5G Technology to Drive Productivity and Sustainability

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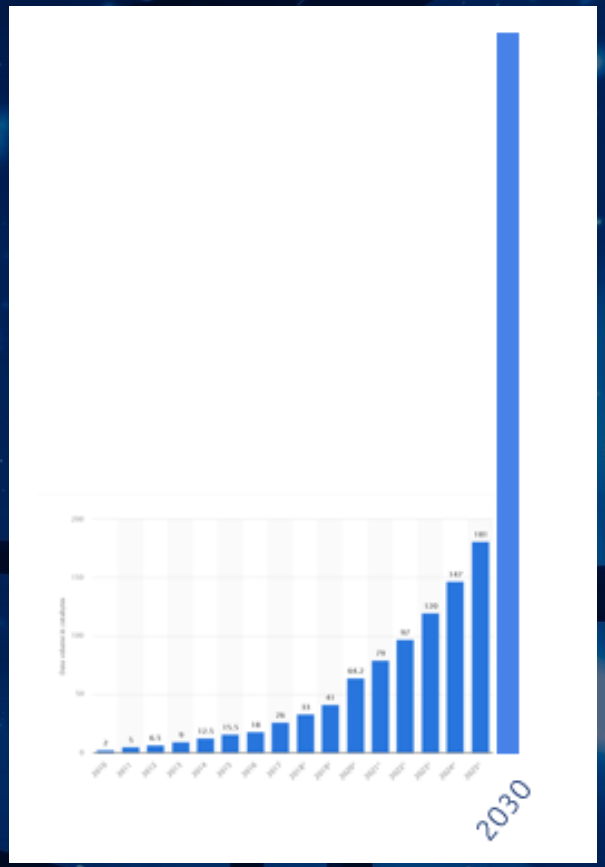
11 Oct 2022, Industry 4.0 Webinar

Massive Data Increase by 2030

X 10



FIERCE Wireless

Wireless Private Wireless 5G Tech

5G

Nokia partners with AWS, Microsoft, Google for 5G and cloud

By **Linda Hardesty** • Mar 15, 2021 12:06pm

NOKIA

AI in Use to help the world act together

Nokia
@nokia

We are proud to be the winner of the @5GWorldSeries Awards with our Anomaly Detection Service helping @vodafone resolve #network issues with #machinelearning algorithms detecting anomalies and helping automate root cause analysis.

Nokia and Mobile Industrial Robots showcase real-time robot fleet management using private 5G wireless

Source: roboticsandautomationnews.com

Nokia Veturi Program - Unlocking Industrial 5G

2020 (P7) – 2023 (P6)

- System of a Chip (SOC)
- Network Management for Private Networks
- RF/Antenna research
- Key verticals: Mining, Energy and Water Man.

Nokia Veturi Program – COMPETITIVE EDGE

2022 (P1) – 2024 (P12)

- Edge Platform and Architecture
- Edge automation and orchestration
- Edge Applications
- Ecosystems: Selected Edge domains

Nokia Veturi Programs

‘Unlocking Industrial 5G’ and ‘COMPETITIVE EDGE’

30+

New ecosystem projects

200

Ecosystem partners

50%

Nokia’s target to cut emissions across Nokia's business by 2030 compared to 2019

1.5 BEUR

Nokia Veturi-related total cumulative R&D increase in the Finnish Ecosystem by 2030

Other awarded Veturi companies (2020-2022)

New sustainable and secure networks critically needed to match the future data capacity growth

Data and capacity limits

Exponential (IoT) data generation is pushing network capacity to its limits and at increasing cost.

