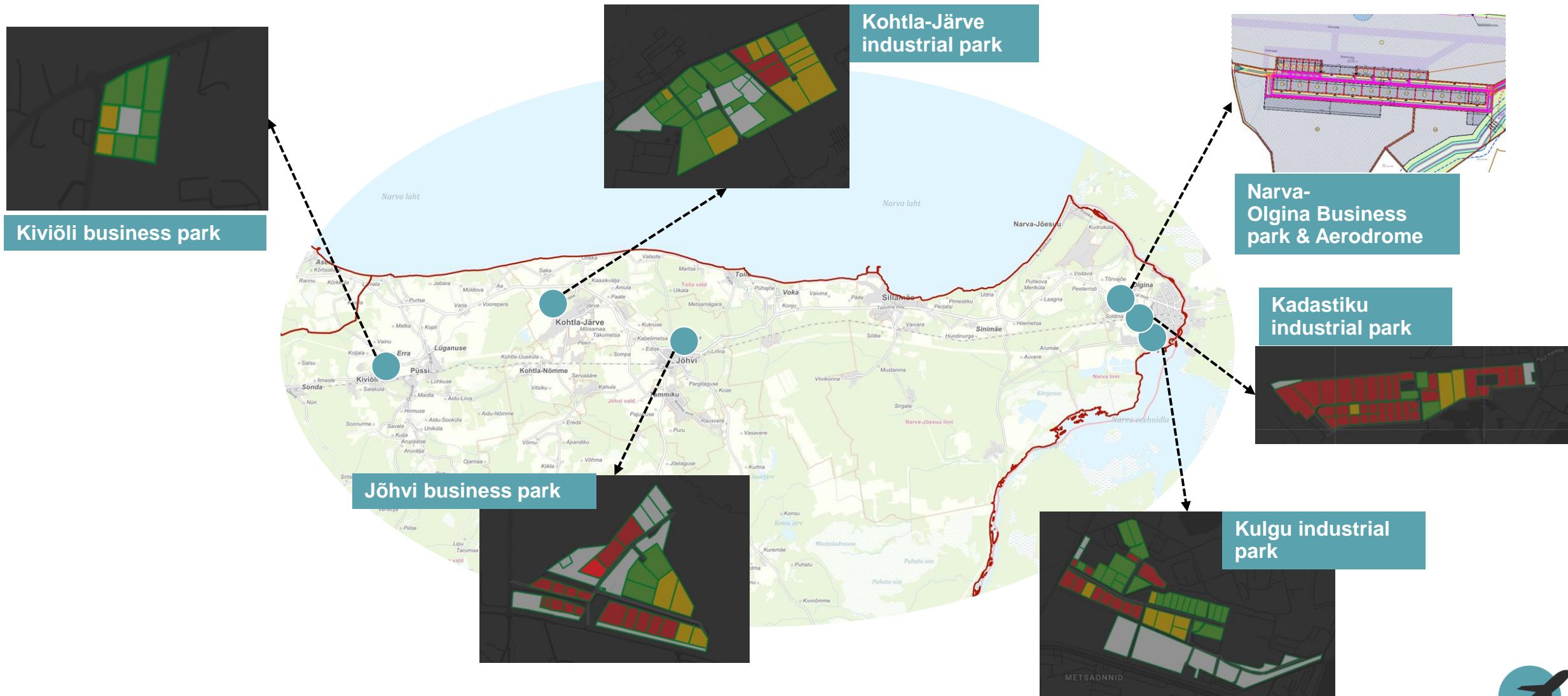
**4,4 %**

Source: Statistics Estonia



# CURRENT AND PLANNED BUSINESS AND INDUSTRIAL PARKS

Key industrial development will happen in these business areas





# INDUSTRY EXAMPLES FROM THE BUSINESS AREAS

Key industrial development will happen in these business areas

## Kiviõli business park

- Trading and business service companies
- Similar profile as Jõhvi

## Kohtla-Järve industrial park

- Focus on chemical and metal industry
- Example companies:
  - Viru Keemia Grupp: shale oil production
  - Freen Industries: subcontractor services in the fields of mechanical engineering and metalworking. Produces own wind generators and solar panels

## Narva-Olgina Business park & Aerodrome

- Spatial planning has initiated and preliminary detail plan has elaborated
- This feasibility study provides content for the business area and aerodrome

## Kadastiku industrial park

Focus on metal industry and high technology

### Example companies

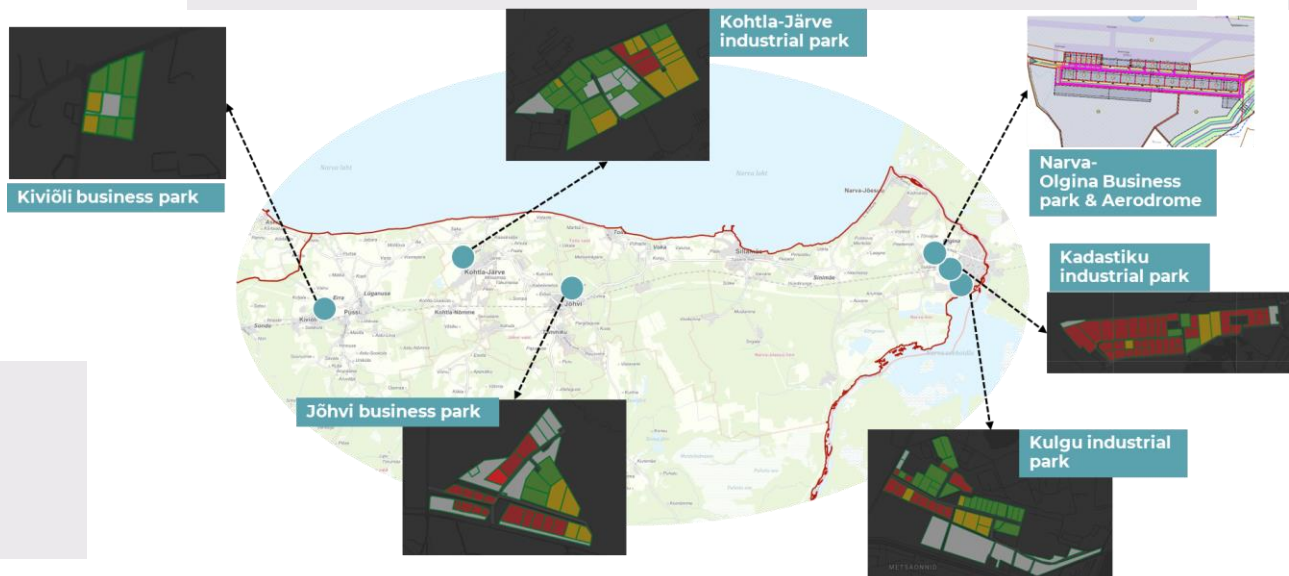
- Aquaphor: water filtration system producer
- Febest: automotive parts distributor
- Fortaco: strategic partner to the heavy off-highway equipment and marine industries offering technology, vehicle cabins, steel fabrications and assemblies
- Hanza: manufacturing solutions in heavy mechanics
- Primatek: developer and manufacturer of wide selection of powder coatings for industry

## Kulgu industrial park

Extension of Kadastiku industrial park. Focus on cluster around advanced electro magnetics and services around it

### Example companies

- Neo Performance Materials: investing in new production plant
- MAST Europe: supplier of high-quality metallurgical products



## Jõhvi business park

- Trading and business service companies
- In the center of Ida-Virumaa

# EXAMPLE OF CUTTING-EDGE TECHNOLOGY COMPANIES INVESTING IN THE REGION – Neo Performance Materials

- ➡ In the first stage, a €100 million magnet factory will be built in Narva (building now)
- ➡ In the second stage, a €150 million extensions will be built (building starting in 2026)

Neo Performance Materials (NPM) which owns Estonia-based rare earth metals maker Silmet will construct a magnet factory and R&D center in Narva.

Neo Magnequench, a division of Neo Performance Materials Inc. (“Neo” or the “Company”) (TSX: NEO), recently broke ground on construction of the first rare earth magnet manufacturing facility in Europe designed to produce specialized rare earth permanent magnets for use in electric vehicles, wind turbines, and other clean energy technologies.

Based in Narva, Estonia, the plant expects to begin production of permanent rare earth magnets in 2025 sufficient to support the manufacturing of approximately 1.5 million electric cars. Neo’s expected Phase 2 production of 5,000 tonnes/year can support the manufacturing of 4.5 million electric cars.

Neo’s nearby rare earth separations plant in Sillamäe, Estonia will provide rare earth feedstock to the Narva plant from the U.S. and other sources. These high-purity magnetic rare earth oxides will be transformed into sintered neodymium-iron-boron magnets. Neo officials are excited to foster a more integrated supply chain for sintered rare earth permanent magnets developed from recycled end-of-life magnets and manufacturing swarf. This process will be the first of its kind in Europe.

Sintered rare earth permanent magnets are used in a wide variety of technologies that increase energy efficiency, reduce carbon dioxide emissions, and help enable the European Union’s efforts to achieve carbon neutrality. These magnets are especially integral to the drivetrains of the majority of electric vehicles manufactured today, where they increase the power and efficiency of the motors. Other rare earth magnets made by Neo are used in electric motors in battery electric, hybrid electric, and conventional vehicles, as well as in electronics, water circulation pumps, high-efficiency home appliances, and many high-efficiency industrial applications.



# INDUSTRY INSIGHTS – EXPORT INDUSTRY IS HIGHLIGHTED

Narva companies aim for international business and increasing export – better connectivity is needed.

## STRONG EXPORT INDUSTRY WITH A GROWTH MINDSET

- The interviewed companies highlight the focus on export which is nearly 100 % for all the companies.
- There are strong plans to increase export, for ex. 20-30 % per year for one the companies.

## NEED FOR TRAVEL IS RELATED TO EXPANDING MARKETS

Mentions of travel needs:

- Customer and auditor visits at factories
- Maintenance crew visits
- Business meetings
- Sales and marketing purposes
- Engineering meetings
- Top manager negotiations

## VIEWS ON AIR CARGO POTENTIAL

- Currently the potential is seen limited as air cargo is not seen green – although this might change in the future
- Some identified use cases:
- Component deliveries
  - Urgent deliveries of expensive and lightweight components and spare parts

## EUROPE IS THE MAIN MARKET FOR THE COMPANIES

Preferred destinations:

- Germany (Dusseldorf, Hamburg, Frankfurt and Munich)
- Finland (Helsinki)
- Sweden (Stockholm)
- Poland (Warsaw)
- Rumania (Bucharest)
- Israel (Tel Aviv)
- UK (London)
- Holland (Rotterdam):
- Norway, France, Spain, Switzerland generally

## CURRENT USAGE OF HUB AIRPORTS

- Tallinn, Riga, Frankfurt, Helsinki, Warsaw, Oslo, and Stockholm

## COMPANIES RECOGNIZE THE POTENTIAL OF DIRECT FLIGHTS FROM NARVA

- The aerodrome should have sufficient connections to a range of locations
- Price and time schedule should be optimized
- Morning and evening flights between Narva and Tallinn are seen important
- Direct flights to hub airports or straight to the destinations are seen promising

## IMPORTANCE OF A FUNCTIONAL NEARBY AERODROME FOR BUSINESS

- Answers vary based on the company
- Most of the companies see it as important as the travel to the Tallinn airport takes half a day on average (very few scheduled departures).
- It is seen that it would be more convenient to get to Narva.  
Potential and existing business partners would arrive more often and new opportunities for investment and partnership would appear. In general, a nearby airport is seen to have positive impact on business.
- Some see it more of a convenience but not a must have. Some Finnish customers like to arrive with their cars via ship.

## IMPROVING AIR CONNECTIONS AND NEW BUSINESS INVESTMENTS

- If good enough connections, new investments are seen possible
- Improved logistics is seen to always increase business
- Some see that other factors might be more important such as competitive price of products, availability of skilled people and financial support of the government





# TOURISM IN IDA-VIRUMAA

Recovery from COVID is happening – good connectivity would boost attractiveness of the region

## General description

Ida-Viru region tourism sector is rapidly developing. The region holds great historical value as well as natural potential, including many Estonian records, such as the highest waterfall, the largest lake system or the longest sandy sea beach, which allows the tourism potential to grow and develop.

## The aftermath of the COVID19-pandemic

Because of the pandemic in recent years tourism throughout the world and in the Ida-Viru region suffered serious setbacks. But now the tourism sector is gradually recovering. New tourist services, restaurants and attractions are emerging, aimed at both local and international tourists. Every year there are new objects and tourist products appearing. In the last three years 10 new attractions have appeared.

## During the period 2023-2027 more attractions are expected:

- Sillamäe theme park (2023)
- Kreenholm cultural quarter (2026)
- Narva Stockholm Square (2025)
- Opening of the Narva-Jõesuu lighthouse to visitors and opening of the Narva-Jõesuu local history museum (2025)
- Development of Sinimäe Museum (2024)
- Vasknarva harbor development (renovation, observation tower, 2026)
- Development of Alajõe village center and beach area (2027)
- Rannapungerja pier and river quay (2027)
- Estonian motorcycle hill (2023)

- Aidu water sports and leisure centre (2023)

## The effects of the war

In recent years, especially after the start of the war and the closure of borders, and as a result of the disappearance of the flow of Russian tourists, the international tourism marketing of the region is aimed primarily at Finnish tourists.

There are strong possibilities to attract Finnish tourists: nature, interesting history, quality services and a relaxing holiday. The main problem is that even though the direct distance to Finland is short, the actual route goes through the port of Tallinn. The opening of direct flights would greatly simplify and shorten the path of Finnish tourists to the region, which is ready and waiting for new guests.

Since the number of tourists from Russia, which was one of the main external target markets for Narva, has practically decreased to a minimum level, and the recovery of this market is not expected in the nearest future, the city of Narva and also the region is trying to substitute the market, for example by attracting more tourists from neighbouring countries. Finland has been chosen as one of the priority markets. For travellers, it is extremely important to have a convenient and accessible way to get to the target place. In this case, the plane is the most convenient and fastest way to get to Narva, for example, from Finland. This could be also the way to travel from Latvia. A convenient and fast way to get to the destination is often a key factor in choosing one. If the tourist has to choose between a fast flight, almost a full day of driving or a trip with several changes of transport modes, the choice will be obvious.

To develop tourism in the region, it is critical to provide fast and convenient connections for tourists.



