# ARCTIC Smartness

# ENTREPRENEURIAL DISCOVERY FOCUS GROUP ON AGRI-FOOD

Ilari Havukainen – Regional Council of Lapland

26th of October, Suceava

ARKTISET KEHITTÄMIS-YMPÄRISTÖT KLUSTERI

ARKTINEN MUOTOILU KLUSTERI

ARKTINEN TEOLLISUUS JA KIERTOTALOUS KLUSTERI

ARKTINEN ÄLYKÄS MAASEUTU-VERKOSTO KLUSTERI

ARKTINEN TURVALLISUUS KLUSTERI

BRONZE Cluster Management Excellence
STRIVING FOR CLUSTER EXCELLENCE

REGIONAL COUNCIL OF LAPLAND

European Union
European Regional Development Fund

Leverage from the EU 2014–2020

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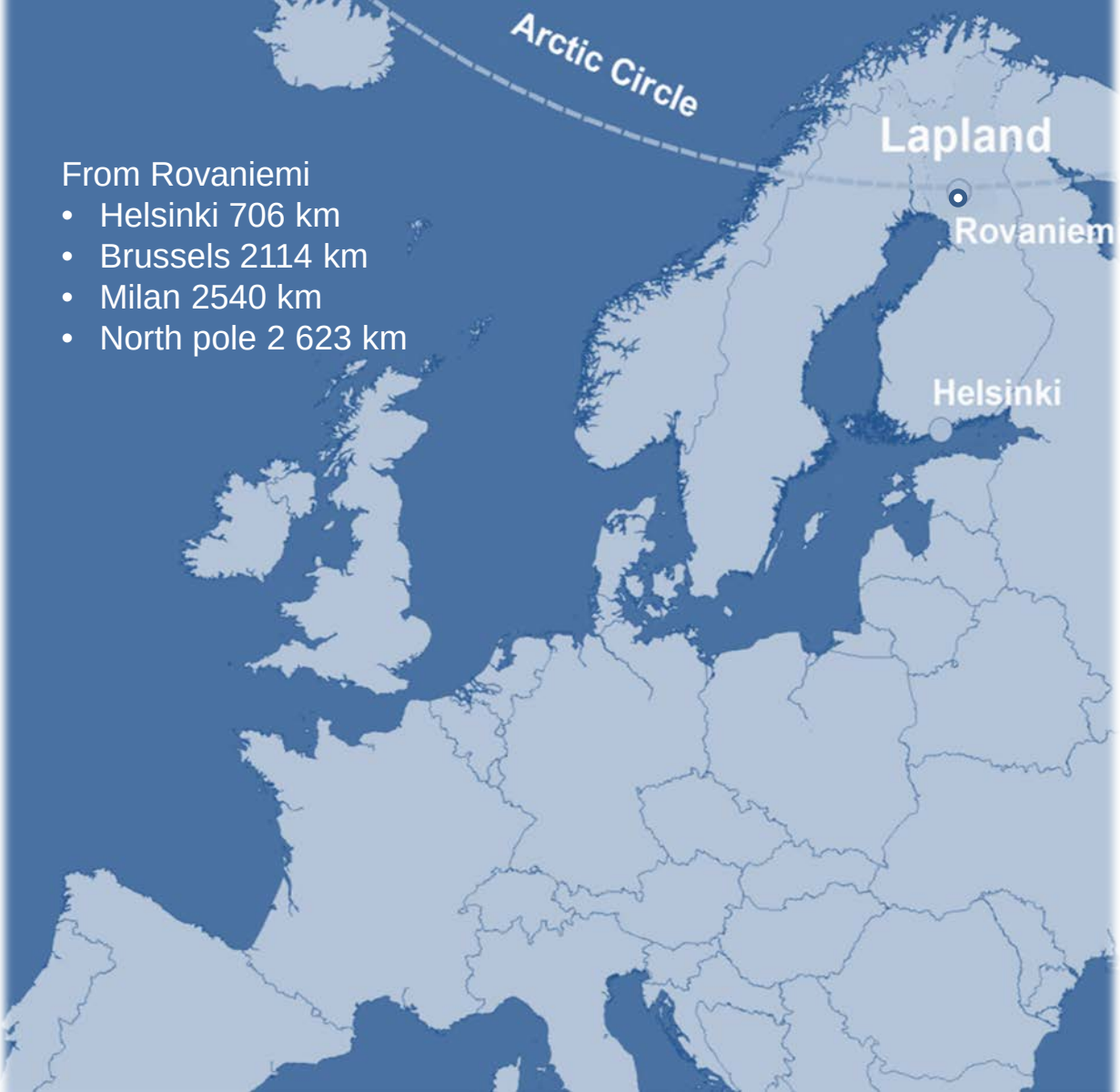


