

Mainstreaming Digital Innovation across all Sectors



Khalil Rouhana, Director DG CONNECT
Slavomir Tokarski, Director DG GROW

What is the problem?

- For close to two thirds of managers in industry:
 - The *Return on Investment* in digital innovations is difficult to assess upfront.
 - Have problems with trusting the technology
 - Are not sure about the maturity of latest technologies (Big data, AI, robotics,..)
 - Are not clear about compatibility/interoperability with legacy systems.
 - Are afraid of being locked in with one vendor
- Percentage is higher for SMEs
- Clear need to "test and experiment before engaging in digital innovation"

- Make latest digital technologies available for all industry anywhere in Europe
 - Test, experiment products, processes, business models
- Through networks of "digital innovation hubs"
 - Based on "Competence centres" (RTOs*, University labs,...)
 - Complementary expertise to offer one stop shop
- Targeting notably SMEs, start-ups, non-tech industry,...
- Stimulating a wave of bottom-up digital innovations
 - across regions and in all industrial sectors

*RTO: Research & Technology Organisation

Digital Innovation Hubs: Building on successful experiences, e.g.

Netherlands Field Labs



Mittelstand-
Digital

La
FRENCH TECH

.....

European Factories of the Future PPP

I4MS

ECHORD++



FIWARE
iHubs



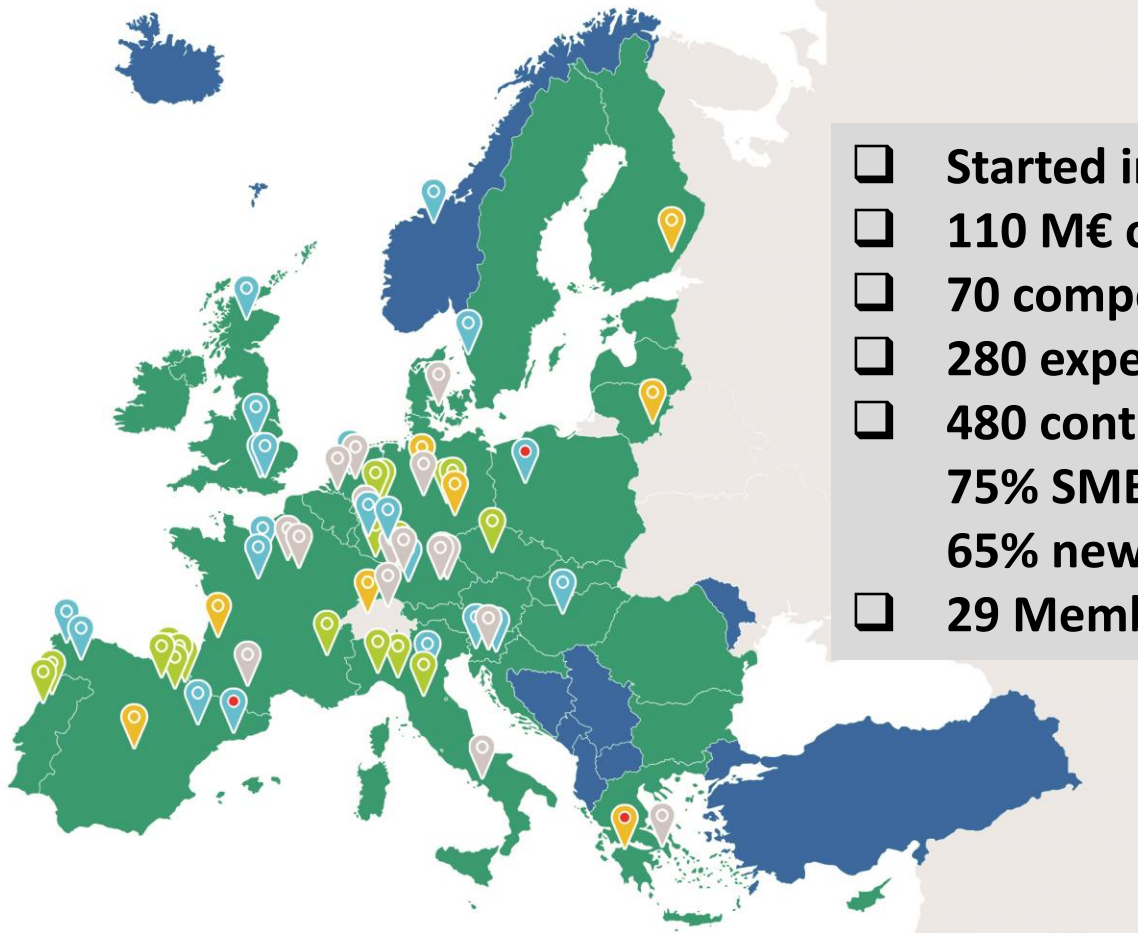
VANGUARD
INITIATIVE

Building on and expanding successful actions

Example: ICT Innovation for Manufacturing SMEs

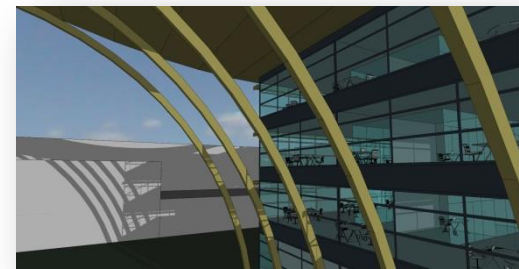
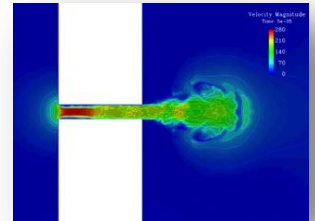
I4MS

Factories of the Future PPP



- ☐ Started in 2014
- ☐ 110 M€ of EU funding - 11 networks
- ☐ 70 competence centres
- ☐ 280 experiments: 75% cross-border
- ☐ 480 contractors/340 industrial:
75% SMEs and mid-caps, 50% users,
65% new in EU R&I Programmes
- ☐ 29 Members States + Ass. Countries

- **Goal:** Provide SMEs with easy and cost-effective access to **advanced simulation, visualisation and data analytics**
- **How:** provide expertise, tools and means to tap into a European Cloud of HPC resources & software applications
- 16 innovation hubs – 94 experiments so far
- Fortissimo 1+2: €26m >100 SMEs



Cloud-based CFD simulation for hypercars

- CFD aerodynamics simulation needed - but in house HPC resources not affordable
Solution: Cloud-based pay-per-use HPC
- Impressive results
 - 30% saving in design costs plus 50% reduction in wind tunnel and physical testing
 - Development savings of €90K per year
 - 30% decrease in time to market
- **250k€ Funding**
 - **4M€ benefit to company over 5 years using cloud-based Pay-per-use HPC and simulation software**



Partners:

End-user SME: KOENIGSEGG – SE
ISV-SME: ICONCFD – UK
HPC centre: CINECA – IT
HPC centre: EPCC - UK

Tailor made shoes for customers with feet anomalies

- 3D insole scan & design is processed on HPC resources via the cloud
 - Paving the way for 3D printing of soles/shoes in the back-shop in Europe
- **Benefits for the shoe industry:**
 - No need for specialised CAD knowledge
 - No hassle with SW licenses
 - Immediate validation and perfect fit
- **Benefits for the customer:**
 - Faster availability of the shoe
 - Lower cost for special shoes
- **250k€ Funding**



Partners:

End-user SME: BASE PROTECTION – IT

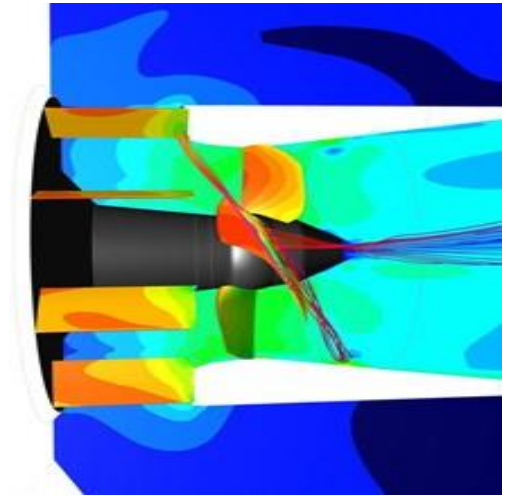
End user SME: PODOACTIVA -ES

Technology provider SME: INGECON - ES

→ **Tripling Base Protection's turnover within 3 years**

HPC Cloud Simulation for Green Energy

- CFD simulation on cloud-based HPC
 - reduces the design time by 2/3
 - while increasing accuracy by 10 at **affordable cost**
- Results:
 - Renewable energy becomes more competitive
 - Plant owner gains 200k€/y (40MW turbine)
 - Lower energy cost for the citizens
- **250k€ Funding**
 - **Several jobs created**
 - Enormous boost of the competitive position**



Partners:

End-user SME: STELLBA – DE
ISV-SME: NUMECA – BE
ISV-SME: JOTNE – NO
HPC centre - SME: ARCTUR - SLO

Energy saving drying processes enabled by an **innovative smart sensor system**

- Freeze drying – most gentle method to conserve materials under harsh temperature conditions (-60 degrees)
- 20% energy savings
- Revenue increase of SMEs: 2M€/5 years

Partners:

End-user SME: Martin Christ GmbH – DE

End-User SME: Technolab GmbH – DE

Tech provider: Swerea IVF – SE

Tech provider: Hahn-Schickard – DE

Tech provider: CIS – DE

Tech provider: IPHT – DE

Tech provider SME: IL Metronic - DE

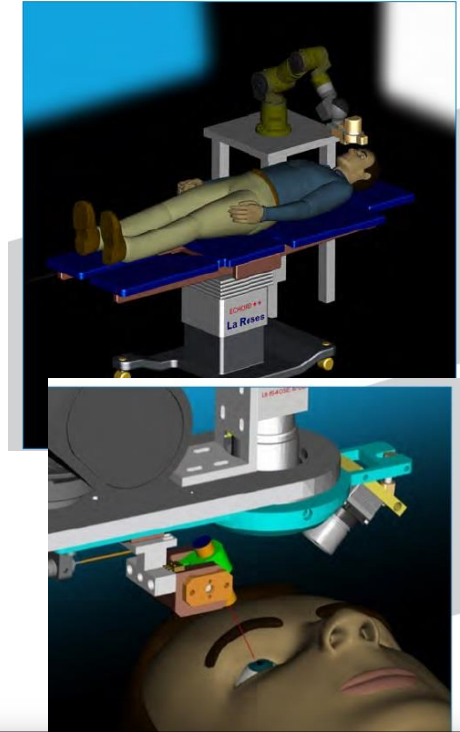
Innovation in products: Green asparagus harvesting robot

- Robotics for precision farming
 - Cost effective robotic solutions, reducing costs & waste
 - Addressing lack of workers problem
- Results:
 - Integration and testing of full systems
 - Increasing detection and harvesting rate
- **<300 K€ funding**
 - Competitive positioning in a large market
 - Reduce hard physical efforts for workers
 - Reduce cost of harvesting which is today one third of total cost



Partners in experiment:
Strauss Verpackung (DE)
C Wright &son LTD (UK)
Univ. of Bremen (DE)

- Laser assisted robotics surgery
 - Vision guided robotic for all-laser corneal transplantation
- Results:
 - Robotic arm with laser light for the welding site in the eye
 - Increasing efficacy and precision by 150 %
- **<300 K€ funding**
 - Impact on several types of surgery
 - Neurosurgery, Spinal surgery, Urology, Eye surgery



Partners in experiment:
Ekymed SPA (IT)
CNR (IT)
Fastenica (IT)
Partners in ECHORD ++:
TUM (DE), CEA (FR), Bristol
robotics lab (UK), UPC (ES)
Univ. of Pisa (IT)

The way forward: "Upscaling" and networking EU-wide digital innovation hubs

- **Member states, regions:** Build-up and strengthen national and regional structures of digital innovation hubs
 - Innovation programmes
 - Structural funds, ESIF: Smart specialisation..
 - Access to finance (e.g. KfW, BPI, EFSI , ...)
- **European Commission:** Complementary focused measures
 - Map of competences, best practices, demonstrators,...
 - Pan-European network of Digital Innovation Hubs (DIH)
 - Support for cross-border innovation experiments (I4MS, ...)
 - Preparatory measures for DIHs in less developed regions
- **Financing**
 - 500 M€ for network of Innovation Hubs in Horizon 2020
→ 5 B€ regional and national funding including when possible ESIF,...



Internal Market, Industry, Entrepreneurship and SMEs Directorate General

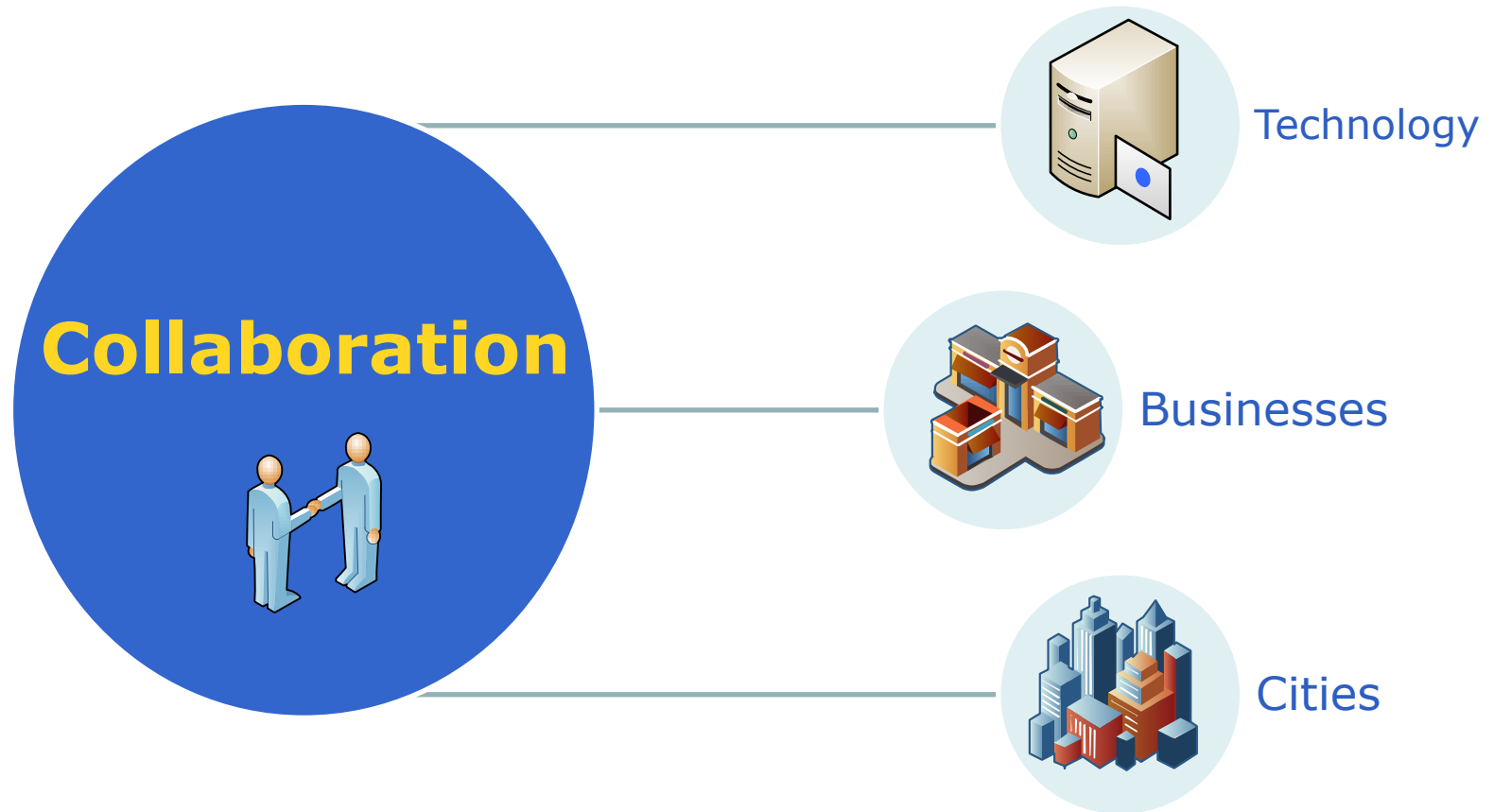
Mainstreaming digital innovation across all sectors

Slawomir Tokarski
Director

**Innovation and Advanced
Manufacturing**

Brussels, 20 October 2016

Innovation needs ...