# IDA-VIRU TOURISM CLUSTER 2024-2027

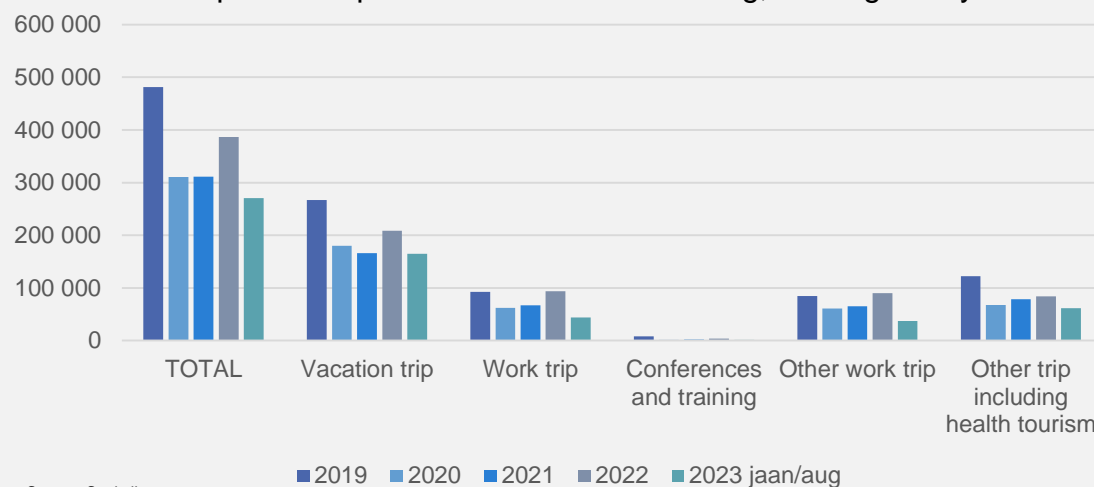
Strong development plans are being implemented to attract new markets and customers

The cluster is moving in the direction of 1 million overnight stays as part of its long-term goals. The cluster's goals for this strategic period are to recover to the level of 2019 and to compensate for the lack of Russian tourists and seek now other markets and target groups.

Some highlights of recent events and future goals:

- The number of overnight stays by tourists from Russia decreased from 65,7 thousand in 2019 down to 14,7 thousand in 2022 (4,3 times).
- The Ida-Virumaa Tourism Cluster has prepared a program to attract Finnish and Latvian tourists to Ida-Viru. The total budget of the program for the period 2024-2027 is 689 000 €.
- As a result of the implementation of this program, the number of overnight stays by Finnish tourists in Ida-Viru is planned to increase up to 34 000 in 2027, compared to 11 058 in 2019 (3 times).

Purpose of trip to Ida-Viru 2019-2023/Aug, overnight stays

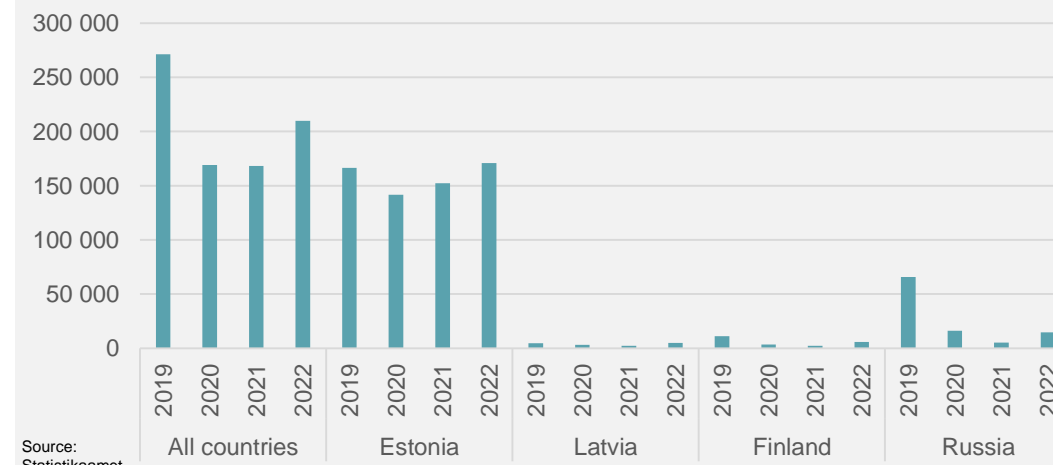


Source: Statistikaamet

## Focus areas and budget of the tourism cluster

2024-2027	Investment per year
Estonia	120 000 €
Finland	76 000 €
Latvia	82 400 €
Service development	72 000 €
Team	312 000€
Total	689 000€

The number of people accommodated in Ida-Viru by nationality








Source: Statistikaamet



# IDENTIFIED NEEDS OF DIFFERENT STAKEHOLDERS

Current needs summarized

Residents of the region 	Large industrial companies 	Tourism industry 	Owners of private planes 	Skydivers and sportsmen 	RC aeromodellers 
<p>Ordinary residents of the city of Narva would like to have the opportunity of direct flights to Tallinn, Helsinki and Riga.</p> <p>In addition, they would like to have the opportunity to spend free time and get impressions from recreational flights over Narva and Narva-Jõesuu (15-20 minutes), glider flights, parachute jumps.</p> <p>These are the first reactions of people to the news that the local governments of Narva, Narva-Jõesuu and Sillamäe have plans to develop the Narva-Olgina airfield.</p>	<p>Large industrial companies, including those with foreign participation or companies with large foreign clients.</p> <p>They need the ability to use the runway for arrivals and departures year-round and in any weather for business flights. Potential passengers are company owners, top management, clients, auditors from major large clients.</p>	<p>All SPAs, large hotels and the wider tourism sector enterprises.</p> <p>They would like that airplanes will be able to fly to the Narva-Olgina airfield all year round and in any weather and bring groups of foreign tourists who would then use tourism services on weekends or for a longer period.</p>	<p>Owners of private planes who live in Ida-Virumaa and other parts of Estonia.</p> <p>They would like to be able to store aircraft in hangars during the fall and winter. During the period when the intensity of flights due to lack of weather conditions is significantly reduced. In addition, they would be interested in whether the aerodrome offers services to carry out the maintenance and work necessary to obtain or extend airworthiness;</p>	<p>Skydivers and sportsmen and those who provide tandem jumping services.</p> <p>They would like to be able to jump at the Narva-Olgina airfield. At the moment they are going to jump to Rapla (EERA). According to the information received from them, the annual number of jumps they perform in Rapla is at least 400</p>	<p>RC aeromodellers.</p> <p>There is an aeromodellers club in Narva, in which at least 50 novice aircraft modelers study. In addition, there are about 25 an aeromodellers in the city who produce aircraft models and regularly participate in competitions. At the airfield, competitions in radio-controlled models in class F3 according to the international classification are held at least 3 times a year.</p>





# NARVA AERODROME CURRENT SITUATION

Modest starting point is an advantage – state of the art development from the beginning

## Aviation activities

*For the last 3 years, the following flight activities have taken place at the airfield in Narva*

1. Private recreational flights, from May to September on average about 200 flights per season;
2. Parachute jumping on Saturdays and Sundays with an average of about 150 jumps per season;
3. Air taxi flights began in 2023. During the period from May to September, 23 flights took place on airplanes and helicopters. Air taxi flights from Narva were to Tallinn, Tartu, Riga, Helsinki-East, Milan, Burgas;

## Information

- The grass runway is 600 m long
- The land belongs to the Ministry of Regional Affairs and Agriculture
- There is currently no airfield operator
- Detail spatial planning has been initiated
- There is no controlled airspace above the airfield



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# NARVA AERODROME CATCHMENT AREA AND ACCESSIBILITY

Accessibility to western countries is vital in the current operational environment

## Roads

The aerodrome is located right next to the European route E20

- To Tallinn via road 2h 25 min
- To Riga via road 5h 50 min

## Public transport

The aerodrome is located 3 km from the main public transport routes in Narva – there is a possibility to extend the network when the aerodrome development starts.

## Catchment area




EU population:

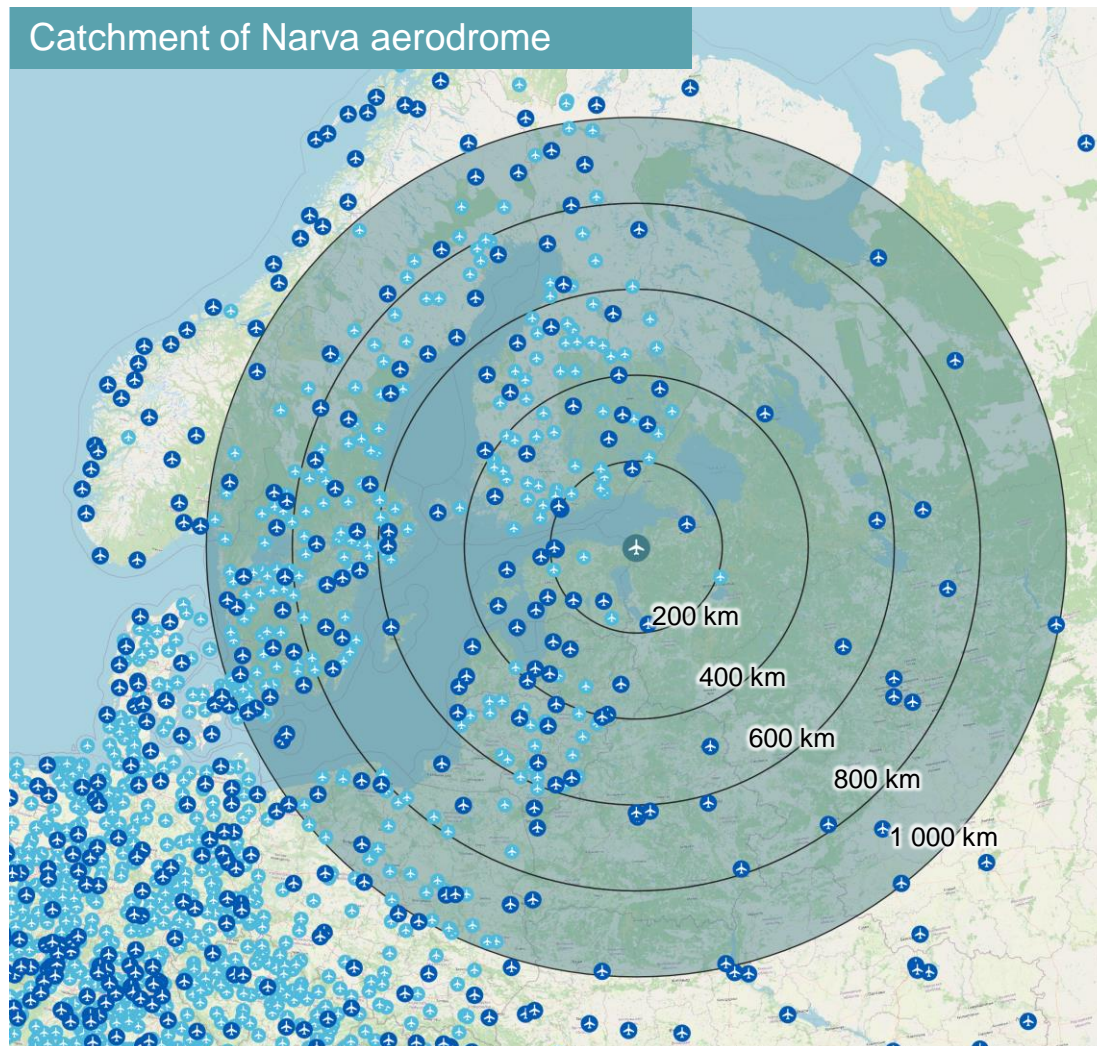
- 1.95 million people within 200 km
- 6,81 million people within 400 km
- 13,5 million people within 600 km
- 19,8 million people within 800 km
- 39,2 million people within 1,000 km

of Narva aerodrome  
+ population in non-EU countries

Around 140 major airports and 240 other airfields within 1,000 km of Narva aerodrome.

Source: Eurostat  
(2021 population census: preliminary results)

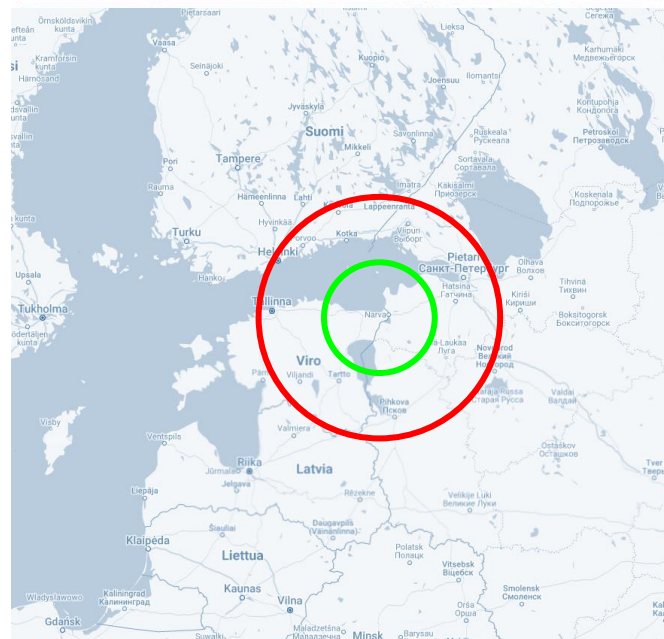
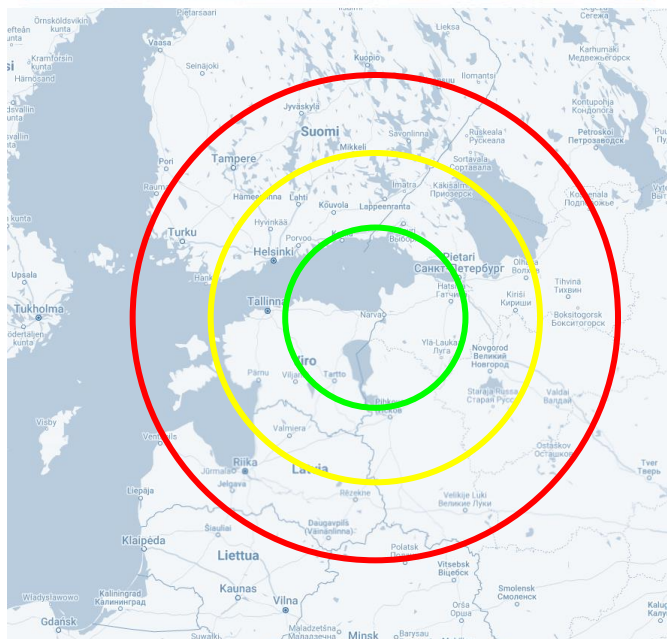
-  Narva aerodrome
-  Major European airports
-  Other airfields