From Rovaniemi

- Helsinki 706 km
- Brussels 2114 km
- Milan 2540 km
- North pole 2 623 km

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- The northernmost region of European Union
- Border with Russian, Norway and Sweden
- Total area 100 369 km²
- Ca. 181 000 inhabitants, density 1,8 people/km²
- Largest residential centres: Rovaniemi (60 944 inhabitants ), Tornio (22 399), Kemi (22 172)
- Employment: municipal sector 27.8%, state and state-owned companies 10.8% and private sector 49.2%
- Only chrome mine and largest gold mine of EU
- Largest refining industrial concentration in EU

- Jobs 73.300
- Total amount of companies 10 400
- Total turnover of all companies 10 billion Euro
- Value of industrial export 3.7 billion €
- Value of the tourism 1 billion €
- 5th strongest export region in Finland
- Two universities; University of Lapland and Lapland University of Applied Sciences
- Diverse sector research institutes
- Strong vocational education
- 2014-2020 ESI funds 300M€ including co-financing
- 3 Interreg programmes and Kolarctic CBC programme

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# Framework for RIS3

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- Story of S3 in Lapland begun 2012 - Arctic Specialisation Programme
- EU's gateway to the Arctic
- **Vast deposit of natural resources, pristine and fragile Arctic nature**
- Lack of critical mass - "too few smart people"
- Strong RDI actors – mobilising to the use of the region
- **Sustainable utilisation of natural resources** and conditions are the key factors to maintain the sustainable growth
- Smart growth - cross cutting strategic approach for strengthening the knowledge base
- Lapland takes the lead of its own development
    - Strategic step by step approach – Arctic Smartness 2014

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# Framework for RIS3

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## S3 Entrepreneurial Discovery Process

- Emerging industries growing out of existing fundamental industry
- Cross sectoral interfaces are ground for new entrepreneurial innovations

## Sustaining the entrepreneurial discovery

- Synergy plan to increase RDI innovation capacity of the business
- Better use of existing RDI structure
- Cross-regional collaboration
- ESIF projects have to provide added value for the business

## Modern cluster approach

**…** to recognise and react to the challenges of sparsely populated region

… provides the ground for support of the development in the region – emerging industries

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# Clusters

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Analysis of 650 public funded projects (ESIF and the like) during last two programme periods → directed towards refining industry, tourism, creative industries, learning and testing environments, rural development, wood processing, resource efficiency, natural product and food, internationalisation, natural resources and land use….

We wanted to…

→ find the best ground for the cross-fertilisation and

→ utilise the existing potential for synergy and thus

→ support the creation of modern clusters that are regional, looking beyond conventional operational boundaries, utilise cross-fertilisation, and are international and

→ integrade a deeper collaboration between the actors and embed R&D and business into the mix

## = Arctic Smartness Clusters

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# ARCTIC Smartness

ARCTIC INDUSTRY AND CIRCULAR ECONOMY
CLUSTER

ARCTIC SMART RURAL COMMUNITY
CLUSTER

ARCTIC DEVELOPMENT ENVIRONMENTS
CLUSTER

ARCTIC SAFETY
CLUSTER

ARCTIC DESIGN
CLUSTER

**EU model region**
**Case 2014**

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# Third phase of implementation of the Lapland S3 strategy

