



DEFINING AN INNOVATION HUB

Maurits Butter | TNO

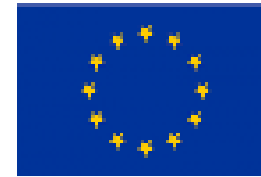
June 2019

TNO innovation
for life

SO WHAT IS A INNOVATION HUB?

TELL ME YOUR IDEAS

THE ORIGIN OF INNOVATION HUBS



*“An Action Plan for
Digitising European Industry”
19 April 2016*

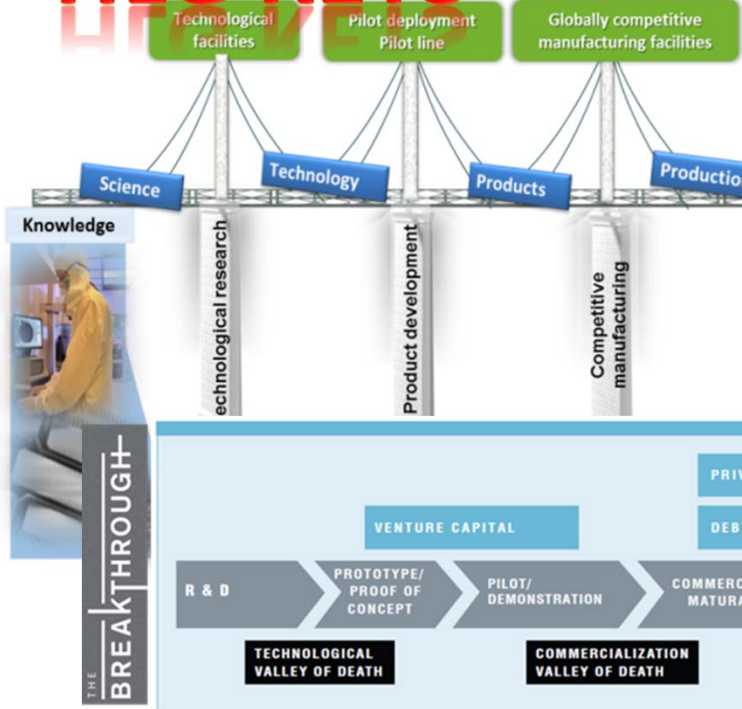
Shared facilities for
pilot production

Open Innovation Test Beds

- Develop new /upgrade existing facilities.
- Demonstration in relevant industrial environments.
- Complementary services:
Characterisation - Regulation - IPR
Modelling - Standardisation - Market analysis
- ... - ... - Mentoring, ...
- Identification and assesment of regulatory, economic and technical barriers.
- Open: accessible at fair cost to any SME in Europe.
- Set up network of test beds and services, sharing knowledge, offering a single entry point to users.

VALLEY OF DEATH AS A STARTING POINT

HLG KETS

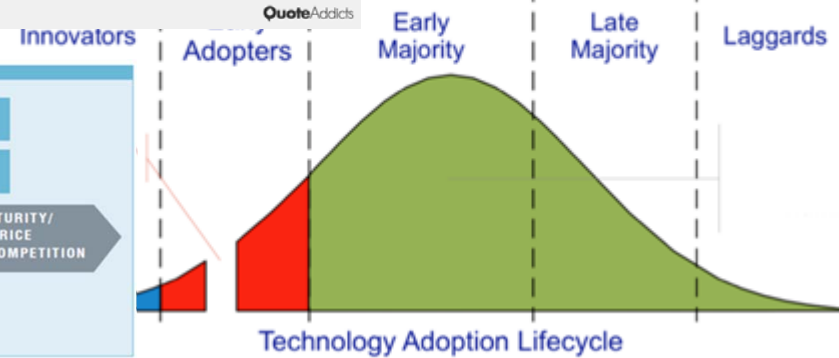


CEO's often complain about lack of innovation, while workers often say leaders are hostile to new ideas.

