



# Aviation renewal 2022

March 2022



# Key highlights

Our continuing mission is to provide the safest, most efficient aerospace system in the world.

- Operation on all Avinor airports and ANS
- Focus on preparedness for increased air traffic

## Covid-19

- Strong negative correlation between travel restrictions and demand for air travel
- Support from the Norwegian government with financial support  
March 2020 – Q3 2021
- Goal to be self-financed without state-support or subsidies

# Norwegian State ownership – goals

(List of companies is not complete)

## Category 1

- Maximizing return on invested capital

- Flytoget AS (100 %)
- Mesta AS (100 %)
- Baneservice AS (100 %)
- Aker Solution ASA (12.23 %)
- Akastor ASA (12.23 %)

## Category 2

- Maximizing return on invested capital combined with other defined objectives

- Statkraft SF (100 %)
- Norsk Hydro ASA (34.26 %)
- Nammo AS (50 %)
- Kongsberg Gruppen ASA (50 %)
- Equinor ASA (67 %)
- Telenor ASA (53.97 %)

## Category 3

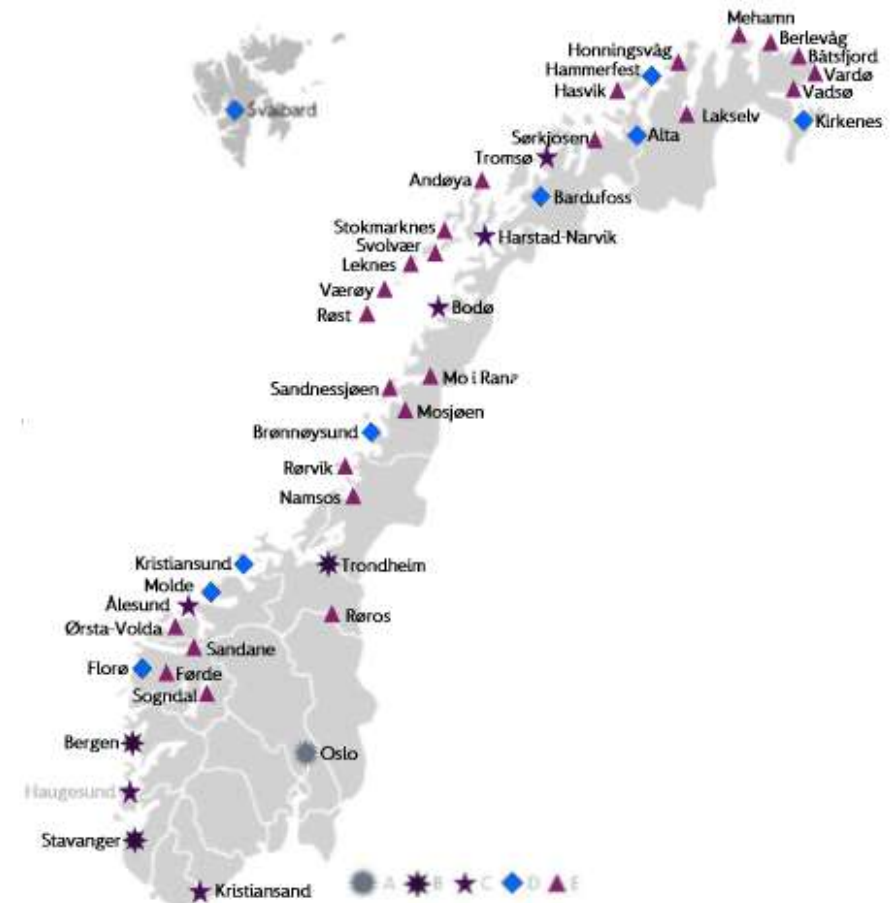
- The most effective achievement of regulatory and political objectives

- **Avinor AS** (100 %)
- Nye Veier AS (100 %)
- Bane NOR SF (100 %)
- AS Vinmonopolet (100 %)
- Norsk Helsenett SF (100 %)
- Statskog SF (100 %)