Network sustainability

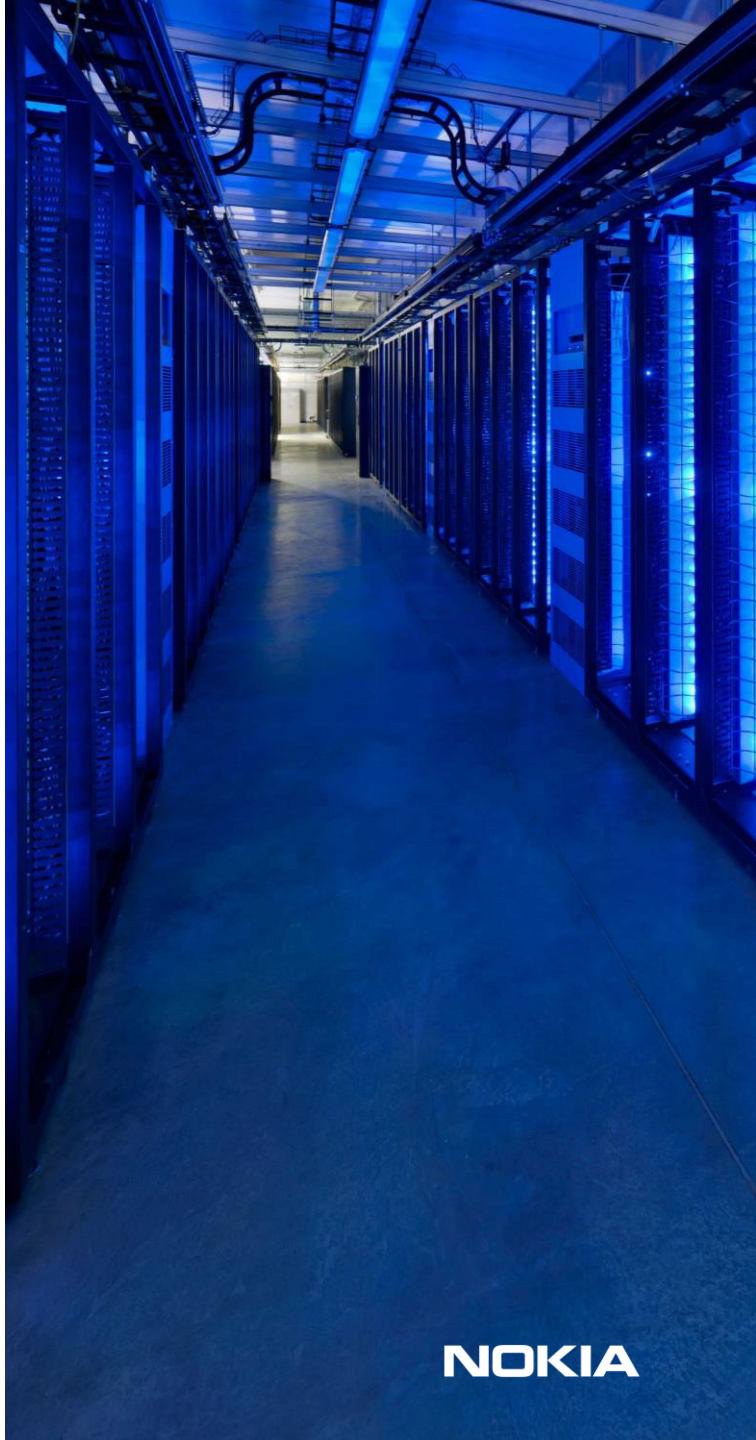
To dramatically slow down the exponential growth of capacity need, energy consumption, and related costs.

Secure data flow

To enable secure and seamless data flow from device to cloud and back.

By 2025, **80% of all generated data are expected to be processed at the edge**

It is estimated that new edge capabilities on 5G can help **reduce carbon emissions** and **energy efficiency up to 60%** over the next 10 years. Globally, this reduces massively the need for new energy production capacity.



Nokia is committed to cut emissions across Nokia's business by 50 percent by 2030 compared to 2019

Real-time processing of data is driving the transformation from centralised cloud-based infrastructure models towards edge.

New solutions enable:

- Energy savings from data transport can reach up to 60% in targeted use cases
- It is estimated that together 5G and edge computing can help reduce carbon emissions from mobile networks by 50 % over the next 10 years

Case example - Impact on sustainability

Telefonica's O2 in the UK, reported that edge capabilities on 5G could save 269 megatons of CO_2 by 2035 across sectors such as manufacturing, transport, and healthcare. Almost equivalent to England's total emissions in 2018.

