Policy Learning Platform Peer Review
"Structuring Centres of Excellence and Centres of Competence in Bulgaria"

Peer inputs – Sessions 5 and 6

Sofia, 18 June 2019

Research and innovation

Interreg Europe

European Union | European Regional Development Fund

1. Governance Models

- What are the legal status of the Centres of Excellence (CoE) and Centres of Competence (CoC) in your region?
- Recommendable legal form and management model – partnership or legal entities under the Non-Profit Legal Entities Act or another special Act
- Profile of managing staff
- Rights of ownership, including the intellectual property rights
- Improvement of the individual plans for utilization of the scientific infrastructure

1. Governance Models

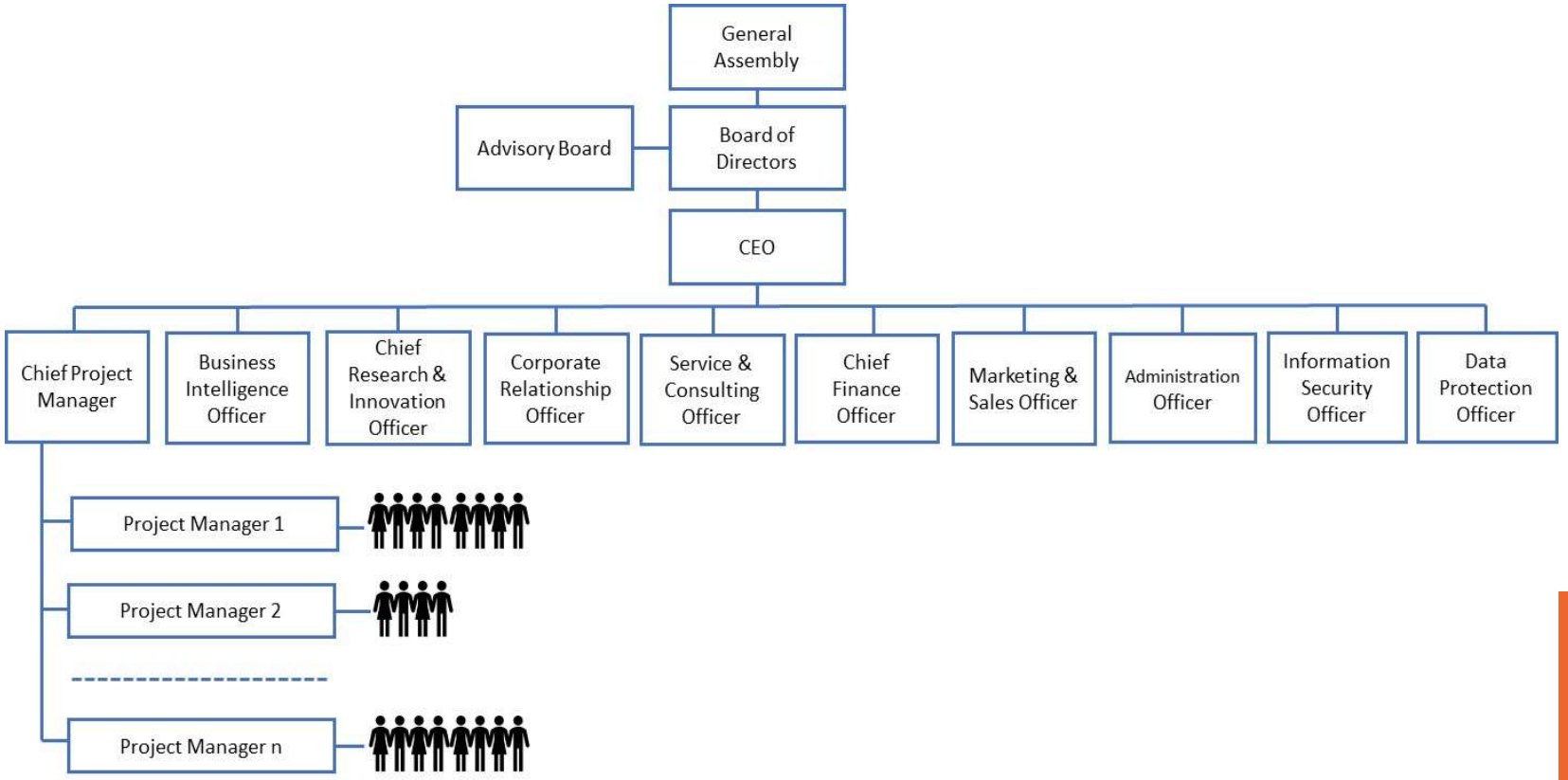
- Tadas Tumenas – Ministry of the Economy and Innovation of the Republic of Lithuania
- Ninetta Chaniottou – Kainuun Etu
- Open Discussion

1. Governance Models – Ministry of the Economy and Innovation of the Republic of Lithuania

Experience of CoE and CoC:

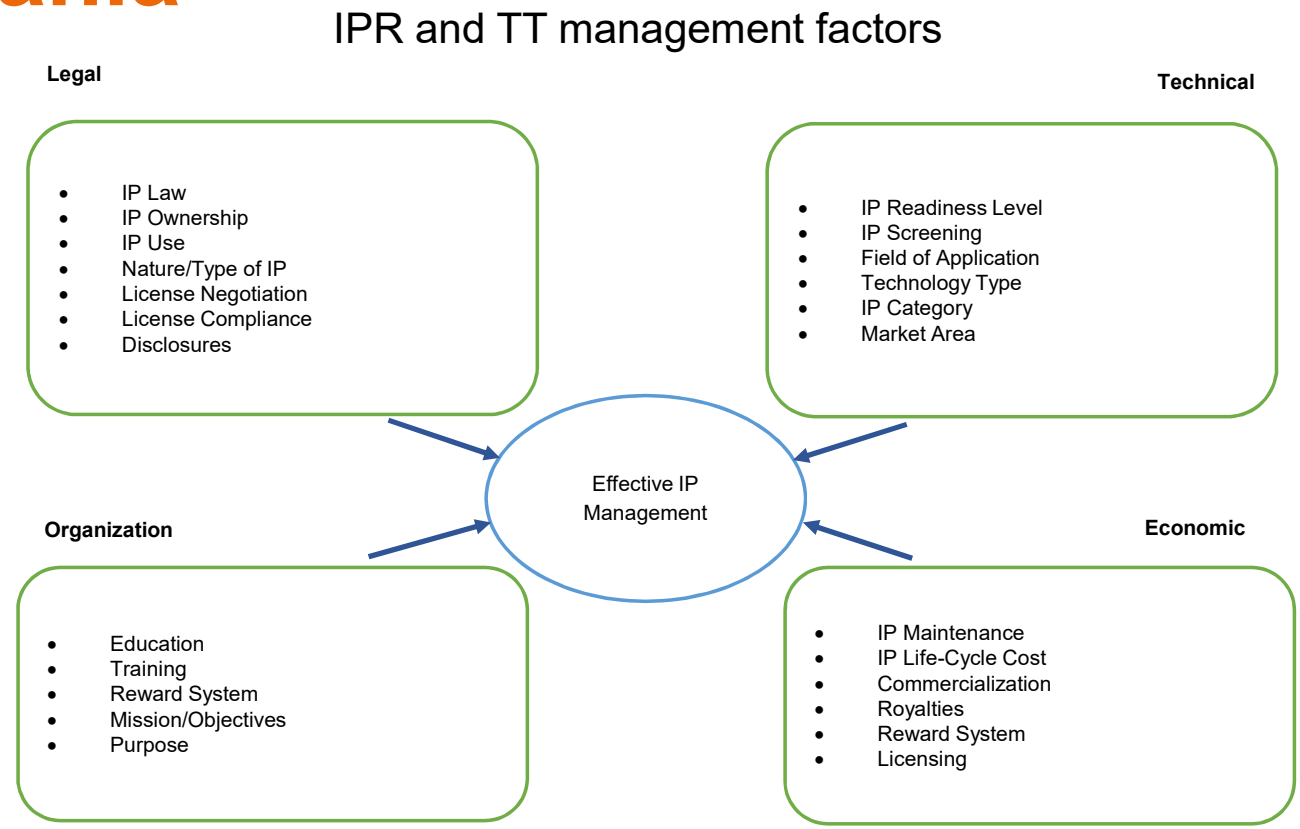
- Governance models of CoEs and CoCs in Lithuania – Management Team Model.
- CoC – elaborated the governance model: public establishment (public enterprise) with the stakeholders (Board/comprised of the representatives from universities).
- CEO appointed by the stakeholders (Board)
- Agreement: defining the roles of each organization in this public establishment (public body).
- Question of IPR and TT among the stakeholders.

1. Governance Models – Ministry of the Economy and Innovation of the Republic of Lithuania



Expert support

1. Governance Models – Ministry of the Economy and Innovation of the Republic of Lithuania



Expert support

1. Governance Models – Kainuun Etu Oy /1

- In Finland, there is clear differentiation of the roles of Centres of Excellence (CoE) and Centres of Competence (CoC).
- A CoE is not an infrastructure; it is a research and training network that has a clearly defined set of research objectives and is run under a joint management, bringing together several highly specialised universities and their respective research infrastructures. A CoE project is won following competition issued by the Academy of Finland, under the funding line of the same name (Centres of Excellence -CoEs).