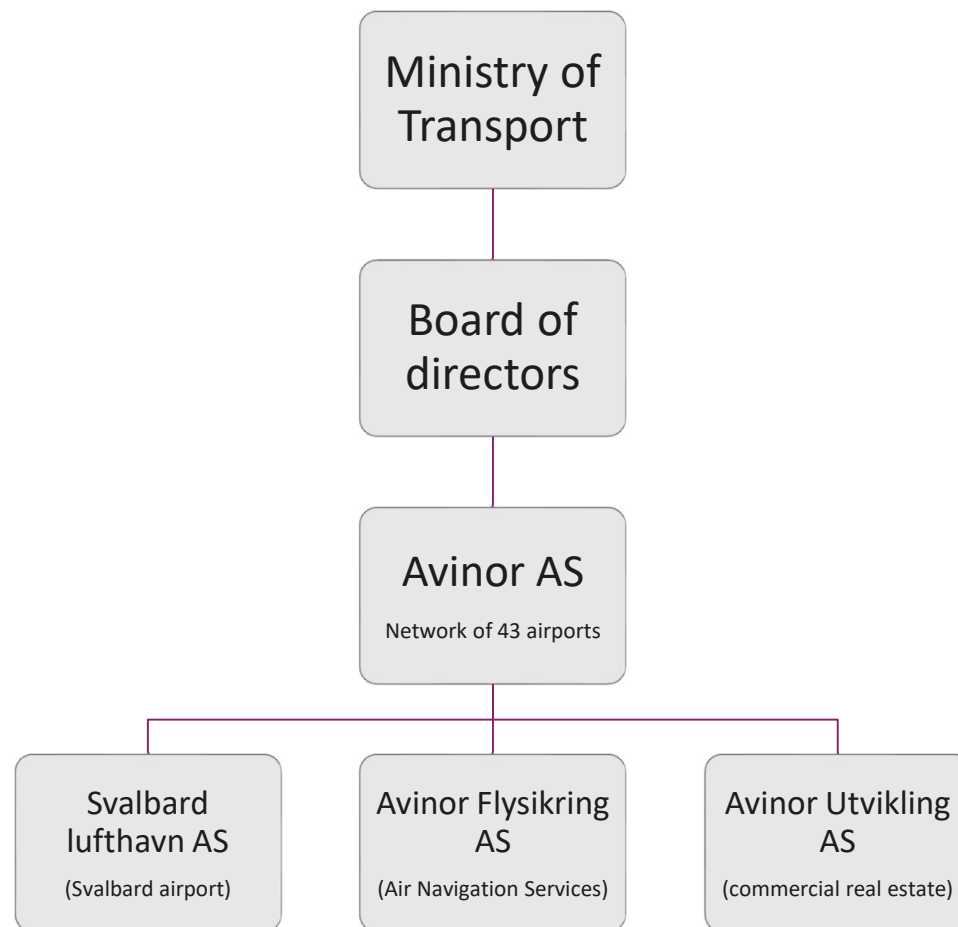
# Aviation in Norway

Airports and air navigation services are key national infrastructure

- Population: 5.43 million (2021)
- 2 700 km coast line
- 43 Avinor airports
- 22.4 million passengers per year (2021)
- Cost and time-efficient transportation with challenging topography



# Legal structure



# The Norwegian Ministry of Transport

- both regulator of and sole shareholder in Avinor AS

## Regulatory requirements

- Airport charges regulated using single-till principle
- Air navigation charges as defined by Single European Sky performance scheme
- Other operational regulations, e.g. safety, security, environmental
- Regulatory bodies:
  - ICAO
  - EASA
  - Eurocontrol
  - CAA Norway

## Shareholder objectives

- Safe, reliable, cost-efficient and environmentally friendly operations
- Network of airports and air navigation services serving both civil and military operations
- Safeguard adequate capacity and service standards
- Perform industry-related tasks as defined by owner
- **Goal to be self-financed without state-support or subsidies**
- Defined financial targets with respect to profitability, capital structure and dividends
- **Min. 40 % Equity/Equity + Net Interest Bearing Debt (company by-laws)**

# Air Navigation Services

## Tower operations



- Air Traffic Control is provided at all large and regional airports except for Kristiansand and Ålesund where Saerco is delivering the service.
- Services provided are either Tower or combined Tower/Approach control.
- AFIS at Remote Tower Centre and at regional airports.

## Area Control

- Norway ACC: one unit, three locations, four sector groups.
  - North (Bodø)
  - West (Stavanger)
  - East (Oslo/Røyken)
  - TMA (Oslo/Røyken)
- Certified in accordance with (EU) 2017/373, valid from 17 December 2020. (This certificate is valid whilst the certified service provider remains in compliance with Implementing Regulation (EU) 2017/ 373 and other applicable regulations and, when relevant, with the procedures in the service provider's documentation).
- Certificate number NO.ATM/ANS.0002 – Issue 3, date of issue: 27 January 2022

# Traffic volume 2019 - 2021

Traffic volume	2019	2020	% change 20 vs. 19	2021	% change 21 vs. 19
<b>Passengers (in millions)</b>					
Total	54.1	20.4	- 62%	22.4	-59%
Domestic	30.7	14.8	- 52%	17.2	-44%
International	22.8	5.0	- 78%	4.7	-79%
Offshore	0.59	0.51	- 14%	0.54	-8%
<b>Movements (in thousands)</b>					
Total	679	428	- 37%	463	-32%
Domestic	444	322	- 27%	360	-19%
International	193	66	- 66%	64	-67%
Offshore	42	41	- 2%	39	-7%
<b>Freight and mail (in thousand tons)</b>					
Total	214	199	- 7%	219	2%
<b>Overflights</b>					
Total	78 700	36 400	- 54%	47 100	-40%

