

# **Study on the Demand and Offer for I&TT Services in North-East and North-West Romania – Results and Gap Analysis**

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# Objectives versus needs of SMEs

## Objectives

- **Business development**
  - New **products** with new **functionalities**
  - New **clients** and new **markets**
- **Internal company development**
  - Improve **quality** of existing products
  - Reduction of **costs**

## Needs

Knowledge

Contacts

Financing

Management

Equipment

Qualified  
personal



# How can I&TT helps? – Innovation perspective

## Internal solutions

### Knowledge

- R&D department
- Production

### Contacts

- Marketing
- Selling

### Financing

- Stakeholders
- Capital

### Management

- Executive Management
- Innovation Manager

### Equipment

- Production machines
- Testing equipment

### Qualified personal

- Internal training
- ...

## External solutions

R&D consultancy, feasibility tests, prototyping, co-creation, TO/TR, Licensing, Tech. Scouting

Matchmaking events, networking support, I-Partnership agreement

Innovation Public funding, Joint Venture, Business angels

Business plan support, Management of RDI projects, IPR

Living labs, Fablabs, Manufacturing agreements (subcontracting & co-contracting)

Open Innovation Trainings

# I&TT phases

## Awareness raising

- Events
- Workshops
- Communication campaign
- Company visits
- Trainings

## Analysis of needs

- Innovation audits
- Business consultancy
- Survey, interviews
- Technology assessment
- ...

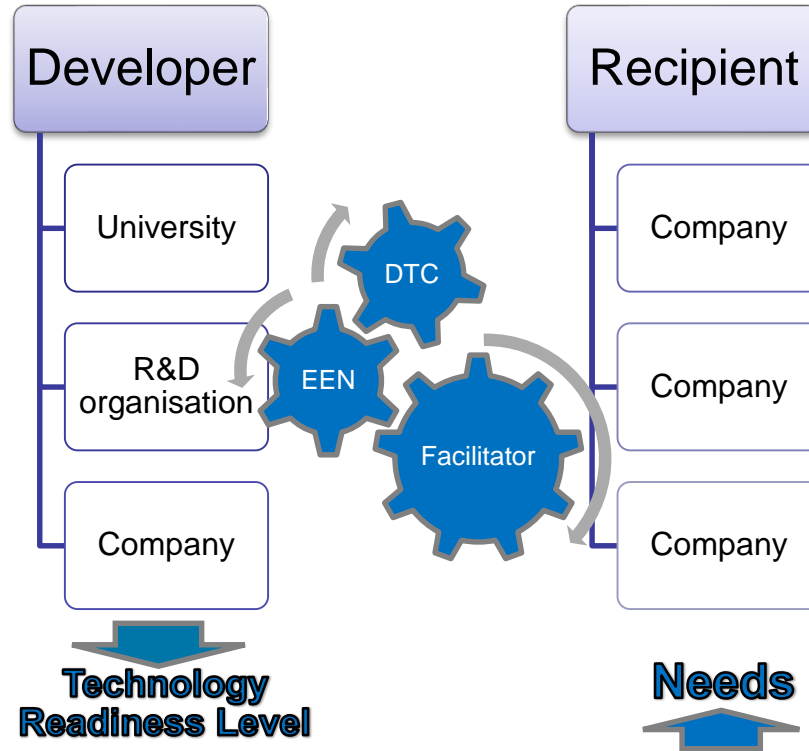
## Matchmaking

- Brokerage events
- TO/TR database
- Technology scouting
- Innovation partnerships
- Platforms, networks