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## 2016

- 5 modern business driven Clusters with bronze labels established
- 15 Cluster based project initiatives identified and followed through (H2020, Interreg Europa, NPA, Interreg Nord, ENI)
- 4 potential ideas for the EFSI (The European Fund for Strategic Investments)
- Lapland leading the EIP Raw Materials MIREU network/commitment --> H2020 SC5
- Arctic Smartness ambassadors are active contributors in their international networks
- European working groups and with CoR and JRC

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# Arctic Smartness Excellence - ASE

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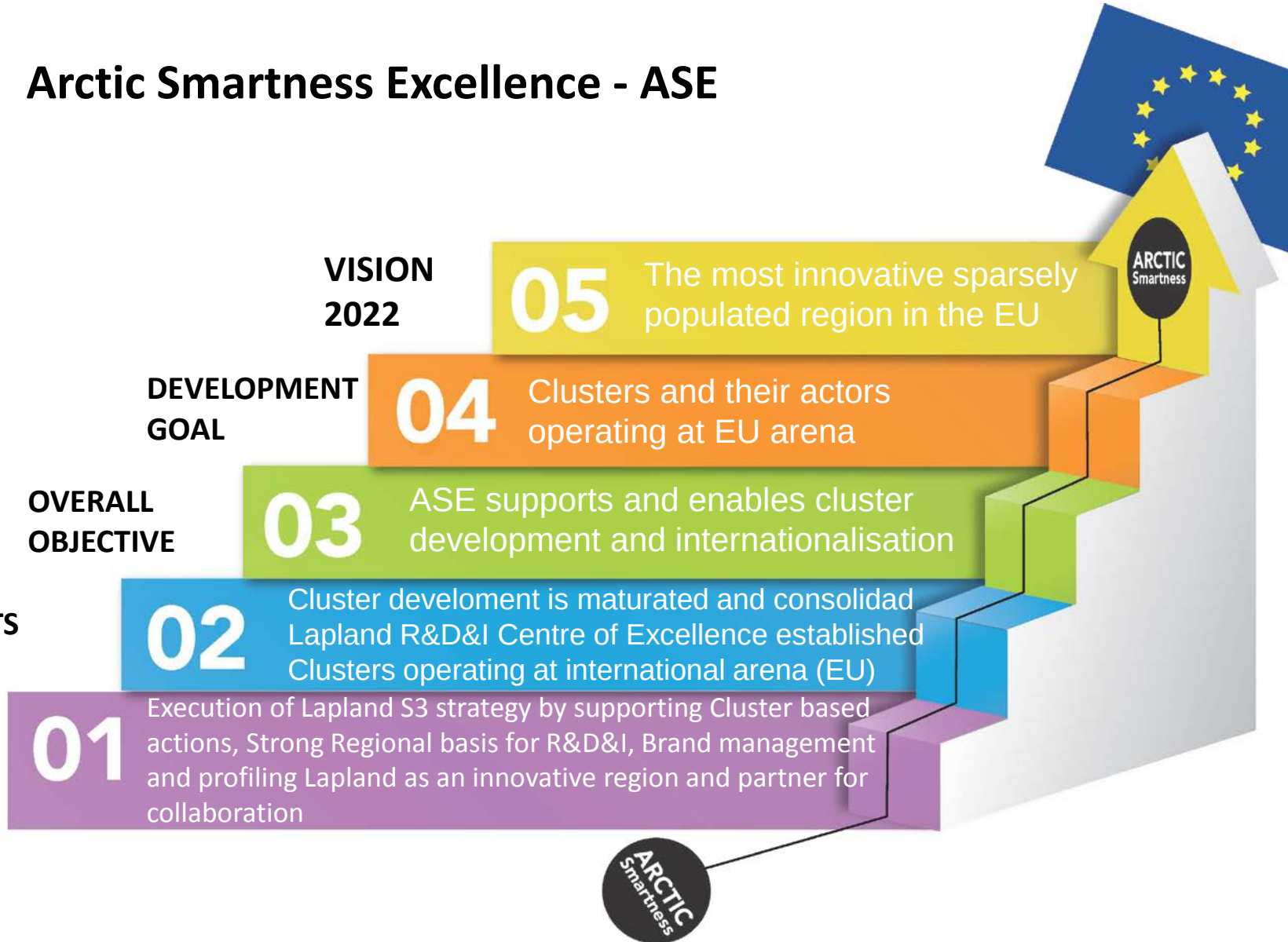
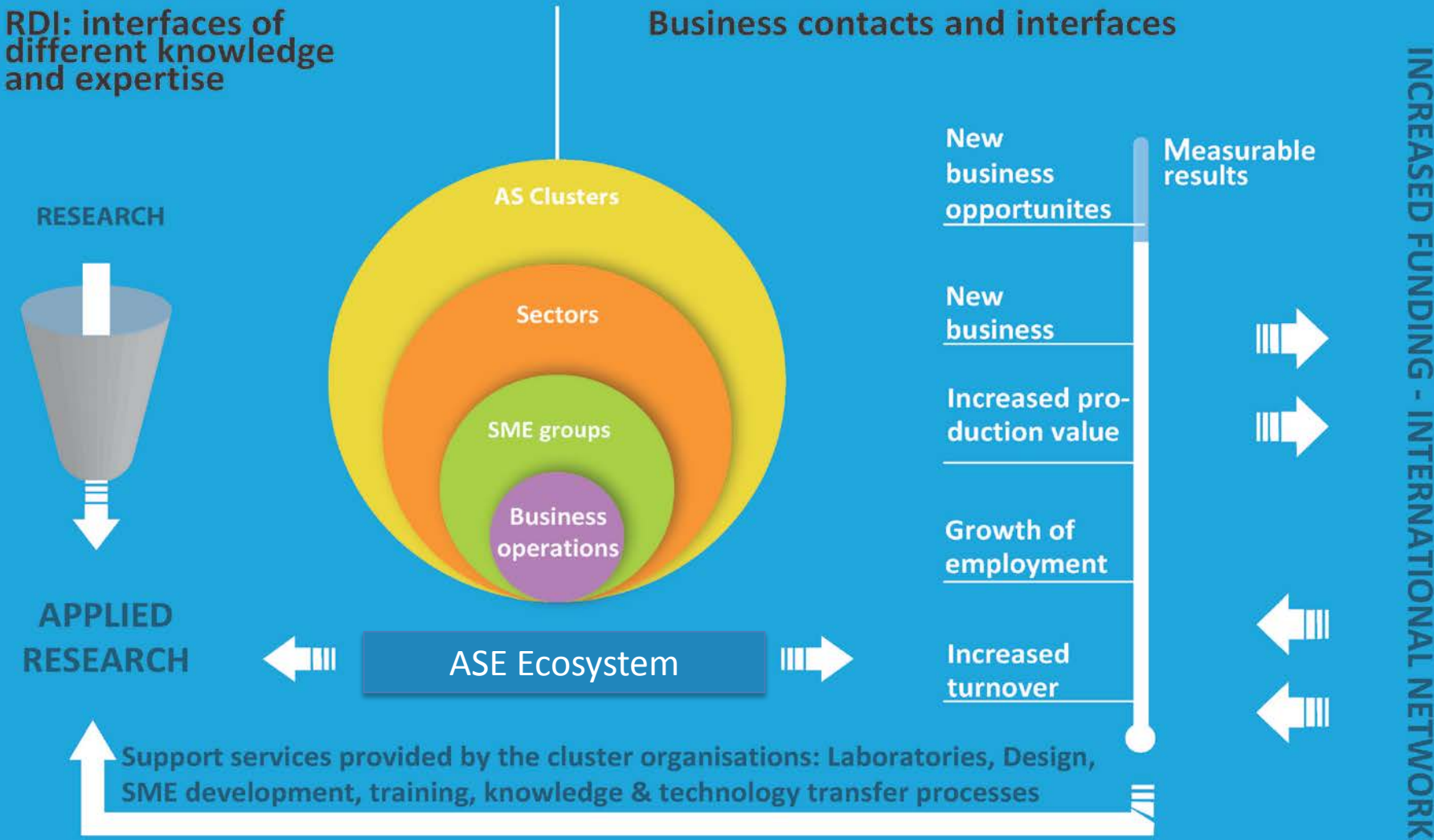
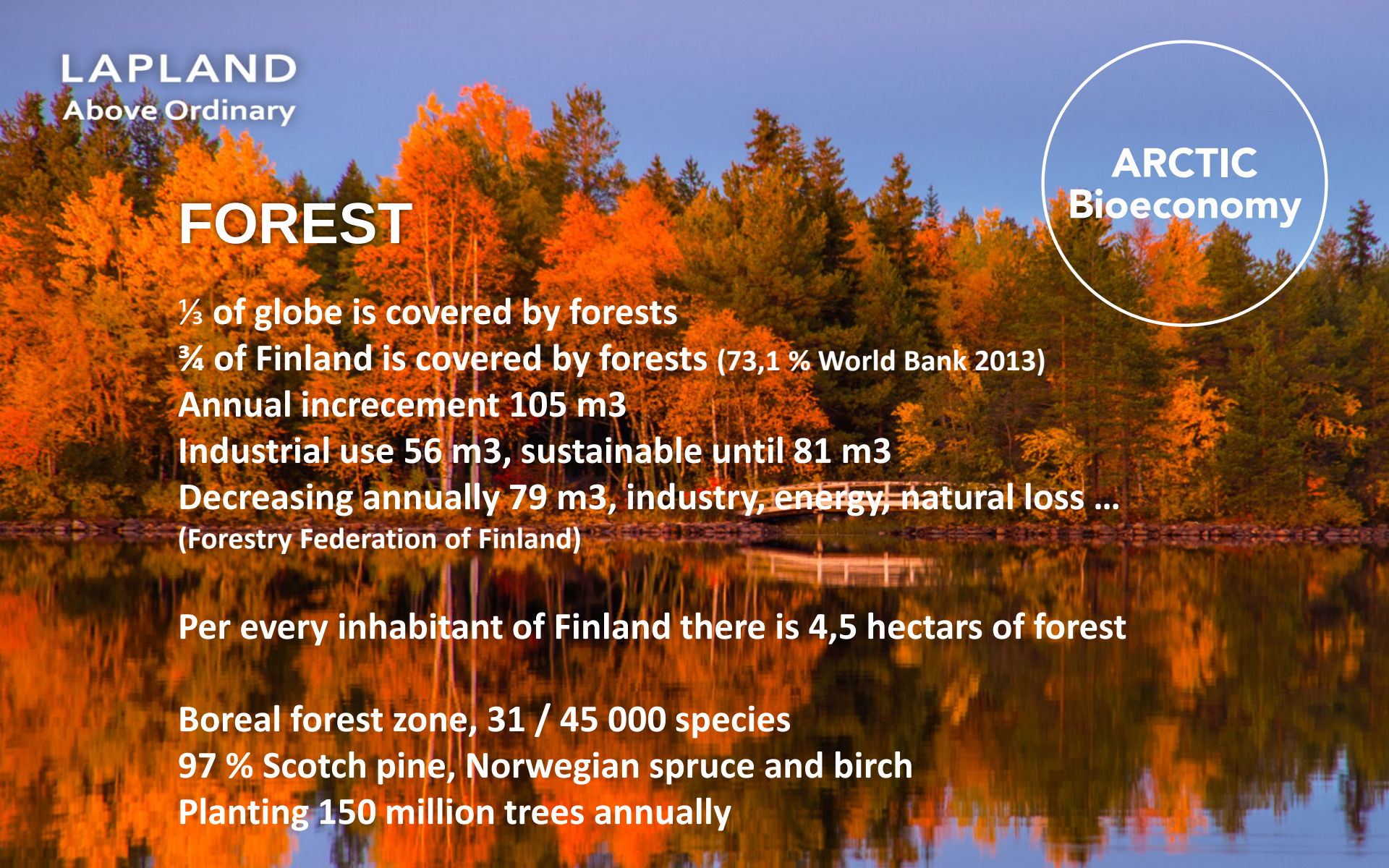