Patrick Dixon

Main message:
The valley of death is about translating research into business

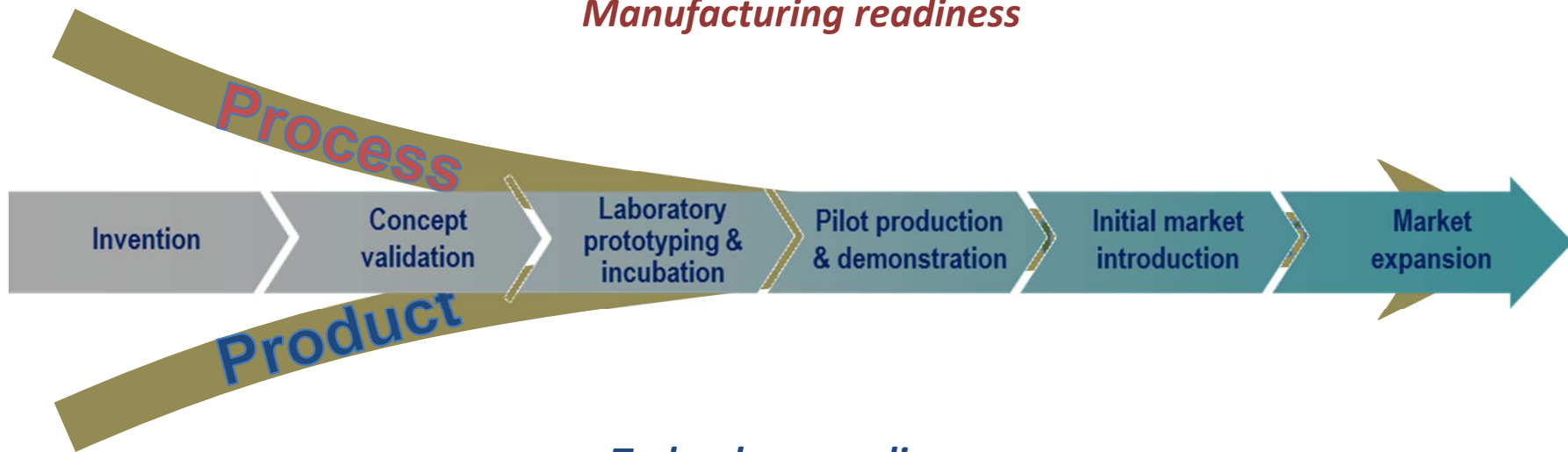
CHASM



INTRODUCING THE INNOVATION CHAIN

Basic Implications Observed	Manufacturing Concepts Identified	Proof of Concept Developed	Production Capability In lab	Components Production In relevant env.	System Production In relevant env	Production in Representative environment	Pilot line demo Low rate production	Capacity for full rate production	Full rate, lean manufacturing In place
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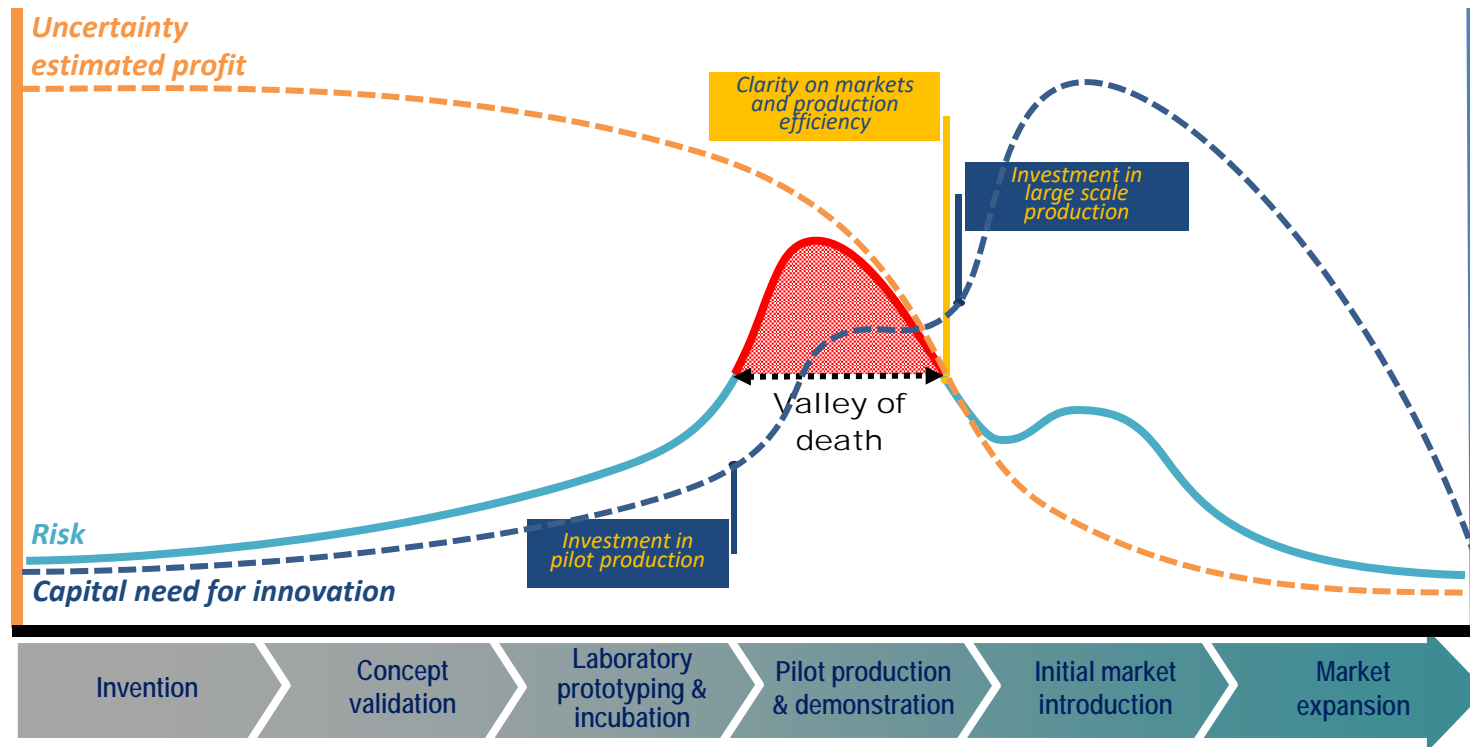
Manufacturing readiness