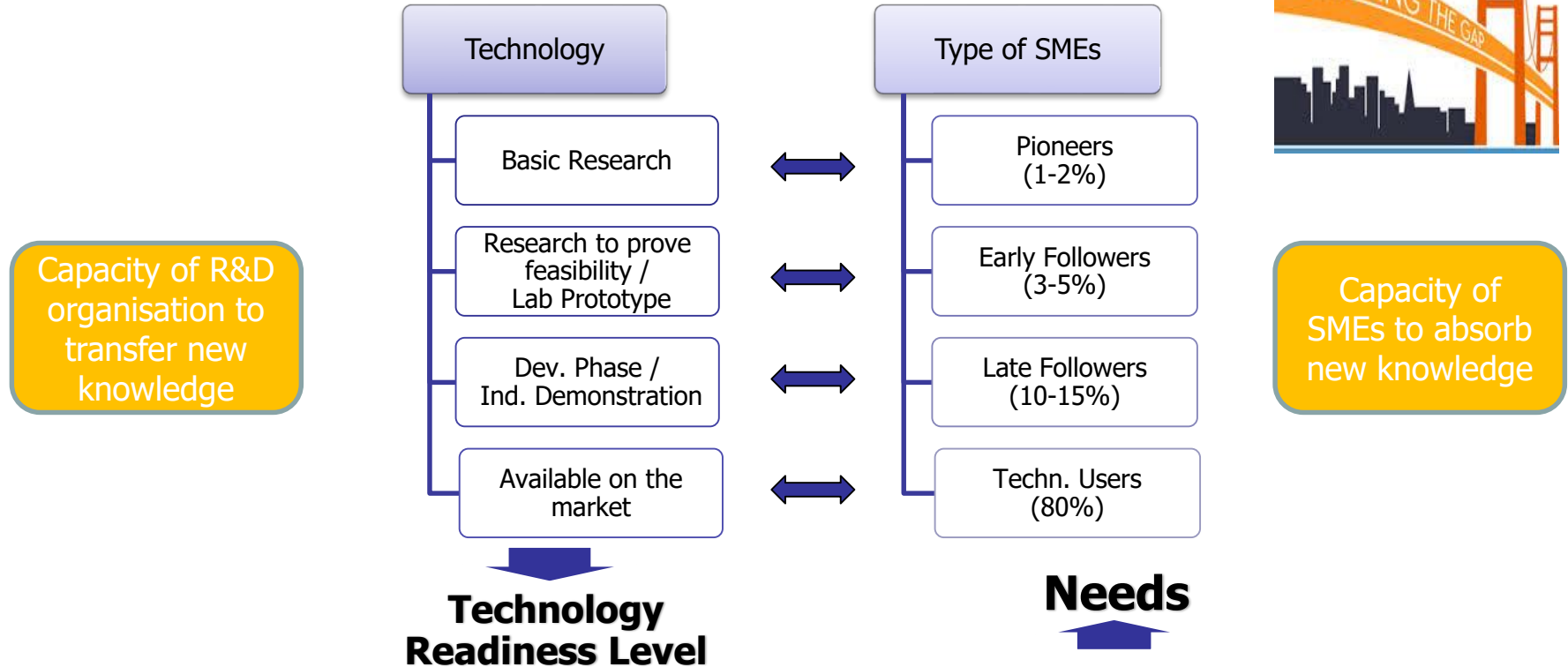
## Implementation

- R&D consultancy, R&D contracts
- Innovation funding
- Innovation management (training, coaching, mentoring)
- Trainings
- Living labs, Fablabs
- IPR support

# Actors



# Build the bridge



# What has been done ?

**Review report of the 6 concept notes** of Romanian regions (March – April 2017)

## North-East region

1. **Survey on companies' needs** on ITT services – 780 companies (April – July 2017)
2. **Survey on TT structures** offering innovation and TT services – 10 organisations (April – July 2017)
3. **Analysis & Final report** on Needs, Offers and Gaps for I&TT Services for Companies (Sept.- Nov. 2017)
4. **Peer review visit** – September 5<sup>th</sup> & 6<sup>th</sup> in Karlsruhe and Stuttgart Germany with 10 German TT organisations
5. **FDI workshops** – July 25<sup>th</sup> & 26<sup>th</sup> Pietra Nems
6. **FDI roadmap report** – (October/November 2017)

## North-West region

1. **Survey on companies' needs** on ITT services – 127 companies (April – July 2017)
2. **Survey on TT structures** offering innovation and TT services – 15 organisations (April – July 2017)
3. **Interviews** of 15 organisations having submitted LoI (June 27<sup>th</sup>, July 4<sup>th</sup> & 5<sup>th</sup> )
4. **Analysis & Final report** on Needs, Offers and Gaps for I&TT Services for Companies (Sept. – Nov. 2017)
5. **2 trainings on H2020 SME instruments** (June 28<sup>th</sup> & September 26<sup>th</sup> )
6. **Consultancy** offered to the promoters of project ideas in H2020 SME instrument
7. **Methodology, kick-off & final meetings for the Regional Committee for Dialogue** (quadruple helix) – May 16<sup>th</sup> / November 22<sup>nd</sup>