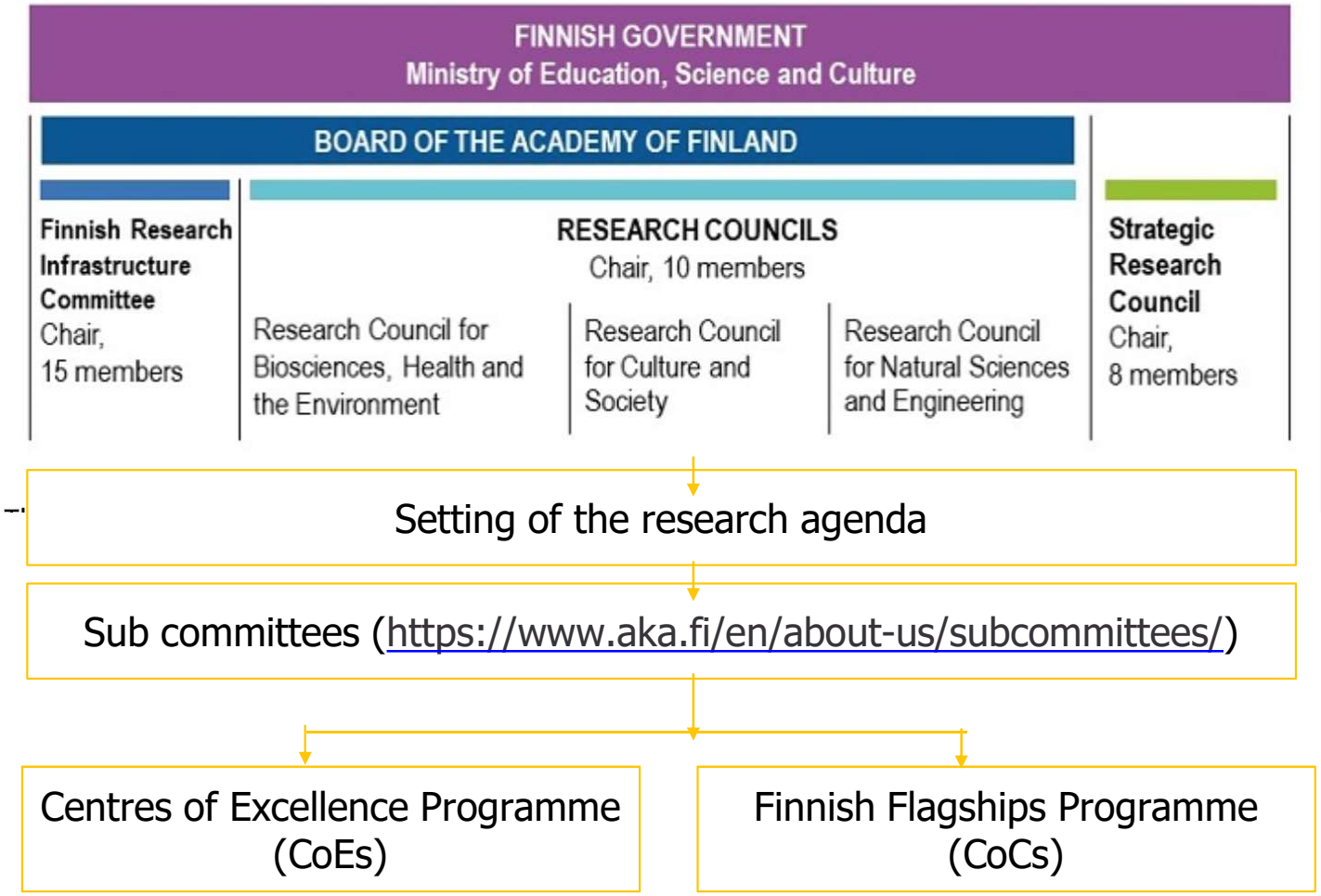
- The Academy of Finland's CoEs are at the very cutting edge of science in their fields. They are expected to carve out new avenues for research, develop creative research environments and train new talented researchers for the Finnish research system and for Finnish business and industry. (https://www.aka.fi/en/research-and-science-policy/centres-of-excellence/).

- Funding for the CoEs is provided for an eight-year term. CoEs can work to long-term plans and even take risks.

- CoEs are jointly funded by the Academy of Finland, universities, research institutes, the private business sector and many other sources.

1. Governance Models – Kainuun Etu Oy / 2

Organisation chart



The Academy of Finland is a public funding agency for scientific research under the Ministry of Education, Science and Culture.

Among the funding lines provided by the Academy of Finland, one is dedicated to Centres of Excellence and one to Flagships that relate more to Centres of Competence (CoCs).

(https://www.aka.fi/en/about-us/).

1. Governance Models – Kainuun Etu Oy /3

Centres of Competence (CoC)

CoCs are formal organisations, which have a long term but typically finite duration. The areas of research are focused on gaining competence in areas of technology or innovation which are relevant to the industry's stakeholders. (definition from the CREST project, CREST project report, http://ec.europa.eu/invest-in-research/pdf/download_en/illc.pdf)

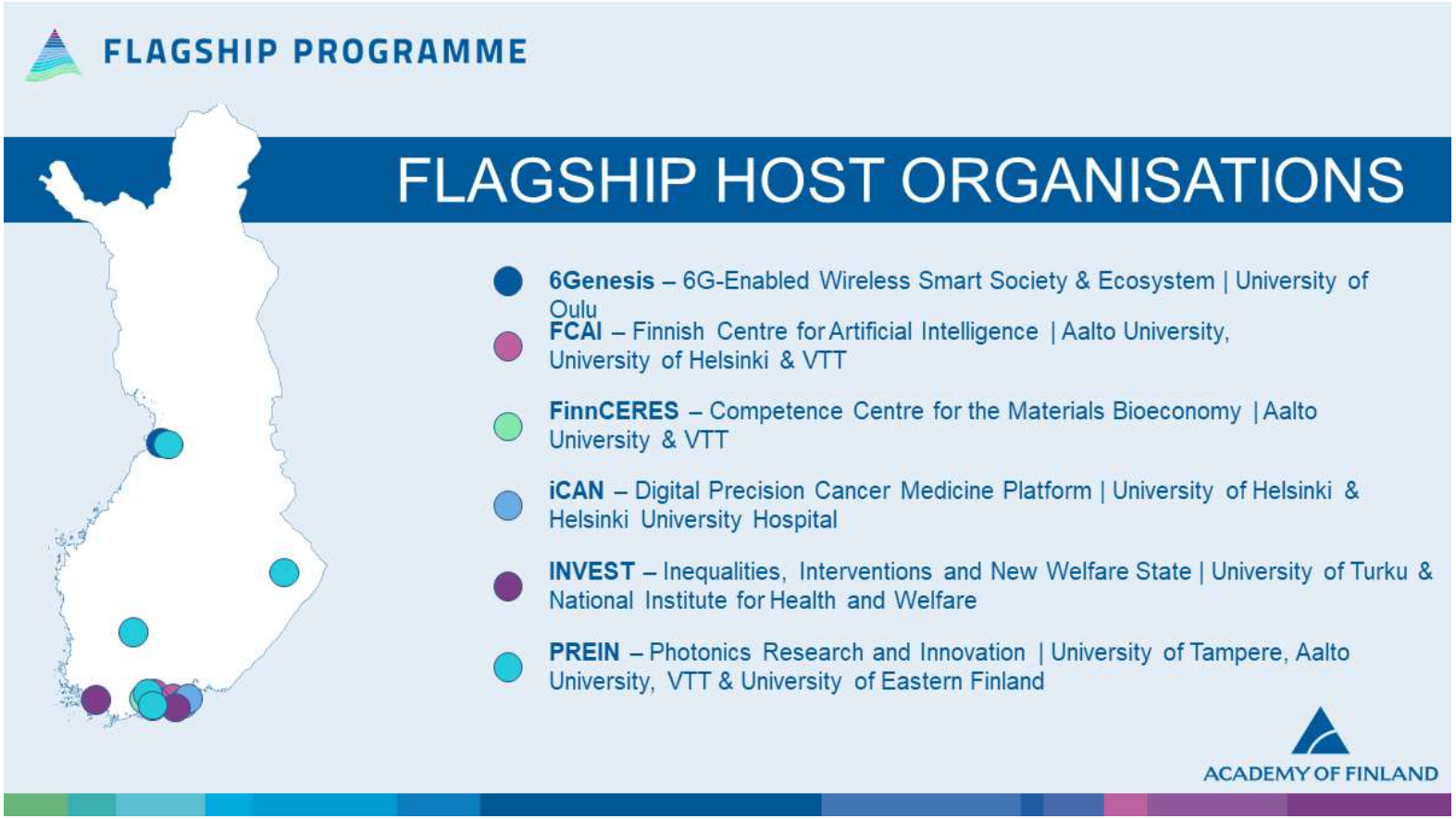
In Finland, one could map the CoC landscape into

- Those CoCs that literally bridge excellence to applied research and which are often funded by the Finnish Flagship programme of the Academy io Finland following competitions. VTT is such a high level CoC.
- The regional CoCs, funded on the base of regional, municipal and regional Structural Funds availability and acting to bridge the gap between excellence and local SMEs for example.
- Examples of both types of CoCs in the following slides.

1. Governance Models – Kainuun Etu Oy /4

Examples of Centres of Competence from Finland

- **1) Examples of Centres of Competence funded by the Flagship programme**



https://www.aka.fi/en/research-and-science-policy/flagship-programme/statistics-on-flagship-program/

1. Governance Models – Kainuun Etu Oy /5

- **Examples of Centres of Competence from Kainuu**
  - **Kantola industrial estate and Woodpolis centre of competence**; industry driven: development of wood processing industry in Kantola industrial estate is the long-term goal of the Kuhmo city. The need to diversify from the saw-mill industry towards the new types of demand. https://www.interregeurope.eu/policylearning/good-practices/item/136/kantola-industrial-estate-and-woodpolis-centre-of-competence/

  - **Unit of Measurement Technology (MITY) - University of Oulu, as regional specilisation infrastructure**; research driven: industrial valorisation of the berry ingredients in traditional and emerging applications. https://www.interregeurope.eu/policylearning/good-practices/item/146/unit-of-measurement-technology-mity-university-of-oulu-as-regional-specilisation-infrastructure/

  - **Vuokatti professional Winter Nordic sports, leisure and learning education cluster (VPWNS)**; research driven: combining knowledge from biomechanics, exercise physiology and science of sport coaching and fitness testing. https://www.interregeurope.eu/policylearning/good-practices/item/141/vuokatti-professional-winter-nordic-sports-leisure-and-learning-education-cluster/.