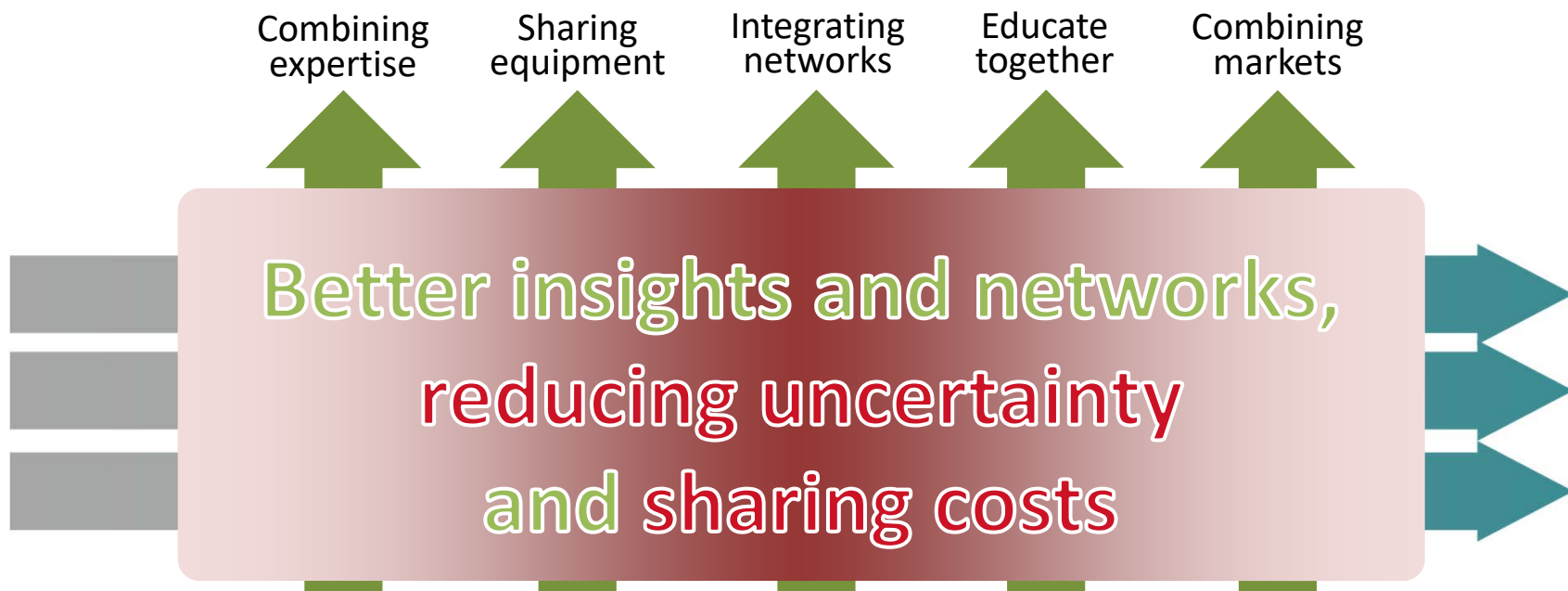
Technology readiness

Basic Principles Observed	Technology Concept Formulated	Experimental Proof of Concept	Technology Validation In lab	Tech valid. In relevant environment	Demonstration In relevant environment	Demonstration In operational environment	System complete and qualified	Successful mission operations
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"REDUCTION OF UNCERTAINTY AND NEEDED CAPITAL ARE OUT OF SYNC"