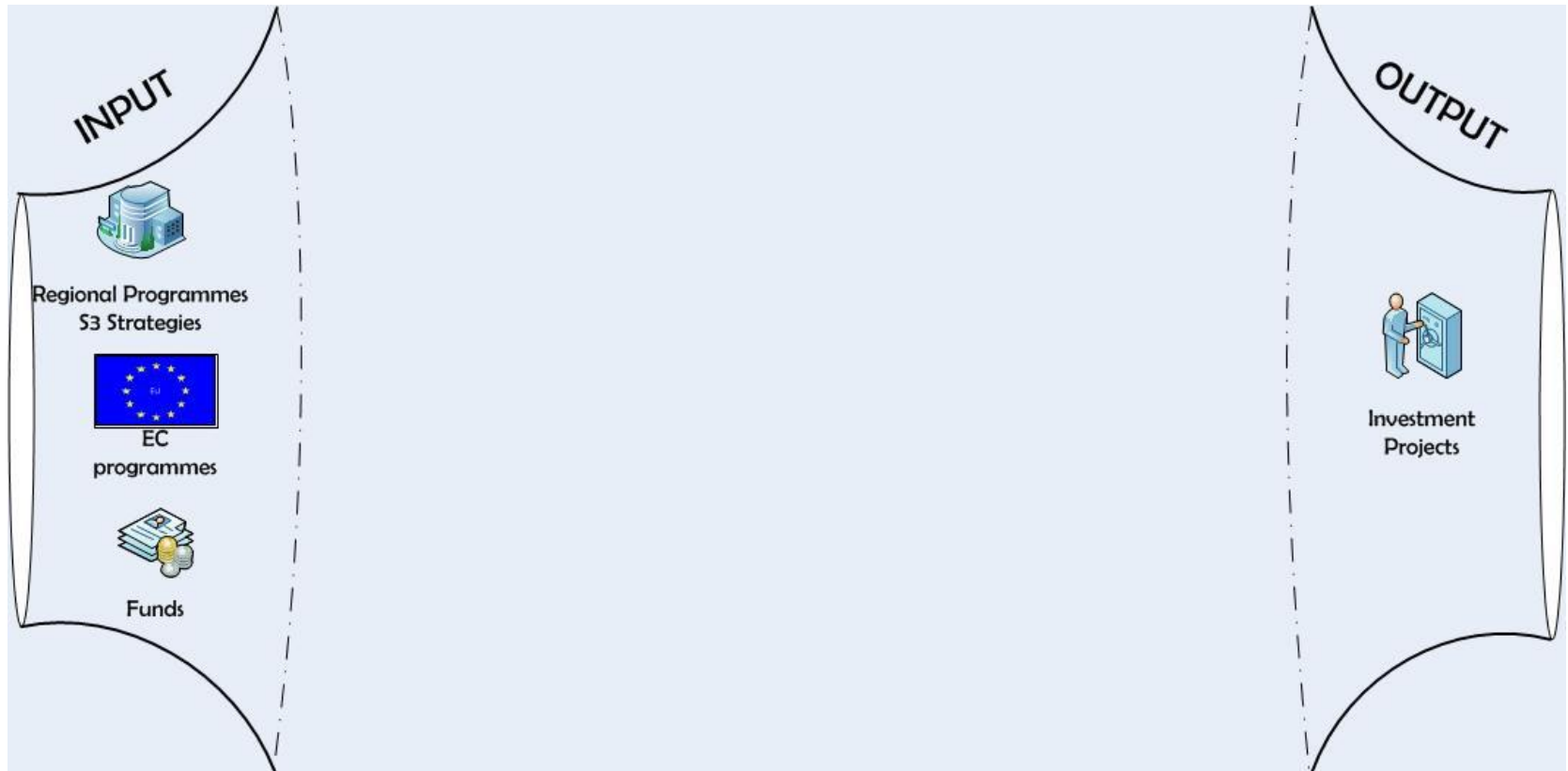


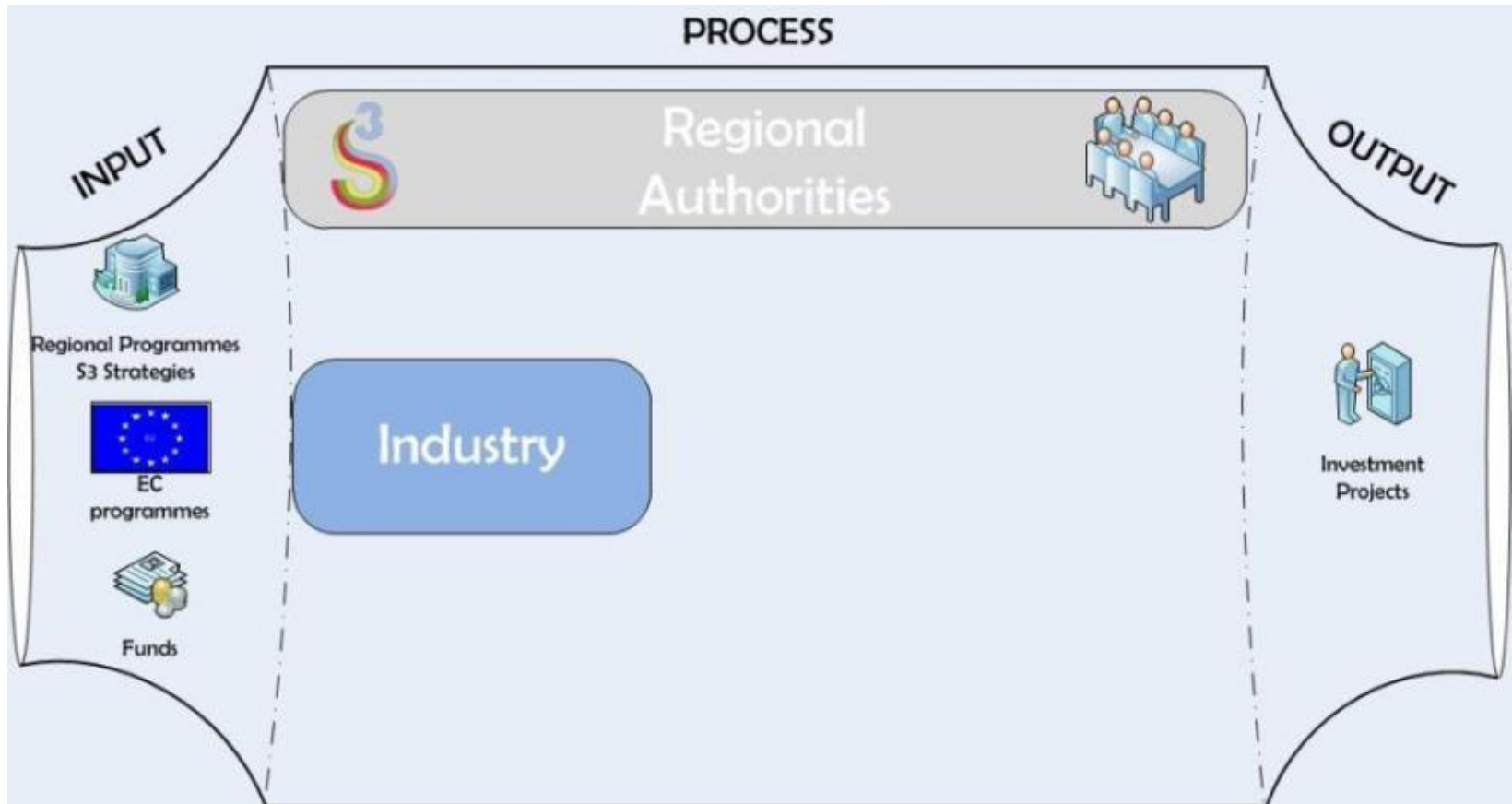
Innovation needs collaboration

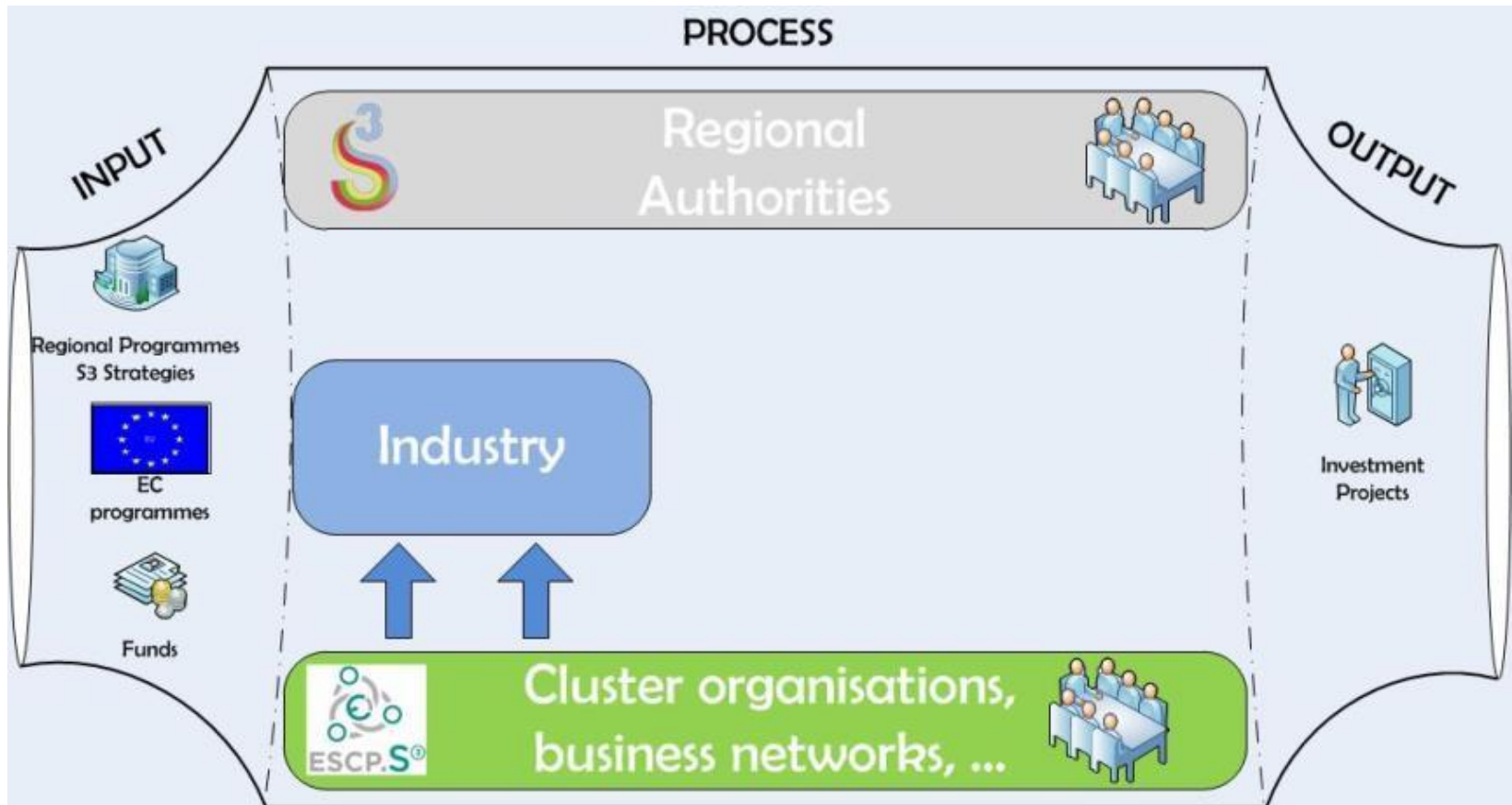
...across technological disciplines

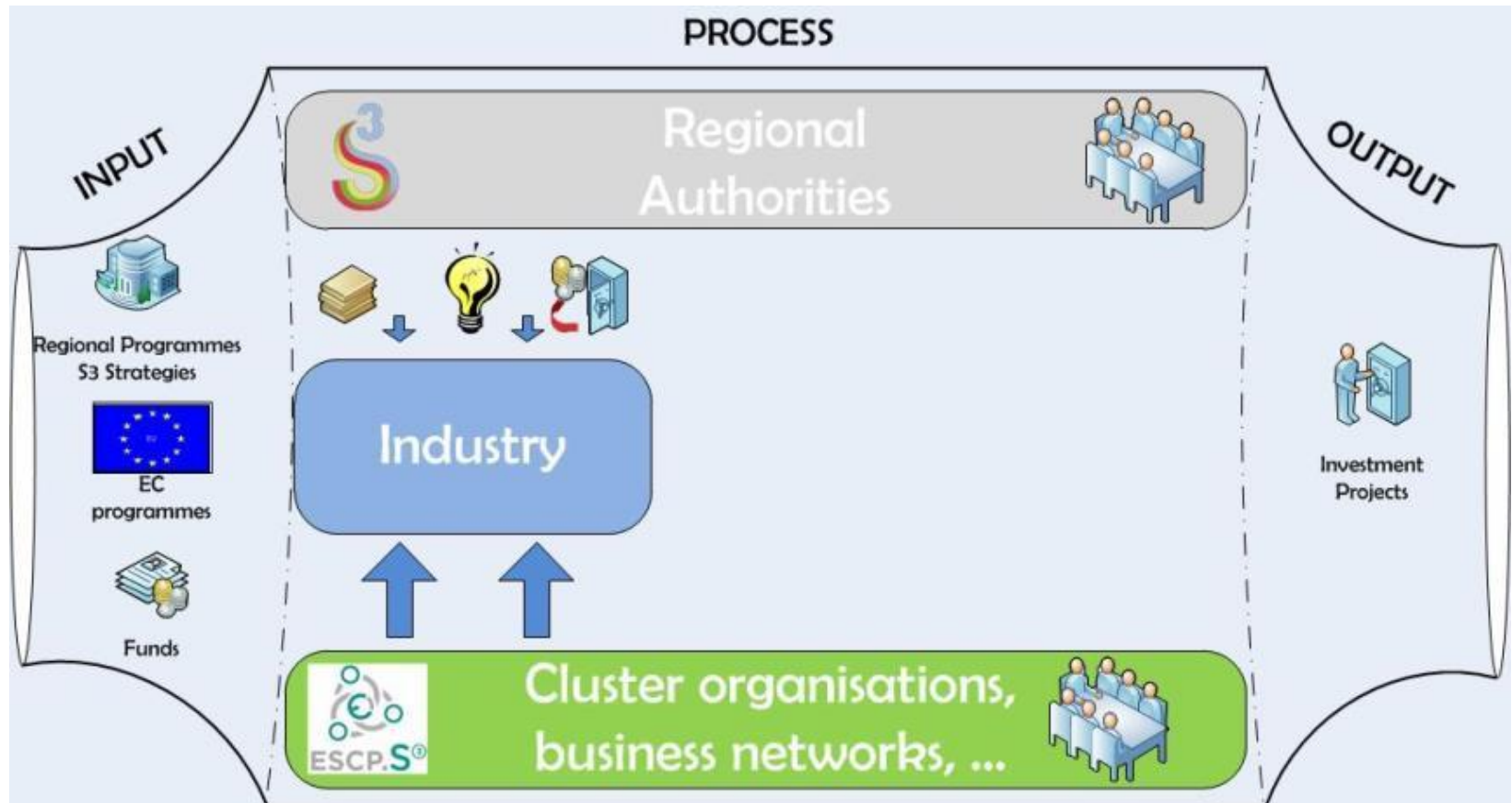
...between large corporates and start-ups, between businesses, academia and technology centres