RDI: interfaces of different knowledge and expertise
Business contacts and interfaces
RESEARCH
APPLIED RESEARCH
AS Clusters
Sectors
SME groups
Business operations
ASE Ecosystem
New business opportunites
New business
Increased pro-duction value
Growth of employment
Increased turnover
Measurable results
Support services provided by the cluster organisations: Laboratories, Design, SME development, training, knowledge & technology transfer processes
INCREASED FUNDING - INTERNATIONAL NETWORKS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Bioeconomy
FOREST
⅓ of globe is covered by forests
¾ of Finland is covered by forests (73,1 % World Bank 2013)
Annual increcement 105 m3
Industrial use 56 m3, sustainable until 81 m3
Decreasing annually 79 m3, industry, energy, natural loss …
(Forestry Federation of Finland)
Per every inhabitant of Finland there is 4,5 hectars of forest
Boreal forest zone, 31 / 45 000 species
97 % Scotch pine, Norwegian spruce and birch
Planting 150 million trees annually

# **Non-food use of agricultural products** (i.e. bioenergy, building with natural materials)



- ENERGY: Developing forest-based and non-food agriculture-based bioenergy for sustainable regional growth
- Sustainable construction – something else than energy efficiency?
- EU-goals and principles of circular economy, bioeconomy in regions should be based on decentralised systems: renewable solutions
- FOREST: MCC, C5 & C6 sugars, pine oil … --> second generation biofuels, produced mainly from lignocellulosic biomass, residues or waste
- ENERGY: Wood chip, pellet or biogas CHP plants

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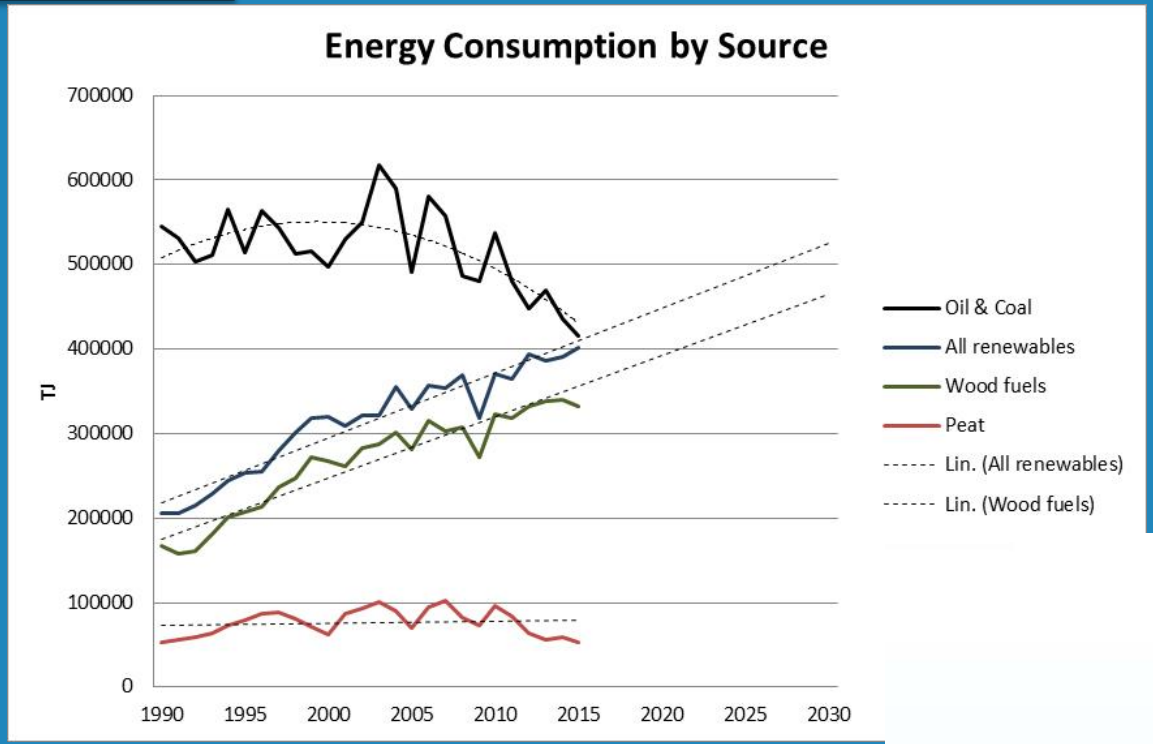