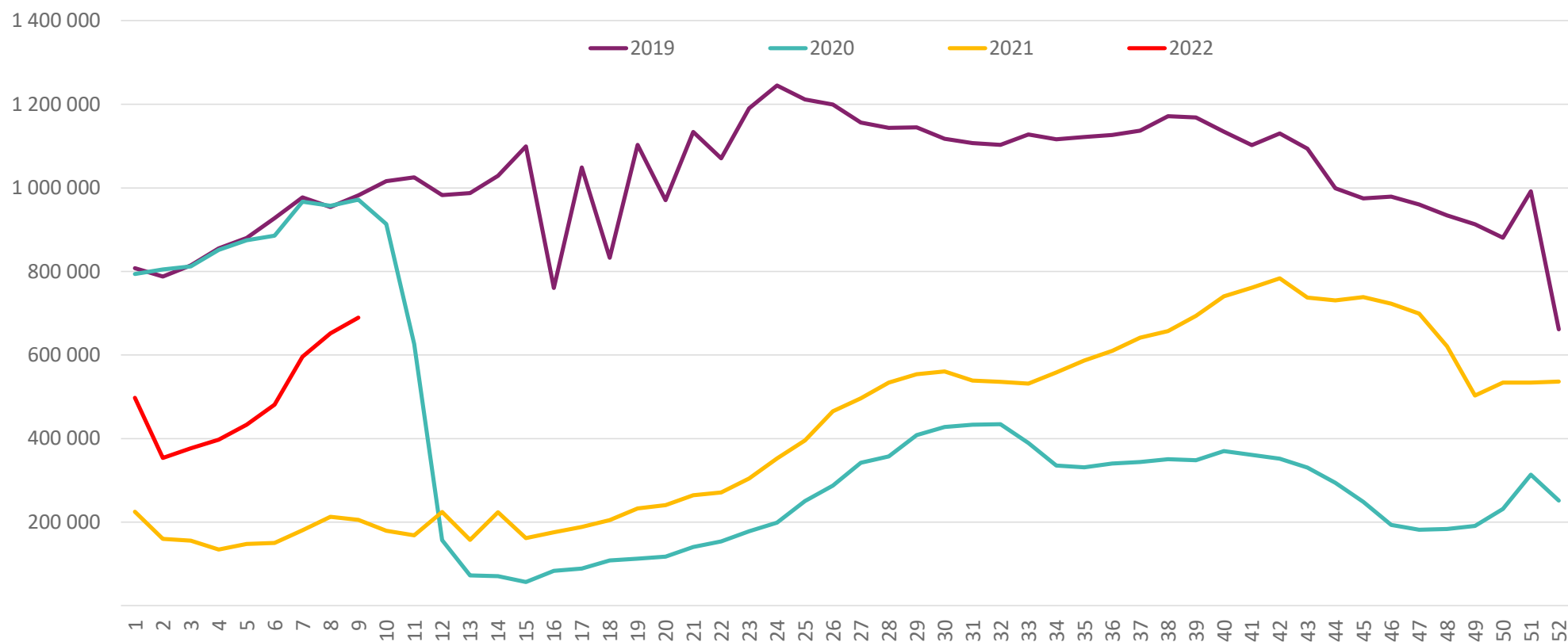
## Air traffic in 2021

- Air traffic is still far below 2019-levels
  - Less effect of travel restrictions on domestic travels compared to international travel
- Larger reduction in passengers than movements
  - Offshore traffic has largely operated as normal
- Gradual increase in international travel
  - Corona certificate was made valid for travelling
  - Continued to recover from early autumn as a large part of the population got their 2nd vaccination dose
- Omicron, the sixth wave
  - Omicron led to new restrictions and dampened recovery towards the end of 2021