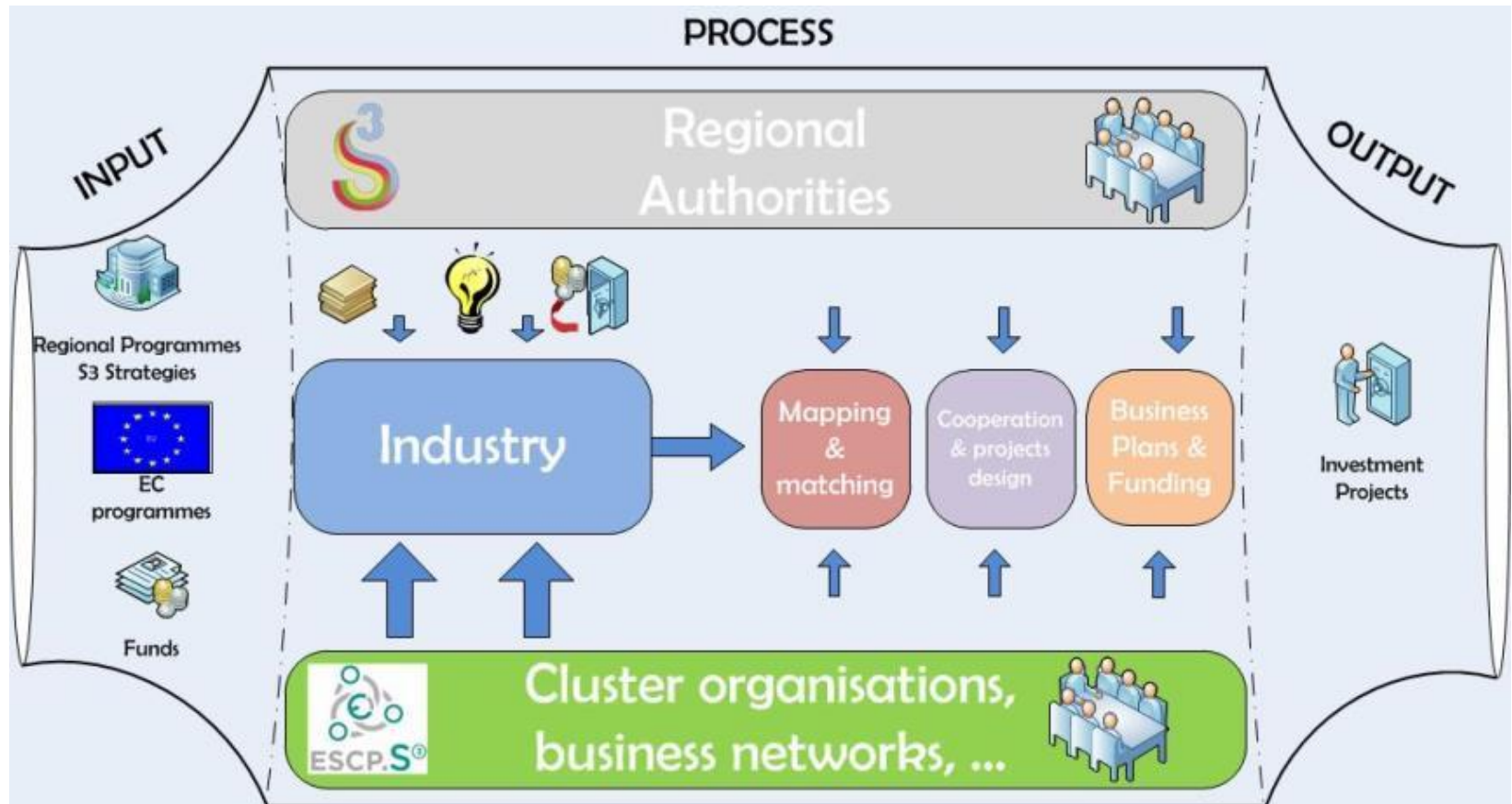
...across cities, regions and borders

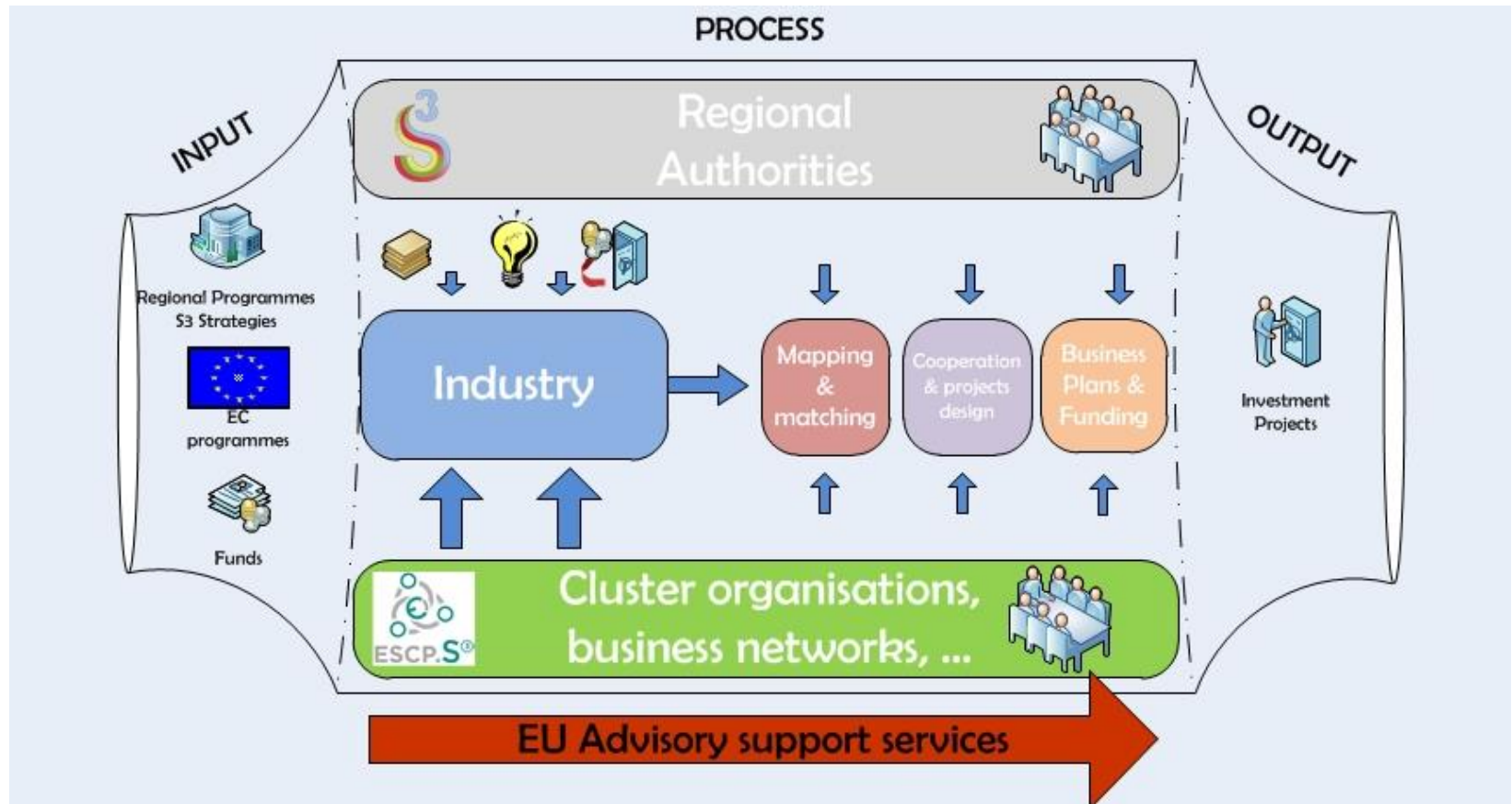












Upcoming actions: Regions and Cities of Digital Transformation



**Development
of regional
innovation
ecosystems**

**Cross-regional
policy
collaborations
and
investments**

**Open call for
expressions of
interest
(CoR and EC)**

Questions for discussion:

How can we build a network of Digital Innovation Hubs and foster synergies between enabling technologies and hubs?

What are the needs of the industry in your region (also related to skills)?

How to invest in Digital Innovation Hubs?

MTC Digital Innovation Hub

Lina Huertas

Head of Technology Strategy for
Digital Manufacturing

Brussels, October 20th 2016



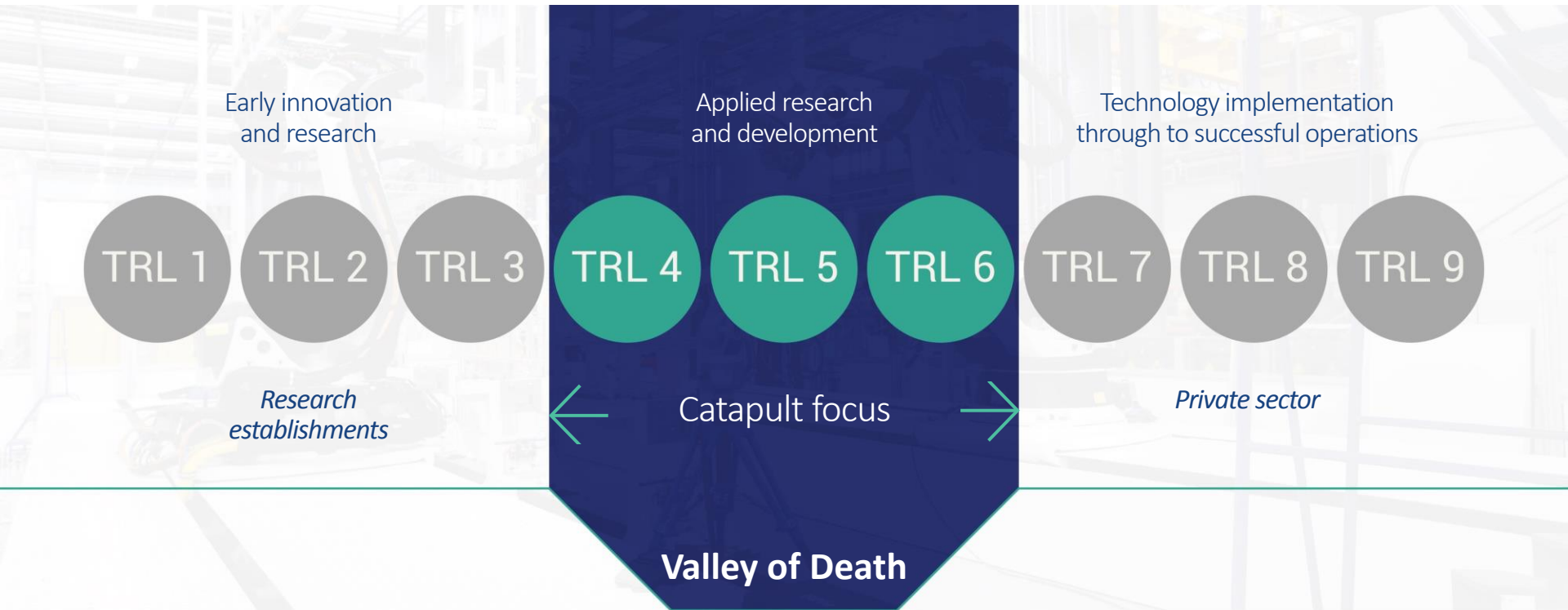
High Value Manufacturing Catapult (HVMC) history



HVM Catapult

- 7 World class centres of industrial innovation
- Cutting-edge equipment for industrial scale up
- Lowering risk for business
- Platform for skills development at all levels
- Cross sector capability
- Supply chain partnership

Market failure: Bridging the Valley of Death



MANUFACTURING SYSTEM SOLUTIONS

ADVANCED PRODUCTION SYSTEMS

Special
Purpose
Machines &
Equipment

Electronics
Manufacturing

Assembly
systems

COMPONENT MANUFACTURING SYSTEMS

Net Shape

Additive
Manufacturing

Advanced
Material
Processing

Powder
Management

DIGITAL ENGINEERING

Design &
Simulation

Metrology
& NDT

Intelligent
Automation &
Informatics

Operational
Efficiency

Investment

The funding model

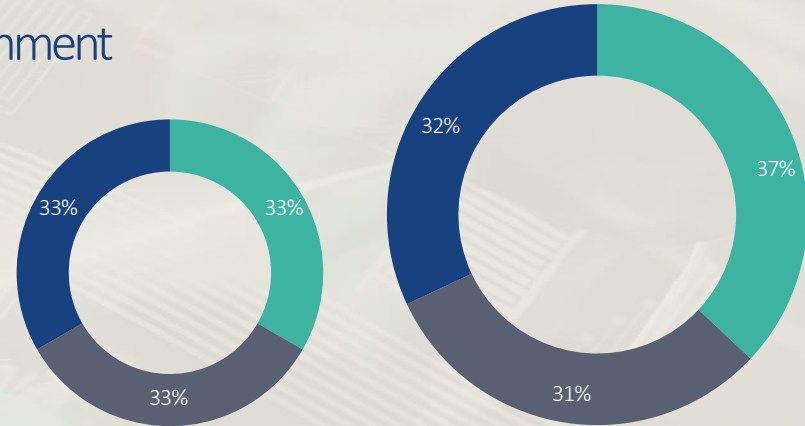
An asset base of **£380m**

Initial investment of **£140m** by government
+Annual core funding

Core public funding

Commercial

Competitively won CR&D



HVMC result 2015/2016

INVESTMENT

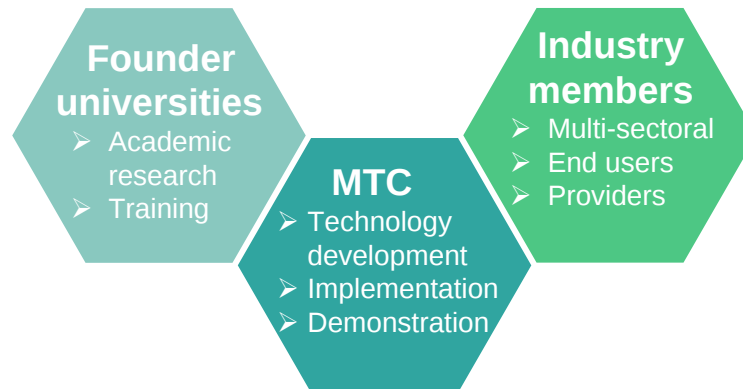


£40m
of initial investment

- ▶ Aerospace Research centre and National Additive Centre
£15.2m + match funding from industry
- ▶ Lloyds Advanced Manufacturing Training Centre
£18m + £5m from Lloyds Bank
- ▶ Factory in a Box for a Thermal Energy Research Accelerator
£10m + match funding from industry

Ecosystem (Networks)

MTC Innovation Ecosystem



MTC MEMBERS

TIER 1

Access to research outputs
across all themes

Programme board seat
(with voting rights)

TAB board seat
(with voting rights)

TIER 2

Access to research outputs
across all themes

Programme board seat
(with no voting rights)

TAB board seat
(with voting rights)



MTC MEMBERS

TIER 3

1 year commitment

No cash outlay required

Opportunity to engage with major OEMs and Tier 1's

GÜDEL

CAS TO METAL
Arcum AB

Prodtex

ABB

DESA CO

ROEMHELD
HEIMA + STARK

gom

BOC
A Member of the Linde Group

Theorem
Solutions

BROWN & HOLMES / Tansworth LTD
Precision Workholding and Machining

WITTE

Mahr

eurolacer

EQS
EQUIPMENT SOLUTIONS

HYDRAL
Precision in Aircraft Support

Aerotech
design consultants

HumiSeal

Holovis

Jemtech
Inspiring solutions

SGS
Solid Carbide Tools

Ubisense

3D scannersuk

CGTech
VERICUT

ZESTRON
High Precision Clearing

METROSAGE

NATIONAL
INSTRUMENTS

VFE
VACUUM FURNACE
ENGINEERING LTD

Höganäs

LPW

DEK

Building Success
Layer by Layer

PRODUCTIV
DRIVING GREEN TECHNOLOGIES

LANNER

FlexProp

iBASEt

HAUCK
HEAT TREATMENT

TTL

alicon

edgcam

CROWN
Brand-Building Packaging™

STEMMER
IMAGING

Sainsbury's

Rexroth
Bosch Group
The Drive & Control Company

fairfield

BECKHOFF

Unilever

greencore
group

capvidia

BLUNDELL
DOCUMENTATION SPECIALISTS

HEALTH & SAFETY
LABORATORY

Makita

Accelomix

PEK Europe

babcock
trusted to deliver™

ZEISS

ALTUS
GROUP

KOTEM

FORTERRA

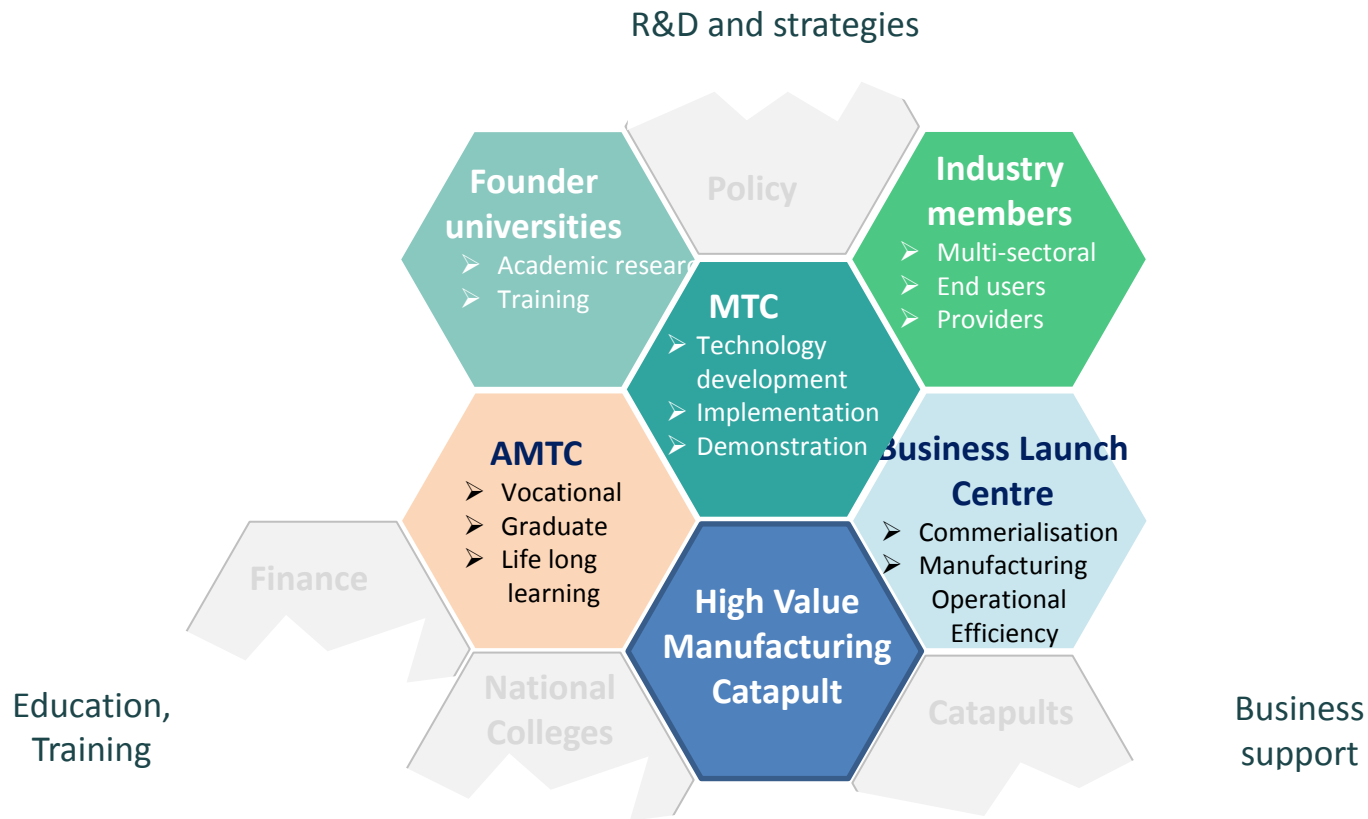
virtO

Altair

LPI

MAHER

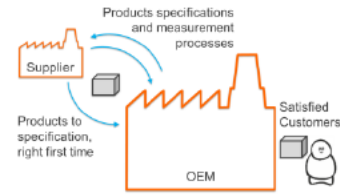
MTC Innovation Ecosystem



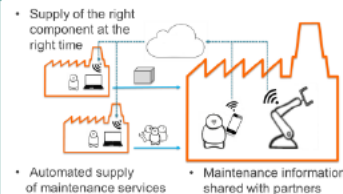
End-User Driven

MTC End-User Driven Digital Manufacturing Strategy

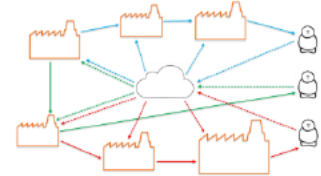
Connectivity



PLM INTEGRATED MEASUREMENT PLANNING
Supply chain quality assurance / management

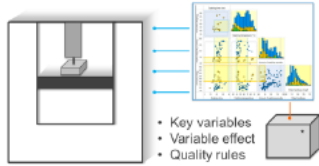


COLLABORATIVE MAINTENANCE AND REPAIR
Automated workflows for maintenance and repair

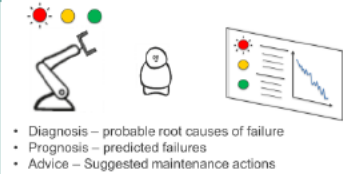


RECONFIGURABLE SUPPLY NETWORKS
Supports different supply network configurations for different demand signals and requirements

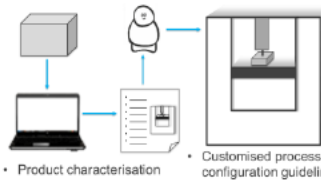
Better Decisions



MACHINING PROCESS CHARACTERISATION
Support for process design and product quality

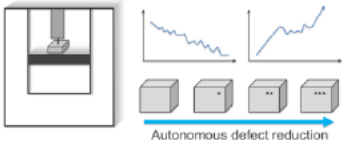


PREDICTIVE MAINTENANCE DASHBOARD
Support for maintenance decisions and activities



