

5G Connecting the Nordic Region

We are digital frontrunners

Advanced and mature **digital infrastructure**

High degree of **digital trust** in our societies

New governance tools on **data ethics**, data ethical councils and data ombudsman

Strong **digital ecosystem** and start-up community

Comprehensive **national strategies** for 5G - 4G and IoT have cleared the 5G path

Strong **telecom industry** (Nokia and Ericsson)



5G - driver for innovation

During 2020 the first 5G network will be rolled out and accessible in the region

First spectrum licenses has been assigned

The major impact of 5G will be found in almost all sectors of society, from industry, harbours, airports and energy companies to media, farms, fisheries, hospitals and entire cities.

5G is about more than speed alone. It also ultimately promises the capacity, reliability, and ultra-low latency required for mission critical services such as autonomous cars, remote medical surgery, robots and drones supporting smart buildings, smart agriculture, smart cities, and smart logistics, among others.

5G should become an innovation platform stimulating new products and sustainable solutions.



...but with challenges to overcome

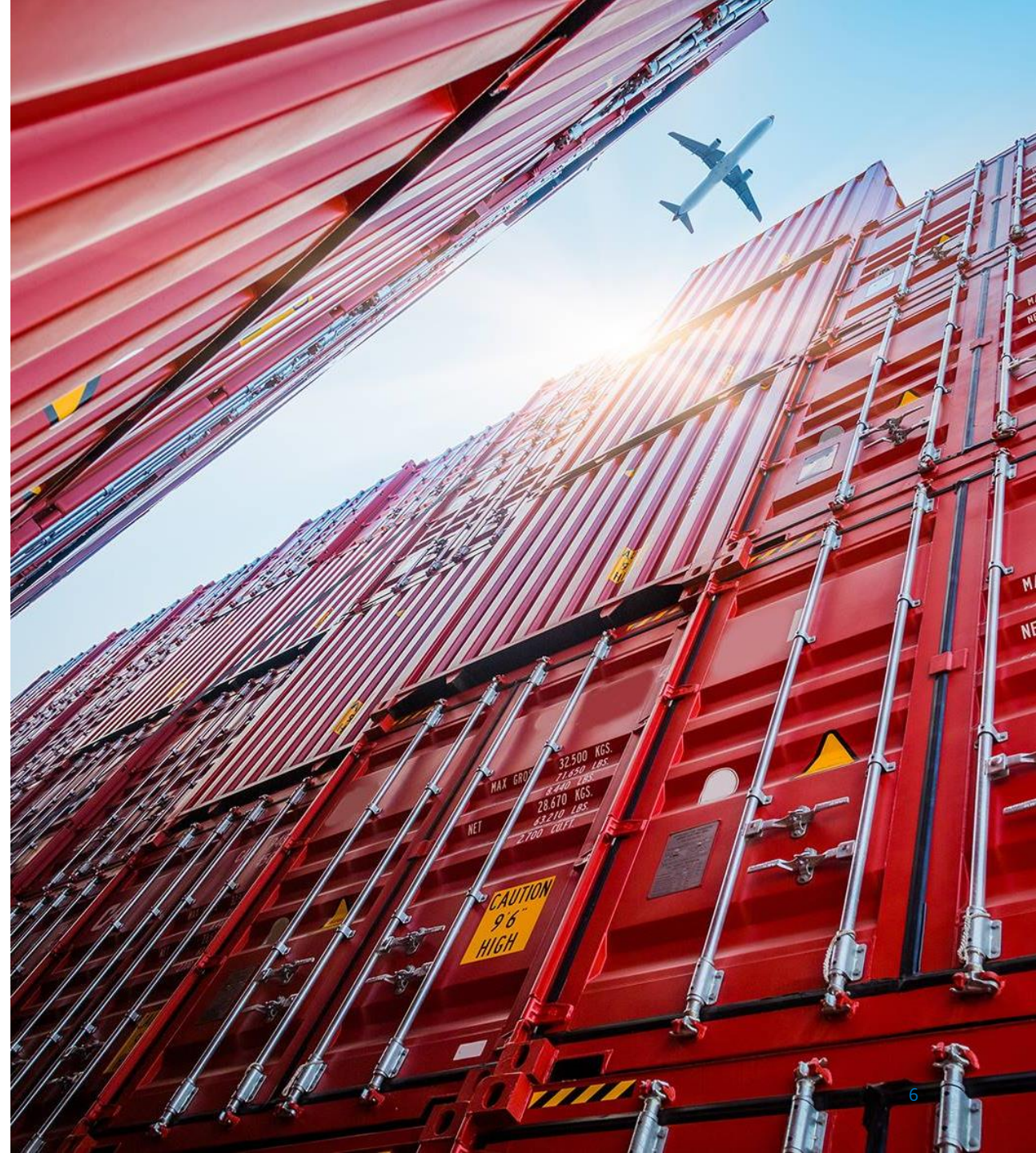
- Several verticals with little 5G activity (health and welfare, emergency services)
- Only very little cross-regional collaboration on 5G – countries, cities and verticals have their own agendas
- Test activities are hampered by low terminal availability
- Lack of “killer application” and intermediaries developing new 5G services
- Other countries (South Korea, China and USA) are willing to invest more in 5G and R&D
- 5G revenue could cannibalize on 4G investment
- Many stakeholders talk about new business models, but not much can be seen in action so far