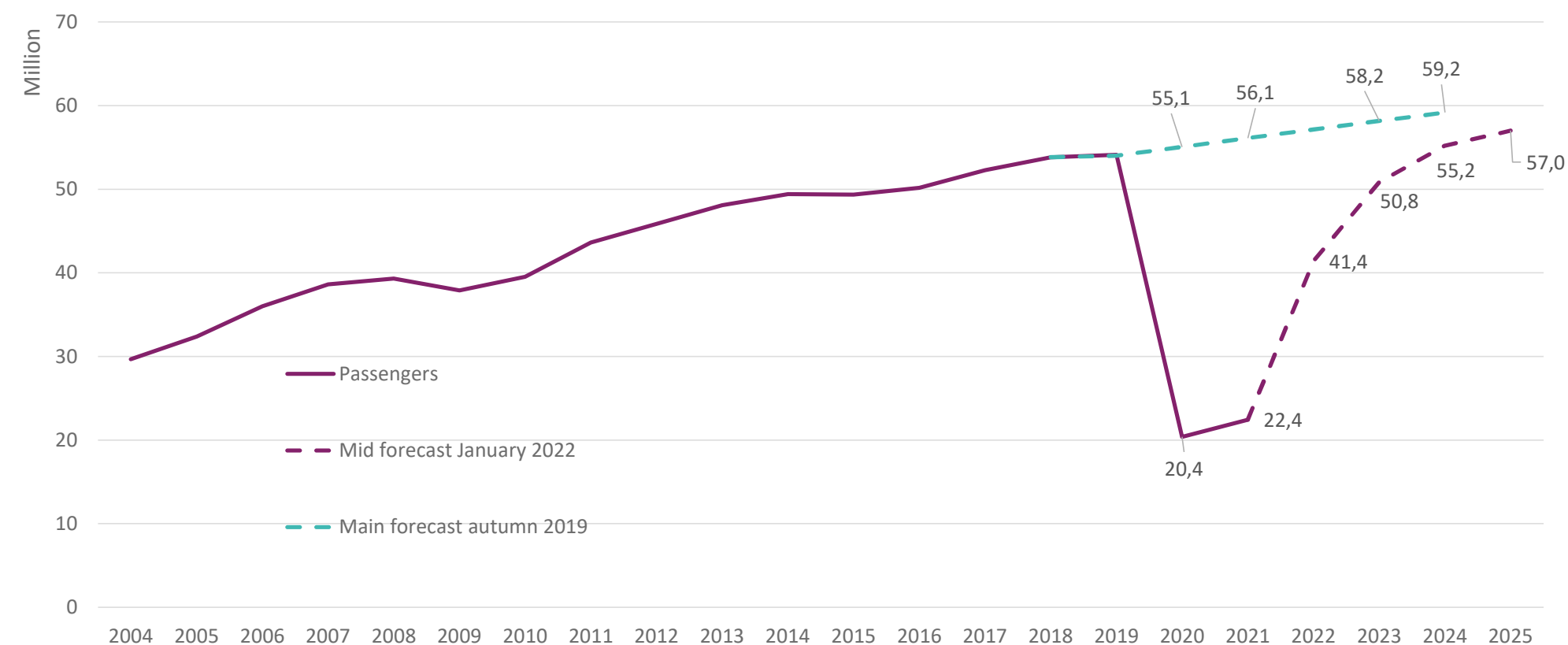
# Avinor passengers per week

- Passengers. Week 1 2019 – week 9 2022



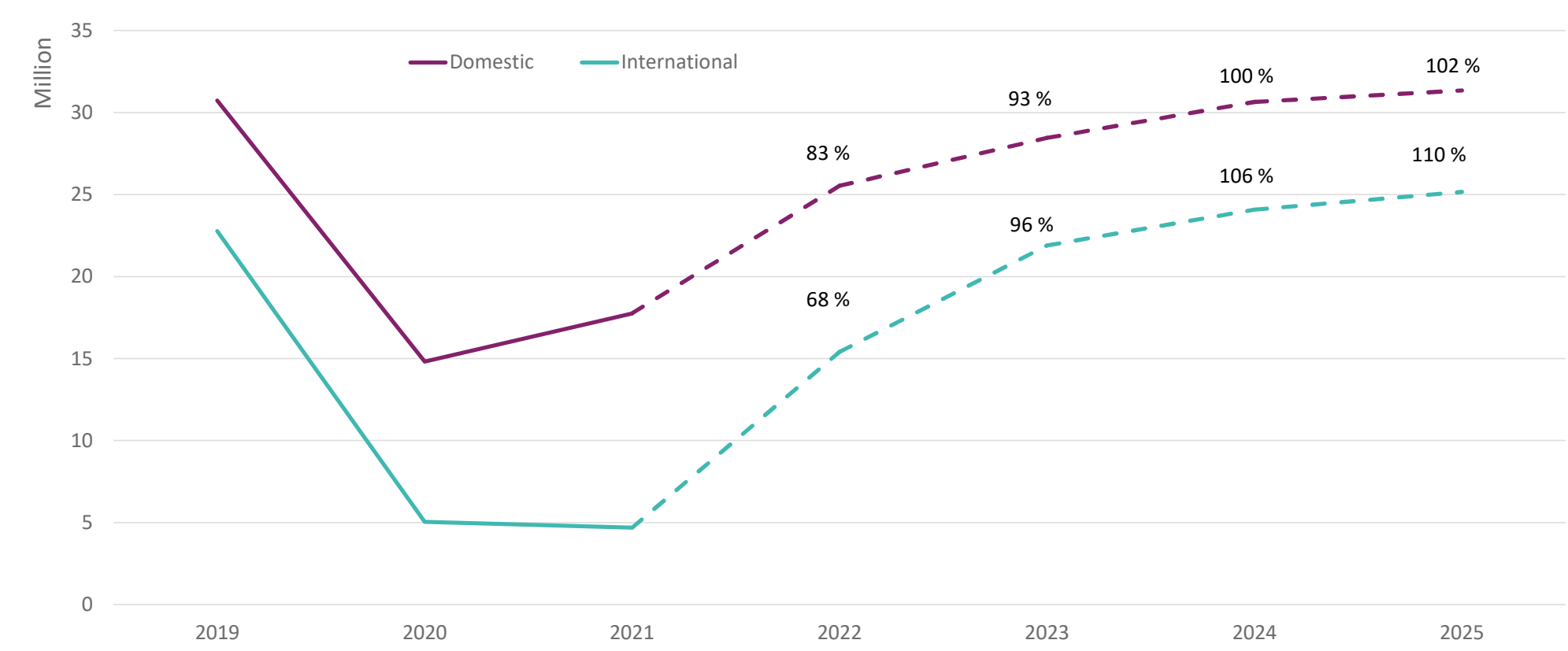
# Passenger forecasts until 2025

- Passengers per year in millions. 2004 - 2025



# Passenger forecasts until 2025

- Passengers (domestic and international) per year in millions. In percentage of 2019 numbers. 2019 - 2025

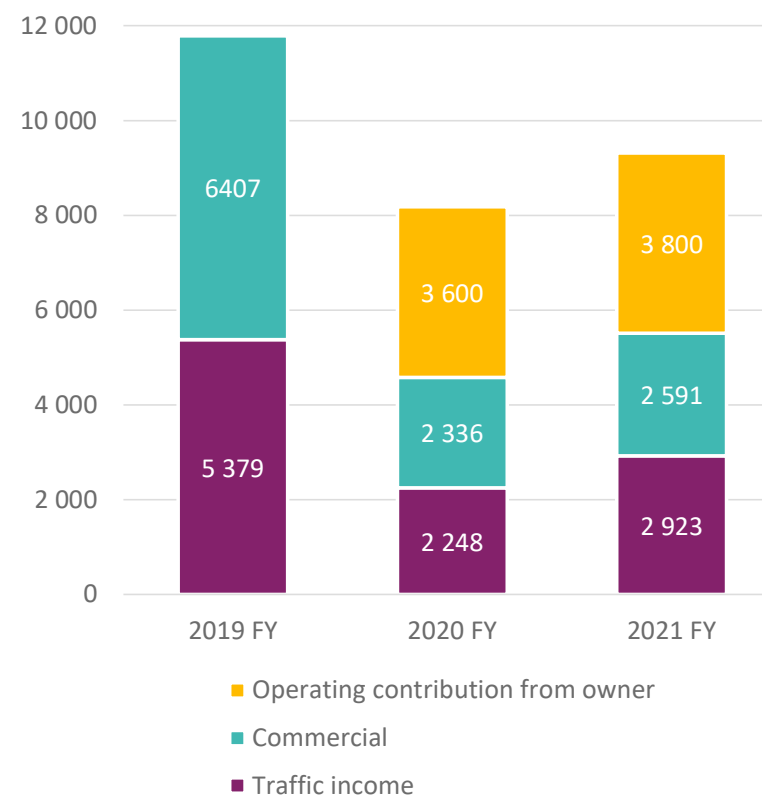


# Group revenues

- Million NOK. 2019 - 2021

	2019 FY	2020 FY	2021 FY
Traffic income	5 379	2 247	2 923
Other operating income	6 407	5 936	6 391
Total group income	11 785	8 183	9 314
Total group expenses	<b>8 151</b>	<b>6 333</b>	<b>6 324</b>
EBITDA group	<b>3 635</b>	<b>1 850</b>	<b>2 990</b>
Depreciation / amortization	2 172	2 199	2 197
Net finance income/(expenses)	(563)	(576)	(532)
Profit/(loss) before tax	900	(926)	261
Income tax expense	198	(202)	58
Profit/(loss) after tax	<b>702</b>	<b>(724)</b>	<b>204</b>
Extraordinary income/expense	(871)	3 600	3 800
Normalized EBITDA	4 506	(1 750)	(810)