PROCESS CONFIGURATION GUIDELINES
Support for process configuration for new product variants

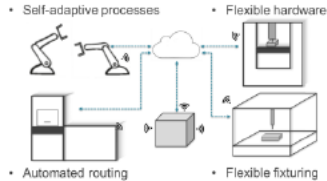
Autonomous Systems



SELF ADAPTIVE QUALITY IMPROVEMENT
Processes that are quality aware and can adapt accordingly to improve product quality



SELF-SUSTAINING MANUFACTURING SYSTEM
Autonomous provision of maintenance parts and services, and self-sustaining equipment



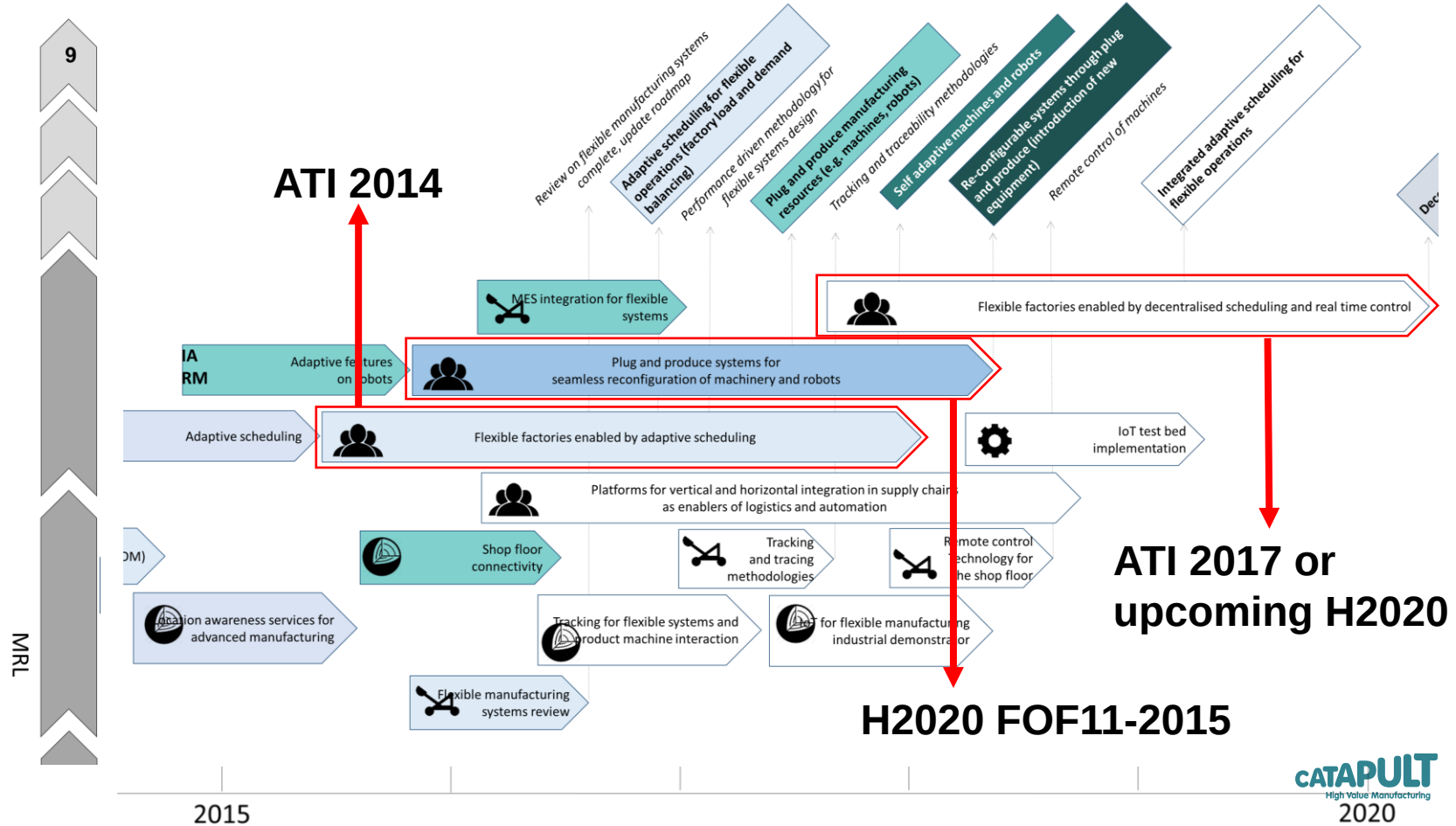
FLEXIBLE MANUFACTURING SYSTEMS
A system that can self configure to produce different product variants in the same shop floor

Product Quality

Equipment Health

Flexible Systems

STRATEGIC USE OF PUBLIC FUNDING



Impact

Economic impact

Core funding received to date



Collaborative R&D Funding levered



Net benefits for the UK economy



Potential net benefits by 2020



£15

net benefits to the UK
economy from every

£1

core public
funding received

THANK YOU

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Impact from Excellence: The role of innovation hubs

Tyndall National Institute

Ireland's National Institute for Information
and Communication Technology

Giorgos Fagas

Head of EU Programmes

Georgios.Fagas@Tyndall.ie



Our mission

Build on 30 years of achievement to ultimately become:

- **International leader in integrated ICT research** working to raise the technological base in Ireland;
- Synonymous with the delivery of disruptive and deployable technological **solutions to society's challenges** in energy, health, communications, agriculture, food and the environment;
- A key **catalyst** for the generation of new **high-tech business, jobs and growth** for the Irish economy;
- A national and global **partner of choice** facilitating and enabling R&D and innovation in Ireland to deliver on national objectives;
- A primary source of **highly-skilled people** for Ireland's current and future technology companies;
- The **gateway** for industry and academia to access ICT-related expertise and capabilities in Ireland.



Irish Research Ecosystem

Irish National Science funding moving to Research Centres

centred on National Economic Priorities



Software
Pharma
Nanotechnology
MEDICAL DEVICES
Applied Geosciences
Digital Content
[Industry commitment of €190 million] [€355 million from SFI]
Telecommunications
PERINATAL RESEARCH
Energy
Nano Materials
Functional Foods
FOOD FOR HEALTH
BIG DATA [Marine Renewable Energy]

SFI Research Centres



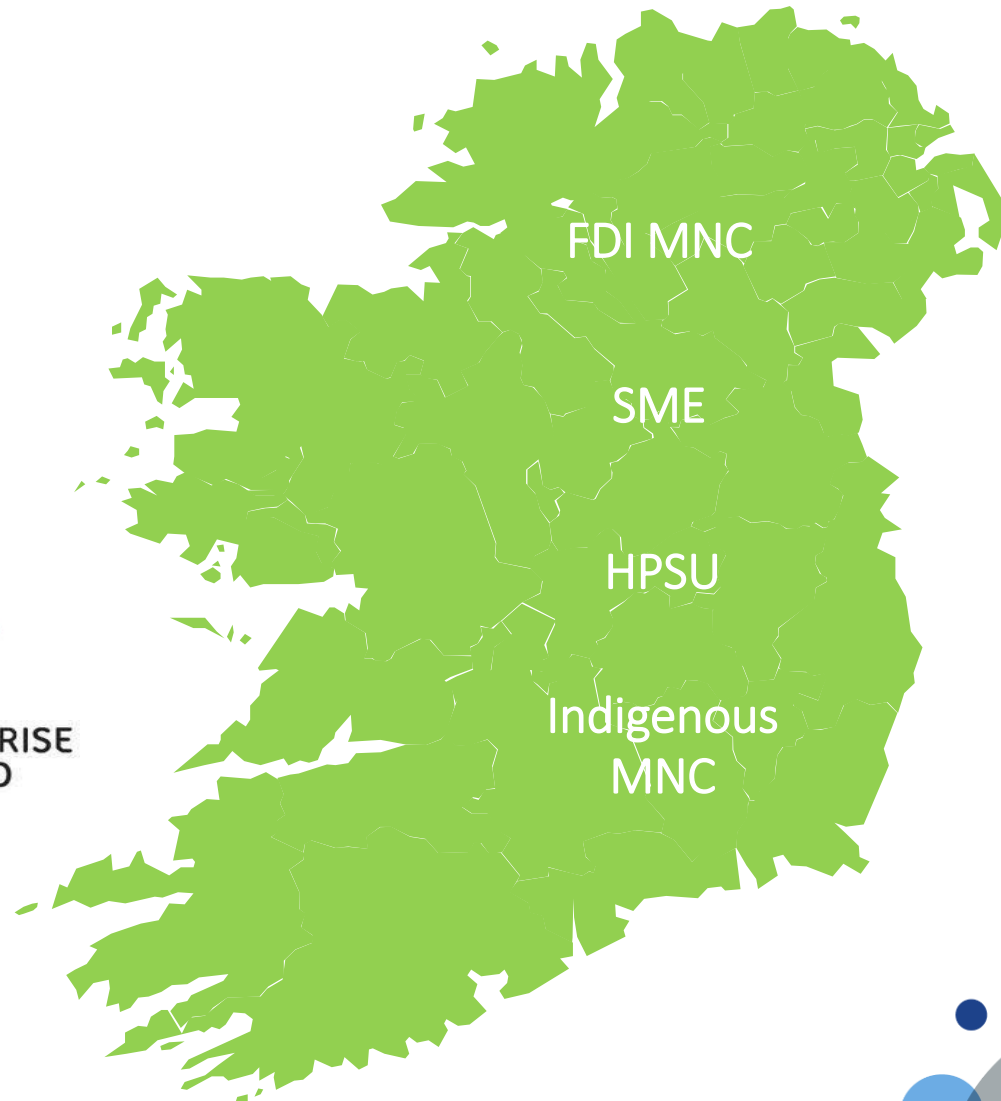








Innovation Hub: Partnering to Create Impact



Partner with Regional/National Clusters



ENERGY CORK



- Launch needs-driven regional & national initiatives
- Coordinate with public authorities and local government
- Partner in Europe
- B2B match-making and brokerage

Some of our clients...

- 200 active industry partners WW
- >160 client visits to Tyndall in 2015
- Joint target company activity with agencies IDA & EI
- Competitively won exchequer funds leveraged with EU and commercial contracts





ascent
European Nanoelectronics Access

Providing Access

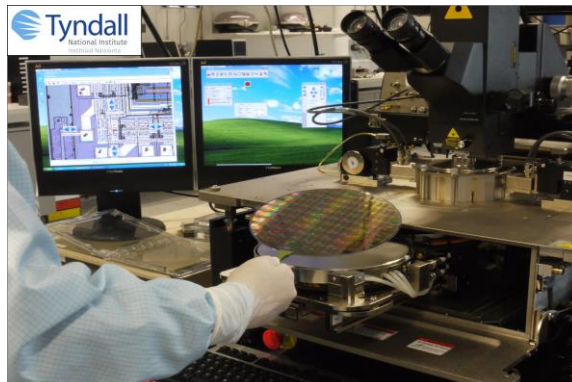
Tyndall
National Institute
Institioid Náisiúnta



State-of-the-art 14 nm bulk FDSOI
CMOS

Advanced transistor and
interconnect test structures

Electrical & nano-characterization
platforms



Fabrication facilities for
nanowires & 2D materials

Advanced nanowire and nano-
electrode test structures

Electrical & nano-
characterization platforms



State-of-the-art 14 nm FinFET
CMOS

Advanced transistor and interconnect
test structures

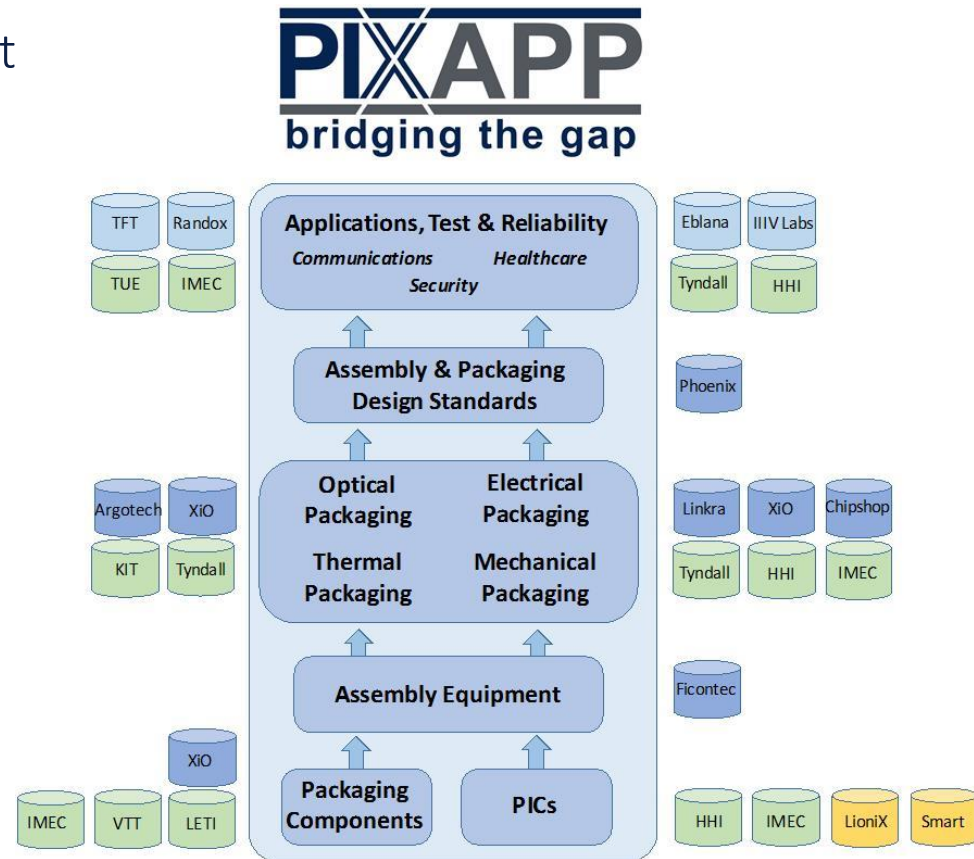
Electrical & nano- characterisation
platforms

www.ascent.network



Pilot Line facility

- H2020 Photonics Packaging Pilot Line proposal funded
- Coordinated by Peter O'Brien
- World's first open access photonics packaging pilot manufacturing line
- Will develop route to scalable, high volume, low unit cost manufacturing for integrated photonics
- Value €14M (€2.8M to Tyndall)



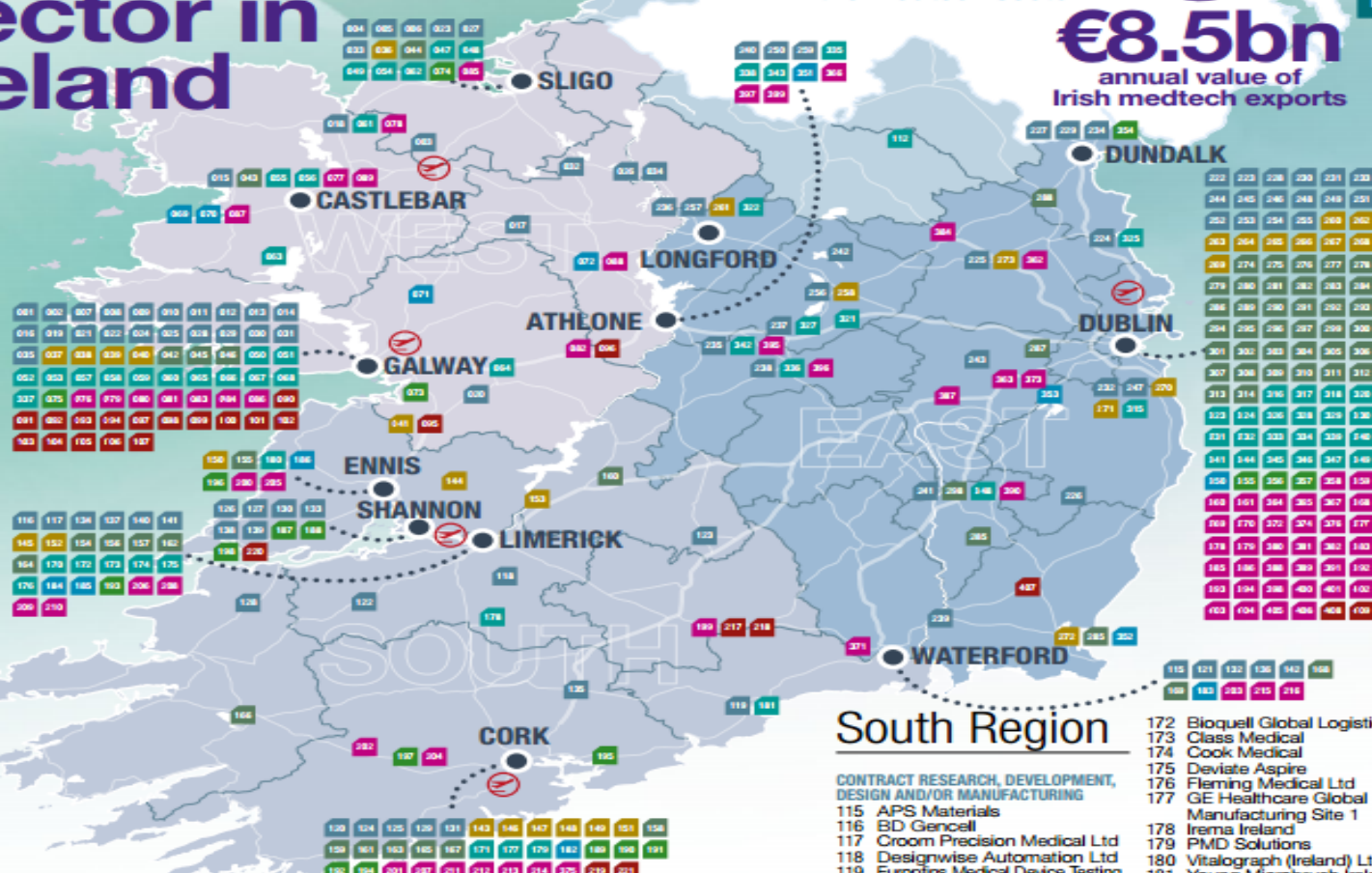
Mapping the medtech sector in Ireland

27,000
people employed in the medtech sector

€8.5bn
annual value of Irish medtech exports

400+
medtech companies in Ireland

The Irish Medical Device industry is the Ibec group's largest medical technology sector