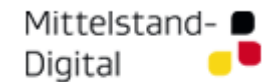


SHARING AND COMBINING REDUCES RISKS

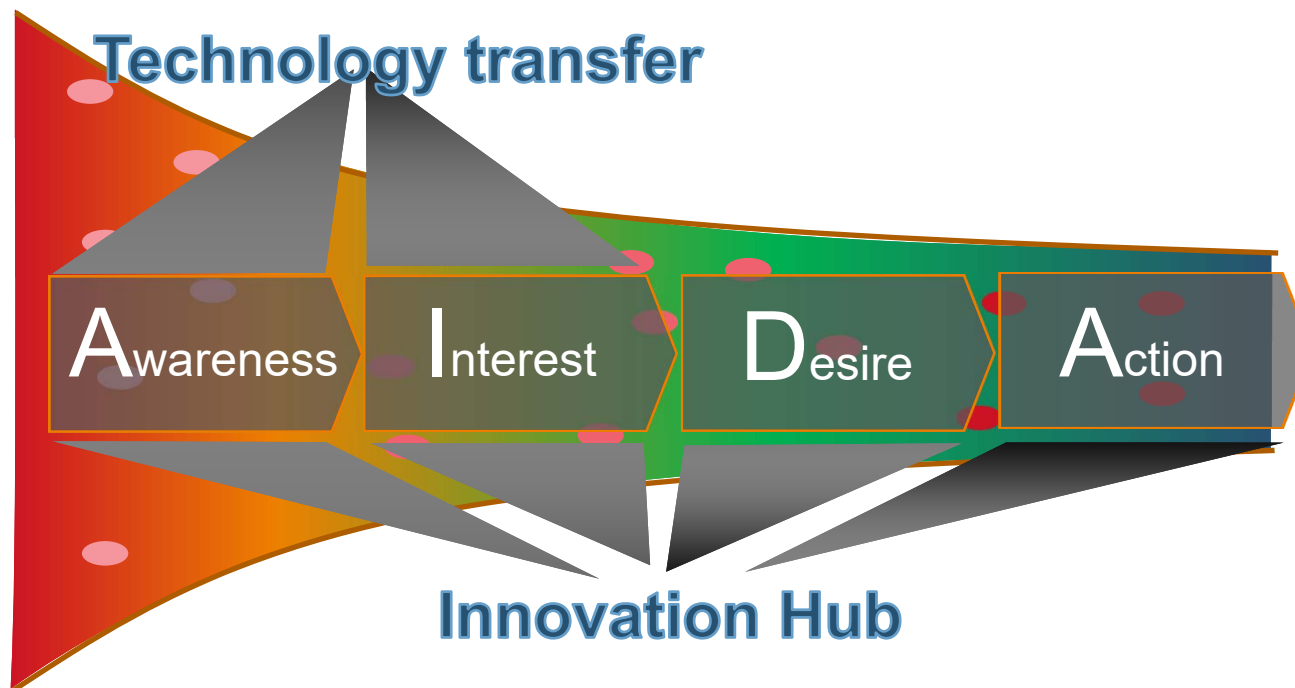


SUPPORTED BY MANY COUNTRIES

-  The Catapult centres (Innovate UK)
-  The Dutch Fieldlabs (Smart Industry)
-  Kompetenzzentrum (Mittelstand 4.0 programme)
-  The Innovation Institutes (Manufacturing USA)
-  The Manufacturing Innovation Centers (Made in China 2025)



KEY IN HUBS: AIDA=TOWARDS ACTION



GENERAL CHARACTERISTICS

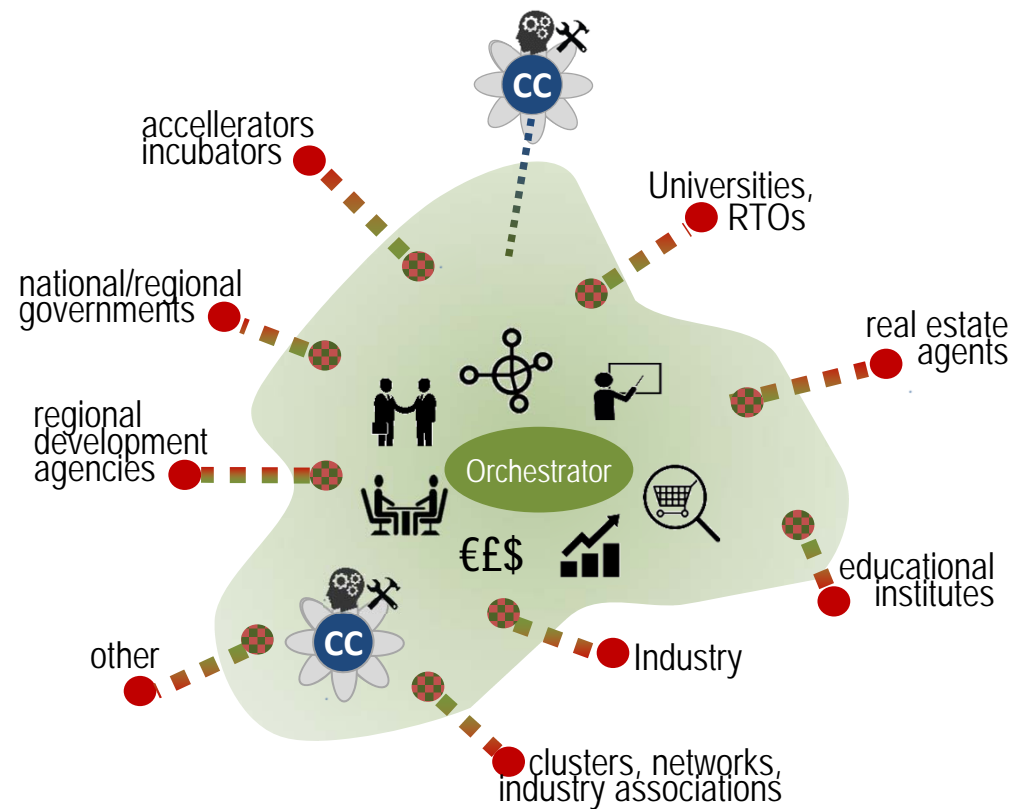
Almost always

- Cooperation between **research and industry**
- (Semi) **open innovation**
- Support from **government**
- Combining manufacturing and product development
- Shared expertise and infrastructure