1. Governance Models – Kainuun Etu Oy / 6

- **What works?**
- Kantola (1) Ochestration of a development vision (master plan); (2) Building the development partnership; ivolving actors from within Kainuu and beyond; (3) Funding application for making the Master plan; (4) Implementation workshops of the master plan; (5) Research (if needed), product development, training, and marketing activities.
- MITY (1) The Unit includes scientists with inter-disciplinary competences (e.g. chemistry x industry) and, correspondingly, allowing to appreciate research potential applications in the respective industries. (2) Continuous research for identification of new qualities in berries. Once a new berry-ingredients-quality is identified, researchers contact businesses proactively and discuss the possibility of a joint project towards a prototype, and actions proceed thereof. (3) Business-to-research needs are addressed proactively from the business side & mutually when new types of measurements and certification needs come up; (4) Research-to-business opportunities are valorised proactively by both researchers and (usually) larger industries with R&D competences and established markets beyond Kainuu.
- VPWNS 1) The overall concept of linking excellence to graduate degrees related to applications in professional sports and further to qualified commercial demands is very attractive and works very well. The number of MSc and PhD students is raising and the research environment is very attractive. Vuokatti professional sport activities are aligned with national themes and Olympic Team priorities. The plan is to make Vuokatti formally designated destination for nordic ski related to Olympic Games. Chinese Olympic team on cross country ski and nordic ski, is trained in Vuokatti. 2) The model of combining expert infrastructure (the ski tunnel) with excellence and state of the art products and services is working very well.

1. Governance Models – Kainuun Etu Oy /7

Kainuu CoCs	CHARACTERISTICS							
	Research (R) or Industry (I) driven	Ownesrhip	Status	Funding sources	Main tool	Location of activities	Multiplier effect	Challenge
Kantola	I	City of Kuhmo	Public equivalent	85% projects 15% budget	Master plan	Regional & national	Wooden sustainable construction industry Diversification & specialisation	Returns to scale: size of national market; size of cluster small Strategic linkages with Centres of Excellence (cost factor)
MITY	R	University of Oulu	Public	85% projects 15% budget	Berry ingredients research programme of the University of Oulu	Regional, national, international	IPR, innovative products, scientific outputs	Returns to scale: regional economic base small
VPWNS	I	University of Jyväskylä	Public	85% projects 15% budget	University of Jyväskylä research programme based on global professional sports industry trends	Regional, national, international	Innovations & specialised education (Ph.D.s) Strengthening professional sports cluster in Vuokatti	Returns to scale: regional economic base small

1. Governance Models – Kainuun Etu Oy /8

Some issues to consider (lessons learnt….)

- Approach to CoE: the network approach might be the future
- National or regional CoC? Probably both
- Explicit linkages between education, science, and regional policy: board membership is fine, concrete initiatives also needed
- A must: professionalisation of business services offered by CoCs
- Another must: include internationalisation provisions in the articles of association from the very beginning

1. Governance Models

Open Discussion

2. Private Sector Involvement

- How to involve the private sector in the management of the CoE and CoC?
- How to attract private investments in innovation projects/centres?
- How/In which way participation of the private sector in CoE/CoC could be stimulated by the state? (taxes, fees, other?)
- Good examples for public-private collaboration as part of EU value chains.
- How to attract small businesses?

2. Private Sector Involvement

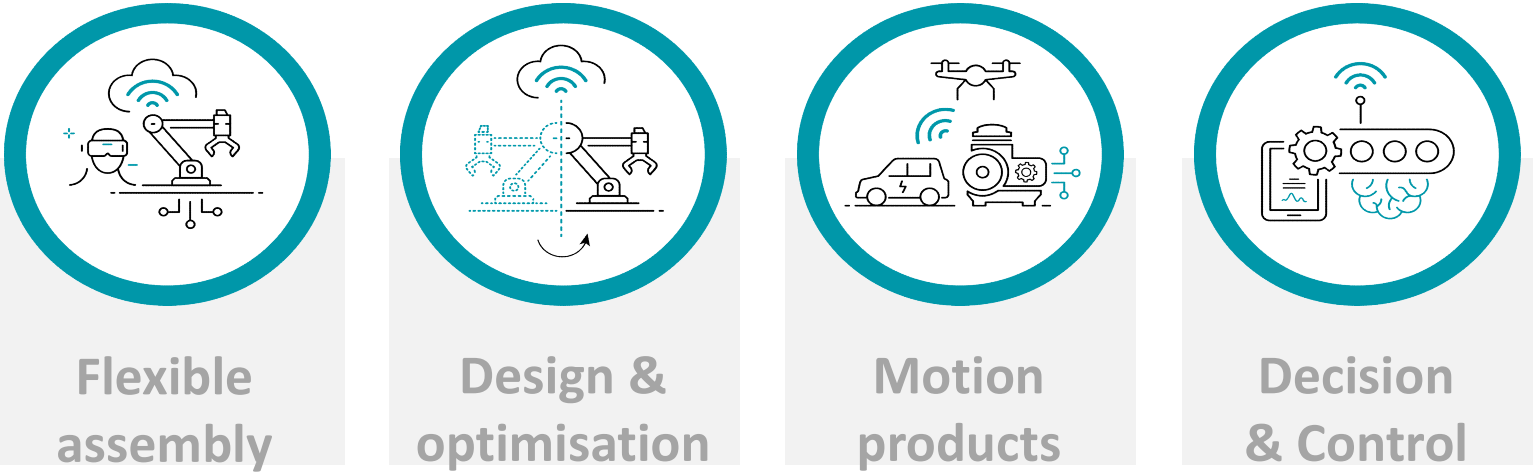
- **Ger Van Den Kerkhof – Flanders Make**
- **Open Discussion**

2. Private Sector Involvement – Flanders Make

1. <u>Top level governance</u>
   - Board of Directors – 8 out of 21 members
     - CEO/CTO level
     - LT strategic direction of Flanders Make
     - Growth path, organisation (changes)
     - Full stakeholder landscape involved
   - Industrial Advisory Board (17 members)
     - Companies with mfg site in Flanders
     - CTO level
     - Endorsement of Technological Roadmaps
     - Approval op project proposals
     - Safeguarding the buy-in from industry

2. Private Sector Involvement – Flanders Make

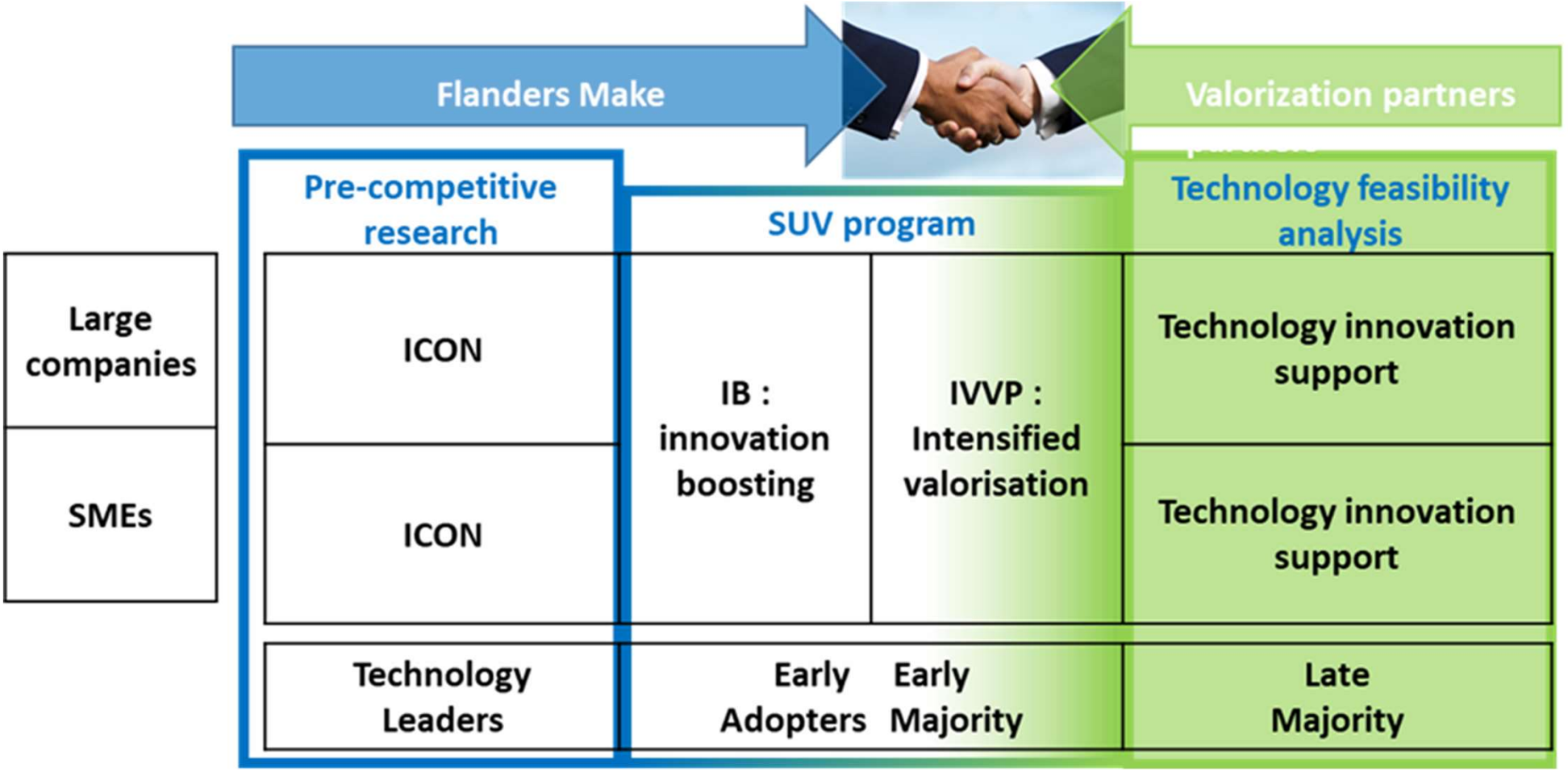
2. Research Cluster participation
   - Participation of industrial partners in the 4 research cluster – R&D Mgt level
   - Input in technological roadmapping process
   - Participation fee - € 750 for SME, € 1500 for large company
   - Regular research cluster meetings