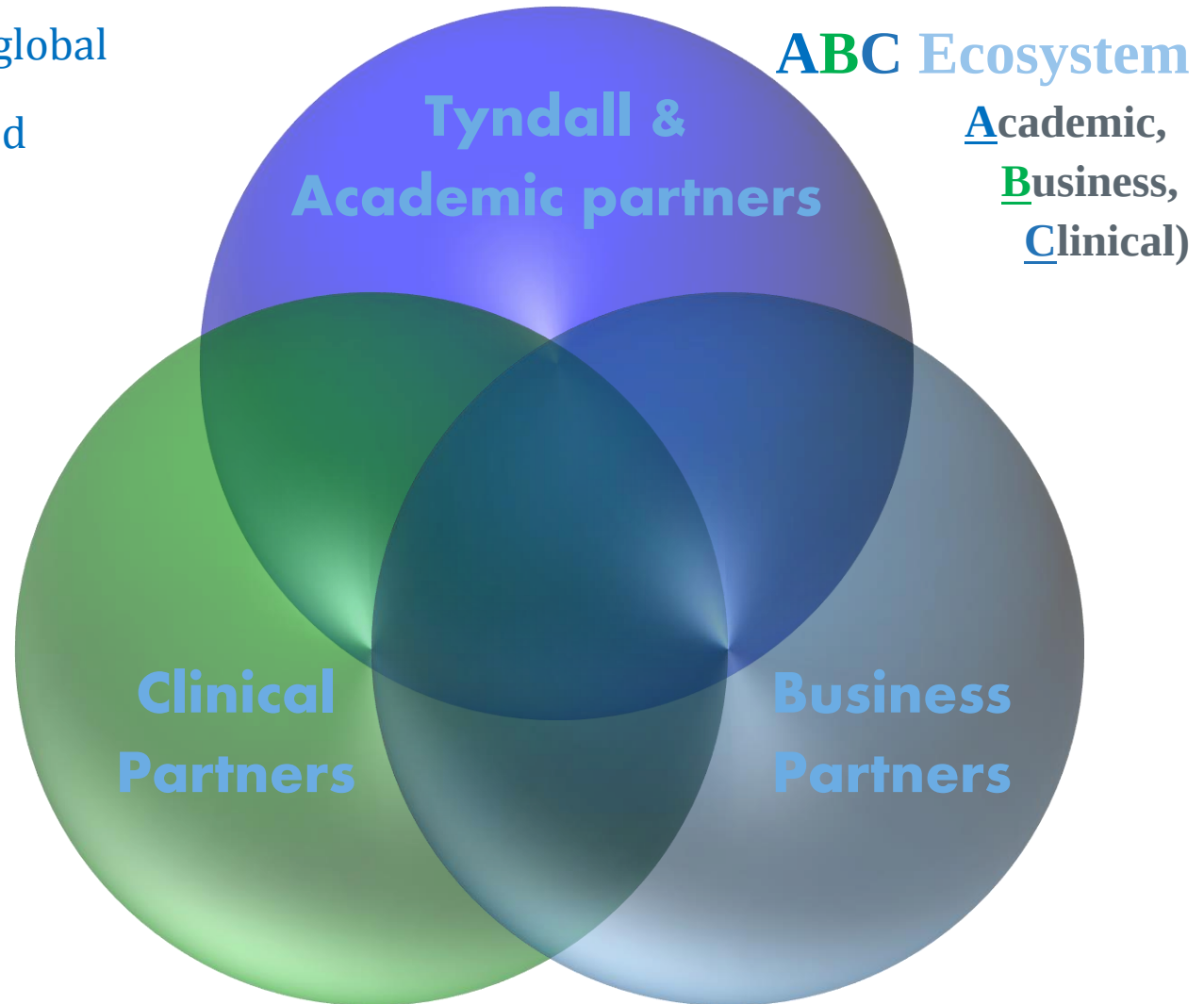


- Recognised as one of the five global emerging hubs
- Employing over 29,000 people
- 2nd largest employer of medtech professionals in Europe
- Annual exports of €12.6 billion
- 50% of the 450 medtech companies based in Ireland are indigenous

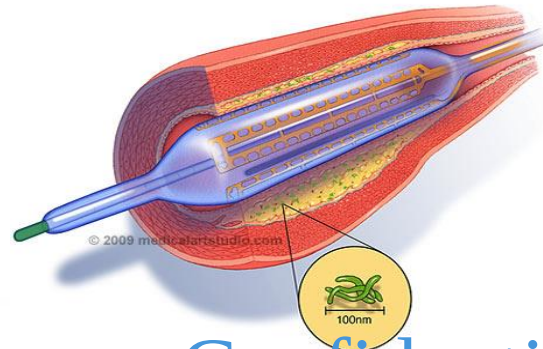
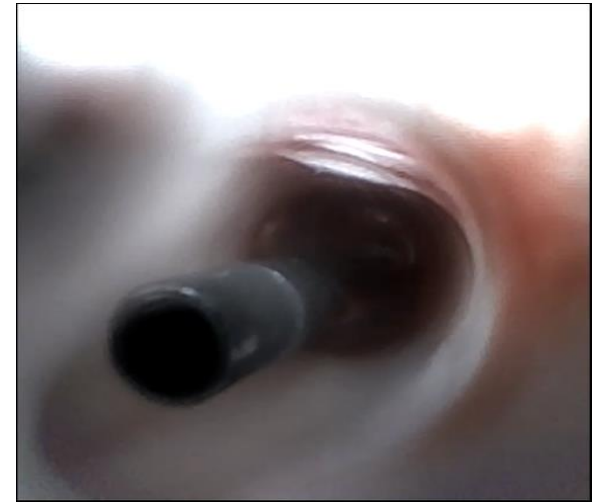
Tyndall ICT for Health

Leading an ABC Ecosystem

We **Collaborate** with global
medtech companies, world
leading clinicians and
leading scientists.



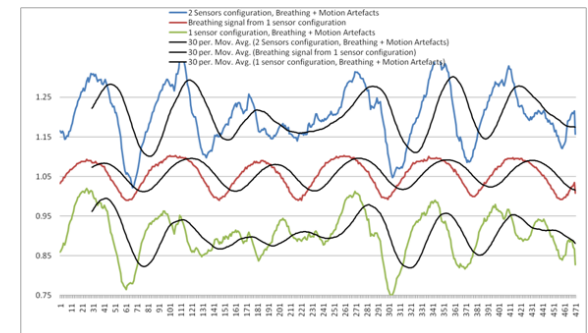
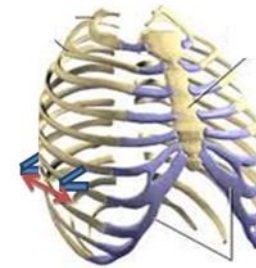
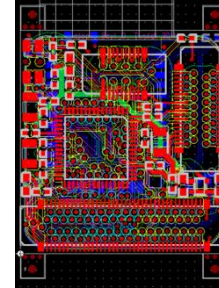
Optical Imaging using micro scale CMOS camera



Confidential

IoT SME example: PMD Wireless Solutions

- **Market opportunity** – Medical Device Market, particularly in the area of Respiratory Sensing
- **Technology developed** – Wireless Interface for Medical Systems, Matrix for precise positioning of Respiratory Sensors
- **Outcome/impact** – Secured VC & EU funding, Medtec Ireland Academy of Excellence Winner 2014, IMDA Excellence Award Emerging Company Category Finalist 2014
- Nov 2015 PMD receives €4.2m funding from H2020 SME instrument to tackle in-hospital respiratory compromise



INTERREG Ireland-Wales regions



Partners

Swansea University
Bangor University
Cardiff University
University College Dublin
Tyndall National Institute, University College Cork
National University of Ireland Galway

Stakeholders

GE Healthcare
Unilever
Life Science Hub Wales
INTERREG
Welsh Government
Irish Government
SME representative

Ireland-Wales platform for industry driven innovation in Advanced Life Sciences through demand-driven collaborative projects

Cross-border cluster of HEIs, healthcare providers, local SMEs and MNCs

Link SMEs with supply chains spanning Ireland and Wales.

Deliver technology advances through new products, processes and services

AgriFood sector in Ireland

- 230,000 jobs linked to the agri-food sector
- €26bn turnover in the sector
- €10.5bn worth of exports in 2014 to 120 countries
- Half of exports by indigenous Irish companies
- Destinations : UK 40%, rest of Europe 31%, international markets 29%
- Total payroll in the sector is €1.8bn – more than any other manufacturing sector
- €9.6bn worth of materials purchased - 76% are sourced in Ireland
- €3bn worth of services purchased - 55% are sourced in Ireland



ICT for Sustainable Agriculture, Food and the Environment



Nano-chemical sensors for in-the-field
animal health diagnostics



Chemical instrumentation for water
quality monitoring in harbours
Photonic sensors for water quality
monitoring in fishery and fish production

Novel Capacitive Deionisation
system and Dissolved Oxygen
Sensor for pathogen detection
Anti-biofouling coatings



Microsystem technology for food and beverage

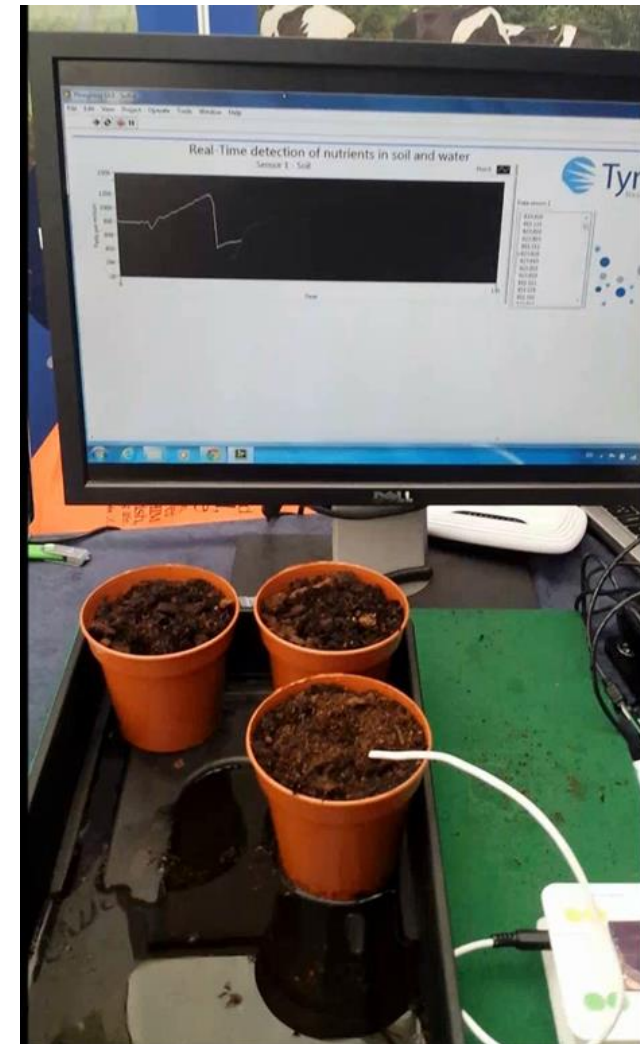
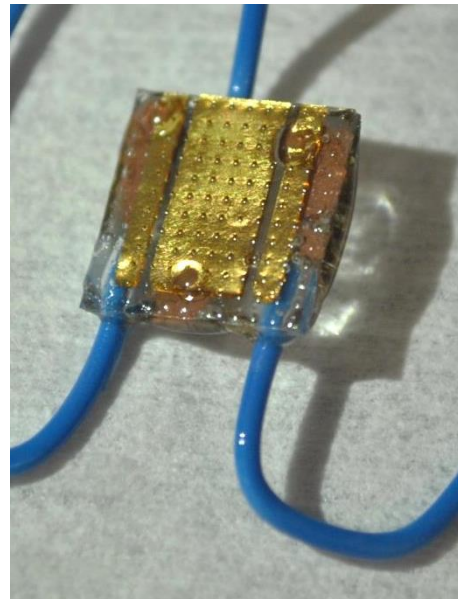


Tyndall Active in Teagasc Strategy for 2035



- **International Steering Committee**
- Agricultural Technologies
- Food technologies
- Animal Biotechnology
- Crops Biotechnology
- Food Biotechnology
- **Environmental Technologies**
- **Nano Technology**
- **Digital technologies**
- Energy and transportation Technologies
- Socio-Economic Sciences

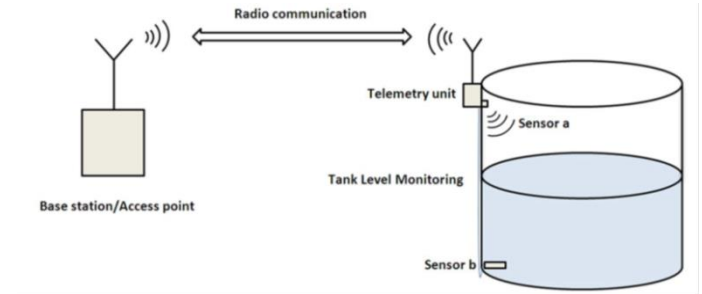
Ploughing Championships: Closer to our customers' customers



Wireless-interfaced nano-electrochemical sensors

IoT SME example: Brockley Group Ltd

- **Market opportunity** – Wireless Tank Monitoring of bulk commercial tanks, possibly residential
- **Technology developed** – A Multi Modal Wireless Tank Monitor for measuring various size Tanks and fluids with enclosure
- **Outcome/impact** – Successful demonstration of Prototype Product 'TopCat'
 - New EI funding to optimise the wireless Tank Monitoring unit to a production ready prototype and deploy between 100-500 units around Ireland.



Industry engagement

- Support growth of **SMEs**
 - Access to Tyndall facilities/expertise, skilled graduates, incubation and acceleration, close partnerships, EU gateway, partner with EI



- Support growth of **MNCs/FDIs**
 - Facilities/expertise, training fab, researchers-in-residence, incubation + acceleration, close partnerships, EU collaboration



Economic value to Ireland

- Attract & Embed **FDI**
 - World leading science, technology & expertise, close partnerships,



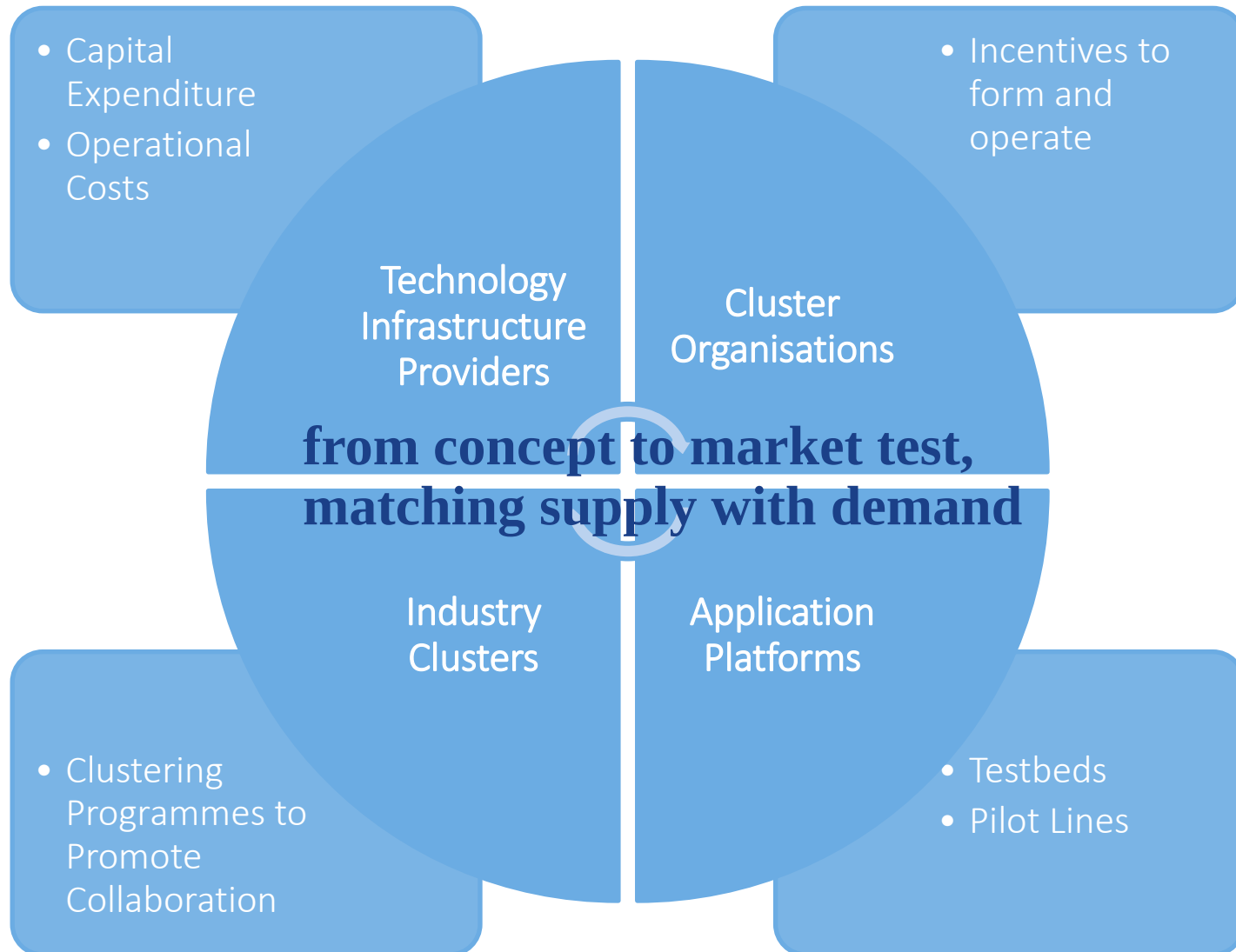
- New **Start-up** Companies
 - 10 companies based on Tyndall technology