Becoming a leading testbed for 5G

- Encourage the development of new testing facilities
- Ensure the technical coordination of 5G frequency bands within the region
- Remove obstacles to expansion of the 5G network, in particular deployment of base stations and antennas
- Encourage and monitor the development of 5G



Becoming a leading testbed for 5G

- All Nordic and Baltic countries feature 5G test activities lead by different driving forces
- At least 50 test beds with 5G or with 4G
- Plethora of local 5G initiatives, from cities, municipalities, universities and industries
- Many very active and strong testbeds in various verticals (manufacturing, fisheries, industries and transport)



Showcases on 5G



WelfareTech
Collaborative Innovation

Energistyrelsen

DR

ASTAZERO
Denmark

RISE

ABB

3

Telia

ericsson.com

PTS

Regeringskansliet

Regjeringen.no

wayTRAFICOM
Liikenne- ja viestintävirasto

tieto

NOKIA

OULUN
YLIOPISTO

DNA

BOLIDEN

TAL
TECH

VAS
Elektroniskie
sakari

techchill

Imt

Lithuania

Vilnius

Riga Latvia

Helsinki

Tallinn

Sweden

Stockholm

Finland

St Petersburg
Санкт-Петербург

Belarus

Minsk
Мінск

United
Kingdom

Edinburgh

Liverpool

Ireland
Dublin

Faroe
Islands

Iceland

Akureyri

Reykjavik

Vik

Isafjörður

Norwegian Sea

Gulf of Bothnia

Baltic Sea

Murmansk
Мурманск