Revenue distribution 2019 – 2021



# Covid-19 - package of measures

## Norwegian state

- Reduced charges for the airlines
  - Take-off charges waived 13.03 to 31.10.2020
  - Passenger charges, security charges and transfer charges waived 13.03 to 30.06.2020
- Eurocontrol – postponed payment of en-route charges
- Extended the layoff period from 26 - 52 weeks (from 01.11.2020)
- Loan facility from GIEK with state guarantee to SAS, Norwegian and Widerøe
- The Norwegian state has purchased some domestic routes to secure a minimum of scheduled traffic 2020 / 2021

## Ministry of Transport

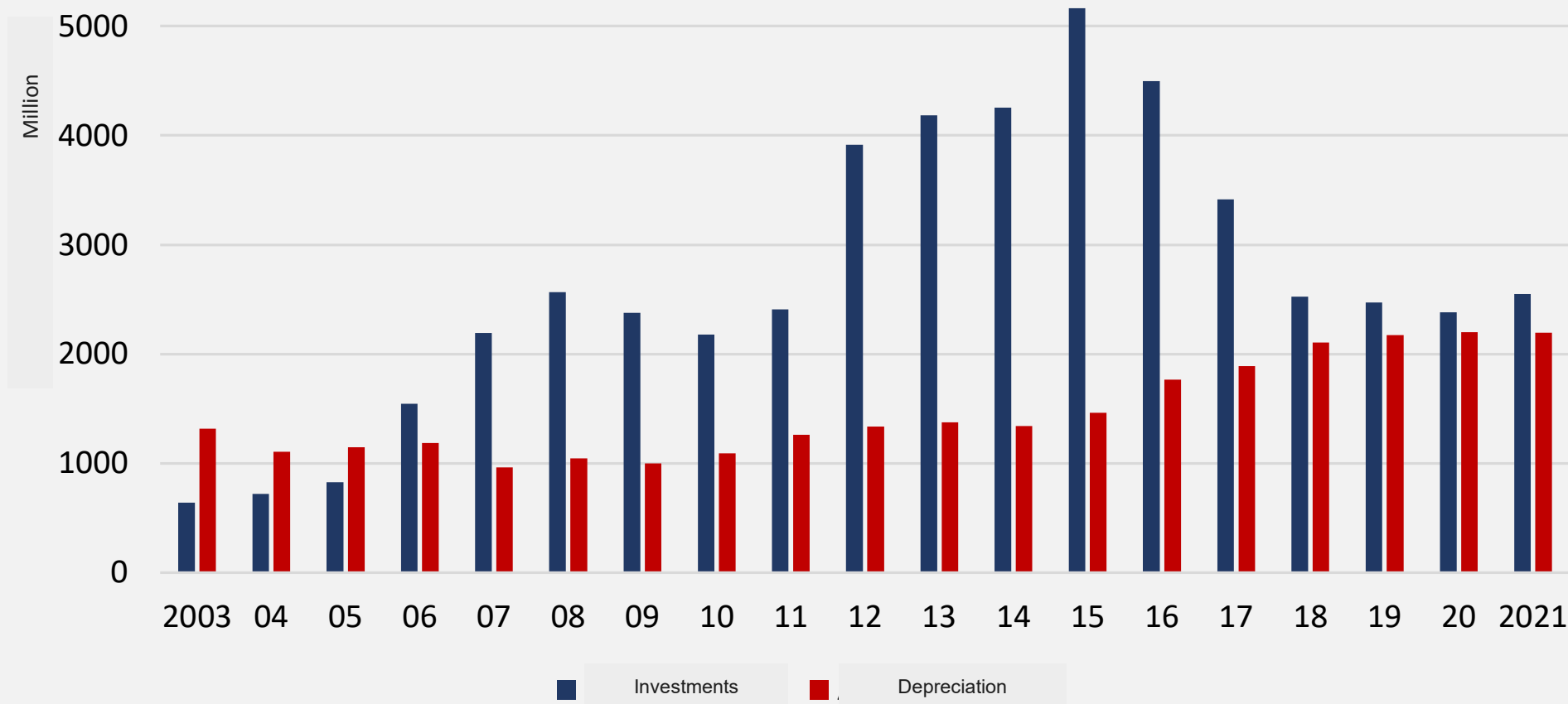
- 3.6 bn NOK 2020; and
  - 3.8 bn NOK 2021 in operating contribution
  - No dividend payment 2020 / 2021
  - No instalments on state loan in 2020 (444 m NOK)
- Total of approximately 8 bn NOK

## Avinor

- Reduction of Capex by 1 bn NOK
  - Owner has made demands in relation to Capex
- New cost cut programme “Profitable Avinor”
  - Reduction of operating cost by 1 bn NOK in 2022
- Issued 2 bn NOK in bonds
- Issued 500 m EUR in bonds
- No drawdown on the 4.3 bn NOK in available credit lines
- Full or partial layoff of 450 employees

# Investments vs. ordinary depreciation

- Million NOK. 2003 - 2021



# Projects

## Tromsø Airport New terminal



- Started February 2021, expected completion in January 2024
- 10 000 sq meters
- Total cost 971 m NOK