- Training highly qualified MSc and PhDs



Investment for innovation network of multidisciplinary translational competence



Pervasive Nation: Making Ireland the Definitive IoT Testbed Island

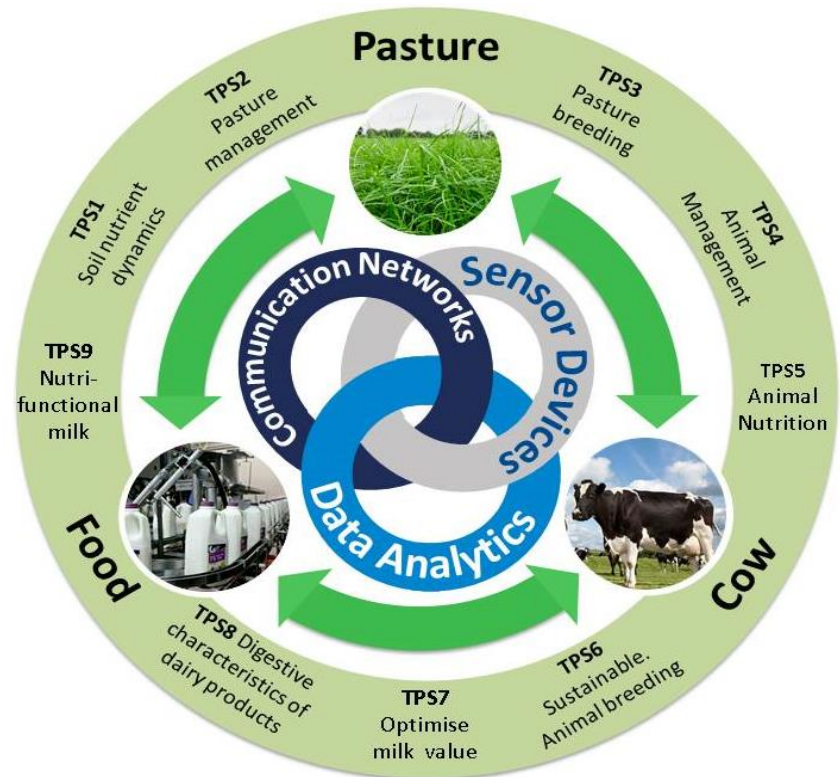
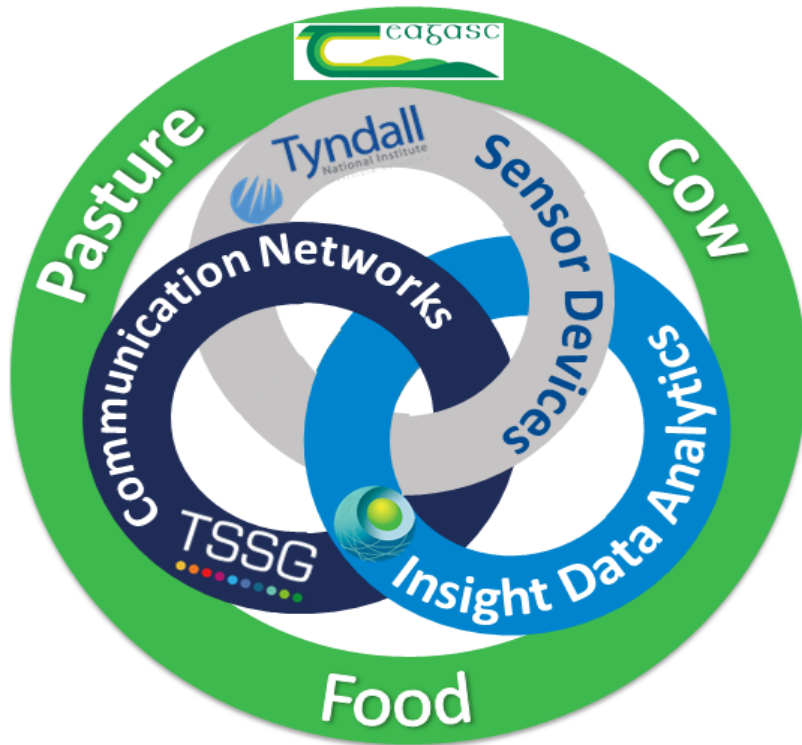
- Blanket Ireland in IoT Infrastructure
- Connect a million Things
- Can assess sensors, service apps, data sets, business models, architectures, etc.
- Open up opportunities for existing companies
- Seed 200 new companies

Pervasive IT Infrastructure is Critical to realise Smart Anything Everywhere opportunity



Pervasive Nation builds an IoT testbed of scale which will become a crucial resource for industry, government & academia & act as a catalyst for innovation in the IoT space.

SFI Centre Submission - FutureMilk



€30m bid (€23m from SFI)





Thank you
Questions?



Digital Innovation Hubs and the need for upskilling the workforce in the wake of digitisation

Alexander Riedl
Working Group 1 Meeting
Brussels, 20 October 2016



European
Commission



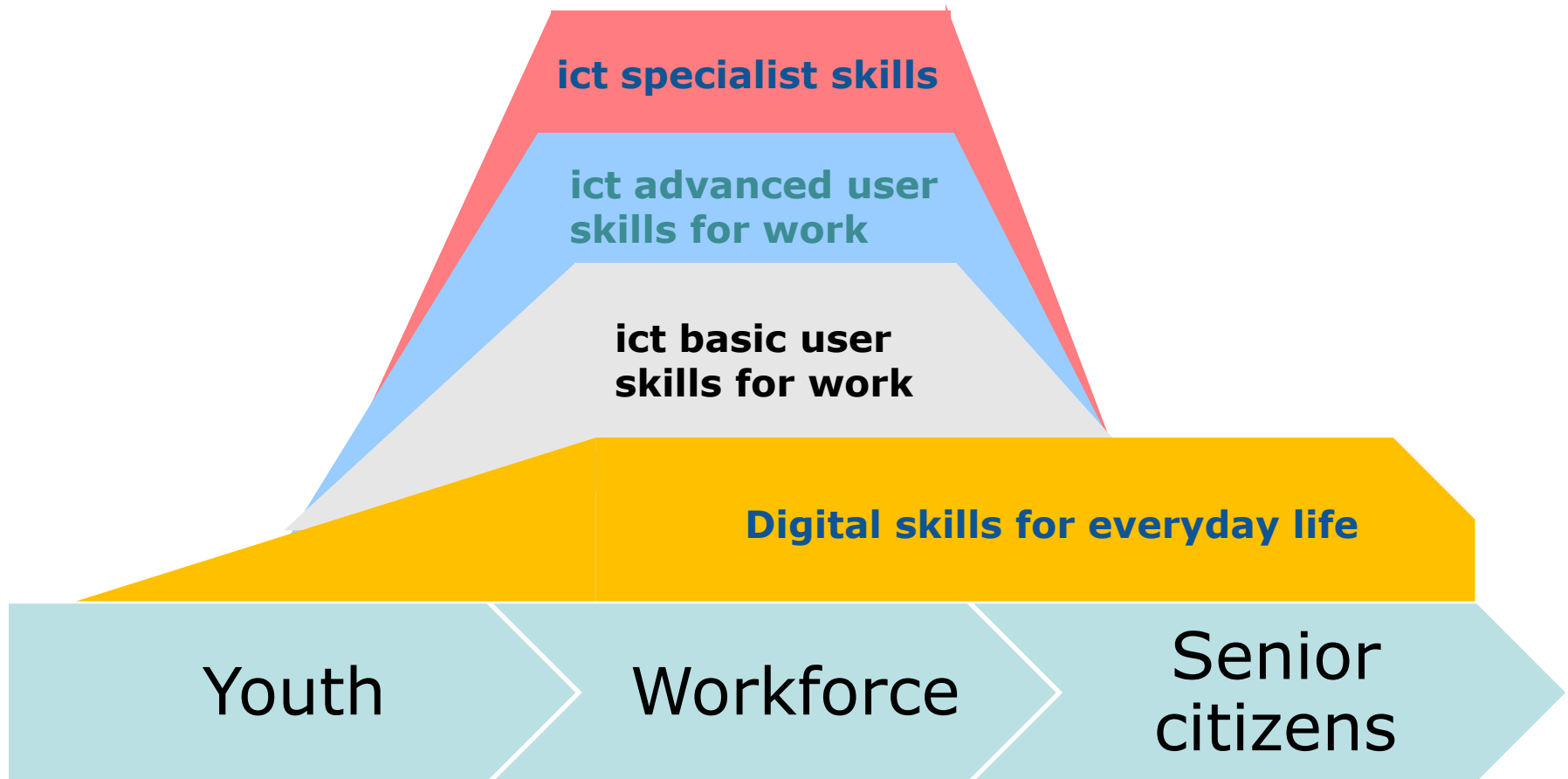




European
Commission

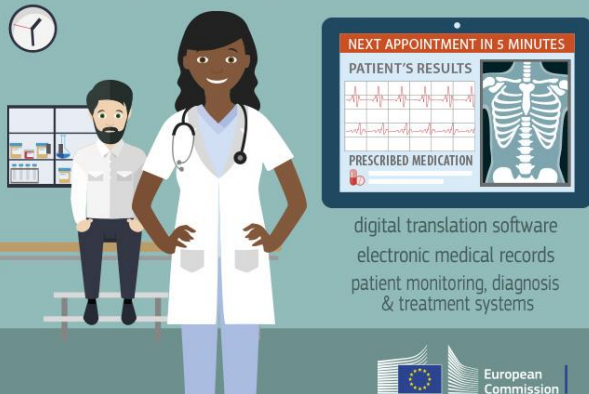


Digital skills at different life stages



The whole labour force needs digital skills

Today's hospital doctors need digital skills



digital translation software
electronic medical records
patient monitoring, diagnosis
& treatment systems

Benefits:

- facilitates communication between doctors & patients
- improves access to medical information
- allows doctors to save time and to treat more patients

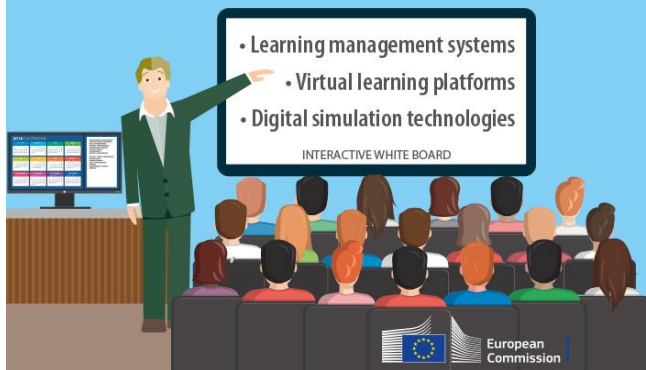
Today's industrial machine operators need digital skills



Benefits:

- faster manufacturing & reduced errors
- less hard, manual, repetitive tasks
- manufacturing processes more sustainable.

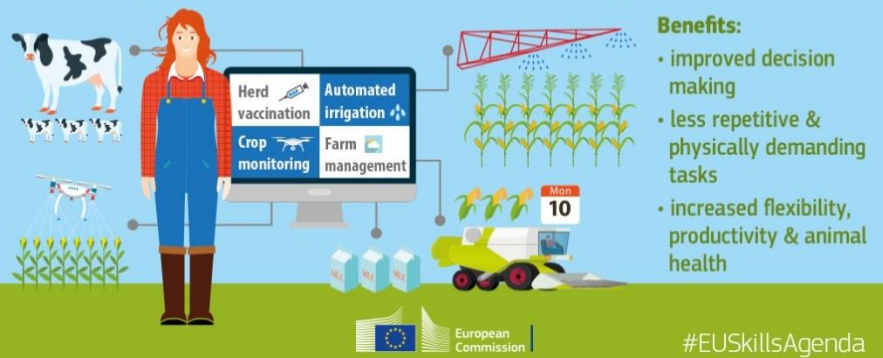
Today's VET teachers need digital skills



Benefits:

- improved communication between teachers & students
- improved quality of learning
- increased safety

Today's farmers need digital skills

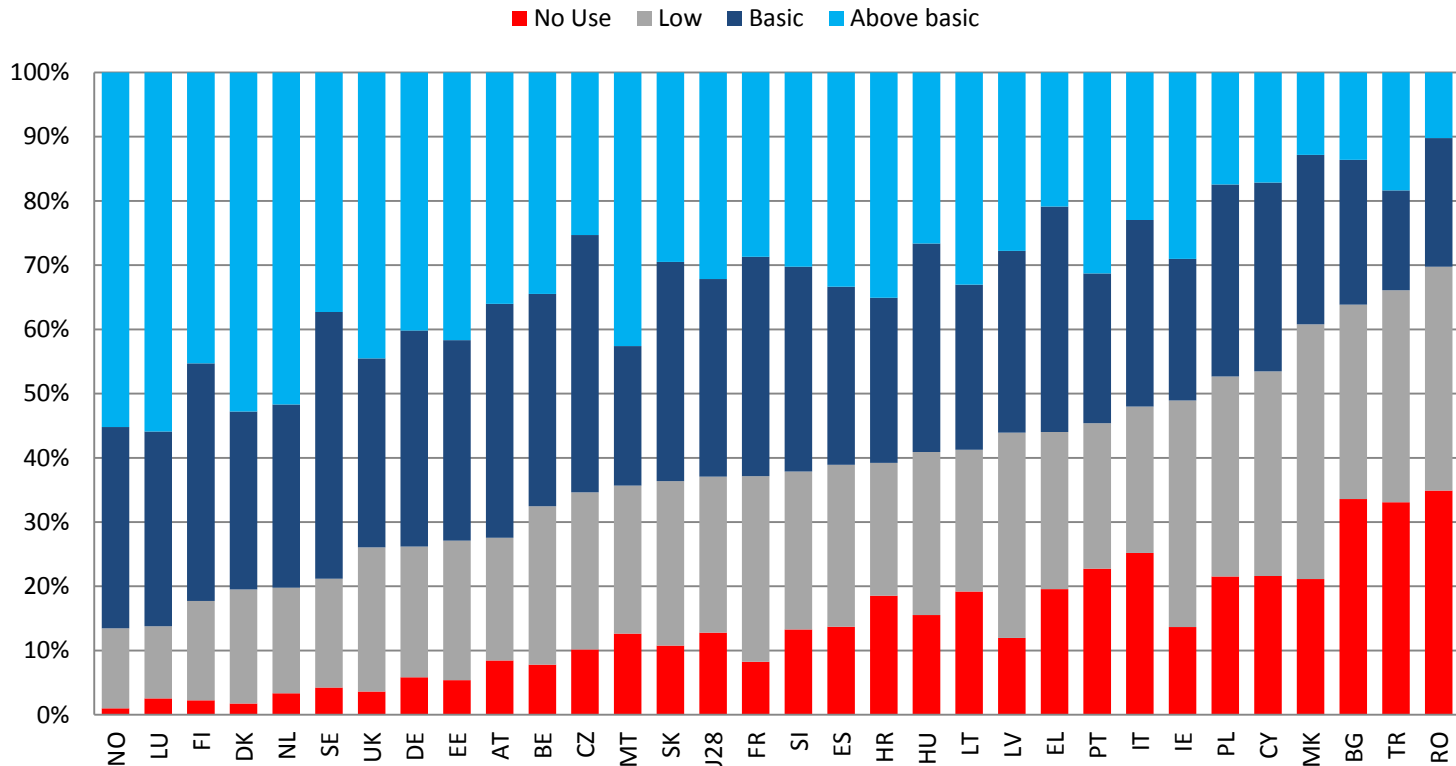


Benefits:

- improved decision making
- less repetitive & physically demanding tasks
- increased flexibility, productivity & animal health

37% of the EU workforce has insufficient digital skills, 13% have no digital skills at all

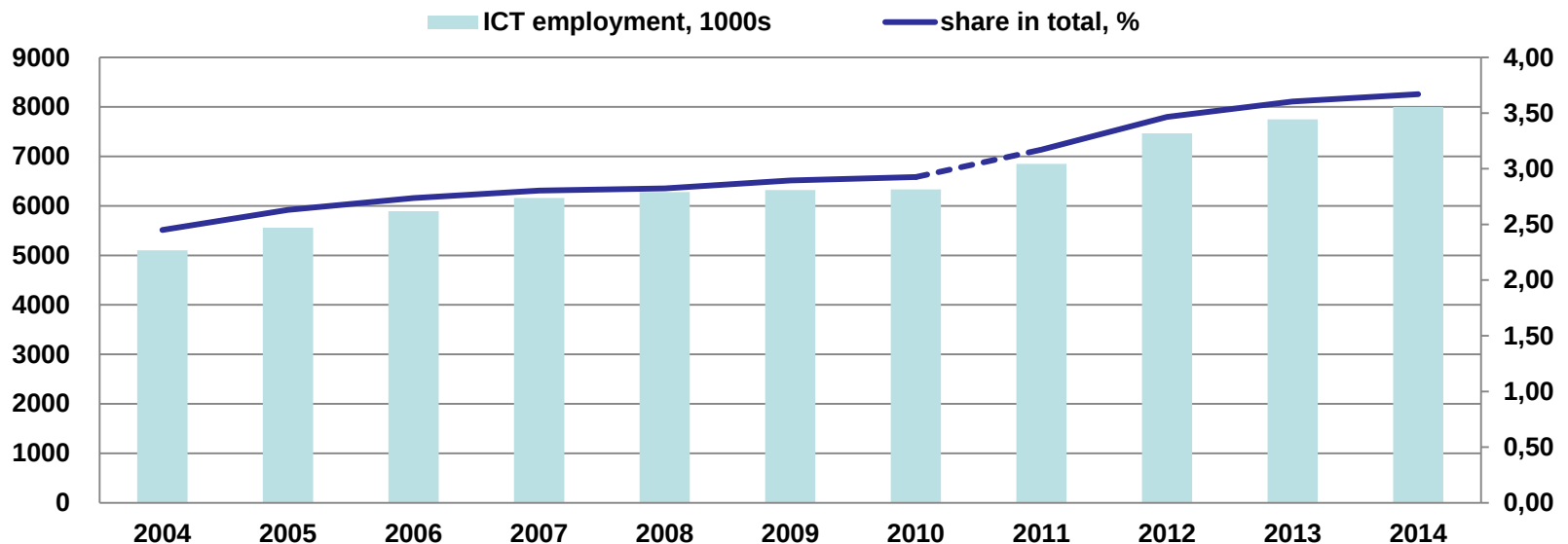
Digital skills of the labour force, 2015 (% labour force with above basic, basic and low digital skills and no internet use)



Source: Commission services based on Eurostat data

Employment of **ICT specialists** has grown by 2.9 million in the EU over last 10 years

Employment of ICT specialists in the EU in absolute terms and as a share of total employment, 2004-2014



Source: Eurostat

Shortage of digital technology experts

- 40% of enterprises trying to recruit ICT professionals have difficulty doing so
- **Market failure**: supply is not responding to demand

2015: 337,000 open vacancies



2020: 756,000 open vacancies

Source: Empirica, May 2015

New Skills Agenda for Europe

- Adopted in June 2016
- Digital skills in all actions, in particular:

Skills guarantee
Blueprint

- **Digital Skills and Jobs Coalition**

- Multi-stakeholder partnership (education, business, social partners, Member States) to tackle the digital skills challenge with concrete actions
- Building on the achievements of the Grand Coalition for Digital Jobs

Addressing the digital skills gap

- **New Skills Agenda:** digital skills in all actions, in particular:
 - Skills guarantee
 - Blueprint
- **Digital Skills and Jobs Coalition**
 - Multi-stakeholder partnership (education, business, social partners, Member States) to tackle the digital skills challenge with concrete actions
 - Building on the achievements of the Grand Coalition for Digital Jobs



Coming up: **LAUNCH on DECEMBER 1st**

- **We would like to bring DIHs and related actors into the Coalition**
- **Do you want to be invited for the conference?**
- **=> mail me at alexander.riedl@ec.europa.eu**
- **Join the Coalition**
- "Shared Concept" by Member States
- Renewed pledges, good practices, awards

Questions for you:

- *What is the role of DIHs in assessing skills needs and skills delivery?*
- *Connecting DIHs with skills providers in the ecosystem: how do you do it?*
- *Who has good practices to share of what works and what not, including the use of European funds?*
- <https://ec.europa.eu/digital-single-market/en/news/apply-now-new-european-digital-skills-award-2016>

Thank you!