# Forest in Lapland

- 98 % of total land area
- Annual increment of growing stock 13.3Mm3/year
- Harvesting 3.9 Mm3/year

The Bioenergy Association of Finland & Statistics Finland 2016

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# District heating and wood chip supply

Bioenergia

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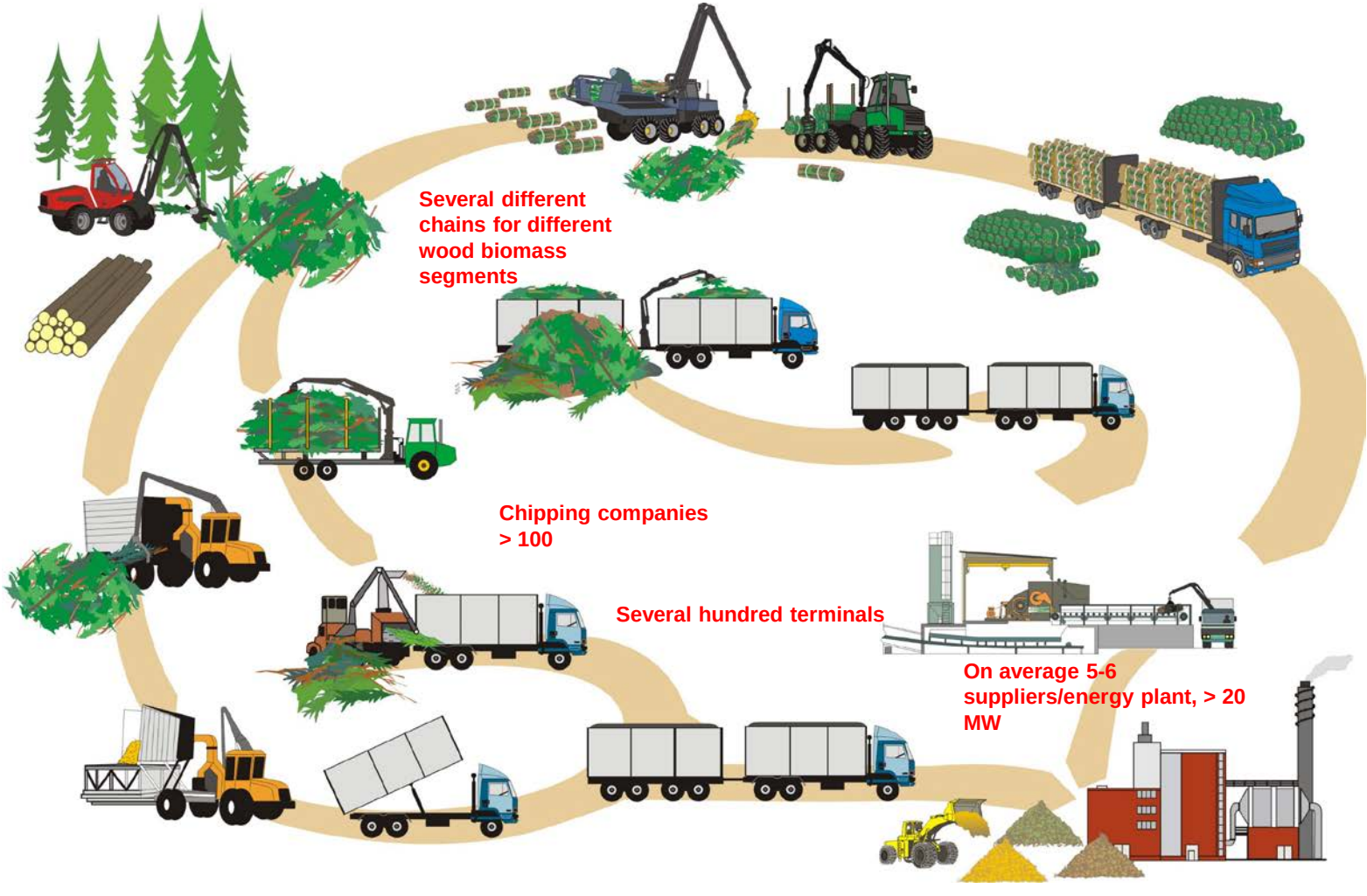