2. Private Sector Involvement – Flanders Make

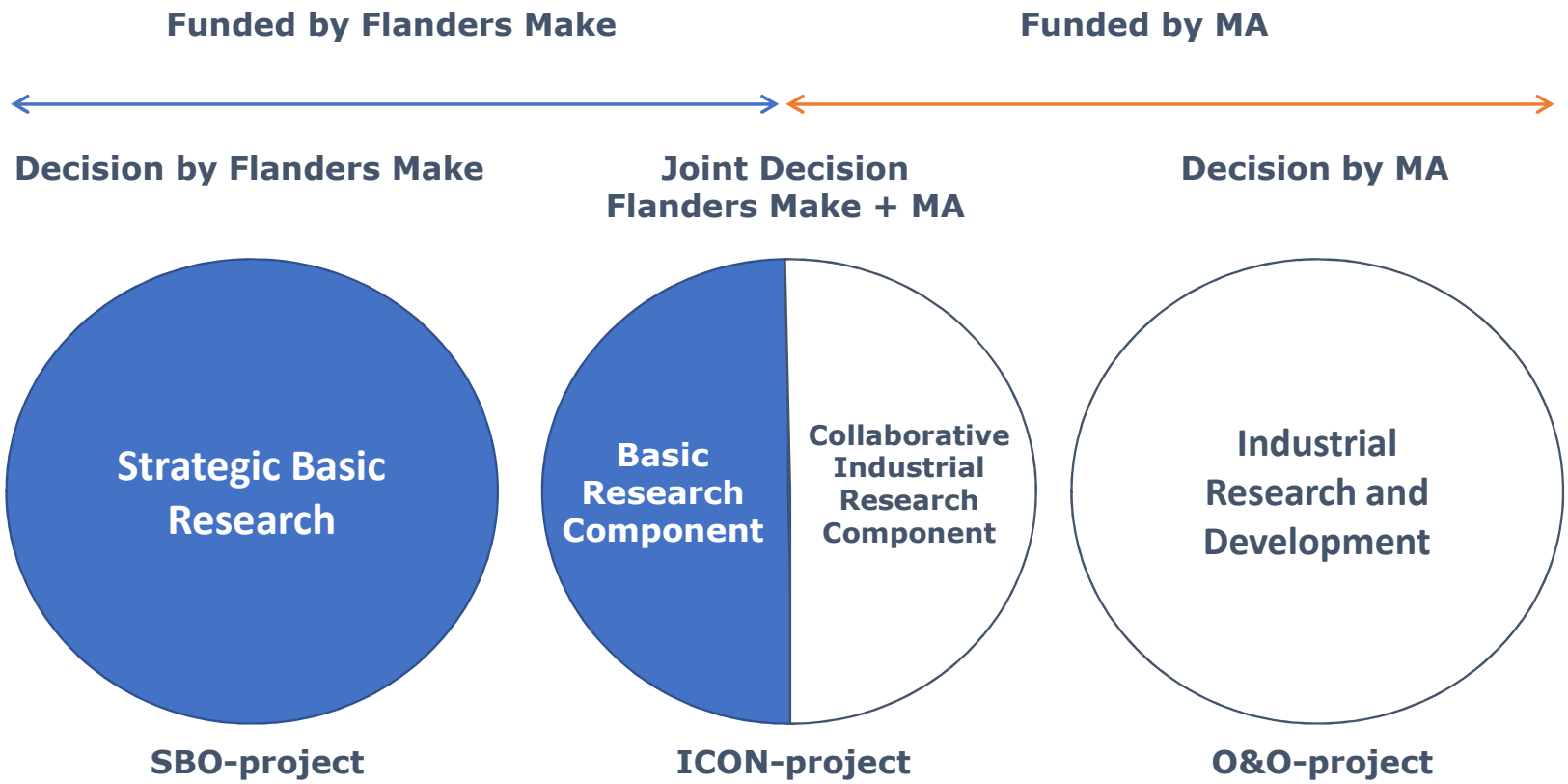
3. Research project participation
   - Innovation Boosting projects (appr. 8 months)
     - Feasibility studies – company in the lead – max budget € 60k
     - 50% to be subcontracted to Flanders Make
   - Applied Research projects (duration 2 years)
     - Flanders Make develops “generic” knowledge – TRL 5 - 7
     - Companies translate this into their own use cases TRL 6 – 8/9
     - Companies are funded by Flemish MA (Flemish Agency for Innovation and Entrepreneurship)
       - 50 – 80% funding possible based on size of the company
   - Strategic Basic Research projects (duration 4 years)
     - Longer term projects, knowledge developed by Flanders Make – TRL 3 - 5
     - Companies participate in “user group”
     - Participation fee - € 250 for SME, € 1000 for large compan
     - No funding from MA for companies

2. Private Sector Involvement – Flanders Make



2. Private Sector Involvement – Flanders Make

2. Main project types



2. Private Sector Involvement – Flanders Make

4. Flanders Make membership
   - Low threshold fee - € 250 for SME, € 1000 for large company
   - Newsletters, events, membership area on website, Account manager

	Member of Flanders Make	Member of Flanders Make Cluster
Access to a network of CEOs, managers, researchers and engineers	✓	✓
1 contact person	✓	✓
Discounts on participation in symposia, seminar days and workshops	✓	✓
Voting right during General Assembly	✓	✓
Guiding our research in the long run (> 3 years)		✓
Proactively defining ICON and SBO projects		✓

2. Private Sector Involvement – Flanders Make

5. Flanders Make events
   - Bi-annual seminar
     - Presentation of technological roadmaps, project results, new developments
     - Announcement of new projects
   - Yearly symposium
     - Bigger international event, keynotes
   - Quarterly SME events
     - On location, site visit, peer learning

2. Private Sector Involvement – Flanders Make

6. <u>(Key) Accountmanagement</u>
   - Counter function for companies
   - Regular visits, detection of company needs
   - Creating expertise of industrial development
   - Key accounts
     - Key account meetings with mgt
     - Key account plans
     - LT strategic contracts

2. Private Sector Involvement – Flanders Make

- Experiences with private sector involvement (tbd)

  - Demonstrate your relevance and added value
  - Demonstrate research results
  - Create interaction between all levels in both organizations – personal contacts!
  - Organize peer-to-peer learning and networking
  - SMEs often difficult to mobilize – start with innovative SMEs
  - Although the content is leading, money/funding is still an important incentive

2. Private Sector Involvement

Open Discussion

3. Financial Models

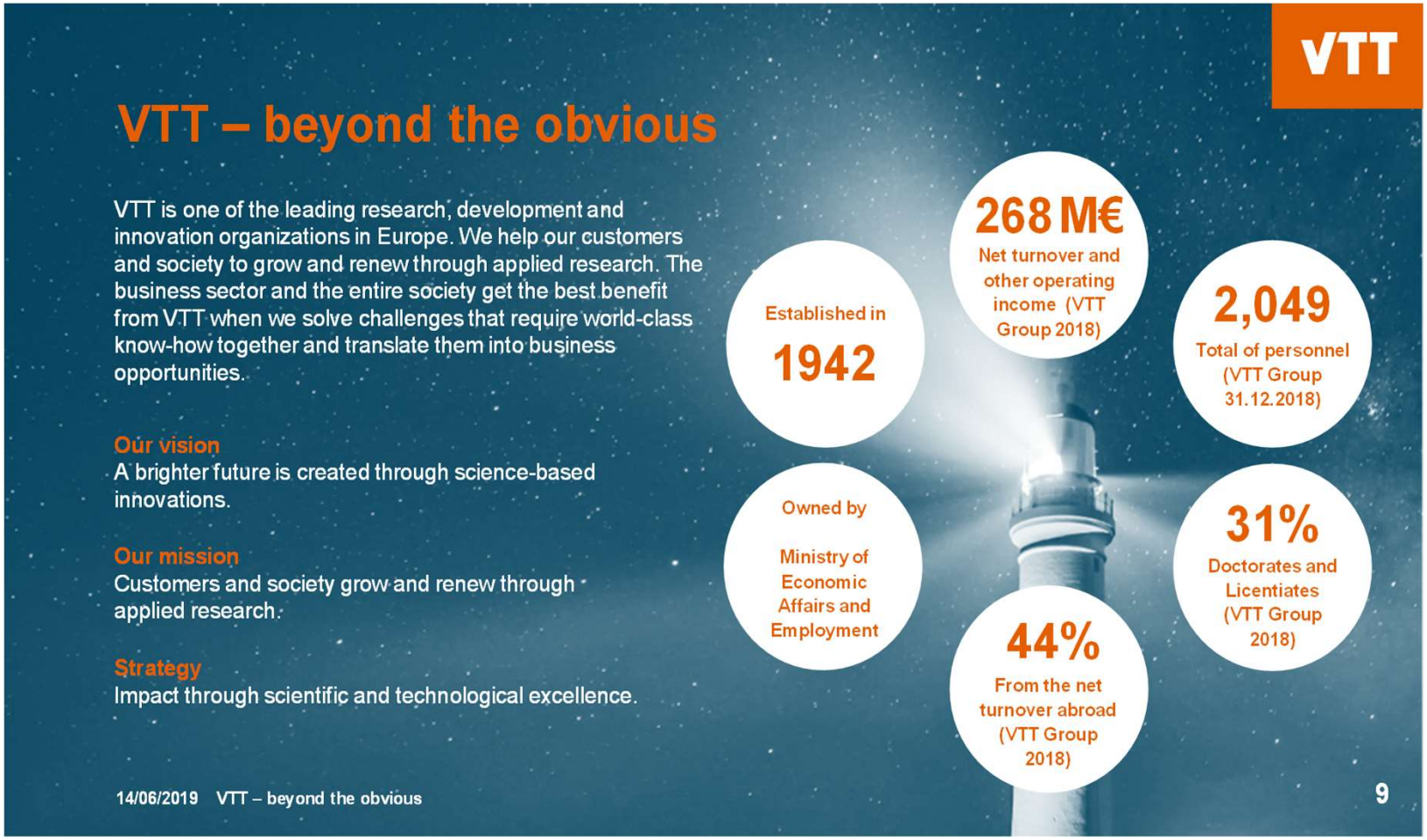
- What are the financial models to ensure financial sustainability of CoE and CoC?