## Oslo Airport Non-Schengen expansion



- Extension of Non-Schengen part of terminal started in January 2019
- ~30.000 sq meters terminal extension
- Completed February 2022

## Oslo Airport Baggage handling system



- Replacement of existing baggage handling system (BHS) in Terminal 1
- Start up of installation autumn 2022. Completion autumn 2025
- Total cost ~ 2 bn NOK
- Aims at creating a BHS of the future with focus on flexible solutions and with a high degree of automation
- Driverless luggage trucks will be tested over a period of 3 year

# Testing of autonomous vehicles

## Autonomous snow trucks at Oslo Airport



- First truck has arrived, 12 expected during 2022 in total
- Test phase with driver in every car during winter season 21/22
- Further progress will be dependent on testing
- Emergency stop button in every car and in tower
- When implemented, there will be a driver in the first car in the line

## Innovation project - autonomous rover at Stavanger Airport



- Innovation project, testing at Stavanger in 2023
- Used to perform runway inspection
- Will be closely monitored by personnel at all time when in use
- Tested on runways during night time only



## Remote Towers (RT)

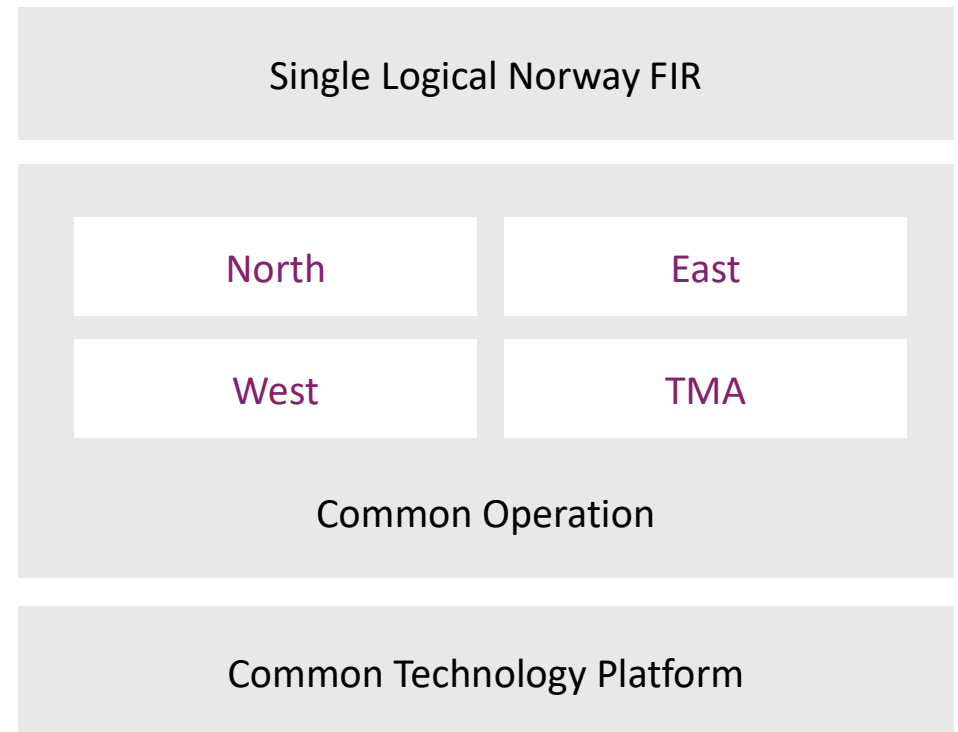
- Avinor Flysikring AS signed a contract with Kongsberg Defence & Aerospace in 2015
- Contingency Remote Tower Center (CRTC) was established at Bodø in June 2017
- The contract has a scale of implementing RT at 15 airports, with an option of another 21 airports
- Main Remote Tower Center (MRTC) – a new building at Bodø airport – was completed Q2 2020
- Operations are scheduled to be moved from CRTC to MRTC during Q2 2022

# Actual and planned operationalization Remote Towers – phase 1



# FAS – Future ATM System - Project

- Avinor ANS is investing in an effective and future orientated ATM system for Norway ACC
- Contract signed June 2016; iTEC alliance, Indra; Planned operational (Southern Norway) 2025
  - Northern Norway ACC - TBD
- Baseline platform will be devolped with our partners in the iTEC alliance
- mutual contingency between production sites
- new "conflict detection tools"
- new "tactical tools"
- dynamic sectorization
- greater degree of automation
- lay the foundation for considerable efficiency at European level



# NORWAM – Norwegian Radar, WAM\* and ADS-B\*\* Implementation Program

## AIM

- End of life for a number of conventional radars, which will not meet new operational requirements for surveillance
- Reduce costs related to implementation and maintenance on surveillance equipment