Tromsø

Alta

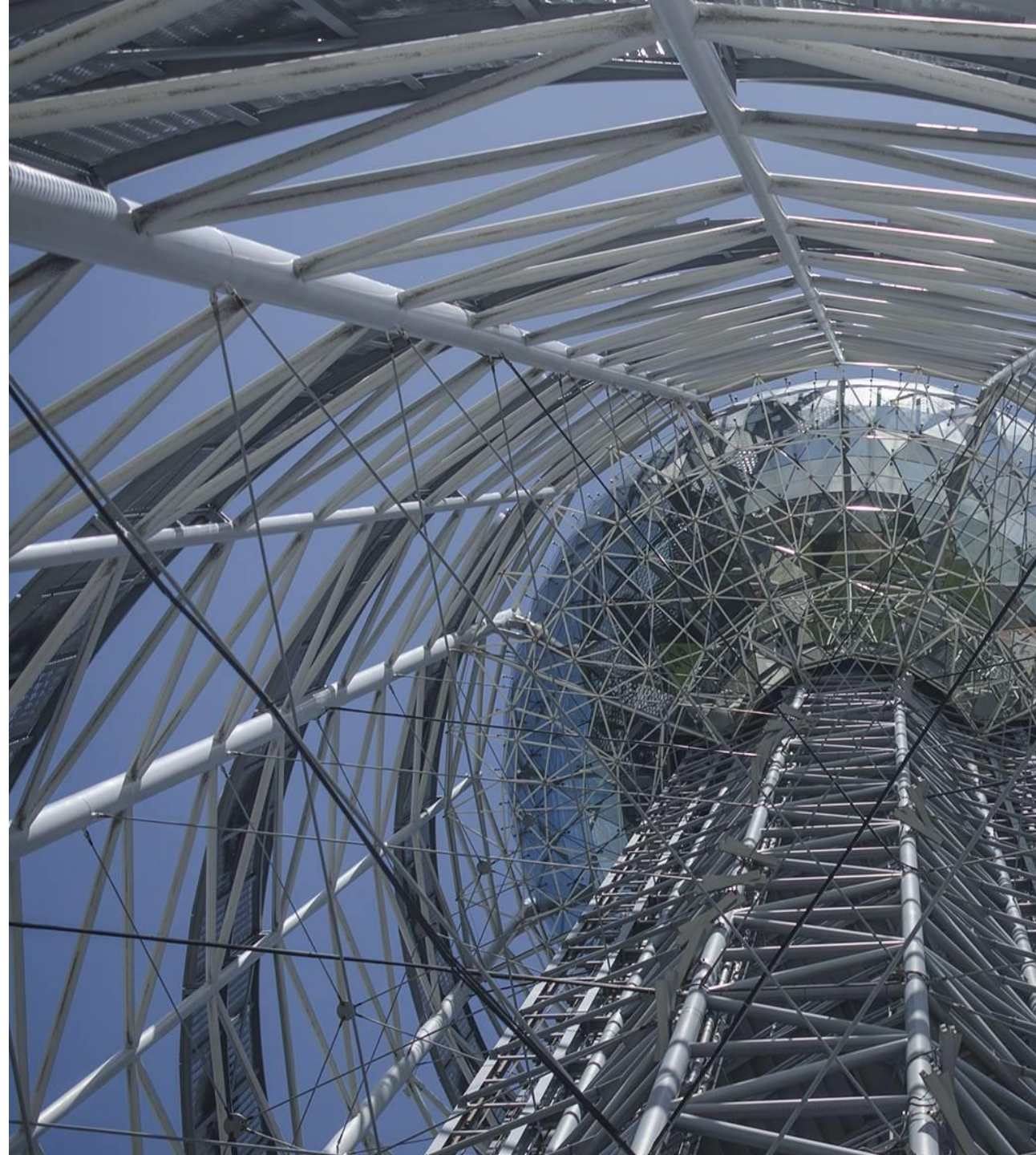
Opportunities

- Digital corridors – a clear infrastructure for data for e.g. cars/trains/drones
- Small countries – we need to cooperate on advanced testbeds
- Common standards for 5G regulation and enabling policies
- Economy of scale for operators and vendors, as well as simplifying transnational business for corporates



Pitfalls

- Benefits from economy of scale – But avoid winners takes it all!
- Auction mechanisms should be based on commitment to invest in the infrastructure for the benefits of all parts of our societies e.g. adopt longer license duration
- Reserve spectrum to third parties (SME's and verticals)
- Harmonisation of the licensing conditions (license duration, price, spectrum packaging and availability, regulatory conditions)



5 actions on 5G

1. Support the development of a 5G ecosystem in the Nordic-Baltic region and monitor the development and application of 5G-based technologies
2. Create deregulated experimental sandboxes for 5G innovation
3. Consider opportunities for new stakeholders to license spectrum, not only the traditional telecom operators
4. Create a dedicated Nordic-Baltic funding scheme supporting regional cooperation between digital test environments
5. Promoting regional use- and showcases



Thank you!