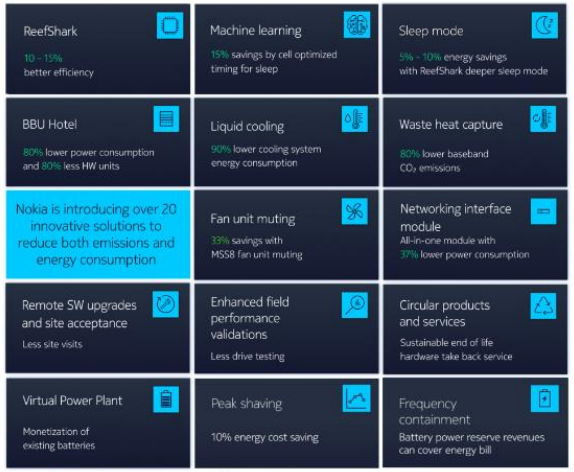
Zero Emission Mobile Networks

Reducing CO2 emissions and cost of energy

How to improve base station energy efficiency?

About 80% of a mobile network's energy is consumed by base station sites. Mobile operators report an overall increase of 10-30% annually in mobile network energy use. Managing energy efficiency is necessary to control the costs while maintaining the service level that end users are expecting. In fact, Nokia Intelligent RAN energy efficiency management reduces radio network energy consumption by up to 15%.

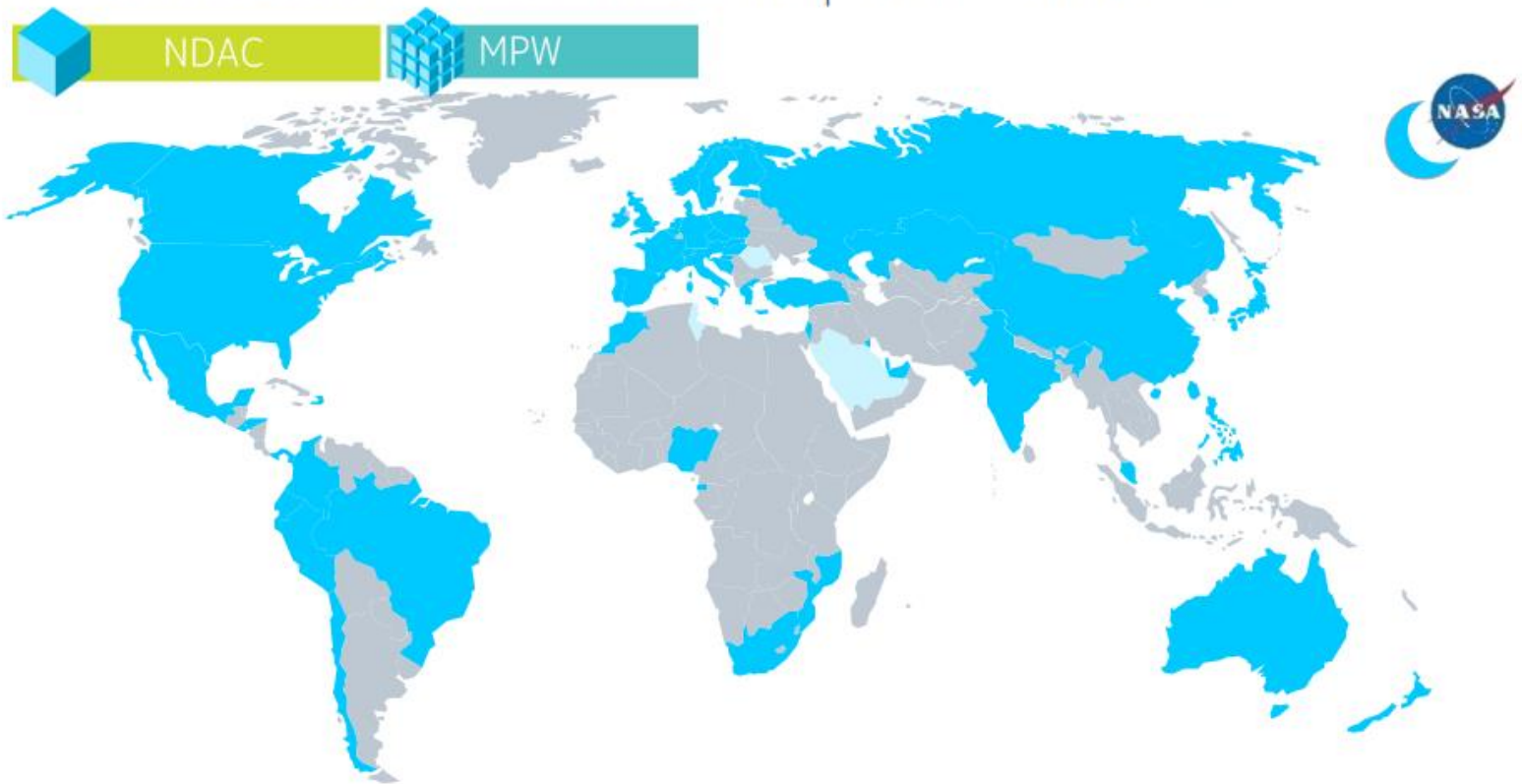
At Mobile World Congress 2022, Nokia launched commercially the first in the world liquid-cooled AirScale Base station portfolio, which can reduce the cooling system power consumption by 90%. It also includes an innovative waste heat capture mechanism. The waste heat is captured into the liquid and there is an option to circulate the heat for other purposes such as building heating, or to sell it to other parties. This reduces base station CO2 emissions by 80%.