# AN EXAMPLE OF OPERATIONAL RANGES OF AIRCRAFT

Operational ranges of next gen aircraft are ideal for regional aviation

## Aircraft operational range from Narva-Olgina Aerodrome



Modified from source: Evia Aero

**Two zero emission aircraft with serious commercial potential in the near future (certifications pending)**

Battery electric Eviation Alice

- Max operational range of around 400 km
- 9 passengers
- MTOW 7475 kg
- Max Cruise Speed 250 kts

Retrofitted hydrogen fuel cell  
Britten Norman islander

- Max operational range of 200 km
- 9 passengers
- MTOM (kg) 2994
- Payload (kg) 680
- Uses gaseous hydrogen

*Similar operative costs than with a 50-seater traditional turboprop aircraft.*

- Max operational range, SPP
- Range after 60min charge, SPP
- Return range, no service at DEST, SPP

All range regarding 45min IFR reserve





# NEXT GEN AIRCRAFT AND NARVA-OLGINA AERODROME

Many major hubs and regional airports would be accessible

With the retrofitted hydrogen fuel cell Britten Norman islander, 200 km operational range

Potential destinations

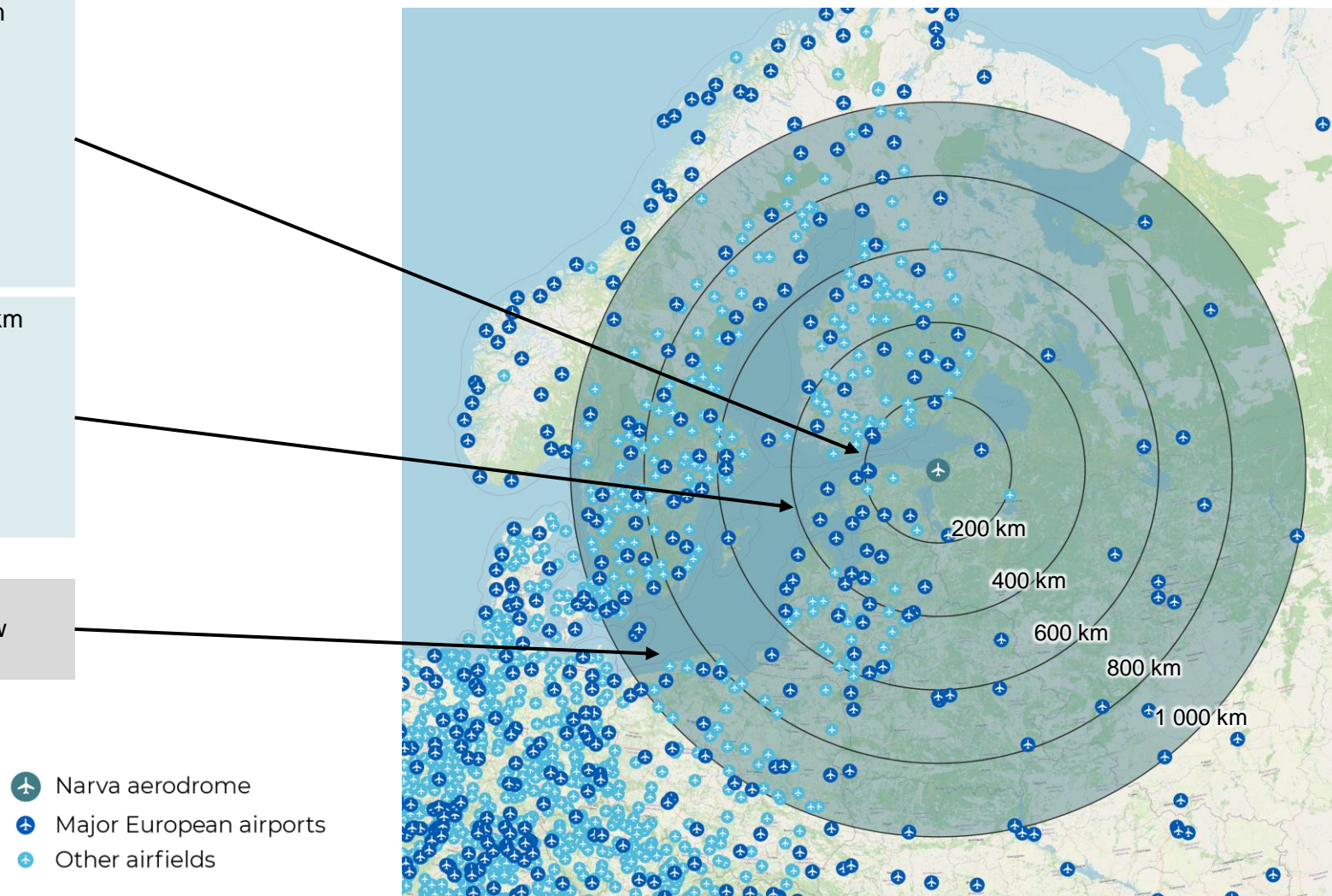
- Tallinn
- Tartu
- Helsinki-East
- Helsinki-Vantaa (Finnair hub)
- Lappeenranta

**With the fully electric** Eviation Alice, 400 km operational range

Potential destinations

- Riga (Air Baltic hub)
- Tampere-Pirkkala (Air Baltic hub)
- Saaremaa
- Joensuu

In the 2030s the operational ranges will be extended which opens opportunities for new markets.



# BENCHMARK OF FINLAND



# BENCHMARK OF FINNISH AIRPORTS AND AERODROMES

Main airport network owned by Finavia – network changes actively under discussion

## Network structure and ownership

State-owned airport company Finavia owns 20 airports in Finland. There are a few airports outside Finavia network and dozens of smaller aerodromes all over Finland. Lappeenranta and Enontekiö airports have been detached from the Finavia airport network and are now municipality owned. Seinäjoki airport has never been in the Finavia network. Its owners are the city of Seinäjoki and the municipality of Ilmajoki, the wellbeing services county of Ostrobothnia and a few private businessmen. Mikkeli airport is owned by the city of Mikkeli. Helsinki East Aerodrome is located in Pyhtää municipality and is owned by the private company Redstone Aero Ltd.

Finavia airports work as a network with a hub and spoke - system. Helsinki-Vantaa airport is the biggest airport in the network and in Finland. Its income is used to support smaller airports which have not been profitable on their own.

## Recent events

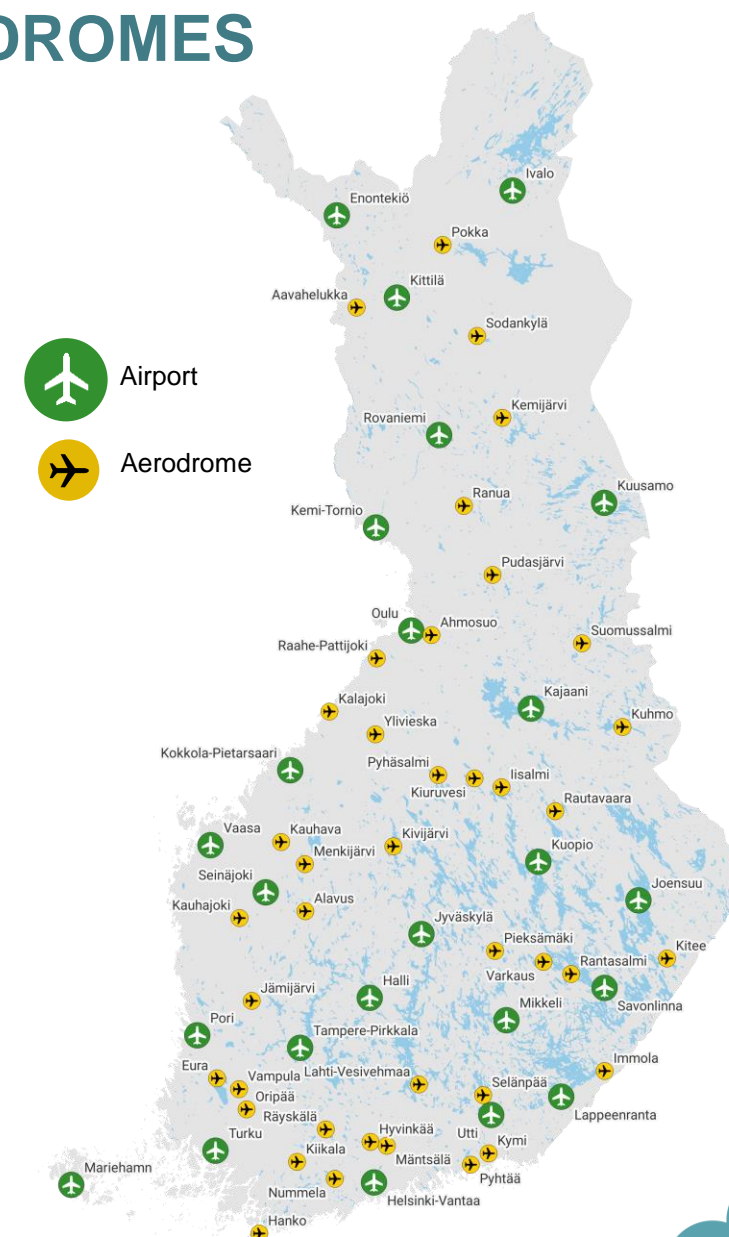
Recently there has been discussion on the position of certain regional airports and the ownership base of them. They do not have – and cannot have – large passenger volumes, but their small business passenger volumes are important for the airport regions and to the whole nation. Some actors focus only on the direct income of the airport and do not regard airports as profitable enough. However, the business connections between the Finnish regions and other countries are very important, and so is the accessibility from abroad to the industrial municipalities in different parts of Finland.

The renewal of aviation is a current topic in Finland. Helsinki East Aerodrome and its owner Redstone Aero are the leading actors in developing and testing new aviation technology and operation models of the airports and aerodromes. There has also been a project in co-operation between Finland and Sweden about electric aviation on both sides of the Gulf of Bothnia.

## Future

The vision of the future of aviation in Finland contains a wide air connection network. The basis for this is a wide network of cost-effective airports and aerodromes which are equipped with the newest technology. All this enables prosperous development of air transport services with a variety of different size aircraft from small drones to middle size business aircraft and bigger route traffic aircraft. This is the vision also for air cargo.

Finnish Ministry of Transport and Communications is currently preparing an Aviation strategy that would take into account the recent events and the development of the aviation sector.





# FINNISH AIRPORTS OUTSIDE FINAVIA NETWORK

Airports that have separated from the Finavia network

## ENONTEKIÖ

Key focus: Winter tourism

### AIRPORT OPERATOR

Enontekiö Airport Ltd  
(Enontekiö Municipality)

### INFRASTRUCTURE OWNER

ENF Infra Ltd  
(Enontekiö Municipality)

## SEINÄJOKI

Key focus: logistics, general aviation

### AIRPORT OPERATOR

Seinäjoki Airport Ltd  
City of Seinäjoki, municipality of Ilmajoki,  
wellbeing services county of Ostrobothnia  
and a few private businessmen

### INFRASTRUCTURE OWNER

Rengonharju foundation  
(owned by local municipalities)

## LAPPEENRANTA

Key focus: Developing Lake Saimaa  
Region tourism and accessibility

### AIRPORT OPERATOR

Lappeenranta Airport Ltd  
(Lappeenranta Airport Foundation)

### INFRASTRUCTURE OWNER

Lappeenranta Airport Foundation  
(City of Lappeenranta)

## HELSINKI-EAST AERODROME

Key focus: Future aviation,  
Helsinki secondary airport

### AIRPORT OPERATOR

Redstone AERO OY  
(privately owned)

### INFRASTRUCTURE OWNER

Redstone AERO OY  
(privately owned)

## SMALL AERODROMES

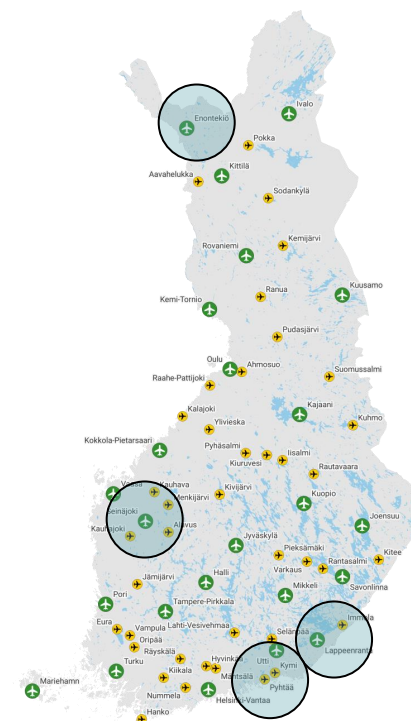
Key focus: Recreational aviation

### AIRPORT OPERATOR

Flight Clubs

### INFRASTRUCTURE OWNER

Local municipality



# STORY OF LAPPEENRANTA AIRPORT

Oldest airport in Finland

- **Lappeenranta airport is the oldest airport in Finland** and started as a military airport in 1918. The runway is 2500 m x 60 m. The regular route traffic started 1951 and in 2000 there was 14 daily flights. Finnair ended its flights to Lappeenranta in 2002.
- The new railway connection from Helsinki to Lahti decreased the rail travel time to Lappeenranta significantly. For this reason, the flight passenger volumes between Lappeenranta and Helsinki collapsed.
- In 2009 new international routes to European destinations were opened. In 2001 the airport reached its record in passenger volumes, 116.000. More than a half of passengers were from St. Petersburg area.
- In 2016 the airport was bought by Saimaa Airport Foundation (owned by City of Lappeenranta and Regional Council of South Karelia). This was a pilot case in Finland as first airport, which was separated from Finavia airport network serving the interests of the region. The aim was and is to secure easy accessibility to Lake Saimaa and southeast region of Finland focusing on developing tourism industry and business travel needs for the region. Working actively with tourism authorities, airports, airlines, owners and stakeholders in Finland, Russia and Central Europe, new management team made Lappeenranta the main Ryanair destination in Finland providing direct flights from Germany, Austria, Italy and Hungary. In 2020 the covid-19 pandemic collapsed the passenger traffic and the Russian war in Ukraine decreased the Russian share of the passengers remarkably. However, the model of active co-operation with different stakeholders proved to be successful.
- Lappeenranta Airport has been in close co-operation with the tourism actors in Saimaa lake region. It has been successful in marketing the airport to airlines and other actors. Co-operation has been active also with European airports.



# HELSINKI-EAST AERODROME

## Future aviation testbed

- **Helsinki-East Aerodrome** ([ICAO: EFPR](#)) is located in Southern Finland in Pyhtää municipality. It is serving professional general aviation.
- Helsinki-East aerodrome has an asphalt paved runway of 2000 m long and 30 m wide for commercial operations
- The owner and operator of Helsinki-East Aerodrome is Redstone AERO. The aerodrome will be developed as a center for future electric and digital aviation. Many technology companies related to aviation and aircrafts are located at the aerodrome. They are developing all kinds of aviation technology. Helsinki-East Aerodrome and the area in Southern Coast of Finland offers excellent possibilities to testing flights for various operators.



