Objectives for ESA

Principles outlined in the ESA Convention, direct the activities also in support of Arctic:

a) Strengthen European **cooperation**, in space research, technology and applications for **purpose of scientific and operational space applications**.

b) Mandated with **industrial policy** to develop competitive space technologies and industrial structures in all its Member States aiming at cost effectiveness and world-wide competitiveness of European industry.

In enlarging MS and evolving programmatic domain, **industrial policy plays a central role for developing competences and capacities**, from start-ups to SMEs to large national, European and international economic players.
Arctic – Thematic and concrete topic

Opportunities and threats in Arctic.
• Maritime industry, tourism, exploitation of natural resources
• Climate change, safety, sustainable development, environmental protection.

Strengths and weaknesses in current space solutions for Arctic.
• Existing space infrastructure and basis for applications already provided through ESA programmes and activities (more later on).
• Discussions already on-going concretely since 2012, in particular EOP.
• Missing capabilities and capacities
  • to support quickly emerging and evolving commercial needs
  • to better understand scientifically the changes affecting the Arctic
ESA Arctic and Space Workshop – Helsinki 2016

**ESA activities for Arctic, now and future**

- Earth Observation (e.g. Copernicus, SMOS, CryoSat, CCI, EOEP-5...)
- Navigation (e.g. Galileo, EGNOS, Arctic Test Bed..),
- Telecommunications (e.g. GovSatCom, ArctiCom..),
- Applications (e.g. Maritime applications, Telemedicine, VHF Data Exchange System (VDES), Space Weather
- EU Cooperation, Agreement with EDA...
- ESA chairs the Polar Space Task Group created by the World Meteorological Organisation
Political debate – high level

“Arctic should be an area for open and equal dialogue based on integral undivided security and a place where there is no room for geopolitical games of military blocs, for behind-the-scenes agreements or for struggles for spheres of influence.” – Mr. Putin, 30 August 2016

Commercial Activities – high potential

Start of oil shipping operations at Vorota Arktiki (Arctic Gate) terminal in Yamal peninsula with investments de-passing 2.6b€ over last three years. A big step forward in developing Arctic resources and developing the Northern Sea Routes” – 25 May 2016

Cooperation – highly active

Finland taking helm of the Arctic Council promoting cooperation, coordination, and interaction among the Arctic States, with the involvement of the Arctic communities and inhabitants, on issues such as sustainable development and environmental protection. – Spring 2017
Key messages for ESA from NordArc 2016, 5 Sep 2016

- Arctic is a high priority topic for Nordic Countries
- Finland seeking to strengthen and build on cooperation
- Will chair Arctic Council, Arctic Economic Council and Arctic Coastguard Forum
- Active knowledge – knowledge based policy making

“What happens in the Arctic... does not stay in the Arctic - Climate change is global” – Mr. Soini, Finnish Foreign Minister

- Gaps are identified in services and technologies needed for Arctic
- Need of satellite based maritime services - safety of navigation and environment
- Need to understand timescales – changing conditions for operations
- More cooperation between authorities for maritime activities – enhance monitoring system through the Nordic cooperation
- Sustainable goals need to be supported by better infrastructures and understanding of climate change.
Arctic Challenges as expressed in NordArc 2016

- Energy and energy efficiency
- Food, Water Security and Health
- Sustainable development goals
- Land use pressure, infrastructure
- Safety of navigation, search and rescue
- Communication, logistics, digital world
- Tourism
- Creative industries
- Education
- Societal challenges

Space 4.0i is a tool that can support Arctic in these challenges!
Role of ESA in supporting Arctic activities

In supporting these topics, ESA, the Executive together with our Member States, are preparing:

- activities and programmatic decisions that would prepare for required future capacities and competences,
- that aim at bringing about the critical technologies, infrastructures, data and applications,
- that are needed for provision of science, services and products for benefit of researchers, economic operators,
- and ultimately users and citizens.
User defined needs in Space for Arctic

Operational needs
- Increased demand for SAR operations / capabilities
- Increased pressure to exploit Arctic natural resources (oil and gas, mining, fisheries) demanding environmental baseline and tactical information
- New trans-Arctic shipping highways

Climate change / Science
- A more variable and unpredictable Arctic sea-ice regime
- Accelerating Greenland glaciers, increased glacier calving, increased production of ice-bergs
- Improved predictability of Arctic weather and climate
Objectives for the today ESA Arctic and Space Workshop

- Priorities expressed by several ESA Member States on the Arctic
- Wish from ESA to support economic development of space actors in the area
- Many ESA activities already supporting the Arctic region
- The Executive is preparing the programme proposals and activities that will be presented for decision at the ESA Council to be held at Ministerial Level in Lucerne, 1-2 December 2016
- Concerning “Space and the Arctic”, preparatory and programmatic activities were initiated and a draft roadmap has been outlined
- Conclusions of our workshop will support finalisation of this roadmap for decisions by Member States at the end 2016.