- How to manage the state aid issues in the future functioning of the created CoE/CoC, balance between economic and non-economic activities?
- Typical revenue sources for the CoE/ CoC.
- Methods for managing revenues coming from 'intangible assets' such as patents, licences, know-how or other intellectual property as well as from research contracts.
- Mechanism for knowledge transfer and receiving income from increased scientific services.
- Smooth transition from grants to repayable assistance and/or financial instruments. Types of financial instruments to be used by CoE/ CoC.
- Key performance indicators of an “excellent” Centre of Excellence.

3. Financial Models

- Leena Sarvaranta – VTT Technical Research Centre of Finland
- Tadas Tumenas - Ministry of the Economy and Innovation of the Republic of Lithuania
- Ger Van Den Kerkhof – Flanders Make
- Open Discussion

3. Financial Models - VTT Technical Research Centre of Finland



Continuity of basic funding and public programmes is key for sustainability

3. Financial Models - VTT

VTT organisation and Leadership Team

Antti Vasara
President & CEO

Tua Huomo
Executive Vice President

Knowledge intensive products and services

Erja Turunen
Executive Vice President

Smart industry and energy systems

Jussi Manninen
Executive Vice President

Solutions for natural resources and environment

Mika Toikka
Executive Vice President

Commercial Operations

Tanja Huoponen
Chief Financial Officer (CFO)

Finance and business support

Kirsi Nuotto
Senior Vice President

Human resources

Katri Kallio
Vice President

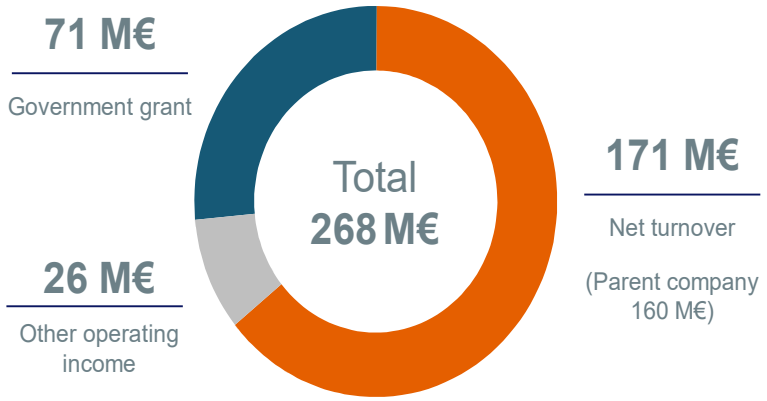
Strategy and business intelligence

Anu Vaari
Senior Scientist, personnel representative

Transparent corporate, governance and professional management: VTT operates according to its mission, values and strategy, striving to obtain its vision.

3. Financial Models - VTT

VTT Group net turnover and other operating income 2018



VTT

Strategic guidance by the Ministry includes VTT's contribution to national innovation and industrial policy targets. At the end of each fiscal year VTT applies the government grant for the coming year. There is a joint VTT-Ministry work group, which assists the decision makers in planning and evaluating the ownership steering.

3. Financial Models - VTT

VTT's R&D infrastructure – an essential part of the national research infrastructure

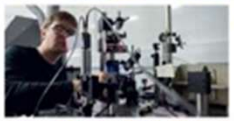
VTT's unique R&D infrastructure enables the development chain from basic research and process development up to prototyping and pilot manufacturing. Our research facilities are an essential part of the Finnish research infrastructure.

Examples of our R&D infrastructure

Bioruukki
The largest bioeconomy pilot and research facility in the Nordic countries.

Biotechnology and food research piloting environment
offers unique facilities for the development and customisation of bio and food industry technologies.

Micronova
World-class cleanroom facility, fully equipped for the fabrication of silicon, glass and thin film-based microsystems.



VTT MIKES Metrology
is the National Metrology Institute of Finland and performs high-level metrological research and develops measuring applications in partnership with industry.

Engine and vehicle laboratory
enables research on passenger cars as well as heavy-duty vehicles up to 60 metric tons to develop energy efficiency, emissions reduction and use of 2nd generation biofuels.

PrintoCent
World's first pilot factory for printed intelligence industrialisation.

ROViR
Remote Operations and Virtual Reality Centre for the development of remote operations and virtual reality technology in industry.

A pilot-scale research environment for fibre processes
enables the development of novel products and supports the renewal of the pulp and paper industry.

Centre for Nuclear Safety
for nuclear technology safety research.

Challenging to safeguard long-term existence of Infrastructures as dedicated policies are currently lacking at national level

3. Financial Models - VTT

Access to appropriate **technology infrastructures and testbeds** plays a crucial role when attracting economic activities to the region

The direction should be towards effective and **sustainable cross-border networks** of European testbeds

Connecting and increasing collaboration between testbeds across EU will be key in maintaining Europe as a **global hub for transformative research and innovation**

Dynamic **industrial innovation ecosystems are connecting with place-based competence centres** for development, testing and scaling-up of new technologies

It is worth pointing out that testbeds, including both physical facilities and complex technological know how and experts, provide excellent arenas for **dialogue**, to discuss and build concrete collaboration to **address societal challenges**

3. Financial Models - VTT

VTT's research projects

1 COMMERCIAL PROJECTS

Impact:
- Building competitiveness for VTT's customers through world-class research and innovation services

2 JOINTLY FUNDED PROJECTS

Impact:
- More efficient technology transfer
- Foundation for new innovations and political decision-making

3 SELF-FINANCED PROJECTS

Impact:
- Developing VTT's own competitiveness and acquiring knowledge and expertise to meet future customer needs

Main part of activities in jointly funded projects (highly competitive funding)

3. Financial Models - Ministry of the Economy and Innovation of the Republic of Lithuania (I)

I phase:

Experience of CoE – HealthTech

Total cost: EUR 465 560
EU contribution: EUR 465 560
Coordinated in: Lithuania
Project duration: 2015.06.01-2016.05.31
Topic(s): WIDESPREAD-1-2014 - Teaming
Call for proposal: H2020-WIDESPREAD-2014-1
Funding scheme: SGA-CSA

3. Financial Models - Ministry of the Economy and Innovation of the Republic of Lithuania (II)

3. Financial Models - Ministry of the Economy and Innovation of the Republic of Lithuania (III)

- EU SF measure: “The promotion of Centers of Competences and Centers of Technology Transfer”. Deadline – 2019-10-14, total amount for this measure – 13 mln. EUR (max amount for 1 project – 1 mln. EUR)
- Financed activities: RDI activities

3. Financial Models – Flanders Make

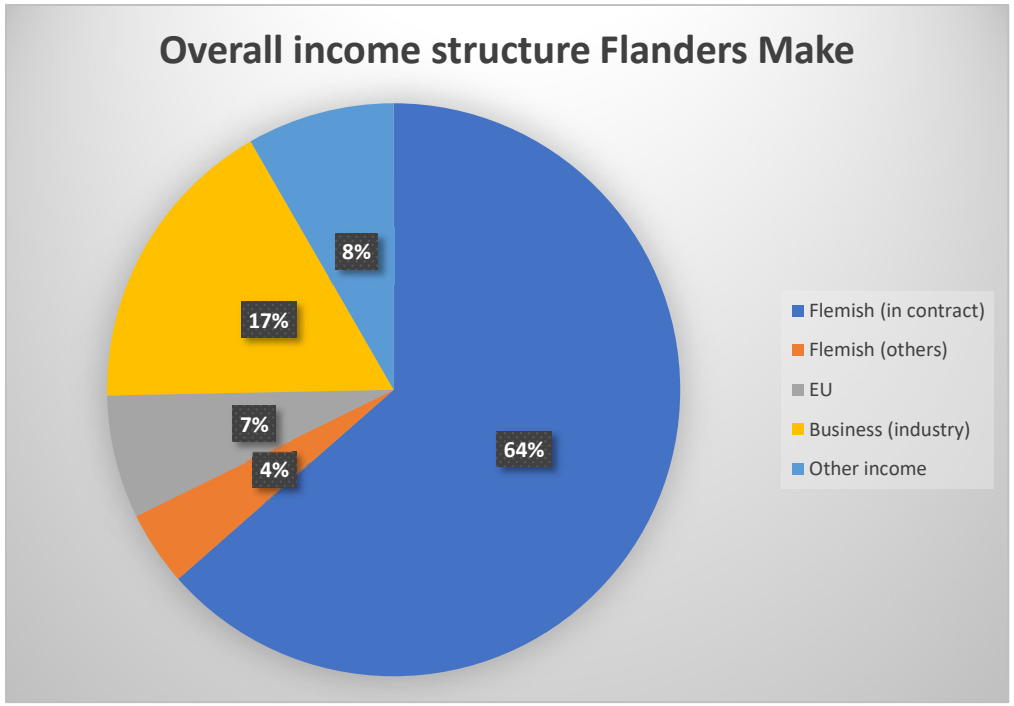
Income sources (1):