Nokia is introducing over 20 innovative solutions and services to reduce carbon emissions and energy consumption

450+ private wireless customers

Uncontested market leader in private wireless*

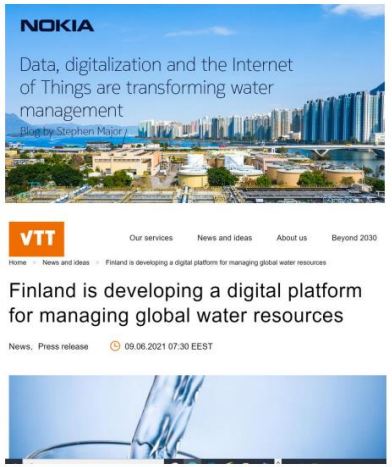


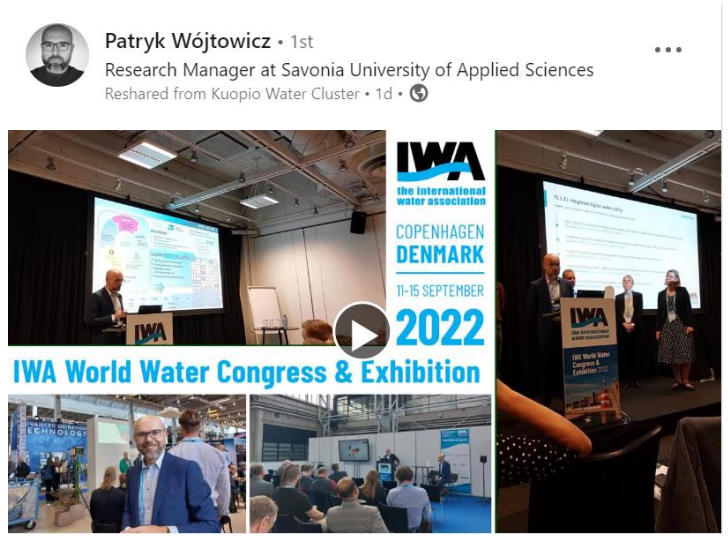
Public references

Recent new logos

450connect
AD Plastik
BritishSugar
An AB Sugar company
OMRON
ncrtc
DOS PALOS ORO LOMA
JOINT UNIFIED SCHOOL DISTRICT

Combining Digitalization and Industry-Specific Expertise – Mining & Smart Water Management

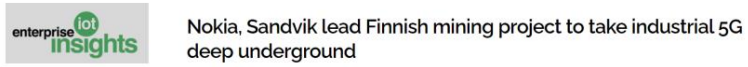




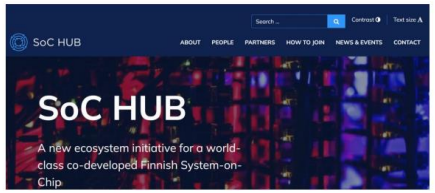
Mining Ecosystem – Next Generation Mining

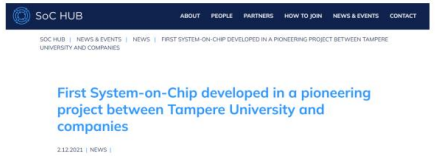
VTT, Nokia ja Sandvik tutkivat yhdessä 5G-teknologian mahdollisuuksia maanalaisissa kaivosteknologioissa

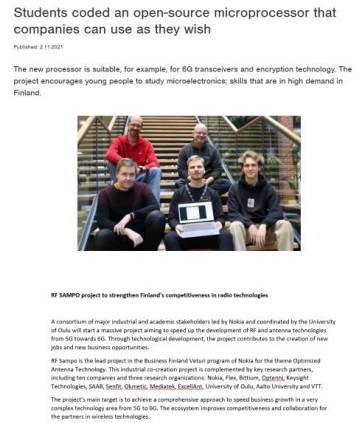
Uutiset, Lehdistötiedote 16.08.2021 08:30



SoC Hub Ecosystem and A-CORE







How to build world-class ecosystems?