# Sustainable construction

- 50 % natural resources, mostly non renewables
- 40 % all energy consumption
- 30 % global CO2 emissions (UNEP)
- Wood offers an alternative
  - Sustainable and renewable
  - Low energy
  - Lighter elements
  - Health and wellness aspect


http://edition.cnn.com/2016/09/19/design/london-design-festival-the-smile-clt/index.html

# CLT



- CLT (Cross Laminated Timber) is ecological massive wood building system with structural lumber boards stacked crosswise and glued together. It is used as load-carrying plate element in structural systems.

## Benefits

- ecological
- energy efficient
- moisture dominant
- healthy indoor climate
- sound insulation
- design versatility
- short construction time

PS Kemi Kings
Sauvosaari football stand for 1100 spectators made of CLT
produced in Learning Environment of Lappia Vocational College
(800 elements, w 68m, h 13m)

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# CLT Experimental House in Kemi

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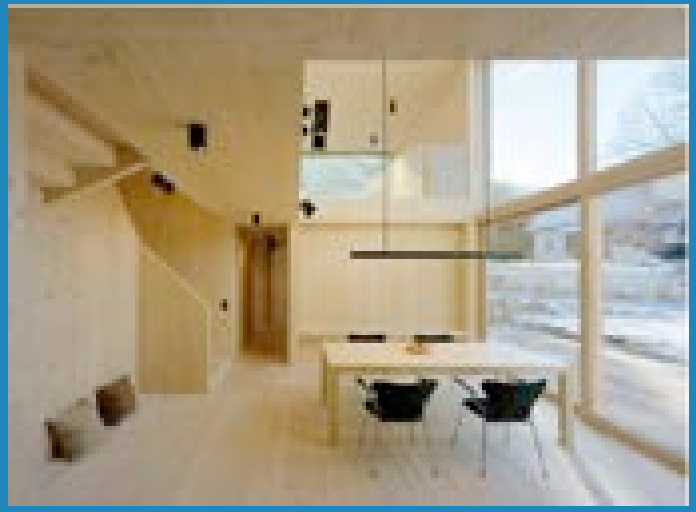

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# CLT Experimental House Project Kemi

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- Construction work at the site:
  - http://www.youtube.com/watch?v=cKldgTo12uM

  - The transportation of the house to the harbour of Kemi:
  - https://www.youtube.com/watch?v=f_yb8ATfiF0

  - The homepage of the project: www.kiintopuu.fi

  - CLT production facility in CLT Learning Environment of Lappia Vocational College in Kemi. CLT XPress :
  - https://www.youtube.com/watch?v=jRTIoBOQ8KA

# Stronger than concrete? Why this new material could define our age

By Nicola Davison, for CNN

Updated 1226 GMT (2026 HKT) September 19, 2016


http://edition.cnn.com/2016/09/19/design/london-design-festival-the-smile-clt/index.html


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Thank you for your attention
Ilari Havukainen
Cluster Development Manager
Ilari.havukainen@lapinliitto.fi
http://luotsi.lappi.fi/arcticsmartness
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Arctic Smartness