Can have

- Regionally oriented
- Focusing on the transformation of research into business
- Cooperation with government
- Combination of network and physical location
- **Training of personnel**
- Validation and demonstration
- Commercial

WHAT IS AN INNOVATION HUB

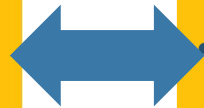


TWO CONCEPTS WITHIN I4MS

Digital Innovation Hubs

- Creator of awareness on digitalization in their region
- C
- d
- D
- A
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- qualified personnel
- Consultant to SMEs how to commercially apply digitization innovations

- *Ecosystem development*
- *Support of business development*
- *Access to finance*



Competence centres

- Provider of infrastructure and technology platforms
- Ex
- ex
- Ex
- di
- Pl
- rearing environments
- Creator of showcases on digitization technologies in pilot factories, fab-labs

- *Providing infrastructure*
- *Providing related expertise*
- *Best practices*

SOME EXAMPLES OF INITIATIVES



Das Technologie-Netzwerk:
Intelligente Technische Systeme
OstWestfalenLippe



THE UK MANUFACTURING TECHNOLOGY CENTRE



MANUFACTURING TECHNOLOGY CENTRE

- FOUNDED IN 2010**
 Independent RTO
 Company limited by guarantee (profit re-invested in MTC)
 Purpose built facility (12,000m²) - to allow industry & academia to perform industrial scale projects
- FOUNDED BY LEADING RESEARCH ORGANISATIONS:**
 University of Birmingham
 Loughborough University
 University of Nottingham
 TWI
 With support of industry

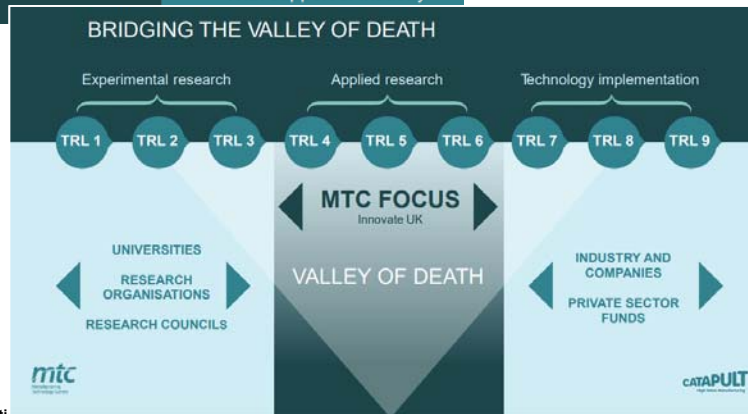


CORE RESEARCH PROGRAMME

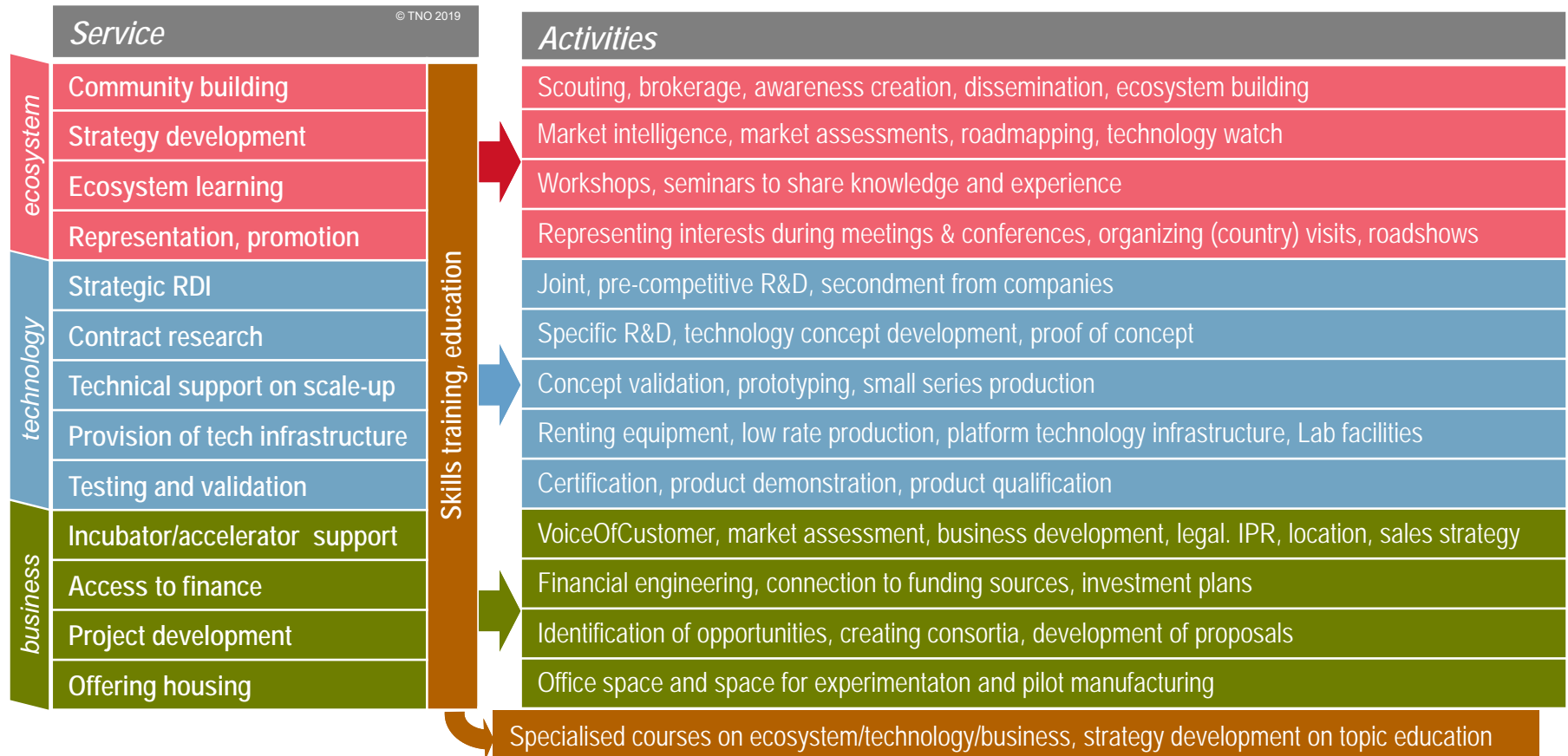
Core Research Programme with shared results
 Supported with additional Government contribution to generate collaborative R&D funding pot
 Foreground IP owned by the MTC and licensed back to members royalty free