## PHASES OF DEVELOPMENT OF THE AERODROME

### 1. Technical feasibility

- Inspecting the surrounding areas for limitations for an aerodrome
- Soil studies and land surveying to estimate needed work, surface leveling and bedrock blasting

### 3. Environmental permit

- Applying for an environmental permit
- Estimating and planning of the desired operations

### 5. Clearing and leveling of the area

- Clearing obstacles and leveling the ground
- Blasting bedrock
- Groundwater control

### 7. Laying over the first layer of asphalt

- Aerodrome is now usable for small planes

### 9. Instrumental approach procedures

- Design and publication of instrumental approach procedures for operations in bad weather

2017

2023

### 2. Acquiring the land

- Acquiring the land and surrounding areas

### 4. Aerodrome construction permit

- Deciding basic specifications for the aerodrome and applying the aerodrome construction permit

### 6. Foundation for the pavement

- Preparations and foundation for the runway and apron asphalt
- Fueling area preparations

### 8. Aerodrome holding permit

- Holding permit for the existing aerodrome

### 10. To be done in the future

- Runway lighting
- Fencing around the aerodrome
- Aerodrome manuals for commercial airport operations
- Air traffic control





# CHAPTER 2

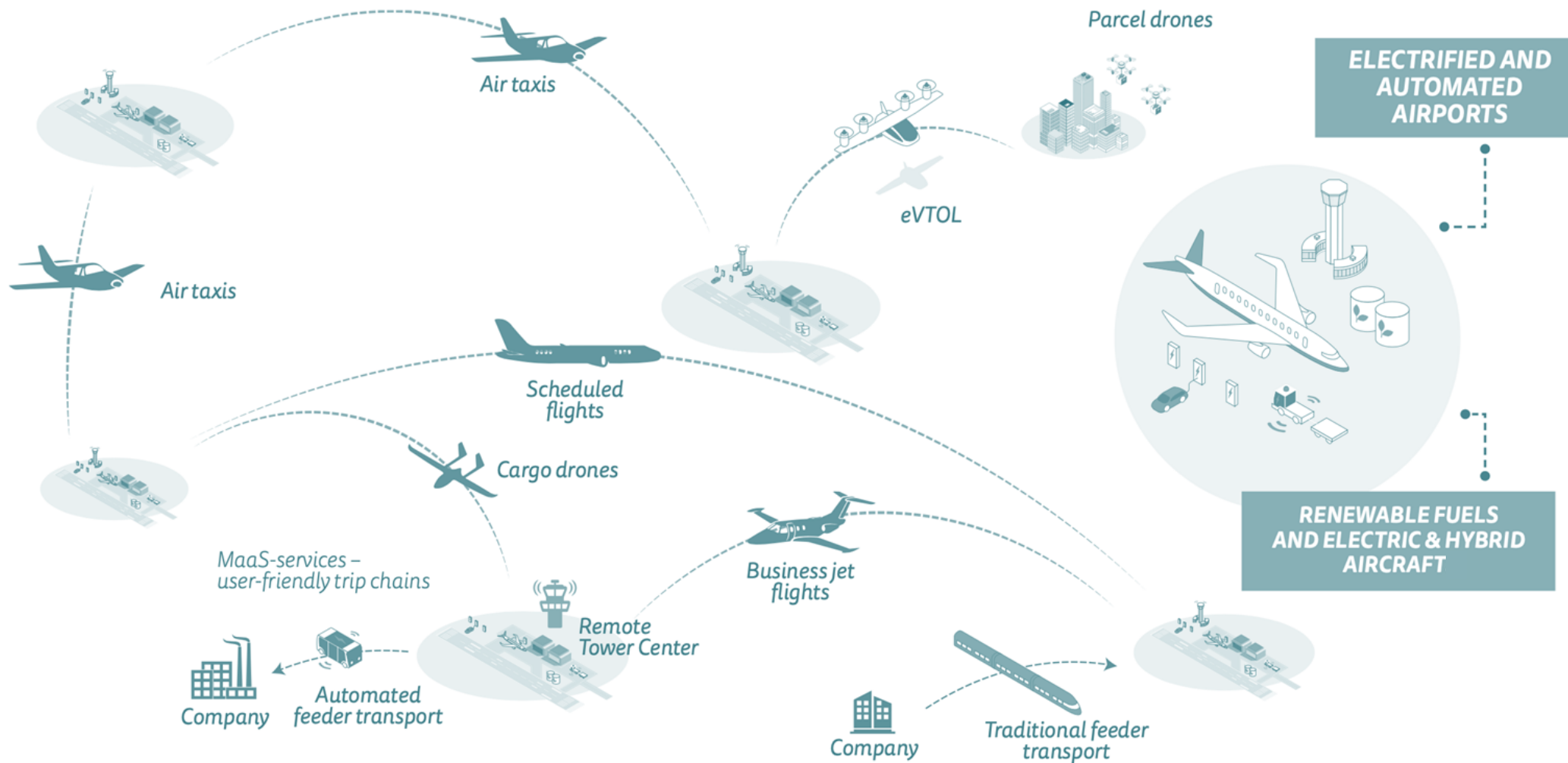
## VISION FOR THE NARVA-OLGINA BUSINESS PARK & AERODROME

- What are the key drivers for the development of the business park and the aerodrome?
- What does the vision include?
- What are the next steps for development?



# VISION FOR ESTONIAN NEW ERA AVIATION

The role of Narva aerodrome is to act as a forerunner for new era aircraft and operations models



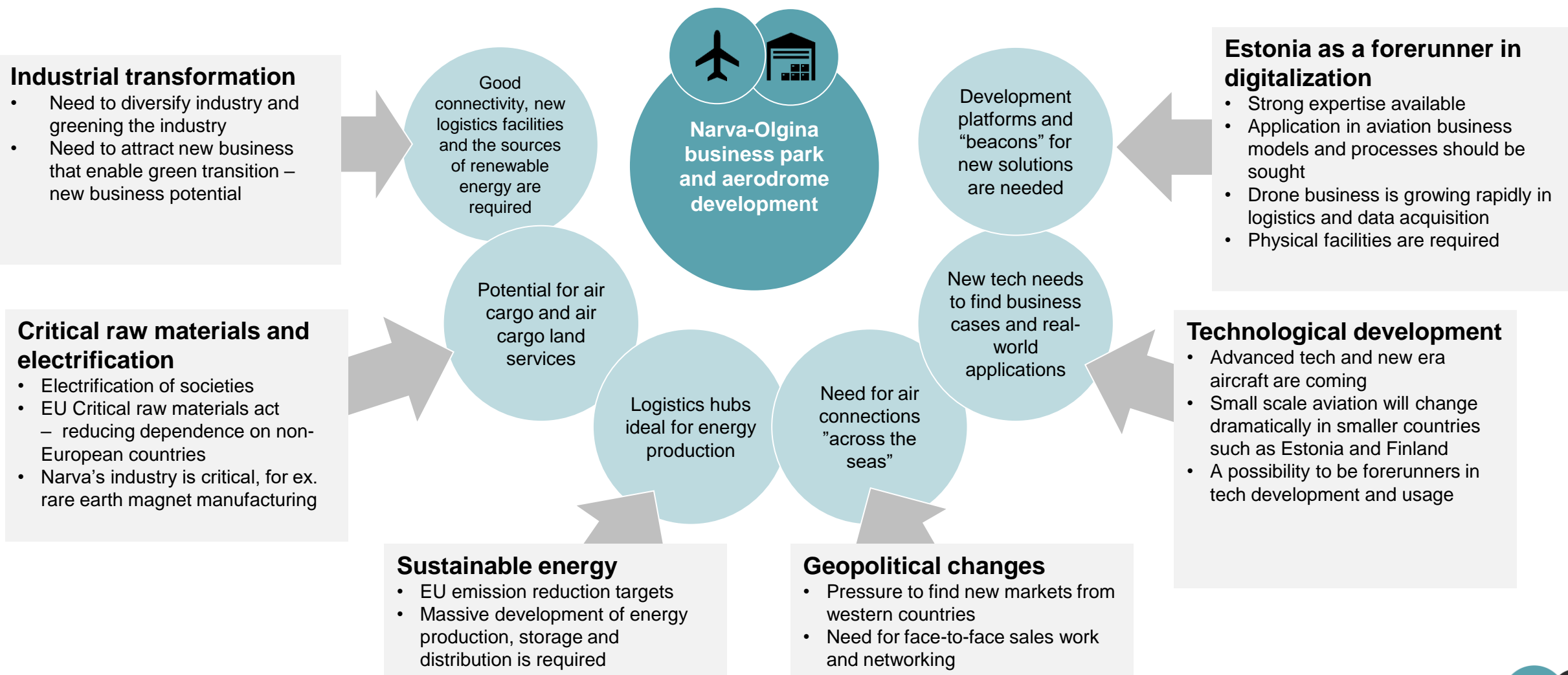
## FOCUS

- Smaller emission free aircraft
- Sustainable airport and aerodrome network that brings benefits for the whole country
- New operation and business models



# KEY DRIVERS FOR DEVELOPMENT OF THE NARVA-OLGINA BUSINESS PARK AND AERODROME

6 drivers can be identified that argue for the development





# CORNERSTONES FOR NARVA-OLGINA BUSINESS PARK AND AERODROME DEVELOPMENT

**The development of Narva aerodrome** will have influence on Ida-Virumaa business life, regional economy and the competitiveness of whole Estonia. The aerodrome is an instrument for development of business and tourism and the attractiveness of Ida-Virumaa as an investment area.

**The scale of benefits must be understood.** The impact of one single industrial investment to Narva-Olgina business park or other IVIA industrial parks can cover all investments in the aerodrome.

**Quick accessibility** is of great significance for companies. If the accessibility is not in a competitive level, investments will go somewhere else, even outside Estonia.

**Developing the state-of-the-art business park and aerodrome** induce an industrial transformation that will help meet the objectives of the European Union on many levels – carbon neutrality, self-sufficiency and resilience.

**Optimal sized aircrafts for small volumes** and the aerodrome equipped with modern technology will provide a cost-effective basis for air transport services.



# EXAMPLES OF FUTURE AIRCRAFT

Next gen aircraft are coming – it is up to the actors to start using them to boost the region's economy



Wingcopter



Eviation



Joby Aviation



ZeroAvia



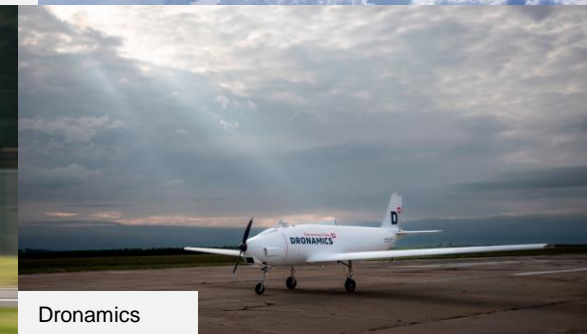
Heart Aerospace ES-30



Evektor EV-55



Rolls-Royce Accel



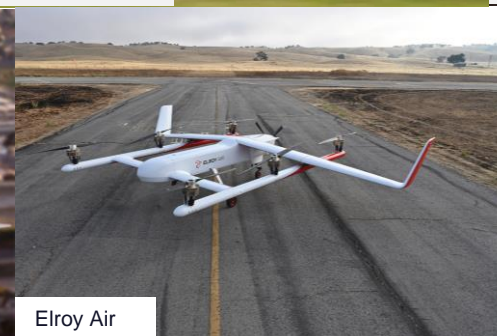
Dronamics



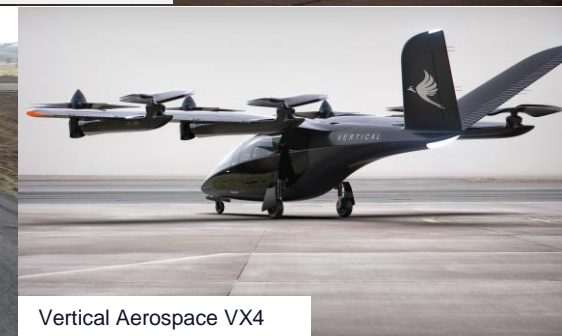
Lilium



Supernal



Elroy Air



Vertical Aerospace VX4



# FEASIBILITY OF PASSENGER AIR TRAFFIC

Between Narva-Olgina & Helsinki-East Aerodrome – flight route and operations

## ANALYSIS:

### Efficient operations with low-cost aircraft

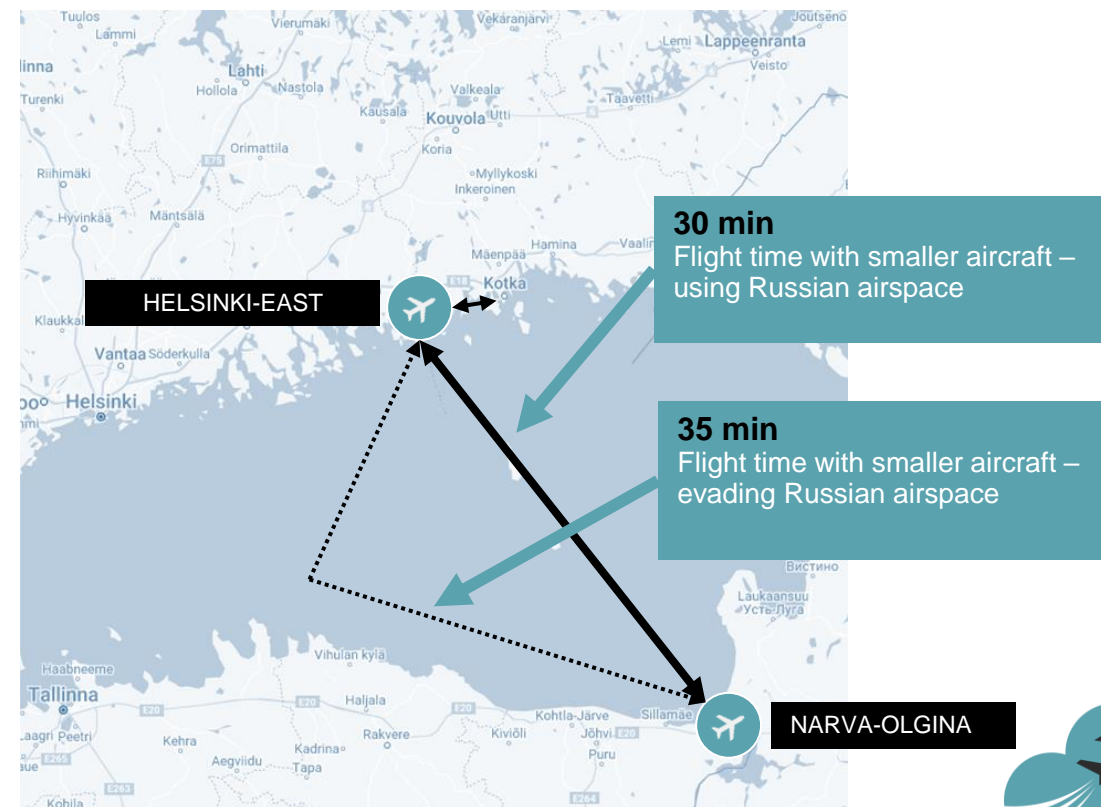
- In the first phase Pilatus PC-12, Daher Kodiak, Cessna Caravan or similar aircraft that can use sustainable aviation fuel blends
- In the second phase electric and hydrogen aircraft can be piloted between the aerodromes – both can act as forerunners of using next gen aircraft in real-world conditions

### Service level and profitability

- Better utilization rate with smaller aircraft can be achieved and is a must for cost-effective operations
- At first profitability can be sought with an on-call service that could include many destinations from Narva-Olgina aerodrome in addition to Helsinki-East
- Regular flights need time and trust to build the customer base, and this is seen as an opportunity in the long run – more on-demand based operations are suitable in the early days of the aerodrome
- Profitability will be indirect (see next chapter) at first and direct after the route has established continuity and customer base. This is typical for new air connections.