## HOW

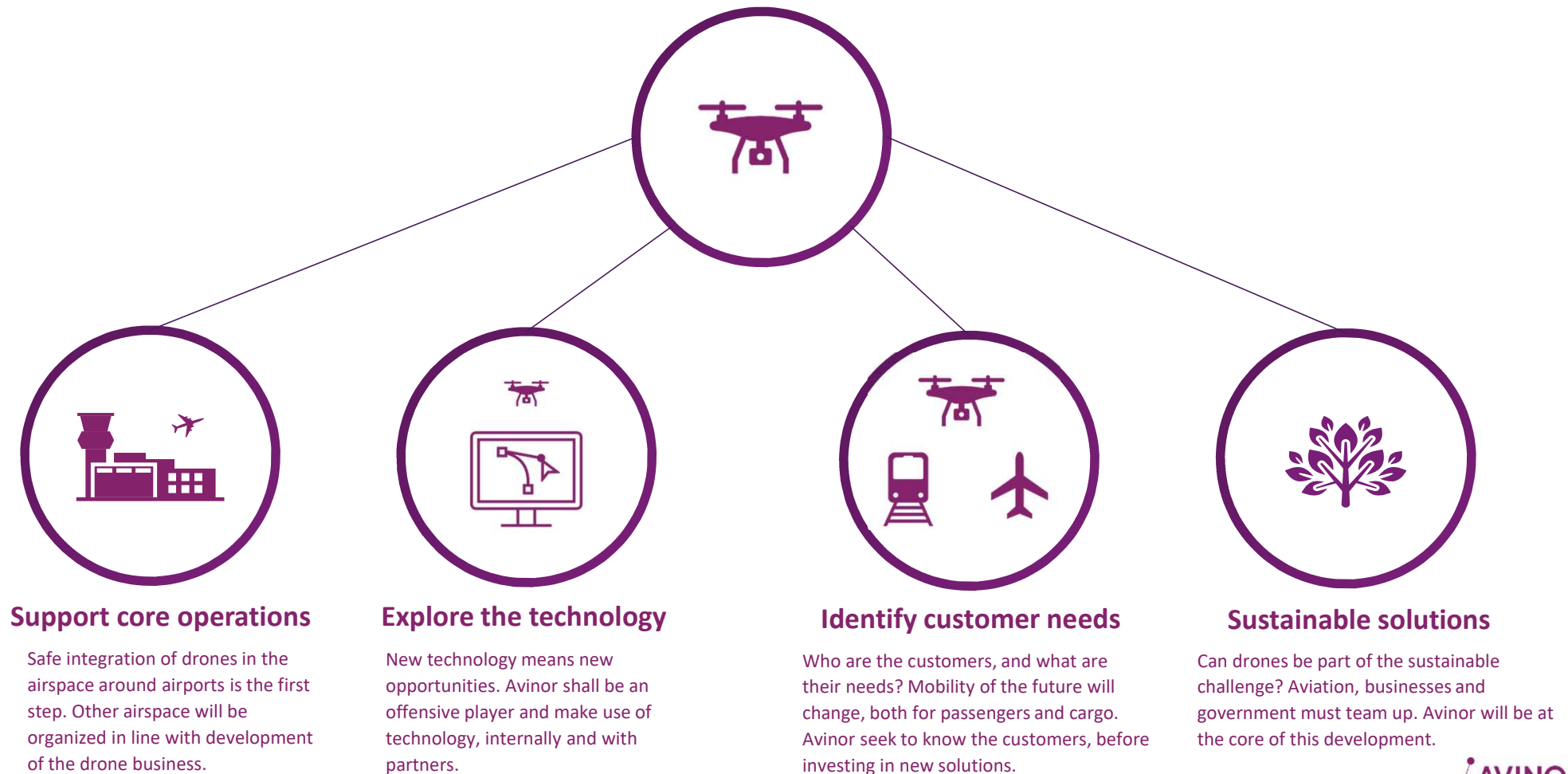
- Safety analysis conducted – defining sensor types

- OPS requirement, Business case. Technical analysis, overall plan defined
- Implementation of new technology including:
  - 151 unique sites
  - Appx 160 new sensors
  - Centralized processing with backup of systems and technology
  - Integration – existing systems
  - Safety approval of new systems
  - Training and operationalization

\*Wide Area Multilateration

\*\* Automatic Dependent Surveillance-Broadcast

# The Avinor Drone Program: a strategic initiative



# The Avinor Drone Program: key areas of development



## Integration of drones in the airspace – UTM

Drones have different requirements than traditional aviation – but will use the same airspace



## Test Arena

Use Avinor's infrastructure to test future needs and services



## Drones for internal use

Utilize drones for internal use to reduce cost, optimize operations, increase quality, etc.