Strategic approach

Business priorities, market and asset analysis, partner selection, value chain approach and **portfolio**

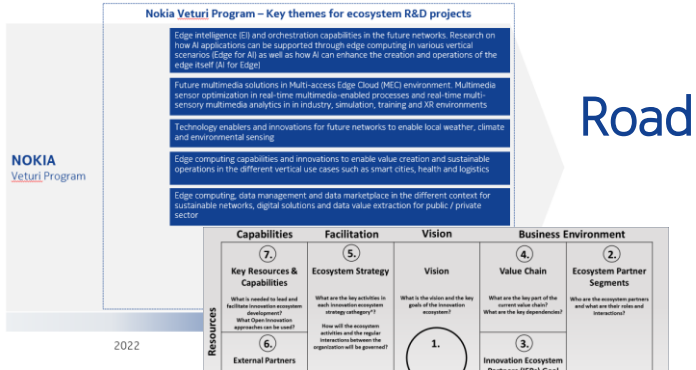
Ecosystem orchestration

‘The set of deliberate and purposeful actions undertaken by the Veturi company to co-capture value’

‘Ecosystem value offering’

Continuous learning

Shared resources, communication and digital tools



Roadmap / strategic themes

Ecosystem strategy

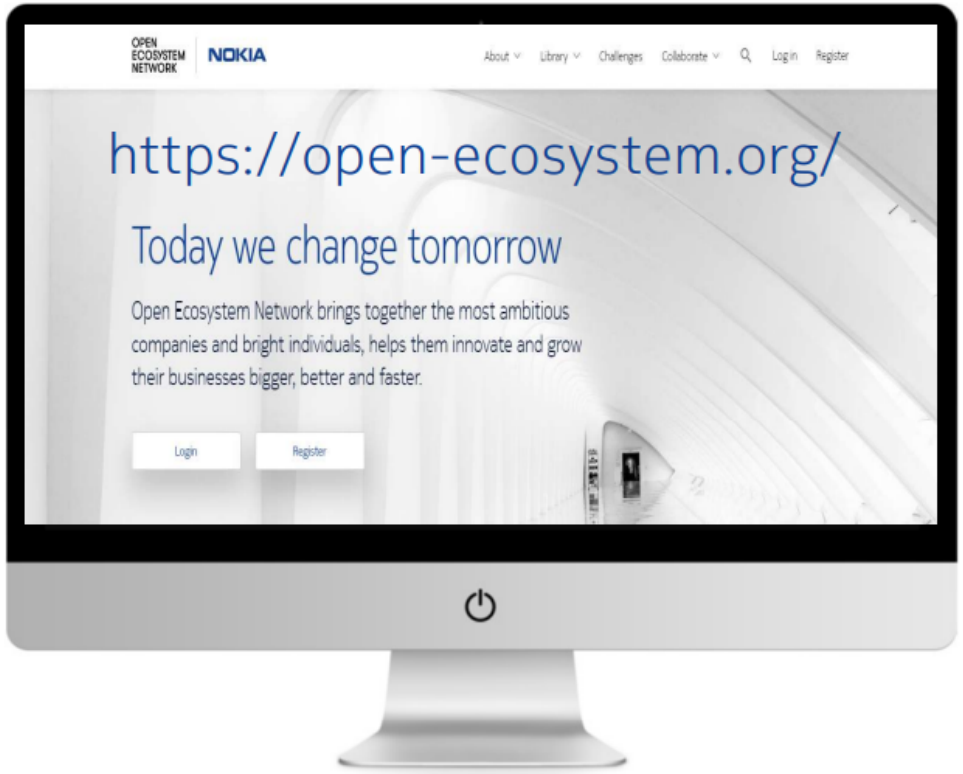
Idea-to-market model

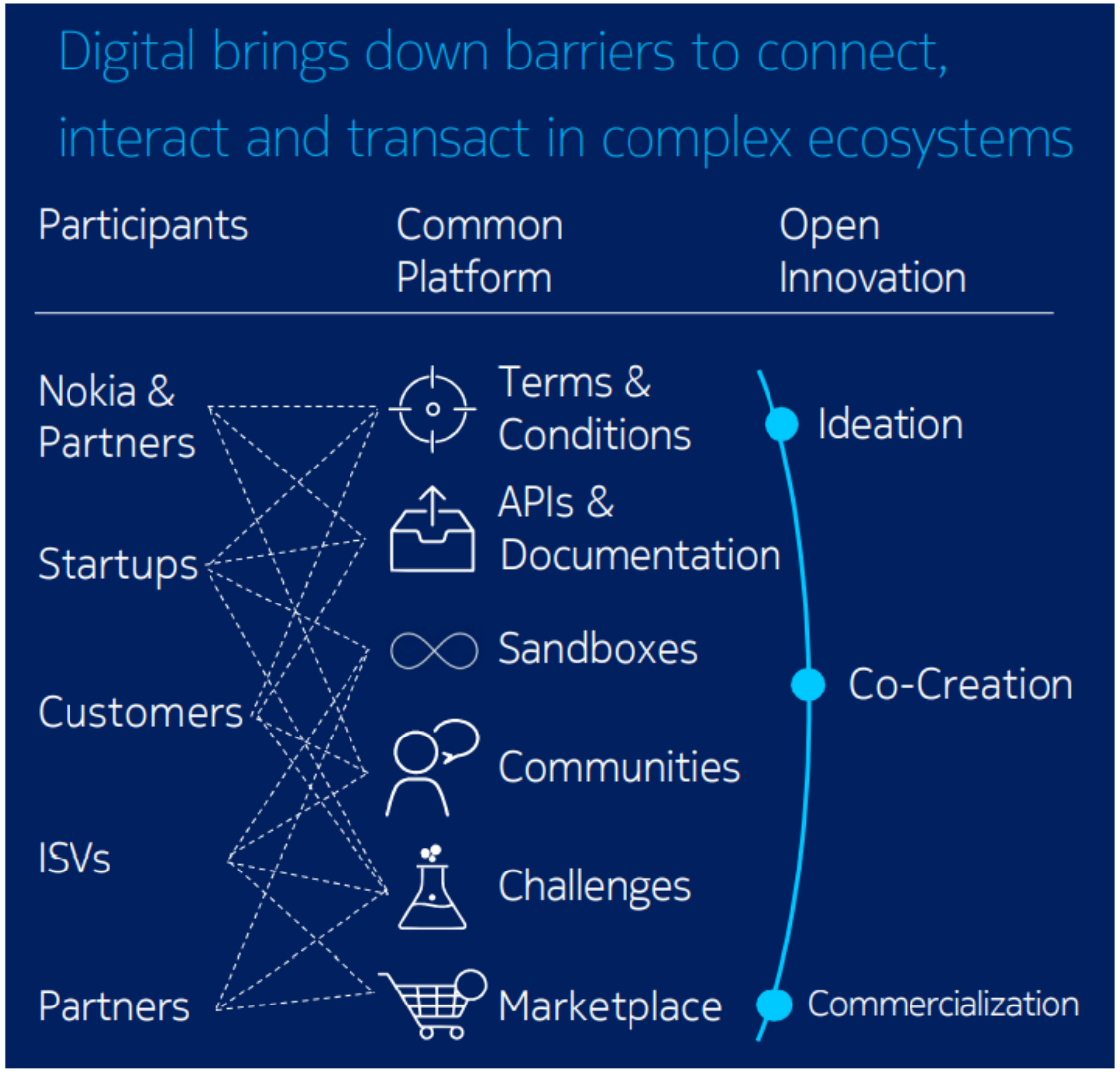
Ecosystem orchestration

Accelerating and contributing our global ecosystem building via Open Ecosystem Network

Online Community

To be hosted in Nokia's digital collaboration platform





In Collaboration with Savonia, UEF and many more

1

Strong technological know-how and an associated ecosystem

2

Advanced infrastructure

3

A tradition of trust and cooperation

NOKIA