### Possibilities

- Brings Narva close to Helsinki and Southeastern Finland's economic region and will create new possibilities in business and tourism that are presented on the map on the right
- New regional route will expand the market area for industries in both countries



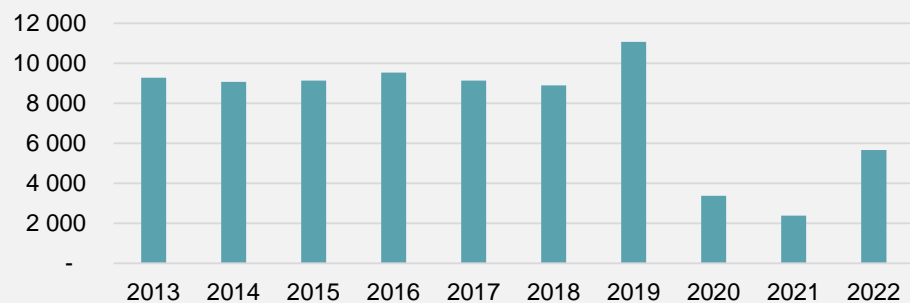


# FEASIBILITY OF PASSENGER AIR TRAFFIC

## Between Narva-Olgina & Helsinki-East Aerodrome – passenger potential

The passenger potential consists of business travellers, investors, workforce and tourists. The amount of business travel depends on the business relations formed between the two nation's companies. There is also a lot of workforce travelling between Finland and Estonia that could benefit from a fast connection to Finland – especially related to new construction projects that are happening in Kymenlaakso.

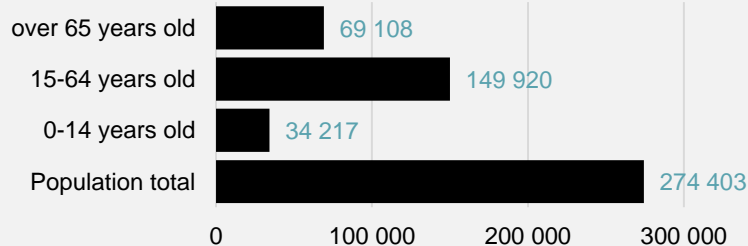
Number of accommodated Finnish tourists in Ida-Viru county



### Finnish tourism potential

- One of the key markets for Ida-Viru tourism cluster
- Tourism was growing before COVID, and has started to recover
- Easy and fast flight connections can be combined with tourism services
- Key potential lies within attracting Finnish senior citizens that have time and money (nearly 70 000 seniors near Helsinki-East)

70 km population catchment from Helsinki-East aerodrome



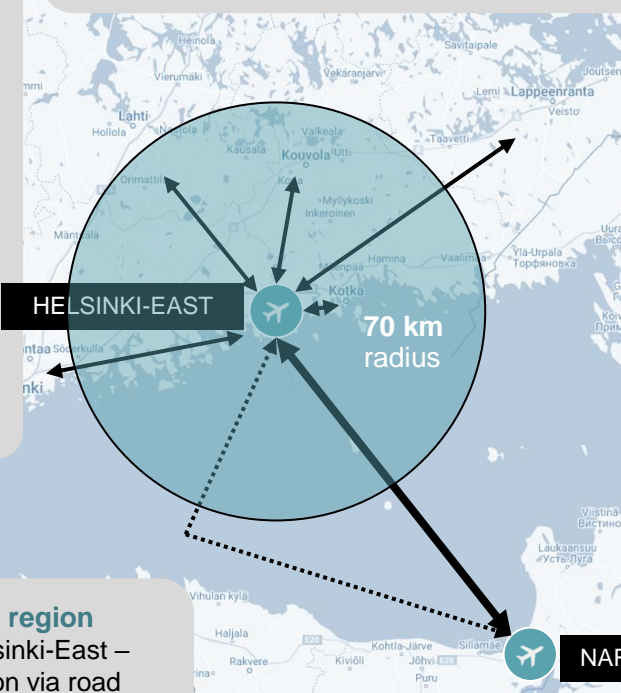
### Kymenlaakso business potential

- Strong industry: forest, chemical, construction and technology industry companies
- Gross domestic product (GDP) was 42 000 euros per resident and Genuine Progress Indicator (GPI) 5 900 euros per resident (2020).
- Future: € 3,7 billion investments in battery technologies and many other investments for green tech such as biocarbon, hydrogen, solar etc
- Potential for business relations especially regarding new green tech
- Business relations meetings, sales, customer visits

### Lappeenranta University and XAMK (university of applied sciences in Kouvola and Kotka)

Strong expertise in energy technology studies and business.

- Potential for Estonia in the larger energy transition scheme
- Benchmark visits, research cooperation and also business potential



### Finnish capital region




- Close by Helsinki-East – fast connection via road
- All the largest company headquarters
- Many business opportunities and fast accessibility via Helsinki-East

### Ida-Viru

- Strong chemical and metal industry
- Potential markets and business relations with Finnish stakeholders
- Customer visits, cooperation during sales processes

# AERODROME VISION PHASES

The vision is separated in three distinct phases – the first the most concrete, the second an ambitious target and last one being a forerunner pathway

	FOLLOWER 1-5 years	INNOVATOR 5-10 years	FORERUNNER > 10 years
	PHASE 1 24/7 aerodrome for unscheduled aviation	PHASE 2 Regional zero carbon aerodrome	PHASE 3 State of the art future aerodrome
 Aerodrome facilities	<ul style="list-style-type: none"> <li>• Paved 1 200 m runway</li> <li>• Maintenance hangar</li> <li>• Storage hangars for general and private aircraft</li> <li>• A small café and a briefing room</li> </ul>	<ul style="list-style-type: none"> <li>+ Remote control infrastructure</li> <li>+ Passenger terminal</li> <li>+ Charging for aircraft and road vehicles</li> <li>+ 100 % sustainable aviation fuel tanks and fuelling system</li> </ul>	<ul style="list-style-type: none"> <li>+ Automated maintenance</li> <li>+ Verti- and droneports</li> <li>+ Advanced digital processes in passenger and cargo flow management</li> </ul>
 Aviation services	<ul style="list-style-type: none"> <li>• On-demand business flights serving local export companies</li> <li>• Recreational aviation</li> </ul>	<ul style="list-style-type: none"> <li>+ Electric/hydrogen aviation test routes to Tallinn and Helsinki-East</li> <li>+ Extended on-demand flights with digital MaaS-service incl. last mile services</li> </ul>	<ul style="list-style-type: none"> <li>+ Wide network of regional flights with zero emission aircraft</li> <li>+ Digital on-demand service of aviation services</li> <li>+ Drone logistics network</li> </ul>
 Business park	<ul style="list-style-type: none"> <li>• Solar energy park and energy storage</li> <li>• Service and maintenance companies</li> <li>• Technical infrastructure (electricity, natural gas, internet communication, water and sewerage)</li> <li>• 23 separate land plots with an area from 1607 m2 up to 5002 m2</li> </ul>	<ul style="list-style-type: none"> <li>+ Sustainable aviation fuel production in regions Industry parks – distribution at the aerodrome. There is preliminary interest to start production of SAF in Narva using a grant from the Just Transition Fund</li> <li>+ E-commerce logistics with air cargo</li> <li>+ Office and meeting space</li> </ul>	<ul style="list-style-type: none"> <li>+ High value component manufacturing</li> <li>+ Automation companies</li> <li>+ Wide road and air cargo facilities</li> <li>+ Small electric plane manufacturing/assembling; + UAV, eVTOL and Drones assembling and testing</li> </ul>

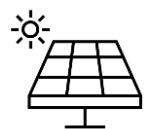


# VISION FOR THE ENERGY SYSTEM OF THE BUSINESS PARK & AERODROME

The goal is that the aerodrome and aviation services can be organized with zero emissions

A solar power plant can be established in southern part of the business park.

The energy storage based on used batteries evens out load peaks and enables the storage of solar energy and electricity grid energy during low-cost hours.



Solar panel field

Short term battery storage

Additional energy from the grid

Hydrogen production and long-term storage

Obtaining energy from the electricity grid when the production of solar panels in the area cannot meet the needs.

Waste heat can be used, for example, to heat buildings.



Electric aircraft charging

Megawatt charging system

Aerodrome electricity needs

Charging needs of trucks in the area

High power charging and slow charging

Hydrogen distribution

Hydrogen storage and distribution to hydrogen aircraft

Hydrogen can also be used to produce electric fuels for aviation needs in the long term. A great potential for Ida-Virumaa that has a goal to move away from fossil fuels – alternative usage for existing factories.

Primary use. Charging needs of eVTOL craft, Drones and fixed-wing hybrid or electric craft. Preliminary cost for a megawatt charger is 0,5 million euros + possible grid investments.



A shared use area can make operations more efficient, and the chargers can be put to more use.

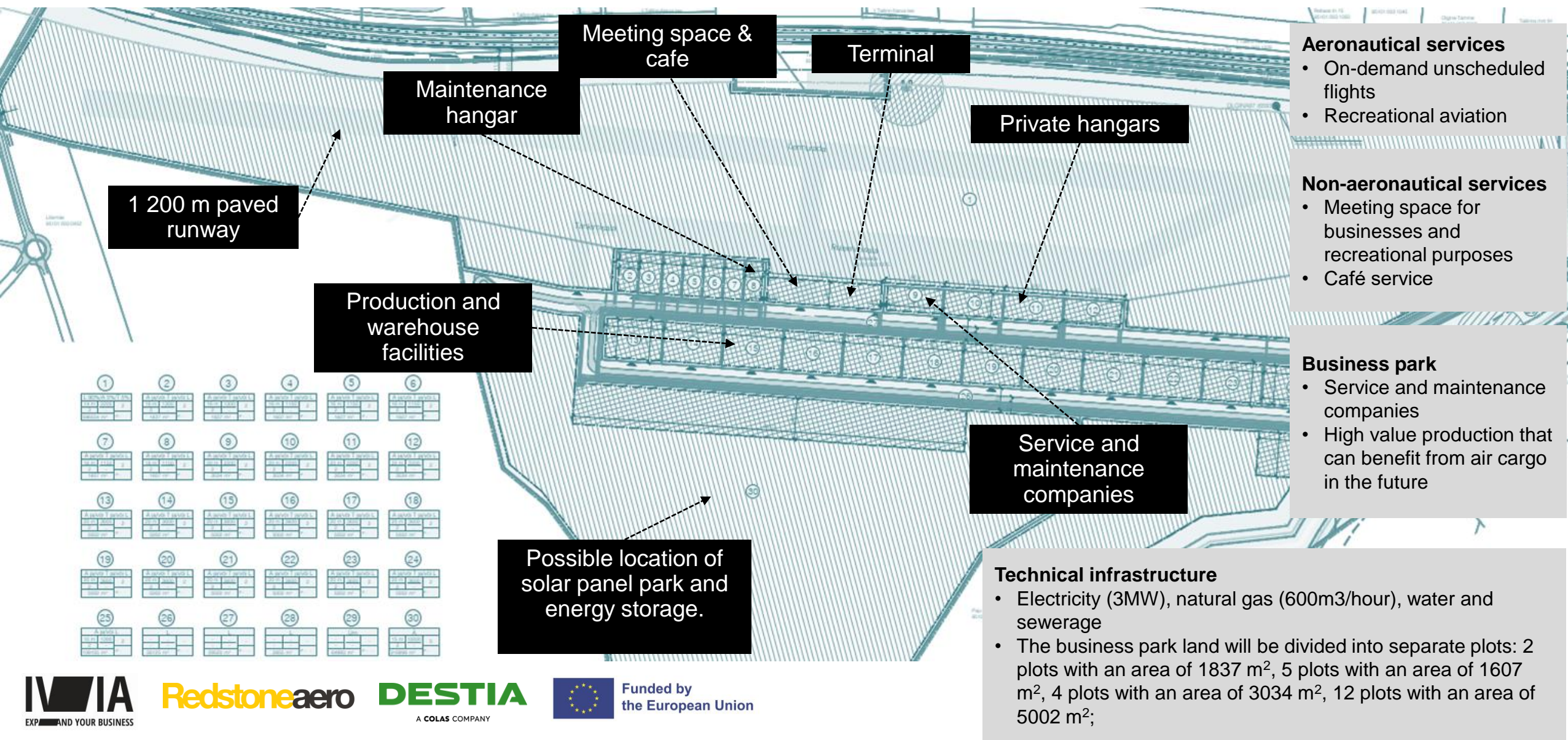
Overnight charging needs - the opportunity to use cheap energy.





# NARVA-OLGINA BUSINESS PARK AND AERODROME IN PHASE ONE

In five years, the aerodrome will be up and running and will have necessary facilities to serve unscheduled air traffic



# AERODROME DEVELOPMENT IN PHASE 1

Next steps to complete phase one of the vision

## PRELIMINARY PHASE

- Before phase 1, the preliminary phase starts from current situation and should be active until the beginning of construction of aerodrome facilities.
- This phase should be financed by local authorities equally by 2 000 EUR annually from each (Narva, Narva-Jõesuu, Sillamäe).
- As a result, aircraft can start using the runway. The grass runway at the airfield must be always well-trimmed and there must be a minimum infrastructure for pilots (briefing room with toilets).