Q & A

@digitalskillsEU

Backup

@digitalskillsEU

The Grand Coalition for Digital Jobs



- Launched in 2013
- More than 2 million people trained
- 100 stakeholders, mostly from ICT industry and "digital constituency"
- National and local coalitions in more than 13 countries

What is new?



Broadening the scope to the workforce as **all sectors become digital**



Involve Member States and stakeholders in designing and delivering solutions: national digital skills strategies and national coalitions by 2017, joint targets by end of 2016



Best-practice exchange; pledges and joint training programmes; link to sectoral "blueprints"



Better use of European and national **funds**

Overall aim of this working group

- To develop a Report on approaches, best practices and plans for the roll-out of Digital Innovation Hubs.
 - A first draft of this report should be ready before the end of December 2016.
 - Revised draft for stakeholder forum (end of January 2017)
 - Final version for Hannover Fair 2017.

- 1. Discussion about three different topics
 - Networking DIH
 - Needs of the industry
 - Investments
- 2. Breakout in small discussion groups (8-10 persons)
 - Each group assigns a leader, who will report on the results
 - Flipchart for recording outcomes
- 3. Feedback
 - Short feedback of each discussion group in plenary (1 minute)

What is next – after today?

- 1. Leaders provide a short report about the discussions to rapporteur Mike Sharpe
- 2. Mike Sharpe will make overall report
- 3. Teleconference per discussion theme, every two weeks, to further develop report
 - Let us know in which topics you are interested
 - We need one leader per topic
- 4. Next meeting in Brussels on 8 December

- How can we build a network of
Digital Innovation Hubs
that can serve
companies
from all over Europe at "working"
distance?

Building on, and expanding successful actions



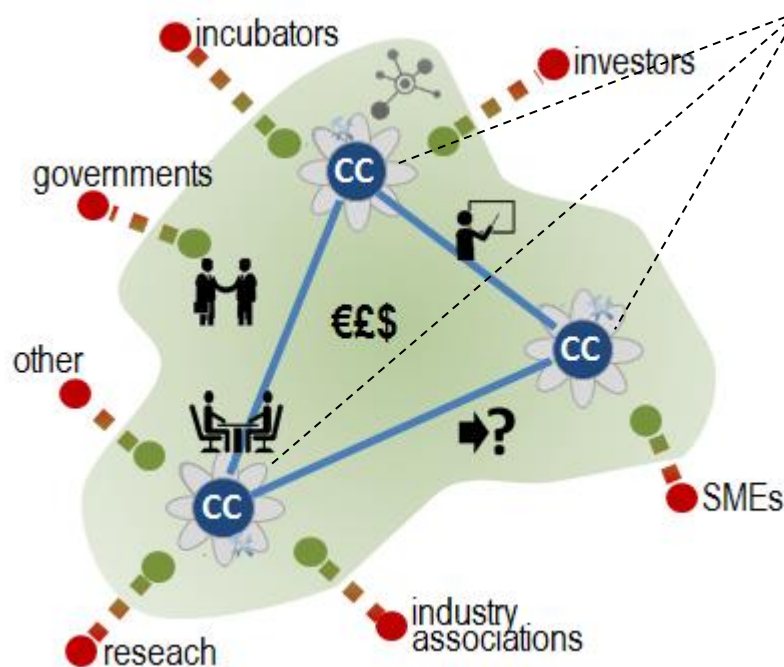
- Competence Centers usually found in networks.
- Complementary expertise.
- Regional specialisation but full value chain crossing regions.

Competence Centres are the core of Digital Innovation Hubs

DIGITAL INNOVATION HUB

Organised to provide services to industry

- Access to competence centres
- Development of innovation ecosystem
- Brokerage
- Access to finance
- Market intelligence
- Training and education
- Incubator/mentoring services



COMPETENCE CENTRE

Competences in Digital Technologies

- Provide access to infrastructure and technology platforms
- Provide digitisation and application expertise
- Support experimentation in real-life environments
- Support fabrication of new products
- Demonstrate best practices
- Showcase technologies in pilot factories, fab-labs

1.2 Mn EUR allocated in I4MS for regional competence centres for developing their case for becoming a digital innovation hub



New round planned for end 2016 focusing on Central and Eastern Europe (EU13)

25 actions twinning competence centers

- Transferring best practice
- Development of business case for investments by the region

Regions/MSs

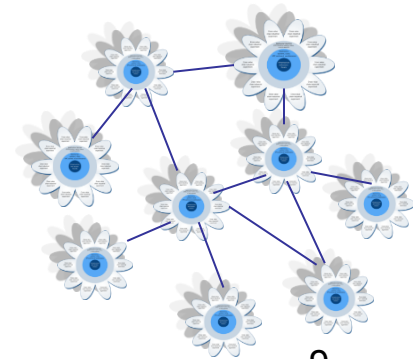
- ❑ Establish/**reinforce competence centres**
 - Across Europe – specific support for regions without DIH
 - Implement relevant activities if needed (incentives, ...)
- ❑ **Collaborate with** digital innovation hubs of **other regions**
 - to fill gaps and facilitate specialisation and excellence

Commission

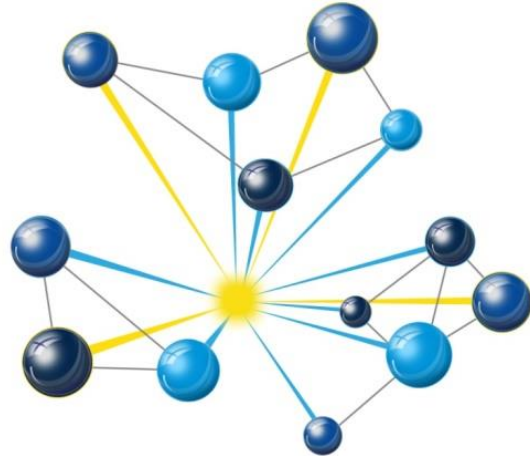
- ❑ Support pan-European networking of Digital Innovation Hubs
 - Share best practices, success stories, training
 - Develop catalogue of Hubs, competences, etc
- ❑ Promote use of EU and other funds (ESIF, EFSI)

Industry

- ❑ Engage with competence centres, help set priorities,...



- **What are the needs of the industry in your region (also related to skills)?**



VANGUARD INITIATIVE

New growth through smart specialisation

*Meeting DG Connect – Vanguard Initiative
(Lead Regions 3DP & ESM Pilots)*

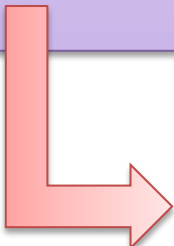
Brussels, 13/10/2016



Vanguard: Background & Rationale



- ❑ Vanguard = co-ordinated effort of 30 EU-regions to better align regional specialization strategies (through 'Smart Specialization Platforms') towards 'EU Industrial Renaissance'
- ❑ Focus on Advanced Manufacturing (ADMA) & KETS deployment
 - June 2014: 3 Pilot Actions
 - High Performance Productions with 3D Printing (South-NL, Flanders, Norte)
 - Efficient and Sustainable Manufacturing (Lombardy, Catalonia)
 - Energy Related Applications in Harsh Environments (Scotland, Basque Country)
 - June 2015: 2 new Pilot Actions
 - Innovative use of Bio-mass (South Holland / Lombardy)
 - New nano-enabled products (Skåne, Tampere)



Rationale

- KETs = Medium to high Technology Readiness & High Market Potential
- But ... still fragmented / incomplete value chains + lack of visibility between supply & demand
- ➔ Need to connect & upscale regional efforts to speed up deployment, with focus on demonstration activities (>TRL5)
- ➔ **Objective** ➔ *"to accelerate technology deployment in the EU through industry-led, transregional demonstration platforms"*

Industry requests



- How to integrate 3DP in my current production environment?
- How will 3DP interact with other equipment/processes in my manufacturing company?
- How can 3DP help reduce the number of components and/or process steps?
- How to certify the integration of the different 3DP additive-subtractive process steps?
- How to streamline & co-ordinate further research on the different 3DP additive-subtractive building blocks?
- How to efficiently organize a support infrastructure that enables
 - testing new technologies (piloting AND first production series)
 - a thorough understanding of what can be produced in mass
 - easy scale-up to other applications & markets
- How to best involve industrial experts to be able to calculate industrialization TCO's ?



Smart Specialisation Platform Industrial Modernisation: Co-investment in new value chains

Working Group Digital Innovation Hubs

20 October 2016, Brussels

Jan Larosse

Marco Pino

Competence Centre

Smart and Sustainable Growth

DG Regional and Urban Policy

Digital Innovation Hubs and SSP Industrial Modernisation



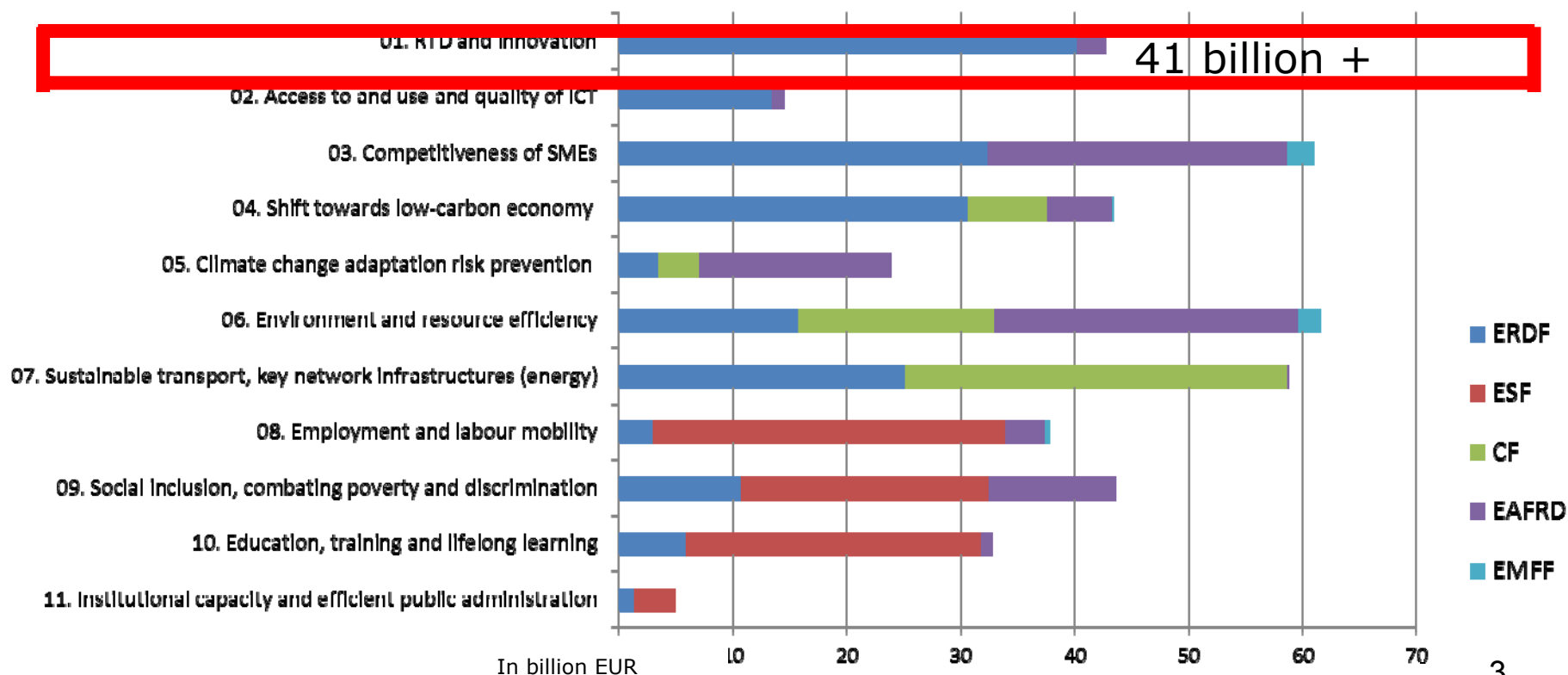
Overview

1. **SSP Industrial Modernisation**
 1. **Implementation RIS3 (41 billion) - Investments for (digital) transformation**
 2. **Smart Specialisation = targeted innovation and industrial policy, based on bottom-up 'entrepreneurial discovery'**
 3. **Prioritising innovation expenditure for diversification, using strengths of regional innovation eco-systems (role of innovation hubs)**
2. **Investment pipeline for Smart Specialisation**
 1. **Value chain as policy framework for cooperation on complementarities**
 2. **Vanguard Initiative inspiration: focus on 'joint demonstration'**
 3. **Support for co-investment partnerships through S3 Platform and through synergies between EC instruments to promote smart specialisation investments (incl. EFSI Investment Platforms).**
3. **Investments in a European network of digital innovation hubs**
 1. **Investment in hard and soft infrastructure; investment in projects: need for a financing mix (multi-level, multi-instrument)**
 2. **The experience in ESIF with investments in science parks**
 3. **The S3 partnerships: user requirements for innovation hubs and for networked demonstration; mobilisation of funding mixes**

European Structural Investment Funds 2014-20



- **EUR 454 billion of ESIF + EUR 183 billion of national co-financing**
- **Concentration on 11 Thematic Objectives**
- **Ex ante conditionality for RTD&I = 'smart specialisation strategies' !**
- **More than 120 regional and national R&I smart specialisation strategies**



Source: Final ESIF partnership agreements as of December 2015
 All open data available at: <https://cohesiondata.ec.europa.eu/>

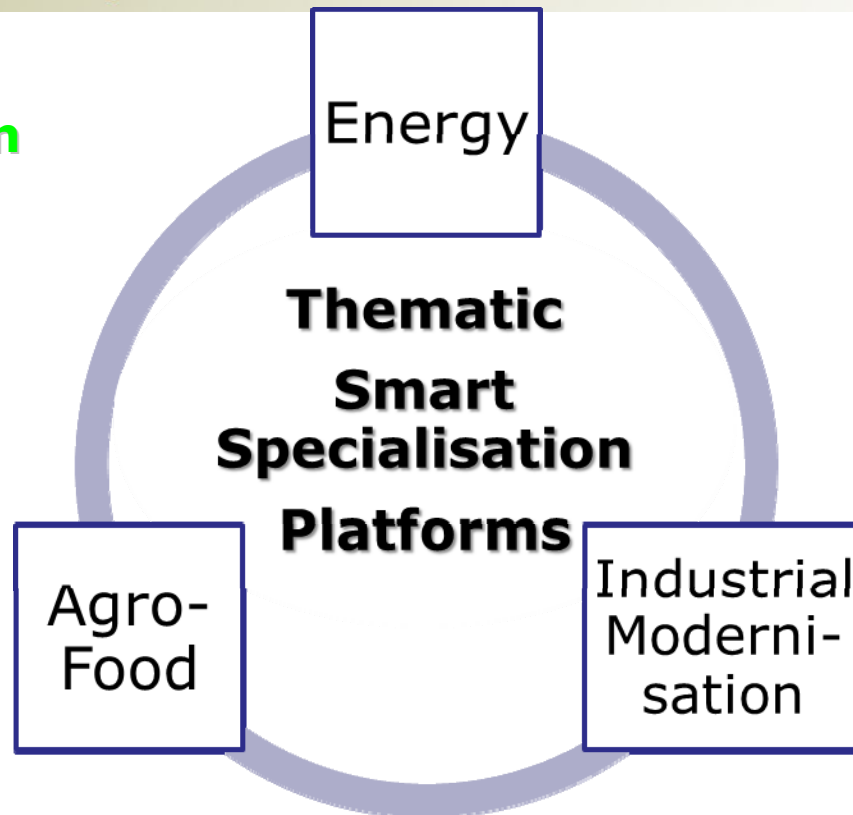
Thematic Smart Specialisation Platforms: support targeted innovation