50% Membership fees **50%**

Directed research
 Project commissioned by members either on a 1-to-1 basis with MTC or involving other members



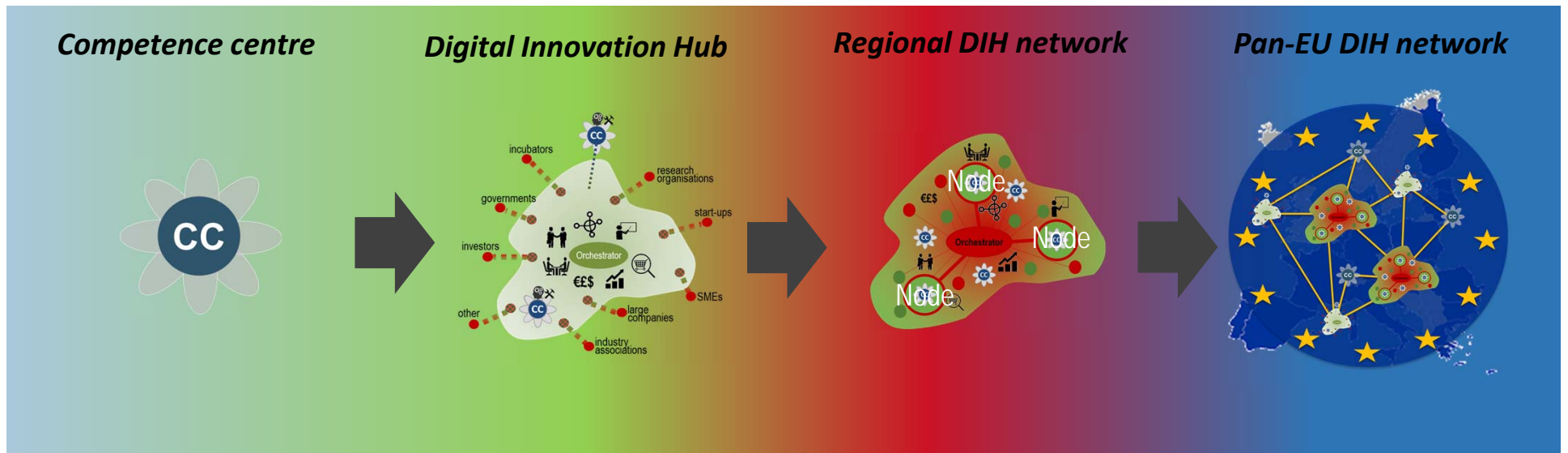
A DEFINITION BY SERVICES



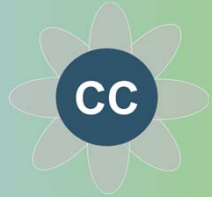
BUT IT IS NOT BLACK AND WHITE

	Factor	
Full physical location	<i>Location</i>	Virtual network
Regional	<i>Market focus</i>	International
From research to some scale-up	<i>Innovation focus</i>	Pilot production, some research
Semi-open, after negotiation	<i>Openness</i>	Fully open
Industry driven	<i>Governance</i>	Research driven
Fully commercial	<i>Financing</i>	Long term public co-funding
Large companies	<i>Target clients</i>	SMEs
Legal entity	<i>Institutionalization</i>	Consortium of partners
Confidentiality	<i>IPR</i>	Own IPR and licencing