## Drone detection

Detection systems for safe and efficient airport operations



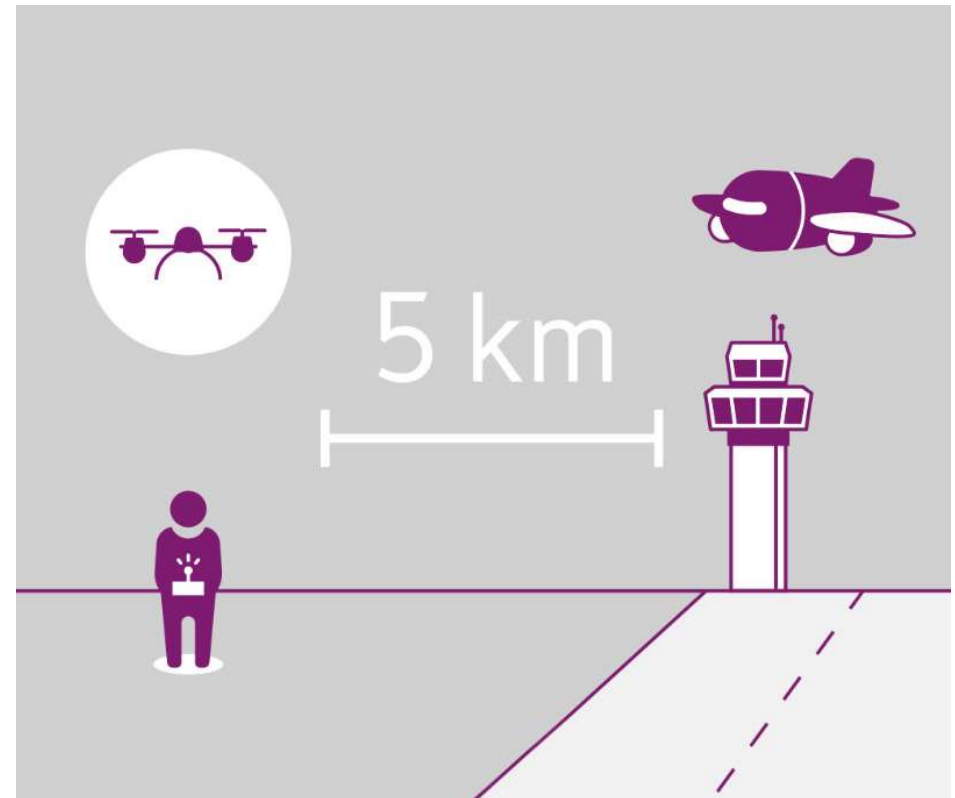
## DRONE PROGRAM



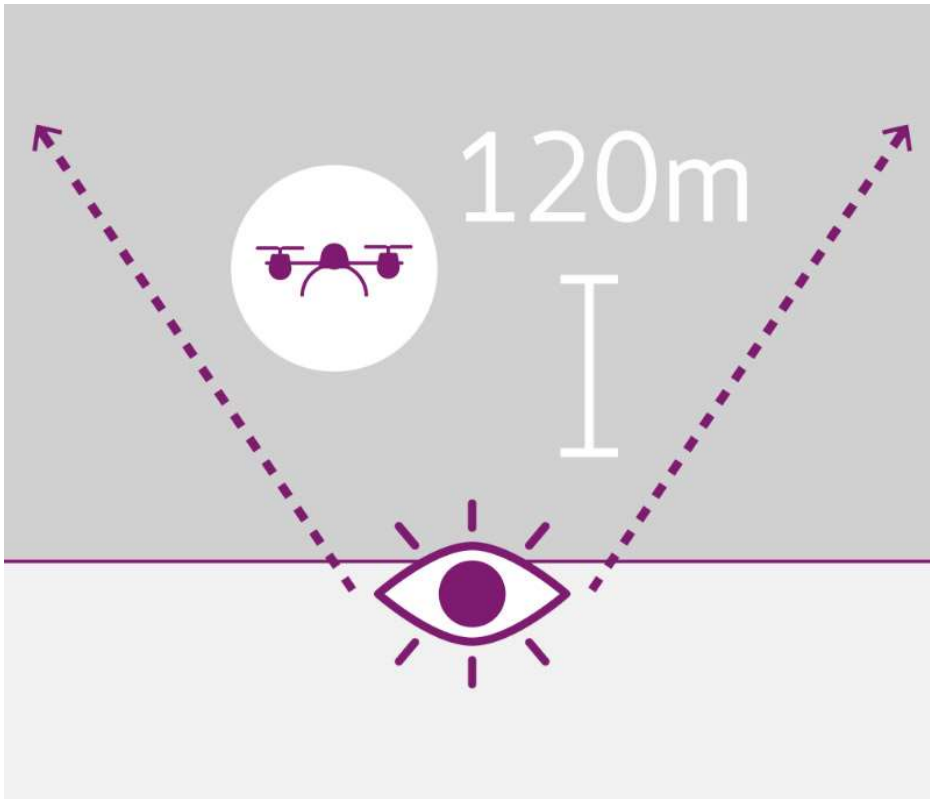
Avinor aims to be a key player in the drone business as well as traditional aviation

# Drones

- Regulations under the Norwegian Aviation Act concern aircraft without a pilot on board
- The Regulations cover the use of drones within the “open”, “specific” and “certified” categories
- Avinor is in process of acquiring drone detection technology to monitor illegal drone operations close to airports
- Avinor will press charges against any drone operator that are within the 5 km radius of the airport (without permission)



## Drones, continued



- Commercial drone operators have to complete specific training, and obtain mandatory drone insurance for passenger and third party liability.
- Avinor Flysikring AS has implemented an UTM system at 17 airports across Norway. The system provides drone operators with access to airspace, relevant operational information, and digital communication with ATC.
- Avinor aims to provide expanded UTM services in Norway, both on- and offshore, as well as in the enroute sector.



“ The Avinor group has developed and implemented an integrated Safety, Security and Quality Management System to ensure that all activities and developments are performed in a planned and controlled manner

“ Authority requirement that all airports and ANS shall have established a QMS based upon ISO 9001 Standard and SMS based upon ICAO Safety Management Manual and security standards.

# Cyber Security

- As required by EU 2017/373 ATM/ANS.OR.B.005, Avinor has established a security management system, ensuring the confidentiality, integrity and availability of operational data we receive, produce, or otherwise employ, to prevent unauthorized access and unlawful disruption of service.
- As part of the management system, the change management process ensures that any changes in Avinor are assessed to identify possible cyber security risks.
- A risk-based approach has been implemented to cyber safety ensuring no unacceptable cyber security risk is imposed to safety in operations.
- Avinor ANS works closely with its suppliers, CERTs, neighbouring ANSPs as well as international working groups and organizations to improve the security resilience of the aviation community.
- Avinor has established our information security management system (ISMS) based on ISO 27001.

# Accidents and incidents

## Avinor AS

Year	Reports	Incident/ accident
2016	5 106	1
2017	4 168	1
2018	4 406	1
2019	5 149	0
2020	3 160	1
2021	4 399	0

## ANS

Year	Reports	Incident/ accident*
2016	2 480	0
2017	2 441	0
2018	2 989	0
2019	3 221	1
2020	1 793	0
2021	2 208	0

\*Directly or indirectly contribution by Avinor Flysikring AS (according to EU Regulation 996/2010): One serious Incident in 2019.

The background image is a composite of two airport scenes. The left side, which is the primary focus, shows a large commercial airplane on a tarmac with a purple semi-transparent overlay. The right side shows a different airport scene with a mobile staircases and a cargo container labeled 'AKE 11065 DU' and 'norwegian'.

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