<http://s3platform.jrc.ec.europa.eu/s3-themes>



**Implementation
of RIS3 in
priority areas**

**Smart
Specialisation
Investments**



**Interregional
cooperation for
critical mass;
avoiding
duplication**

**European
strategic
growth
areas**

Integrated approach smart specialisation



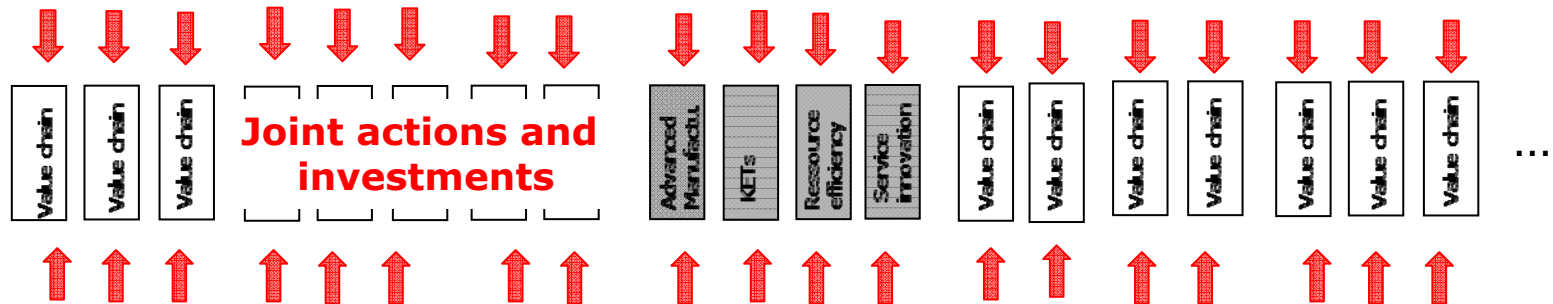
& cluster policies

Thematic Smart Specialisation Platforms

Energy Agro-Food Industrial Modernisation (Health) (Circular Economy)

Regional
authorities

Business



Cluster
organisations

European Strategic Cluster Partnerships
for Smart Specialisation Investment

VANGUARD INITIATIVE

NEW GROWTH THROUGH SMART SPECIALISATION

Ambitions

Partners

Pilot Initiatives

Activities

**Thematic Smart Specialisation
Platforms inspired by
Vanguard Initiative**

5 Pilot actions:
**Efficient and Sustainable
Manufacturing**
Energy applications
3D-Printing
Bioeconomy
Nano-enabled products

VI focus is on catalysing
**joint investments in
product-driven
demonstration pilots**
(specific applications,
products or processes)
with 5 pilot-cases

upscale

learn

- developing a scoping paper
- mapping questionnaire
- Identify lead regions and actors

connect

- matching events for complementary partners
- developing demonstration cases

demonstrate

- networked demonstration
- pilot lines and first-of-a-kind factories (TRL6-8)
- Generation 'n', 'n+1' and 'n+2'

commercialise

- launch of new ventures and start-ups
- new value chains (TRL 9)

Value chain approach: policy framework for integration



= facilitate (pro-active) combination of intermediary inputs to co-create **solutions** (value propositions) / **co-investment**

Mending Fragmentation

- **Technology push** has limited impact; demand articulation through **societal challenges** is too broad
- Actors are **disconnected** in efforts to build new solutions
- **Horizontal** policies address mainly similar actors (competitors); policy learning insufficient for co-investment
- **Orchestration of VCs** mainly through (foreign) multinationals

Facilitating Connections

- **Integration** of technology development (**supply conditions**) with societal challenges (**demand pull**)
- **Business** perspective!
- Connecting **complementary actors** (co-specialisations)
- **Vertical** policies give **direction** (open innovation)
- **Co-creation** of success-conditions
- **Role** of regional eco-system/clusters as 'anchors' of local value-added



Thematic Smart Specialisation Platform Industrial Modernisation = joint initiative of DG REGIO, DG GROW, DG RTD, DG CNECT, DG JRC + committed regions

Kick-Off Event

Barcelona, 16-17 November (co-org Accio-Catalunia)

Based on Eye@RIS3 priority analysis & matching with Commission priorities, funding (H2020, COSME ...) and initiatives (JTIs, EIT-KICs ...)

'Expression of interest' of (lead) regions to form a **partnership** along a value chain with regions that have related RIS3 priorities

'Scoping Note' to identify **focus area** for further 'entrepreneurial discovery':

1.
Mapping
competences
& matching of
business
opportunities

2.
Industry
cooperation
and design of
projects

3.
Business
plan and
funding mix

4.
Investment
projects
(demo/pilot
)

Thematic Platforms Commission support?

Analytical support & data:

- [S3Platform Online tools](#) (Eye@RIS3, trade data, benchmarking ...)
- KETs Observatory, European Cluster Observatory, S3 ONLINE, Regional Innovation Monitor, Interreg Policy Learning Platform, ...

Experts and hands-on support:

- experts from REGIO database ; Policy Learning Platform
- COSME-projects; EFSI advisory hub, JASPERS

Process: meetings & matchmaking

- S3Platform seminars, Open Days, Interreg Europe ; COSME: Reconfirm-Wattify2 etc
- European Strategic Cluster Partnerships ; EEN

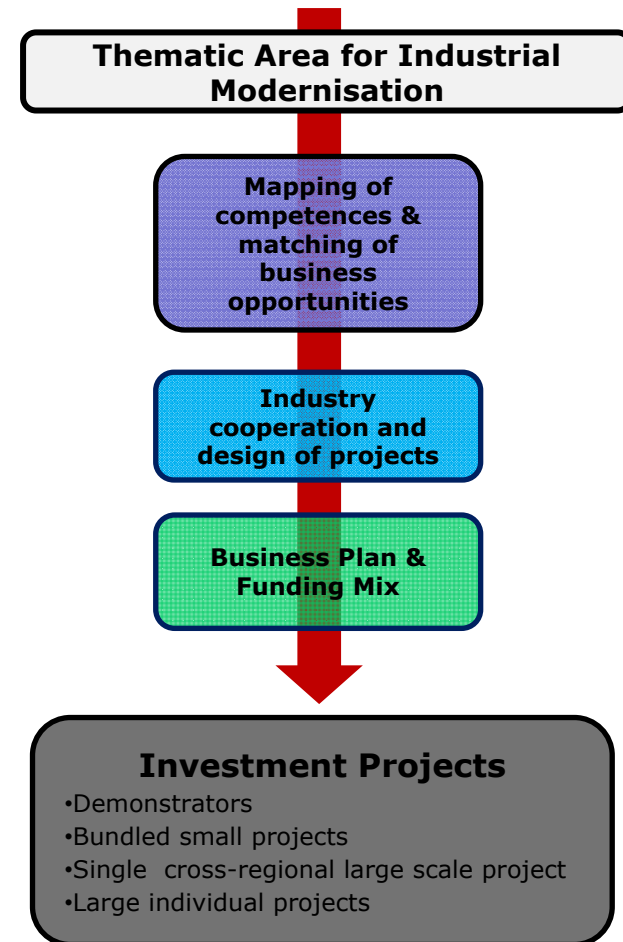
Funding instruments

- H2020: [INNOSUP-1](#) cluster projects for new industrial value chains: Calls for demonstrators; i4MS - Digital Innovation Hubs...)
- ERDF and EAFRD programmes ; INTERREG

Political support

- Involvement of relevant DGs (REGIO, GROW, RTD, AGRI, ENER, CNECT ...)
- Promote **investment pipelines** towards EIB/EIF (Thematic Investment Platform)

Further synergies are under development!



SSP Industrial Modernisation



Smart Specialisation as method for positioning, aligning & integrating

Investment Project Pipeline

HORIZON 2020

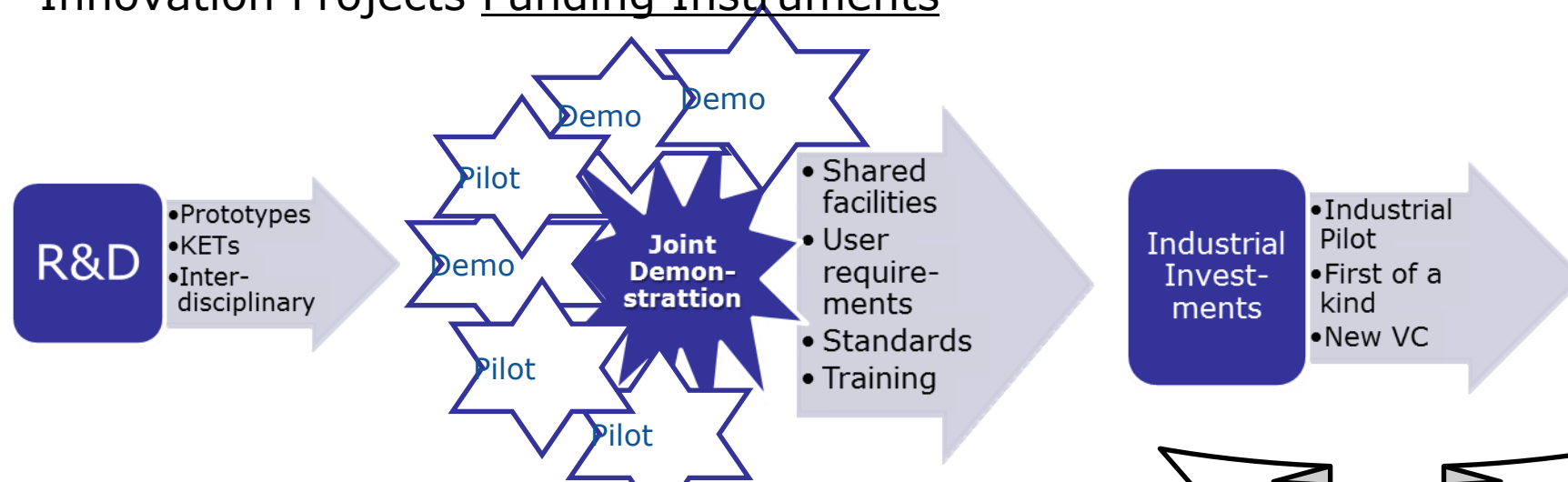
ESIF-RIS3

COSME

INTERREG

EFSI-EIB

Innovation Projects Funding Instruments



Innovation Projects Support Infrastructure

European DIH Network





Setting up, managing and evaluating EU Science And Technology Parks - An advice and guidance report on good practice (May 2014)

EU STPs are increasingly being portrayed as:

- **Part of the economic development programmes of cities and regions**
- **An increasingly important part of local innovation ecosystems**
- **Working extensively with knowledge-based SMEs and start-ups**
- **Making valuable contributions to foreign direct investment by high tech companies**

<http://s3platform.jrc.ec.europa.eu/science-parks>





Public Sector Support of STPs

- In the period from 2000 – 2012 total capital investment into EU's STPs has been circa €11.7 billion (central estimate). The central estimate of total capital investment on buildings for those EU STPs that secured ERDF was €5.6 billion, of which approximately €1.6 billion was ERDF giving a 3.6 leverage ratio. Approximately 70% of all STP investment made in areas where STPs believed ERDF was accessible to them were assisted by ERDF finance.
- *In addition, during the same period, STPs have expended circa €3 billion on the professional business support and innovation services they either deliver or finance to assist both their tenants and other similar knowledge based businesses in their locality.*





STPs: Landlords or complex organisations

- *The evidence base shows that better STPs are not simply the landlords of attractive and well specified office style buildings.*
- *Rather, they are complex organisations, often with multiple owners having objectives aligned with important elements of economic development public policy as well as an imperative to be financially self-sustaining in the longer term.*



SSP and DIH: leveraging investment for industrial modernisation

European
Commission

Private investment in new economic opportunities



Demonstration and pilot projects

- De-risking private investments
- Co-creating new value chains
- Mutual access in specialised centres

*S3
Partnerships
shape need for
pilots and
demonstration
(entrepreneurial
discovery)*



Innovation Infrastructures

- Connecting existing support infrastructures for networked piloting and demonstration
- Upgrading existing infrastructures for piloting and demonstration purposes
- Investing in new infrastructures (if there are gaps; if there is demand & capacity)

Questions and Answers



20 October 2016



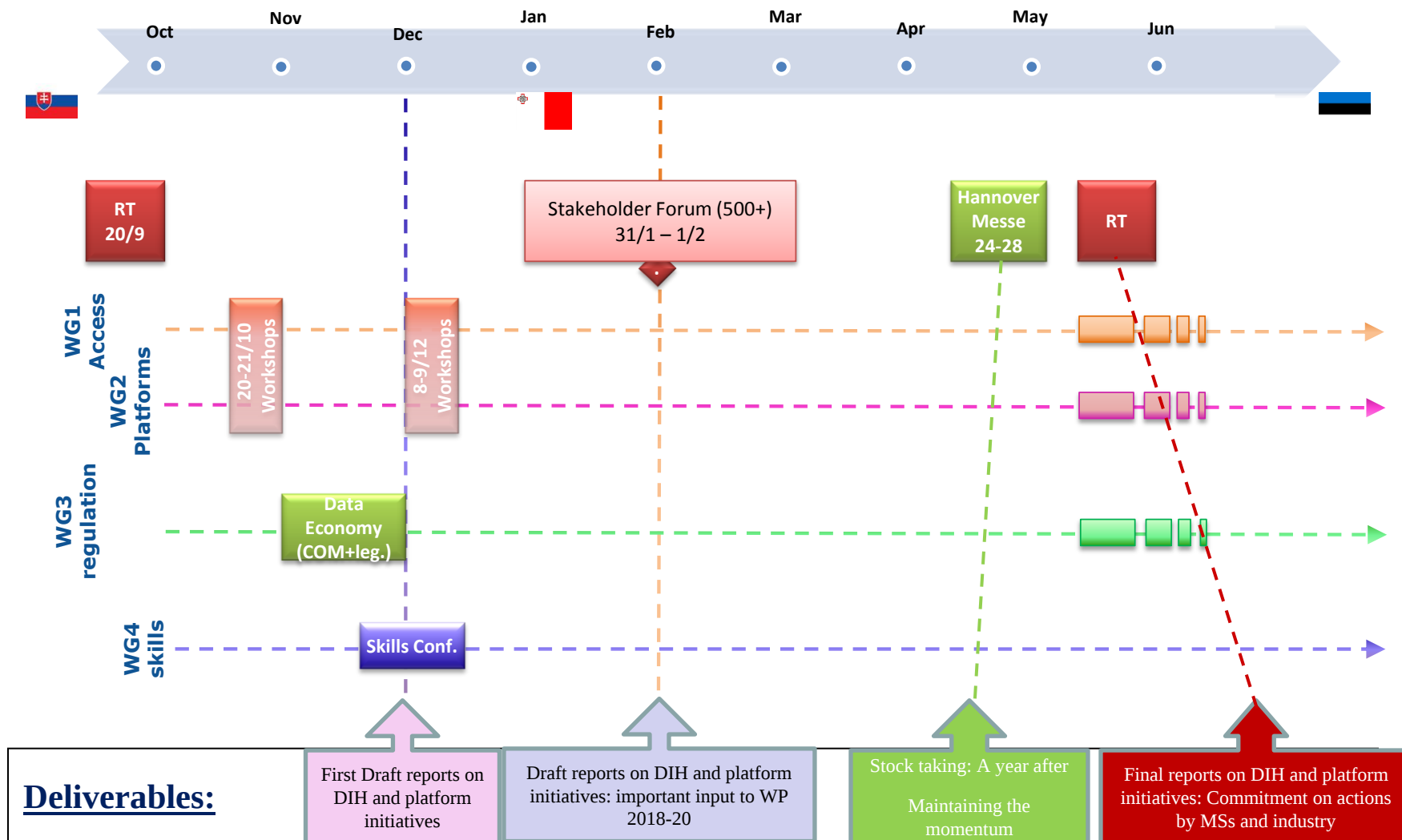
DG CONNECT/A, European Commission

Overall aim of this working group



- To develop a Report on approaches, best practices and plans for the roll-out of Digital Innovation Hubs.
 - A first draft of this report should be ready before the end of December 2016.
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- 1. Leaders provide a short report about the discussions to rapporteur Mike Sharpe mike@msconsulting.co.uk
- 2. Mike Sharpe will make overall report, first draft 28 October
- 3. Teleconference per discussion theme, every two weeks, to further develop report
 - Let us know in which topics you are interested
 - First one in the week 7 – 11 November
 - Second one in the week 21 – 25 November
 - One or two leaders to structure the discussion and the document
- 4. Next meeting in Brussels on **9 December**



A Collaborative website has been set up to discuss and exchange reference documents

European Commission > Futurium > Implementing the Digitising European Industry actions

[Home](#)
[About](#)
[Discussions](#)
[Library](#)
[Blogs](#)
[Events](#)
[People](#)

View

Manage

Implementing the Digitising European Industry actions

We would be happy to hear from you how to accelerate the implementation of the various DEI actions and which role you would see for the European and national public sector, the regions, industry, academia, social actors and yourself.

[Read more](#)

Take part

Present your ideas, share your experiences, engage with other stakeholders and with us, so we can foster the integration of digital innovations by industry and the mobilisation of resources to that aim for better jobs and growth in the digital age in the EU.

Add your idea

follow DEI

Search Implementing the Digitising Europee

#DigitiseEU

Lydia babaci-Victor Retweeted

DigitalSingleMarket @DSMeu

It's the #WorldStandardsDay. Here's why Europe needs common standards in ICT

bit.ly/1Wwu9Gq #DigitiseEU

11/10/2016

1

Forum

11/10/2016

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2

Forum

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THANK YOU

Digitising European Industry

<http://ec.europa.eu/digital-agenda/en/digitising-european-industry>

Twitter: #DigitiseEU