1. Flemish Regional Govt – Department Economics, Science and Innovation
   - Via LT (5 year) contracts
   - Business plan and audits – strong growth path foreseen
   - Yearly KPIs – income based on achievements
2. Industry
   - Participation in cluster roadmaps
   - Membership fee
   - User group in strategic basic research projects
   - B2B research and dedicated contracts with key accounts
3. Local funds
   - Local authorities (Provinces) providing co-financing in EU projects

3. Financial Models – Flanders Make

Income sources (2):

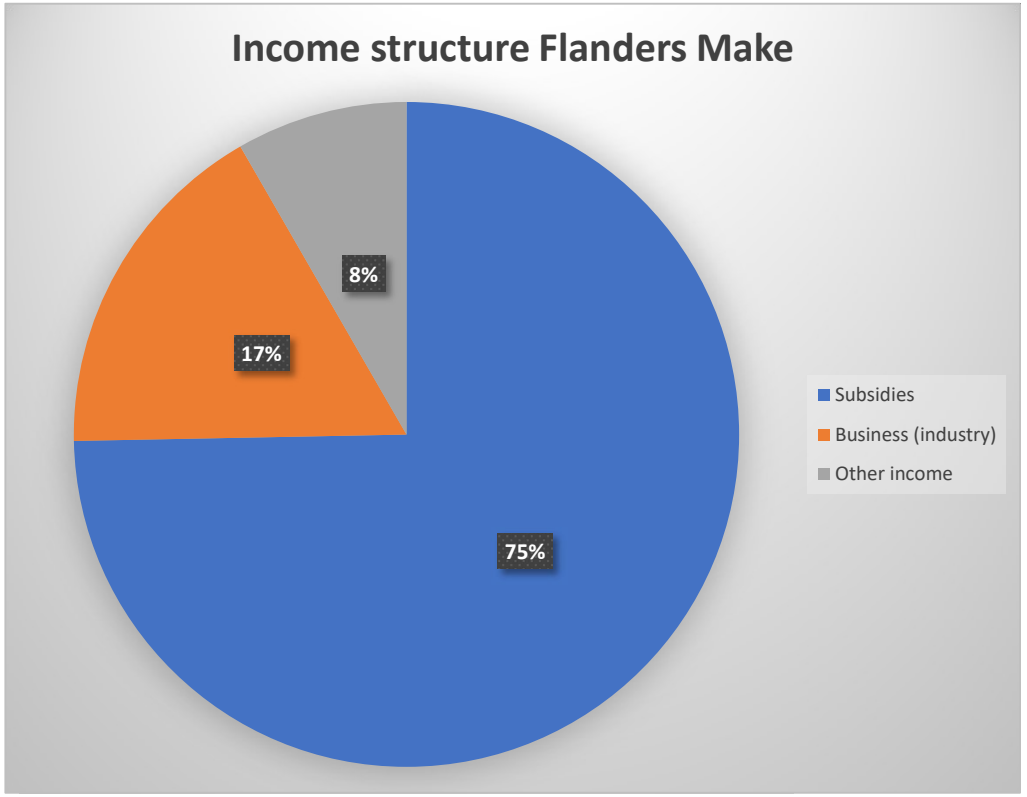
4. EU projects
   - H2020
   - ERDF
   - Integrated Regional Investments
     - ITI projects; SALK for the Province of Limburg
5. Miscellaneous
   - Events (paid)
   - Tax recup researchers

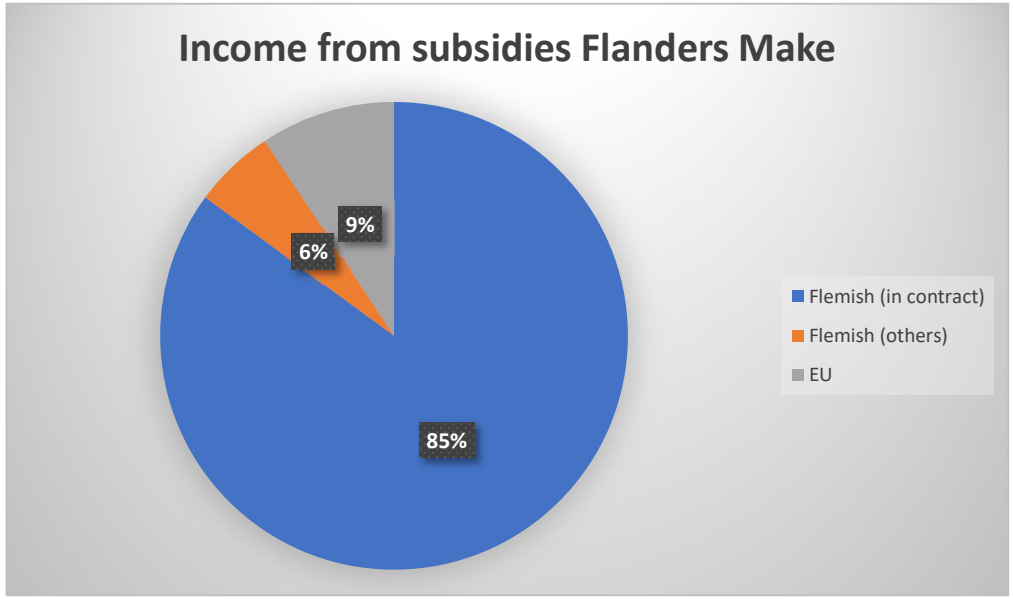


Annual budget Flanders Make = € 15.9 mio in 2018
Growing to € 60 mio in 2022

3. Financial Models – Flanders Make

Income sources (3):

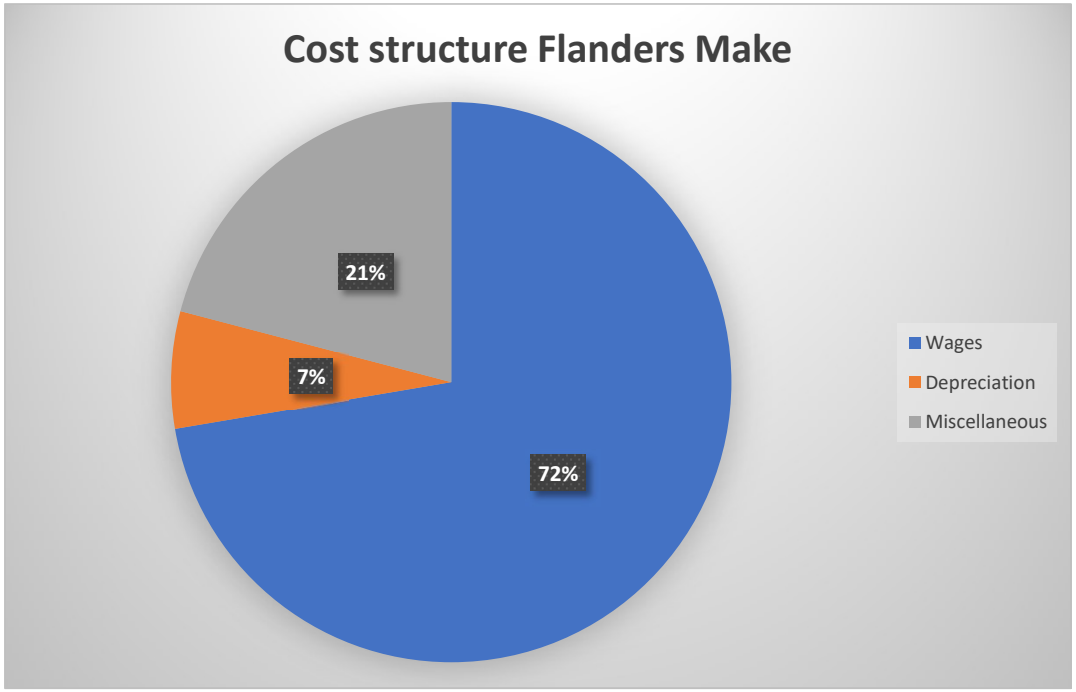




3. Financial Models – Flanders Make

Expense sources:

1. Wages (72%)
   - Payroll
   - External and internal consultants
2. Depreciation (7%)
   - All purchased items < € 2.500
3. Miscellaneous (21%)
   - Different services and goods



3. Financial Models – Flanders Make

2018		% in cat	% in total
INCOME	**15 212,7 €**		
Subsidies	**11 318,9 €**		**74%**
Flemish (in contract)	9 630,0 €	85%	63%
Flemish (others)	634,0 €	6%	4%
EU	421,9 €	4%	3%
EFRO/SALK	633,0 €	6%	4%
Business (industry)	**2 576,3 €**		**17%**
B2B contracts	2 428,0 €	94%	16%
Research memberships	148,3 €	6%	1%
Other income	**1 317,5 €**		**9%**
Memberships (normal)	56,5 €	4%	0%
Events by FM	27,0 €	2%	0%
Tax recup researchers	1 234,0 €	94%	8%
COST	**15 886,1 €**		
Wages	**11 492,0 €**		**72%**
Payroll	9 690,0 €	84%	61%
External consultants	377,0 €	3%	2%
Fleet	284,0 €	2%	2%
Internal consultants	1 141,0 €	10%	7%
Depreciation	**1 072,0 €**		**7%**
Purchase > € 2,500	1 072,0 €	100%	7%
Miscellaneous	**3 322,1 €**		**21%**
Services & Goods	3 322,1 €	100%	21%

3. Financial Models

Open Discussion

4. Extra-regional Knowledge and Interregional Cooperation

- How to monitor knowledge transfer and generate partnerships?
- Strategy for knowledge transfer, financing and receiving income
- Actors to be involved
- Sufficient business participation for self-sustainability
- State aid rules, intellectual property rights
- Improving commercial awareness
- Increasing market-orientation of research and commercialization of scientific products, processes and services.