NEW CONCEPTS ARE EMERGING



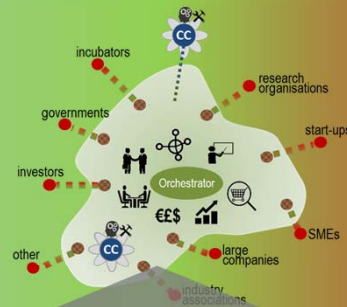
Competence centre



- Providing technology infrastructure
- Technological expertise
- Translate research into innovation
- International connection

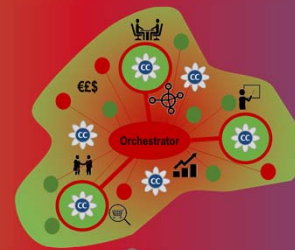
Defining a DIH

Digital Innovation Hub



- One tech/market domain focus
- Supporting regional SMEs
- Multi-actor partnership
- Creating business with non-tech expertise

Regional DIH network



- Regional ecosystem development
- Coordination multiple DIH nodes
- Benefit from Economy of scale
- Multi tech/market domain focus
- Implementing Smart specialisation and pan-EU collaboration

Pan-EU DIH network



- Initiating pan-EU collaboration and Smart Specialisation
- One tech/market domain focus
- Facilitate regional learning
- Creating EU awareness on new topics

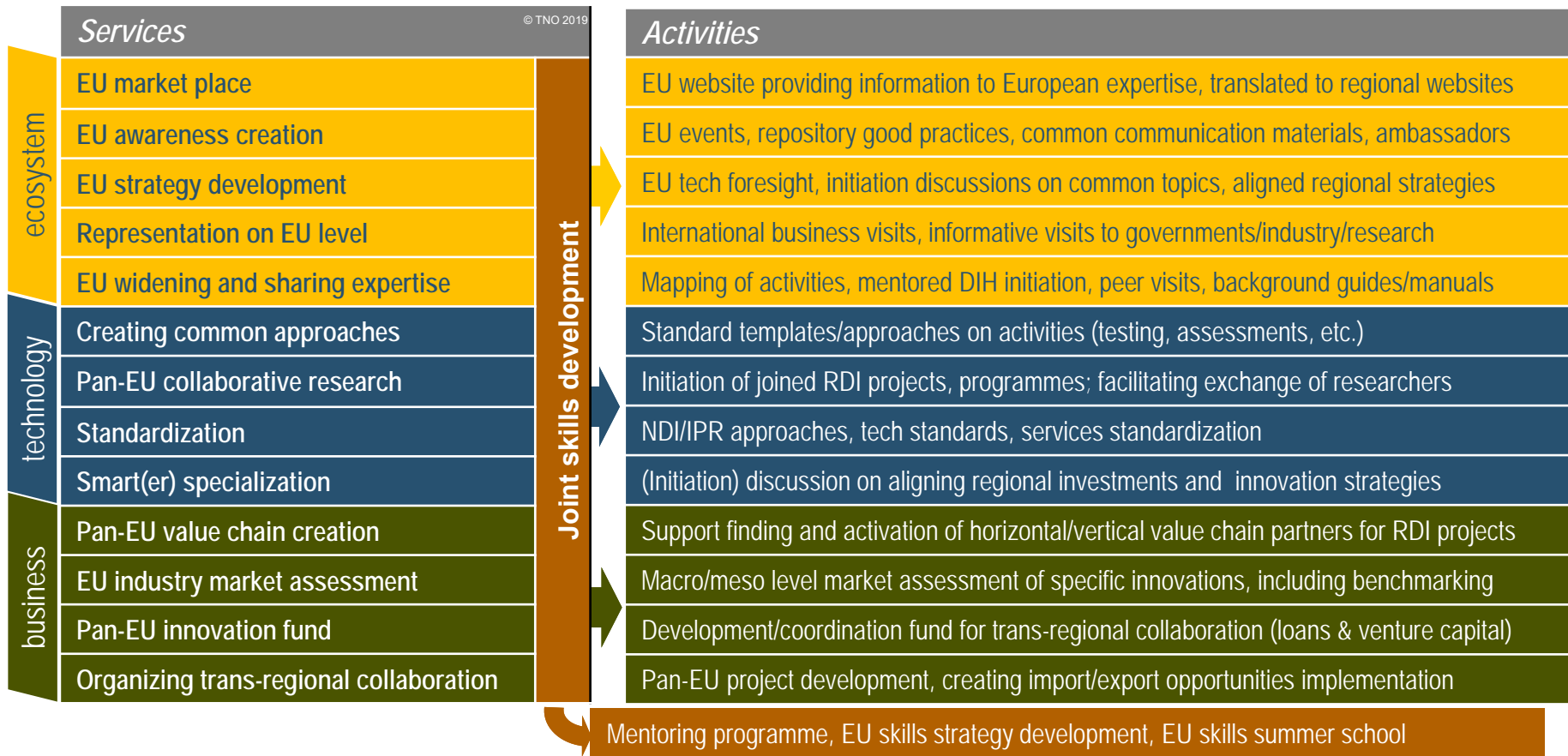
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WHY IS PAN-EU COLLABORATION IMPORTANT