## DEVELOPING THE AERODROME IN PHASE 1

- The aerodrome development begins with land and location related studies.
- The table below shows the steps and preconditions needed to start the unscheduled operations at the aerodrome.
- The exact time this will take can't be said as there are some public decision making required that might take time.
- The costs are based on Finnish examples and may vary depending on circumstances at Narva-Olgina aerodrome.

## DEVELOPING THE BUSINESS PARK IN PHASE 1

- Can be done in parallel with the aerodrome development
- Requires the building of public infrastructure. After this the plots can be sold to suitable companies.
- In the early stages, also the solar panel park can be built, and necessary grid investments be made.

Aerodrome	1. Land and location	2. Approvals	3. Preparation work	4. Pavement	5. Approach procedures and weather station	6. Buildings
Investments / tasks	<ul style="list-style-type: none"> <li>• Technical feasibility</li> <li>• Ownership and control of land and surrounding areas</li> <li>• Soil studies</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental permit</li> <li>• Aerodrome construction permit</li> </ul>	<ul style="list-style-type: none"> <li>• Clearing of obstacles and land levelling</li> <li>• Preparations of runway strip and apron</li> <li>• Foundation for the runway pavement</li> </ul>	<ul style="list-style-type: none"> <li>• Paving of the runway and apron asphalt</li> <li>• Windsock and other mandatory equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Design and publication of instrumental approach procedures for bad weather operations</li> <li>• Weather station</li> <li>• Runway lights for night operations</li> </ul>	<ul style="list-style-type: none"> <li>• 1500 m<sup>2</sup> hangar for aeroplanes</li> <li>• Briefing room and café</li> <li>• Fencing system</li> <li>• Sewage and freshwater system</li> </ul>
Cost estimate	1 000 000 €	150 000 €	1 000 000 €	500 000 €	1 500 000 €	2 500 000 €



# IMPLEMENTATION SCHEDULE OF PHASE 1

Preliminary phase and phase 1

Action	Q3/23	Q4/23	Q1/24	Q2/24	Q3/24	Q4/24	Q1/25	Q2/25	Q3/25	Q4/25	Q1/26	Total cost
Feasibility study												60 000
Spatial (detail) planning with environmental impact assessment												47 000
Preliminary project for technical infrastructure												20 000
Transfer land ownership to IVIA												
Getting permission to build the technical infrastructure of a business park and aerodrome												
Tender for construction of the technical infrastructure of a business park and aerodrome												3 000
<b>Construction of the technical infrastructure of the business park</b>												
gas												800 000
water												200 000
sewerage												440 000
electricity												1 000 000
telecommunication												40 000
street lighting												330 000
roads												2 145 000
<b>Construction of the aerodrome infrastructure</b>												
Clearing of obstacles and land leveling, preparations of runway strip and apron, foundation for the runway pavement												1 000 000
Paving of the runway and apron asphalt, windsock and other mandatory equipment												500 000
1500 m <sup>2</sup> hangar for aeroplanes storage and maintenance, briefing room and café, small fencing system												2 000 000
Approach procedures, weather station and runway lights												1 500 000

Phase 1 complete: **Q1/26**  
Total and preliminary cost estimate: **9,6 million €**





# CHAPTER 3

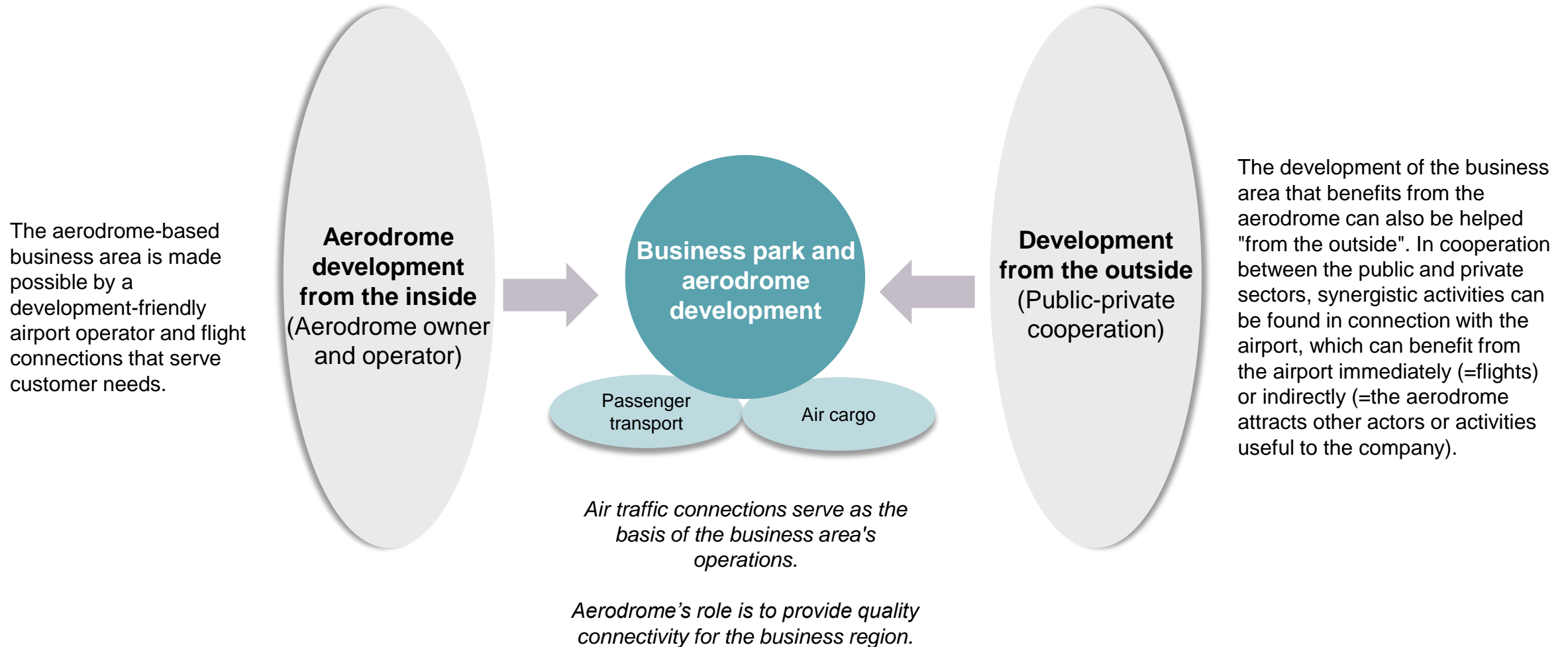
## OPERATIONS MODEL

- Principles
- Understanding benefits
- Recommended operations model
- Marketing and funding



# DEVELOPING THE BUSINESS PARK AND AERODROME

Introduction to the operation model

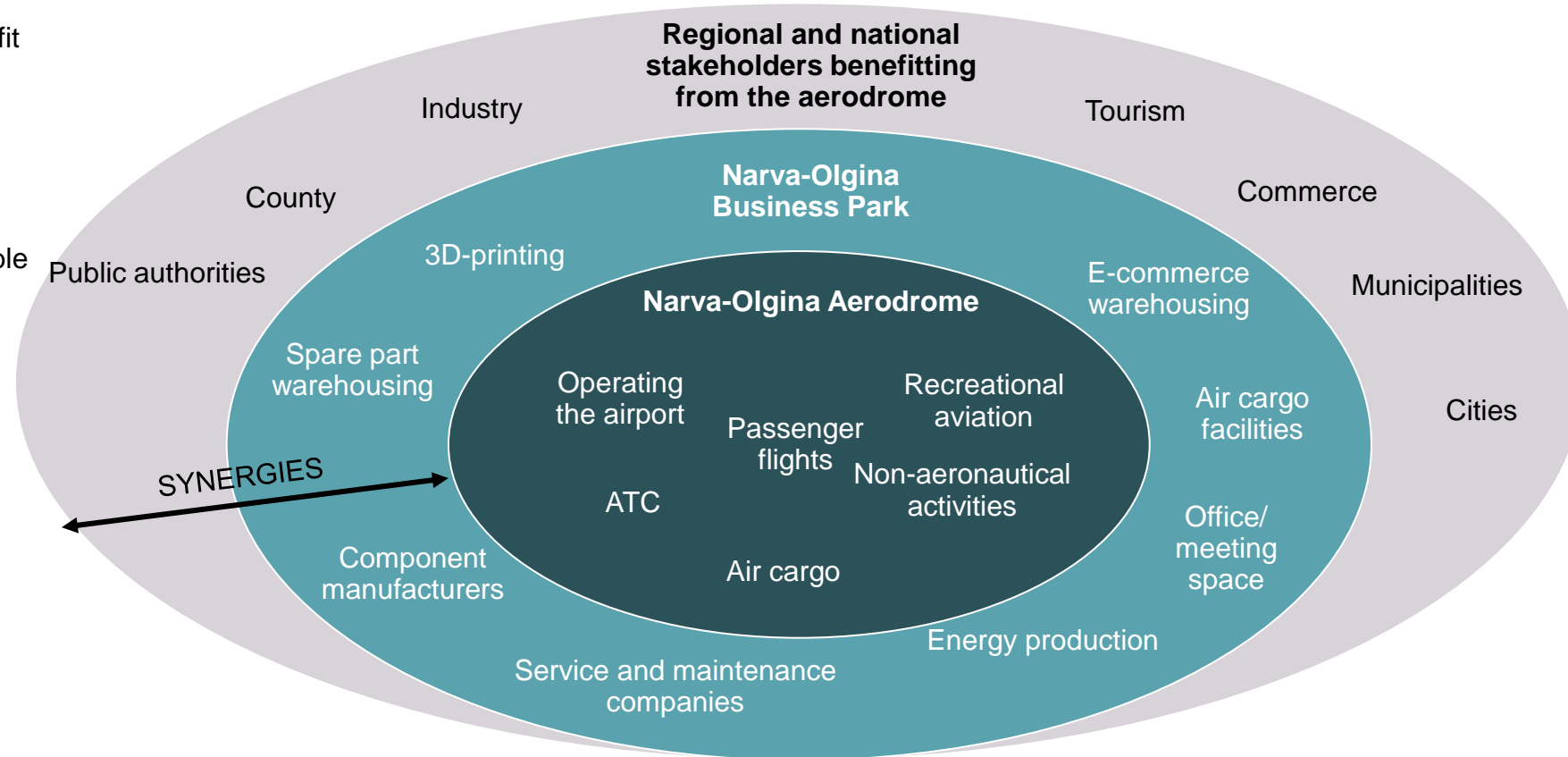


# THE SYNERGIC FUNCTIONS OF THE AERODROME

Vision of the different functions at and around the aerodrome in long the run

## Direct effects:

- The outer ring stakeholders benefit from the inner ring activities
- New business partners
- Improved competitiveness
- Fast and sustainable logistics



## Indirect effects:

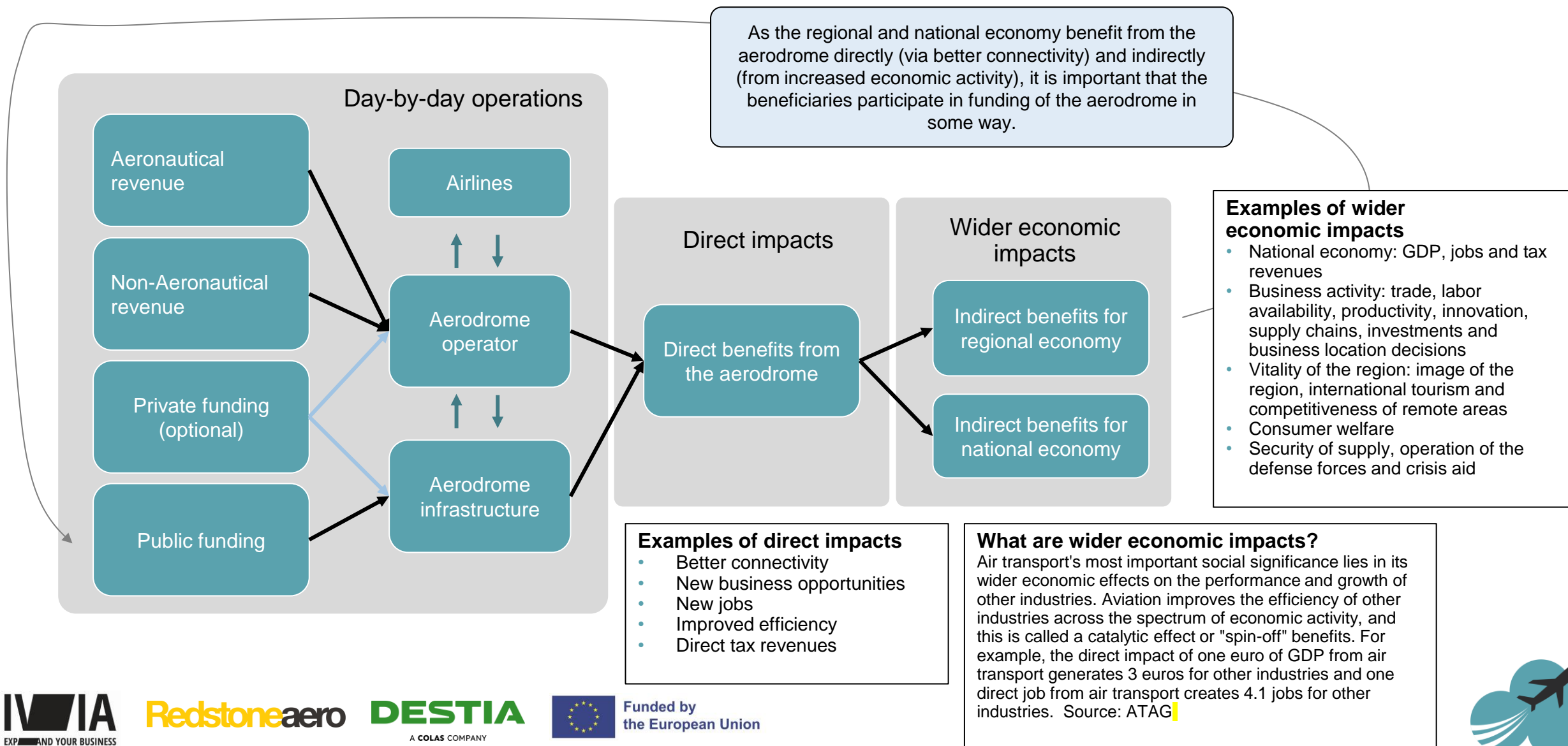
- The system described creates an ecosystem that improves the regions vitality and traction
- This leads to more people, labour force and companies locating in the region
- Industrial diversity increases
- The region's and nation's economy benefit





# UNDERSTANDING THE BENEFITS

The challenge is that the cost of running the aerodrome are visible, but the benefits are difficult to see beforehand



# BENEFICIARIES OF THE BUSINESS PARK & AERODROME DEVELOPMENT

Multiple actors can benefit from the induced effects of developing a new aerodrome

Industry	<ul style="list-style-type: none"> <li>✓ Better connectivity to form business relations</li> <li>✓ Improved logistics supply</li> <li>✓ Faster business trips – the region is more attractive for investments</li> </ul>
Tourism	<ul style="list-style-type: none"> <li>✓ Better accessibility of tourism destinations</li> <li>✓ Developing sustainable tourism concurrently with sustainable aviation</li> </ul>
Population	<ul style="list-style-type: none"> <li>✓ New possibilities for recreational activities</li> <li>✓ Possibility for recreational aviation</li> <li>✓ Possibilities for travelling close from home</li> </ul>
Flight operators	<ul style="list-style-type: none"> <li>✓ Enabling profitable flight operations</li> <li>✓ Keeping aircraft utilization rate high</li> </ul>
Ida-Virumaa county	<ul style="list-style-type: none"> <li>✓ Improved attractiveness of the county</li> <li>✓ Improved regional economy</li> </ul>
Municipalities	<ul style="list-style-type: none"> <li>✓ Improved attractiveness of the nearby municipalities</li> <li>✓ Potential for more working age population to improve municipal economy</li> <li>✓ Public emergency and ambulance flights</li> </ul>
IVIA	<ul style="list-style-type: none"> <li>✓ Easier to maintain and create new business relations</li> <li>✓ Improved chances to find new companies for industry park plots</li> </ul>
The government of Estonia	<ul style="list-style-type: none"> <li>✓ Improved national accessibility</li> <li>✓ Boosting GDP and innovations</li> <li>✓ Image as a forerunner country in new era aviation</li> </ul>
Research and education	<ul style="list-style-type: none"> <li>✓ New possibilities for science studies</li> <li>✓ Education possibilities regarding new aviation technology and operations</li> </ul>

**The development of Narva aerodrome** will influence on its environment in many ways. It is important to use different kind of possibilities to gain all beneficiaries.