- Future opportunities for cooperation?
- Exchange of good practices and international co-operation on European level
- Strategic international partnerships with various stakeholders
- Membership in different scientific peer networks
- Internationalization of innovation.

4. Extra-regional Knowledge and Interregional Cooperation

- **Ninetta Chaniottou – Kainuun Etu**
- **Leena Sarvaranta – VTT Technical Research Centre of Finland**
- **Open Discussion**

4. Extra-regional Knowledge and Interregional Cooperation - Kainuun Etu Oy /1

At strategic level

- The members of the Board of the Academy of Finland have multi national profile
- Nordic Centres of Excellence (NCoE:s) http://octa-innovation.eu/nordic-centres-of-excellence/, with joint funding, management and decision-making
- Joint effort of the Nordic countries, designed to enhance the standard, quality, effectiveness and international visibility of Nordic research. The programmes are funded by the Nordic Research Councils, the Nordic Council of Ministers and NordForsk. The Nordic Centres of Excellence are selected for five years on a competitive basis. The most important selection criterion is leading-edge research of a high international standard.

- Centres of excellence

Researcher mobility projects under the Centres of Excellence programme

4. Extra-regional Knowledge and Interregional Cooperation - Kainuun Etu Oy /2

- **Centres of competence**
- Projects for constructing interregional good practices (e.g. CENTROPE, Science Link, Baltic TRAM))
- Projects for good practice transfer (all IE projects focusing on innovation infrastructures)
- Tools for supporting research-to-research and / or research-to- business set up of partnerships at interregional level (e.g. BRIDGES)
- Tools supporting the implementation of interregional research-to-research or research-to-business partnerships (e.g. BRIDGES)
- Such tools can be national and / or structural-funds based; there is need to build more explicitly and systematically bridges between excellence and applications in the market (e.g. BRIDGES)
- Examples of such experiences in the following slides

4. Extra-regional Knowledge and Interregional Cooperation - Kainuun Etu Oy /3

Examples of interregional cooperation involving CoCs	Types			
	Projects for constructing interregional good practice and type of good practice	Projects for good practice transfer (in this case all IE projects focusing on innovation infrastructures)	- CoC to SMEs	
			- Tools supporting the implementation of interregional research-to-research or research-to-business partnerships	- Tools supporting the implementation of interregional research-to-research or research-to-business partnerships
Large research infrastructures GP	Transnational; Access to and benefitting from LRI services for SMEs	2 BSR projects		
CENTROPE GP	Transnational; innovation voucher, ideally linking CoCs -to-businesses across regions	1 Central Europe Interreg project		
KANTOLA GP		BRIDGES (IE) project Regional platform and excellence-to-SMEs options were adopted		
BRIDGES project			Western Macedonia cooperation with VTT; opening up of the ROP Goriska cooperation with LUKE	BRIDGES pilot, leading to RIS3 integration of transregional research to SMEs options

4. Extra-regional Knowledge and Interregional Cooperation - Kainuun Etu Oy /4

- **Some conclusions**
- Interregional cooperation schemes are important to be anticipated and adopted at strategic level
- Aligning research agenda to dominant and / for very demanding trends is better than having a localised niche only
- Transnational Interreg projects have proven very important for developing good practices (the knowledge pull) which would otherwise not have existed at regional level
- Interregional Interreg projects are really good for capitalising on transnational good practices, and eventually focusing also on jointly developed action plans leading to more long term cooperation schemes (for example interregional feasibility studies would help a lot).

4. Extra-regional Knowledge and Interregional Cooperation

Kainuun Etu Oy /5

SUMMARY	National Science & Research management institution	University Research infrastructure	MLEs	CoC	Region
National Science & Research management institution	**Shared objectives; excellence niches networks; board membership; CoE selection committee**				Regional operations are included into national and institutional research and commercialisation of research roadmaps
University Research infrastructure	Contribute to defining the research agenda	Research project; Joint course Education/degree; training	Joint product development Clustering/value chains	Criteria for professionalising business services	
MLEs	Contribute to defining the research agenda	Contract research Project	Joint product development Clustering/value chains	Collaborative research; innovation projects;	Investments
CoC		Collaborative research; innovation projects; product and business improvement	Collaborative research; innovation projects;	Industry led x research-defined joint development projects	Project participation
Region	Policy integration of CoCs' interactions with CoEs; linking international, national regional research commercialisation agendas; Project funding criteria		Investment support policies	Policy integration of CoCs interactions with CoEs Project funding criteria	Project-based cooperation

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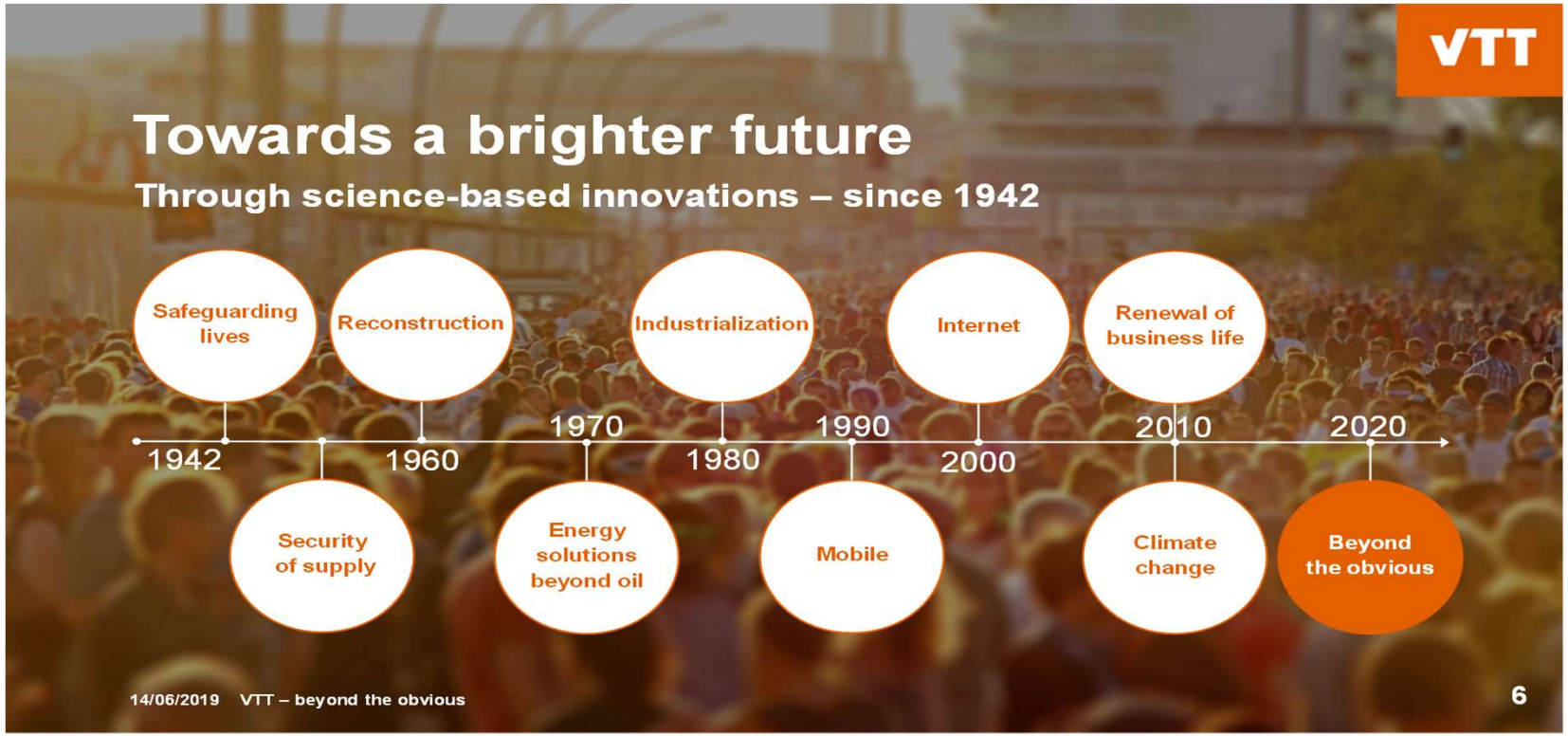
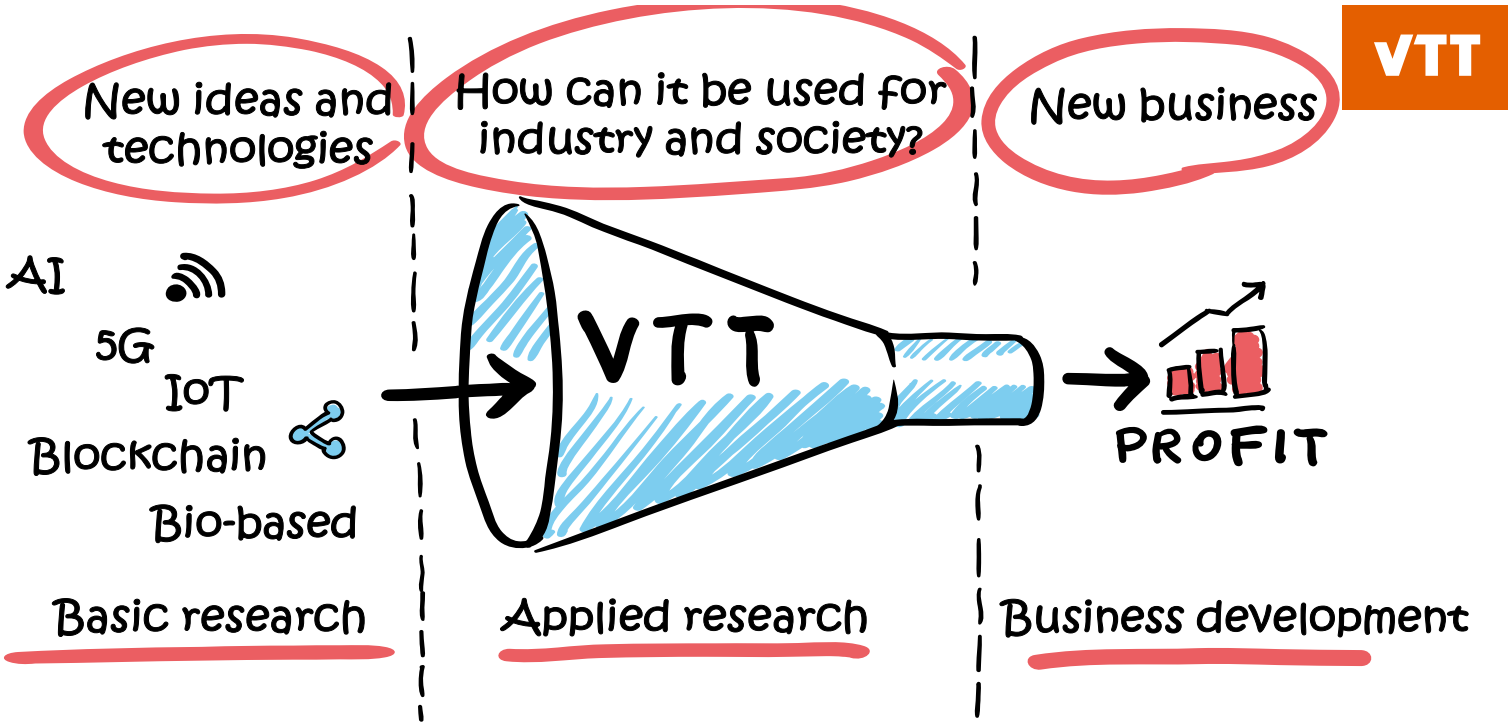