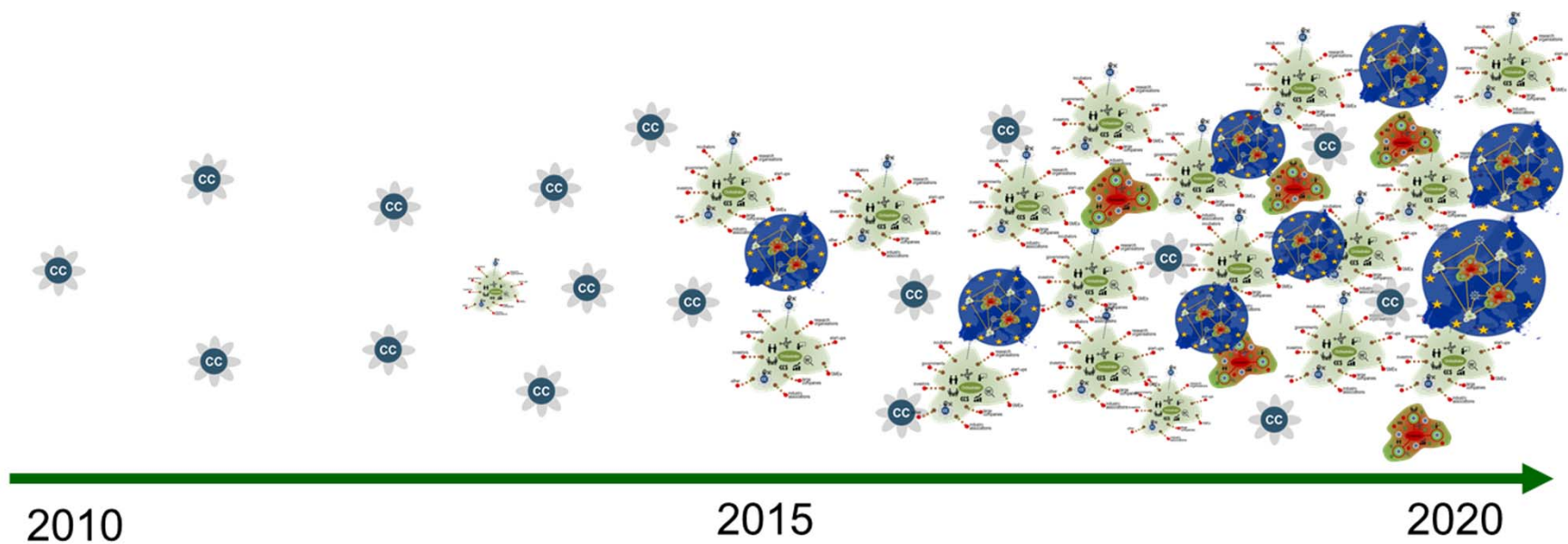
Improving the competitiveness of the EU by more efficient and effective use of regional capacities

1. Collaboration in R&D&I to **make better use of existing research**;
2. The **efficiency and effectiveness of translating** technologies into business, time to access
3. **Increased shared use of expertise**, looking multi-partner use of capacities;
4. Improving industrial value chains to use existing **partners networks**
5. **Exchange experience** on how to efficiently and effectively run DIHs;
6. **Alignment** of national and regional **funding**, reducing duplication and increasing its impact;

AN OVERVIEW OF PAN-EU NETWORK ACTIVITIES



EVOLUTION OF THE DIH COMMUNITY



THIS WORKSHOP

- › What are the benefits for SMEs to have these innovation hubs in the region?
- › What are opportunities for Romania to establish a structure of hubs and testbeds?
- › What are the challenges of creating such “animals”?
- › How to create synergies between industry and research?
- › How to get connected to the European network of innovation hubs

THE WORKSHOP APPROACH

- › Introduction by three panelists
 - › Esther Hurtos (Eurecat)
 - › Paula Galvao (INL)
 - › Rudolf Frycek (Amires)
 - › Joined by Soren Bowadt (European Commission)

› *And then you*

A nighttime photograph of a city street. On the left is a brick building with lit windows. On the right is a modern building with a curved facade and lit windows. A long-exposure shot of a car's headlights and taillights creates a bright, curved light trail across the middle of the image. The text 'THANK YOU FOR YOUR ATTENTION' is overlaid in white, sans-serif font on the left side of the image.

› THANK YOU FOR YOUR
ATTENTION

Take a look:
[TNO.NL/TNO-INSIGHTS](https://www.tno.nl/tno-insights)

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