At the core of achieving the benefits from the aerodrome are the companies and operators inside the aerodrome area. Companies near the aerodrome will benefit from the possibility of passenger flights and the supply of air cargo services. Narva aerodrome will provide better connectivity for passengers and air cargo of the whole Ida-Virumaa county.

There will be a significant influence from the services of Narva aerodrome to the regional economy of Ida-Virumaa and Estonia. Better connectivity by air transport services will increase the competitiveness of current companies and help attract new companies to the area. The tourism attractions will be more accessible. Because of more prosperous business life, the city of Narva and Ida-Virumaa will be more attractive for educated labour force. All of this will improve the image of Ida-Virumaa.



# OWNERSHIP AND OPERATIONS OF THE AERODROME

## Principles and guidelines

### Principles based on experiences in Finland

- Flexible and lean decision structure is a must
- Local politics can slow down processes
- Important to engage and communicate with local stakeholders
- The group of beneficiaries is wide, a beneficiary pays principle should be implemented
- Operator must have an interest to market the aerodrome actively
- Sufficient private ownership makes dealing with regulation easier
- Ownership of the infrastructure and operations should be separated
- Public infrastructure is recommended as infrastructure should not necessarily be the focus of business – operating the aerodrome should

### FUNCTIONS

BRANDING, MARKETING AND SALES

FLIGHT OPERATIONS

AIRPORT OPERATOR

BUILDINGS

AERODROME INFRASTRUCTURE

LAND OWNERSHIP

### PERSPECTIVES

- Important to improve visibility
- Stakeholders must see that they benefit from the aerodrome

- Operators need an aerodrome that is open when needed
- Costs should be reasonable

- Development minded operator is required

- Buildings can be owned by private entities

- Ownership is critical for longevity of the aerodrome. Doing business with infrastructure is not suggested (compare road and rail network vs. aerodromes)

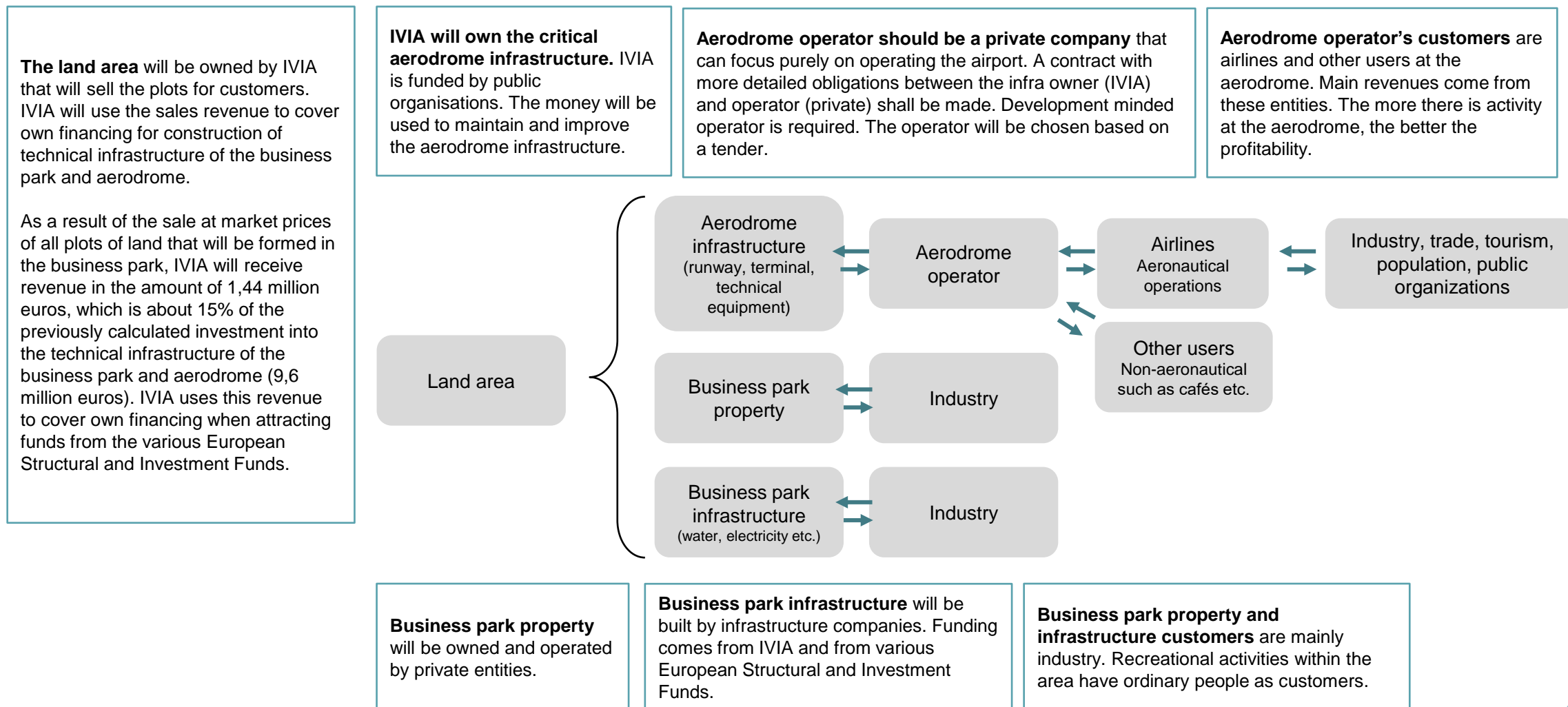
- Should enable the extension of the aerodrome and business park if required





# ROLES OF DIFFERENT STAKEHOLDERS

IVIA's role is critical for the long-term success of the aerodrome. The company is the “glue” between the private operator and public funding.



# RECOMMENDED OPERATING MODEL AND FINANCING SOLUTION

Infrastructure ownership is public and funded via public funds – aerodrome operator is private and operates commercially. Thus, the aerodrome can be run efficiently and there is stability in ownership and operations.

## Example of wider economic impacts

- New business relations and better connectivity enabled by the aerodrome and aviation services can lead to a new industrial investments.
- If the new investments employ 500 persons in total:

Regional economy effect:  
Additional **€ 1 million**  
tax revenue annually

National economy effect:  
Additional **€ 4,8 million** tax  
revenue annually

## OPERATIONS



Aeronautical  
operations

Non-  
aeronautical  
operations

- Private operator
- User fees
  - Efficient operations
  - Private funding if necessary



Aerodrome operator



Aerodrome infrastructure  
owner

## INFRASTRUCTURE

- Basic infrastructure
- Non-profit
  - IVIA owned
  - Public funding

Money from different public funds (Estonia or EU) can also be used to maintain and develop the aerodrome.

## Direct impacts

- Region's population, industry and tourism
- Flight connections
  - Air cargo services
  - Better connectivity
  - New business opportunities
  - New jobs
  - Improved efficiency
  - Direct tax revenues

## Wider economic impacts benefit the region and state

Indirect benefits for national economy

- State tax revenue

Indirect benefits for regional economy

- Local tax revenue

Vitality of the region: image of the region, international tourism

- Tourism income

Consumer welfare

More activities

Health services

Security of supply, ambulance flights

## Business activity:

- Trade
- Labor availability
- Productivity
- Innovation
- Supply chains
- Investments and business location decisions

## Attracting new population

- More population
- More consumption
- More taxes

## PUBLIC ORGANIZATIONS

The public organizations (municipalities, county, and state) get the benefits, so they help fund the aerodrome infrastructure owner (IVIA). This creates longevity and helps keep the aerodrome up and running with enough profitability



# TRADITIONAL RESPONSIBILITIES OF THE AERODROME OPERATOR

## General information

### Aerodrome operator responsibilities

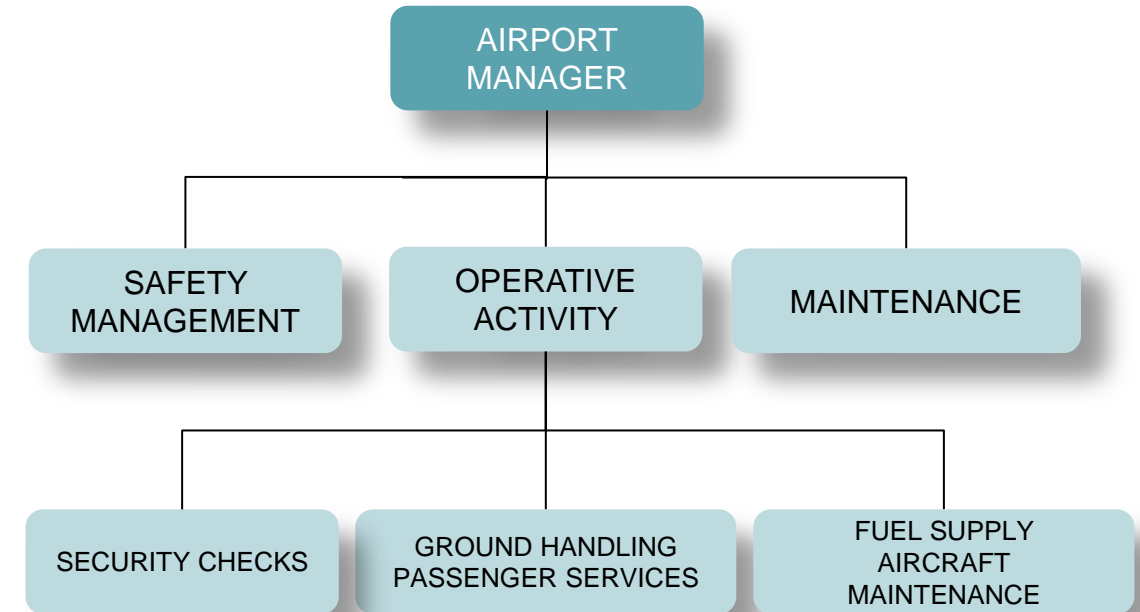
- Economic responsibility of operations
- Handling and applying the needed approvals
- Maintaining the safe condition of the aerodrome
- Air traffic controlling
- Ground handling of passengers and cargo
- Sales and communications
- Fuelling

### Operator contract possibilities

- The operator can be outsourced to handle the operational functions. This is recommended for the first phase to guarantee the service level of the aerodrome in the first phases
- The aerodrome can be rented for the operator as a whole. This is only possible, if the customer flow is sufficient
- Owner operated

### There are three options for transferring the aerodrome infrastructure to the operator

1. Local governments and some of the state institutions pay to the operator for maintaining the aerodrome infrastructure in operational condition
2. Operator gets to use the infrastructure for free
3. Operator rents the aerodrome commercially



### Option number 1 is suggested in the first phase

- Outsourced operator, who is paid to keep the aerodrome operational and offer the desired services to the visitors and users of the aerodrome
- Pricing can vary greatly depending on the desired service level
- Paying for the operator is mandatory at first to create the demand and make the aerodrome profitable





# BUSINESS MODEL FOR NARVA-OLGINA AERODROME

Business model canvas for the aerodrome

- The key clients of the aerodrome are regional actors of Ida-Viru
- The clients of the business park are the companies that benefit from locating near an active aerodrome with international connections
- The aerodrome is run by the private operator with close cooperation with IVIA

KEY PARTNERS	KEY ACTIVITIES	VALUE PROPOSITIONS	CUSTOMER RELATIONSHIPS	CUSTOMER SEGMENTS
<p>Narva-Jõesuu Municipality</p> <p>Narva Minicipality, Sillamäe Municipality</p> <p>Union of Ida-Virumaa Municipalities</p> <p>Estonian Aviation Academy</p> <p>Tallinn University of Technology</p> <p>Estonian Aviation Cluster</p> <p>Tallinn Airport</p>	<p>Marketing</p> <p>Sales</p> <p>Airport Operations</p> <p>Air Traffic Control</p> <p>Customer service</p> <p>Use in R&amp;D projects, infrastructure &amp; service development</p>	<p>Airport Operations as a Service</p> <p>Digital Airport</p> <p>Customised Proposition based on Local Requirements</p> <p>Easy and fast Travel</p> <p>Low traffic allows the airport to be used as a testbed</p> <p>Close to the city center (4 km)</p> <p>Source of renewable energy</p> <p><b>For regions:</b></p> <p>Accessibility</p> <p>Vitality</p>	<p><b>Beneficiaries:</b></p> <p>CEO Personal Relationship</p> <p><b>Service Providers:</b></p> <p>Sales Manager Personal Relationship</p> <p>Investments according to customer's needs</p>	<p>Private aviators</p> <p>Hangar rentals</p> <p>Maintenance companies</p> <p>Private aerodrome operator</p> <p><b>Beneficiaries:</b></p> <p>Municipalities</p> <p>Regional Organisations</p> <p>Export Industries</p> <p>Tourism Companies</p> <p>Passengers</p> <p><b>Service Providers:</b></p> <p>Air Traffic Carriers</p> <p>Tour Operators</p>
COST STRUCTURE		REVENUE STREAMS		
<p>One Time Cost: Set up Aerodrome Environment</p> <p>Recurring Fixed Costs: Air Traffic Control, Management, ICT</p> <p>Recurring Variable Cost: Passenger Service, Maintenance</p>		<p>Landing/Passenger Fees</p> <p>Space Rental (Hangars, Office, Service Space, etc.)</p> <p>Beneficiaries Yearly Fees</p>		



# MARKETING THE BUSINESS PARK AND AERODROME

Integrating the development area to wider marketing schemes is strongly suggested

## Marketing

The marketing strategy of the business park and aerodrome should be integrated with the general marketing of the region. Therefore, a separate marketing budget is difficult to present. Main marketing stakeholders are IVIA, the regions municipalities and also the industry itself that can promote the region. For example, local municipalities should always include the aerodrome in their marketing material when accessibility is discussed. Same goes for the tourism cluster. New sustainable tourism concepts can be created around next gen aircraft and zero emission operations.