76 years of innovations

Constantly adapting to changes in environment

4. Extra-regional Knowledge and Interregional Cooperation - VTT



Serving the purpose

4. Extra-regional Knowledge and Interregional Cooperation - VTT

VTT's participation in Finnish and European research alliances

VTT in the Academy of Finland's Centres of Excellence	VTT's national development platforms	VTT's key European research alliances	VTT in PPP initiatives (H2020 programme)
• CoE in Atomic Layer Deposition (ALD) (2012 - 2017) • CoE in Low Temperature Quantum Phenomena and Devices (2012 - 2017) • CoE in Molecular Engineering of Biosynthetic Hybrid Materials (2014 - 2019) • CoE in Quantum Technology (2018 - 2025)	• Bioruukki – Research and pilot environment for the bioeconomy • SMACC – Smart Machines and Manufacturing Competence Centre • PrintoCent – Innovation centre for printed electronics • 5G test network • Micronova – Cleanroom for silicon-based micro systems • MIKES – National metrological institute • VTT Centre for Nuclear Safety	• EARTO – an umbrella organisation that promotes and defends the interests of European research and technology organisations • EERA – European Energy Research Alliance • EIT Digital – European Institute of Innovation & Technology • EIT Raw Materials – European Institute of Innovation & Technology • EIT4Food – European Institute of Innovation & Technology • NUGENIA – Research cooperation between the European nuclear industry and research institutes	**Contractual PPPs** • Photonics • 5G • Big Data • Cyber Security • Robotics • FoF (Factory of the Future) • SPIRE (Sustainable Process Industry and Resource Efficiency) • EeB (Energy Efficient Building) **Joint Technology Initiatives / Joint Undertakings** • Electronic Components and Systems ECSEL • Biobased Industries BBI • Fuel Cells and Hydrogen FCH

Collaboration
Networking
Partnerships
Trust

4. Extra-regional Knowledge and Interregional Cooperation - VTT

Examples of our customers and copartners

Collaboration
Networking
Partnerships
Trust

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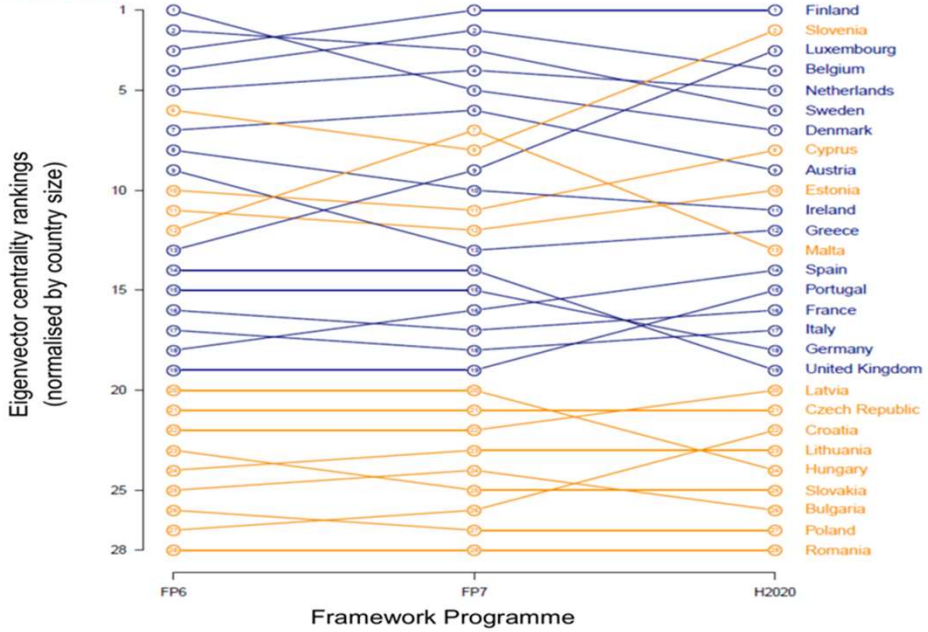
”Finland punching above its weight” – Most extensive use of networks in relation to size under EU R&D Funding H2020



Lähde: ”FROM HORIZON 2020 TO HORIZON EUROPE MONITORING FLASH #2.1 DYNAMIC NETWORK ANALYSIS November 2018”, European Commission

Collaboration
Networking
Partnerships
Trust

4. Extra-regional Knowledge and Interregional Cooperation - VTT

European identity

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Most attractive employers in Finland
Rankings 2018 for professionals

Engineering professionals' preferences

1. KONE
2. VTT
3. Wärtsilä
4. Valmet
5. UPM
6. Sweco
7. Ramboll
8. National Defence Forces
9. Pöyry
10. Skanska

Attracting talents

SOURCE: Universum

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VTT creates growth

Share of survey respondents who felt that this benefit was generated in their VTT project:

94 %
reported that their knowledge base and expertise improved

56 %
believed that a VTT project contributed positively towards the opening up of new business opportunities

71 %
told that the project contributed positively to identifying new opportunities

67 %
told that their VTT project speeded up or otherwise improved research and development work

56 %
reported that their competitiveness improved

50 %
thought that their VTT project promoted international networking

33 %
said that the VTT project promoted their marketing

35 %
confirmed that a new or improved process was created

29 %
reported that a whole new technology was adopted

11 %
reported that a new business concept or a new earnings model was created

Source: Feelback Oy, VTT customer survey 2018

Monitoring impact

4. Extra-regional Knowledge and Interregional Cooperation - VTT

IPR protection and commercialisation

Patent families**

363

Patent or patent applications

1,368

Received invention disclosures

239

59 priority patent applications*

IPR investments*

1.7 M€

IPR revenue*

3.8 M€

*VTT parent company

Taking care of intellectual property

4. Extra-regional Knowledge and Interregional Cooperation - VTT

Publications

Publications*

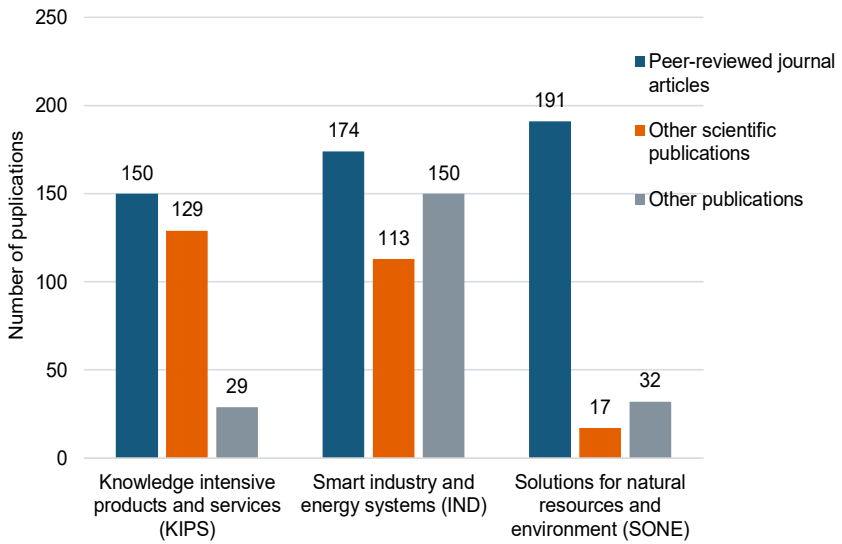
1049

Peer-reviewed publications*

804

Peer-reviewed articles in scientific journals*

486



*VTT parent company

Taking care of scientific excellence

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Opportunities in the world of huge challenges

Directionality of our portfolios - cross-discipline, cross-sector, cross-border

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4. Extra-regional Knowledge and Interregional Cooperation

Open Discussion

THANK YOU FOR THIS FIRST DAY!

Peer inputs – Sessions 5 and 6

Sofia, 18 June 2019

Research and innovation

Interreg Europe

European Union | European Regional Development Fund