The Narva-Olgina business park and aerodrome are an integrated solution that should be marketed as such. Both functions should be at the center of the marketing strategy. Key topics of marketing that can be integrated:

- *Business park:* New opportunities for companies to invest and locate next to an aerodrome and have synergy advantages.
- *Aerodrome:* "region's economic motor", better accessibility, state of the art aerodrome development, sustainable actions.

## Events

There are a lot of various opportunities to promote the aerodrome business opportunities. Marketing events should be selected based on the relevant stage of

aerodrome development and the targeted operations. It's important to prepare the business presentation carefully targeting the optimal partners and customers. These events also offer excellent networking opportunities and source for new ideas for business development. Some of the feasibility study content can be directly used to market the business park and aerodrome.

## Recommended events:

For latest tech development and meeting industry professionals:

- Tech Runway (Aug), Finland
- AIRTECH (Oct), Germany
- AERO Friedrichshafen

In the longer run (phase two or three), when airport is ready for commercial passenger traffic:

- Routes Europe (May)
- Connect Conference (Feb)

## MARKETING FRAMEWORK



## IVIA marketing budget for Narva-Olgina business park and aerodrome

A yearly marketing budget of 5 000 € should be reserved for event costs and social media marketing in the preliminary and first phases. This helps to increase the recognition of the business park and aerodrome development. Events are excellent opportunities for marketing and networking.



# FUNDING OPPORTUNITIES

Funding the development of business park aerodrome require strong focus on themes that are currently supported

## MAIN THEMES/SUGGESTIONS THAT FUNDING APPLICATIONS SHOULD BE BUILT AROUND



### The development is about connecting Eastern Estonia to western partners

- The development is based on highly sustainable methods and focuses on improving the accessibility of a region that has taken heavy hits due to geopolitical events.
- Improved regional accessibility increases the economic and social conditions of the municipalities



### Sustainability is at the heart of development

- The goal is to create a zero-carbon aerodrome that supports the usage of next gen aircraft – this is in line with the European Green Deal goals
- Differentiation between old views of airports and future aerodromes



### Don't separate the business park and aerodrome development

- The development consists of both business park and aerodrome development (synergy)



### The development supports industrial transformation of Estonia

- A piece of the puzzle – opportunity to boost green energy investments and make use of next gen aircraft



### New technology development and real-world usage

- Act as a beacon of new technology development
- A platform for companies to test and use their latest technology
- “Usage of new tech, such as electric cargo drones, will happen somewhere. We want to make it happen here.”



## PREREQUISITES FOR FUNDING THE DEVELOPMENT

### Development is in in line with EU taxonomy

The EU taxonomy is a cornerstone of the EU's sustainable finance framework and an important market transparency tool. It helps direct investments to the economic activities most needed for the transition, in line with the European Green Deal objectives. The taxonomy is a classification system that defines criteria for economic activities that are aligned with a net zero trajectory by 2050 and the broader environmental goals other than climate.

### EU funding opportunities

- Horizon Europe (research and innovation)
- InvestEU (Green, resilient and digital investments, private and public funds)
- Connecting Europe Facility (key energy, transport and digital infrastructure cross Europe)
- Digital Europe Programme (accelerate the recovery and drive the digital transformation of Europe.)

### Estonia funding opportunities

- Just Transition Fund for Ida-Viru (Estonian flag)
- Estonian Business and Innovation Agency
- Estonian State Shared Service Center





# LEGAL FRAMEWORK

## Legal aspects to consider when building an Aerodrome in Narva

The following laws and regulation should be considered in the preliminary phase:

- Environmental laws
  - Desired environmental permit must be applied in the early phases of the project
  - <https://www.riigiteataja.ee/en/eli/517062022003/consolide>
- Construction laws
  - Aviation law & Land use and construction law regulate construction and buildings
  - <https://www.riigiteataja.ee/en/eli/513122013003/consolide>
- Aviation laws
  - Aviation law dictates the process on how to build an airfield and the basic formal requirements for it
  - <https://www.riigiteataja.ee/en/eli/510072014015/consolide>
- EASA ADR (European aerodrome/airport regulation)
  - EASA ADR regulates the runway specifications, safety areas, runway lights etc.
  - The goal is to build an airport. Therefore, it is recommended to follow EASA ADR regulation from the beginning of the construction to avoid problems later
  - <https://www.easa.europa.eu/en/document-library/easy-access-rules/easy-access-rules-aerodromes-regulation-eu-no-1392014>



### IFR operations near the Russian border

- The proximity to Russian border affects IFR operations especially when approaching from east.
- The IFR approach procedure's design should be done in collaboration with Estonian aviation authority to accept the exceptions
- Modifying the runway position and direction for easier approaches should be considered at the preliminary phase
- If the relations with Russia get back to normal at some point, it should be possible to make the approach from the Russian side.



# CHAPTER 4

## CONCLUSIONS



# FEASIBILITY SUMMARY FOR PHASE ONE

Establishing the Narva-Olgina business park and aerodrome

Factor	Positives	Negatives
Technical feasibility	<ul style="list-style-type: none"> <li>Land will be owned by IVIA which makes decision making easier and helps with resources</li> <li>Detailed planning has started</li> <li>Technically no barriers for creating a new aerodrome and business area</li> </ul>	<ul style="list-style-type: none"> <li>Russian border – effects to flight rule planning and limits the maximum size of the aircraft</li> </ul>
Financial feasibility	<ul style="list-style-type: none"> <li>Public funding is available, and IVIA is proactive in the development</li> <li>With the right operational model, invested money from public will return to the regional economy with a multiplier</li> </ul>	<ul style="list-style-type: none"> <li>Small aerodromes are seldomly profitable by themselves – larger catalytic effects must be considered and understood</li> <li>Initial investment is larger than in the maintenance phase – might be politically challenging</li> </ul>
Market feasibility	<ul style="list-style-type: none"> <li>Local industry is indicating that flights would be used – there are over 6 600 companies in the county</li> <li>Tourism is trying to be boosted and interesting markets are nearby</li> <li>Aerodrome operators available in nearby countries</li> <li>There is demand for sustainable technologies and expertise to provide these in Estonia</li> </ul>	<ul style="list-style-type: none"> <li>Russian markets are closed – significant share of markets is unusable</li> <li>Estonian aerodrome operator market undeveloped</li> <li>There might not be a culture of flying in the region – it might take time for the companies to start using the services</li> <li>Demand potential is difficult to estimate due to change operational environment</li> </ul>
Operational feasibility	<ul style="list-style-type: none"> <li>IVIA has enough resources to advance with the planning</li> <li>There is enough expertise to build the aerodrome and necessary facilities</li> </ul>	<ul style="list-style-type: none"> <li>The operations of the aerodrome require a professional operator with experience</li> <li>The operating of future digital aerodromes is still in development so there are always some problems</li> </ul>





# OPPORTUNITIES AND RISKS

Identified opportunities and risks that should be mitigated with proper planning

## Opportunities



- Better connectivity for Ida-Virumaa's companies, passengers and cargo
- With proper marketing and focus the aerodrome with its catalytic effects can be profitable for whole region. Invested money will return to the regional and state economy.
- Support for growing industry and tourism of Ida-Virumaa
- Boosting the economy, labour force and prosperity of Ida-Virumaa
- Expansion of Narva-Olgina business park
- Forerunner position in new era aviation in Estonia
- Creating a new ownership and operation model of an aerodrome in Estonia
- The vision can be established in steps

## Risks






- Lack of understanding/communication of the benefits can lead to reduced funding
- Losing the funds for operating the aerodrome
- Political risk of longevity as public money is being used to maintain the infrastructure
- The development of aerodrome is delayed for any reason
- Less passengers and cargo than expected
- Competing activities in the area
- "Flight shaming" before more sustainable aviation options
- Legislative issues or delays in aerodrome approval processes or building rights
- Flight operational issues due to the location near Russian border
- Problems with environmental approvals

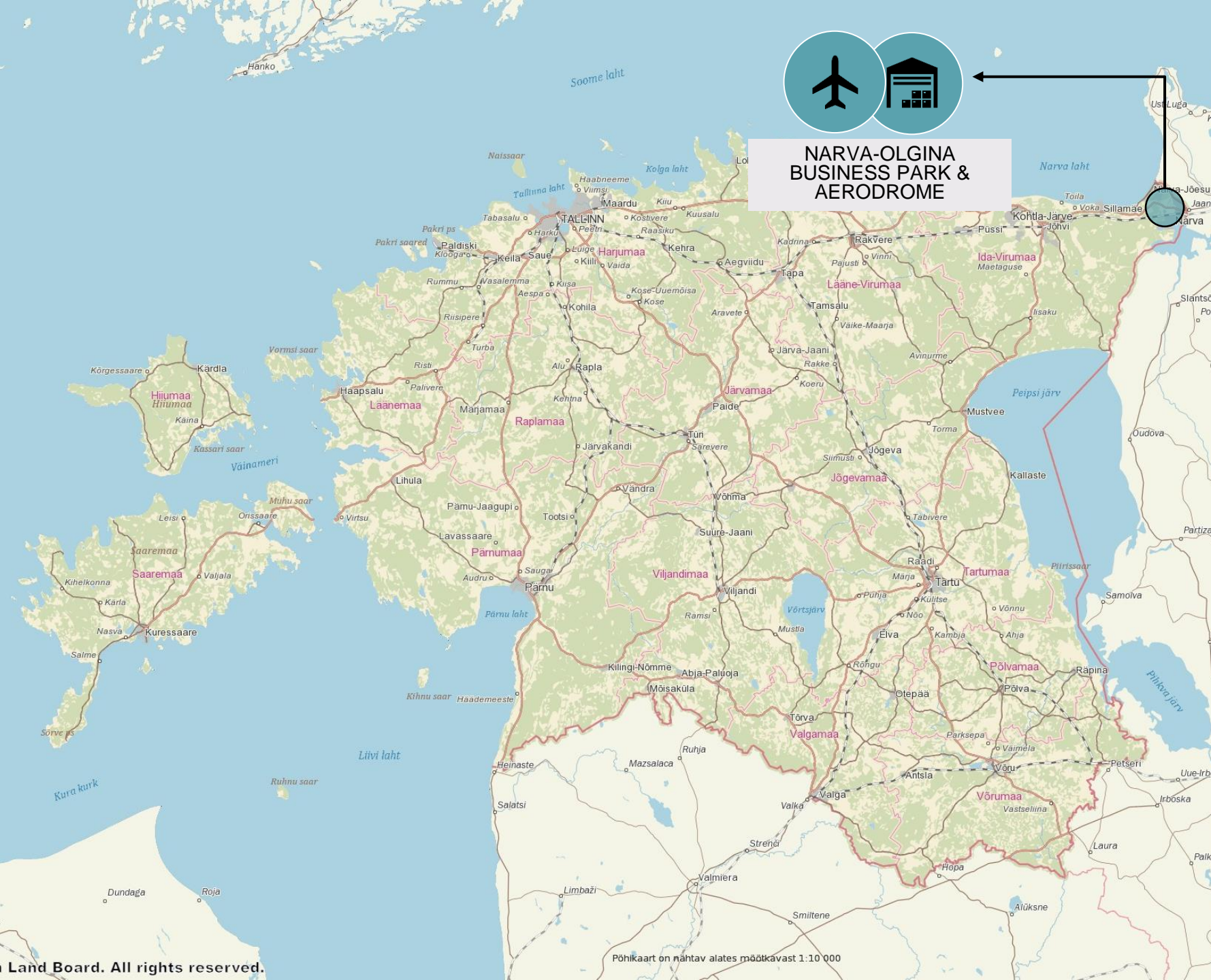


# CHECKPOINTS FOR SUCCESS

Clear goals and understanding of success factors will set the development on the right path from the beginning

 GOALS	 CRITICAL SUCCESS FACTORS	 KEY ACTIONS
Aerodrome is up and running in an efficient and carbon neutral manner	Maximum usage of digital and automated solutions. High-quality and effective processes defined and implemented.	<ul style="list-style-type: none"> <li>• Take full advantage of Estonian competence in digital solutions</li> <li>• Involve private and public actors in the development of the aerodrome</li> </ul>
Operating the aerodrome must be profitable to ensure longevity	The finances must be in order and the contracts must be long-term	<ul style="list-style-type: none"> <li>• Clear revenue model and separation of infrastructure and operations</li> </ul>
Efficient and professional operations	Skilled personnel with the right attitude	<ul style="list-style-type: none"> <li>• Choose the aerodrome operator with care</li> </ul>
The aerodrome and aviation services increase the region's accessibility and attractiveness	The surrounding region, municipalities and other actors are committed to the aerodrome's success	<ul style="list-style-type: none"> <li>• Analyse in more detail the wider economic impacts</li> <li>• Communicate the benefits clearly for key stakeholders</li> </ul>
Increased air traffic from the aerodrome with zero emissions	Active marketing and sales work	<ul style="list-style-type: none"> <li>• Contact airlines that plan to use next gen aircraft</li> <li>• Seal deals with operations and plan the routes with industry</li> </ul>
Co-operation with educational institutions	Cooperation with with Estonian Aviation Academy and other institutions	<ul style="list-style-type: none"> <li>• Active contacts with the Academy</li> <li>• Participation in Academy events</li> </ul>





## NARVA-OLGINA BUSINESS PARK & AERODROME

A feasibility study for a sustainable and competitive business ecosystem

**IVIA**  
EXPAND YOUR BUSINESS

**Redstoneaero**

**DESTIA**  
A COLAS COMPANY



Funded by  
the European Union