# **North-East Region**

## **Results on I&TT services**



# Survey on companies' needs on I&TT services

## – NE region

- **Profile of companies**

- **783 companies** have participated to the survey - 96% of the companies are established companies **older than 5 years** – all sizes of companies are represented (<10, 10-50, 51-250 and >250 employees)
- **Economic sectors** represented: Agro-food, Bio-Tech, Environment, IT&C, Textiles & Clothing, Tourism

# Objectives of companies – NE Region

**Five** objectives have been appointed by more than **60%** of the companies.

- Three objectives related to **internal development** of the companies:

- (i) To reduce production costs (75%)

- (ii) To improve the quality (68%)

- (iii) To reduce energy consumption (65%)

Especially in the sectors **Agro-food, BioTech and Environment** the improvement of the **product quality**, the **reduction of production costs** by reducing the use of raw materials and the **energy consumption** is a higher priority compared to the other sectors.

The improvement of the **product quality** is also a stronger priority in the **IT&C sector**.

## Objectives of companies (2) – NE Region

From a **business development** point of view, the objectives are

- (iv) To develop the company's network (75%)
- (v) To reach new markets (63%)

**The objective to 'enter new markets' is of higher priority in the sectors Agro-food and Biotech compared to the other sectors.**

## Objectives of companies (3) – NE Region

Concerning **R&D activities**, the objective to increase of R&D activities is especially strong in the sectors of

- **IT&C (52%),**
- **Environment (40%)**
- **Biotechnology (38%)**

compared to an average of 26% considering all sectors.

# RDI Partnership – NE region

- Only around 10% of the companies have a RDI partnership, representing 85 companies.
  - At regional and national level mainly
  - **Only one** of these companies has cooperation at international level - **A focus on the support of international RDI contacts is necessary.**
- From the companies not having RDI partnerships yet, more than 46% have the interest to join RDI projects.
- **This shows a big potential for new partnerships and the necessity to have support organisations which help to initiate and organise the matchmaking between offer and demand in the domain of new technologies and innovation for companies.**

# Survey on companies' needs on I&TT services

## – NE region

- **Demand for I&TT services – 3 groups**

1. The main support services needed from more than 40% of companies are in the domain of the ***recruitment of technology qualified personnel, innovation financing, business support (Tech. scouting, benchmarking, market survey) and databases with TO, studies, roadmaps.***
2. Around 25%-30% of the companies are looking for support for ***research contract, innovation management, brokerage events, technology assessment*** and ***contacts for innovation partnership.***
3. **Only 17% need support for IPR issues** or other types of services (11%).

The strong demand in the first group for technology qualified personnel, innovation financing and business support is even higher in the sectors **environment, agro-food, biotech and IT&C.**

# Survey on companies' needs on I&TT services – NE region (2)

## Possible Answer to the Demand for I&TT services in 1<sup>st</sup> group

- This strong and diversified demand can be answered in a first step by **specific RDI consultancy projects**, which are flexible and adapted to the specific need of the company.
- Although this type of services is offered by all the RDI organisations in the region, the demand from the company is still high. This can reveal an **existing gap**.
- This situation can be improved by **two type of measures**:
  - a focus on awareness, analysis of needs and matchmaking phases is necessary to adapt the content of services to the demand
  - also more dedicated resources should be available at the RDI organisations.

# Survey on companies' needs on I&TT services

## – NE region (3)

A gap can also be observed in the 2<sup>nd</sup> group of services. Especially **middle size companies with 51-250 employees** have a stronger demand compared to the other categories for support services of the 2<sup>nd</sup> group in the following domains:

- **Research contract** (43% compared to an average of 31%)
- **Innovation management** (41% compared to an average of 31%)
- **Brokerage events** (41% compared to an average of 29%)
- **Technology assessment** (33% compared to the other categories)

**This shows that middle size companies with 51-250 employees should be considered as a major target group.**



# Survey on companies' needs on I&TT services - NE Region (6)

- **Main drivers and barriers to use new technologies and R&D knowledge in products or services**
  - **Drivers**
    - Increase performance of existing products / services (67%) – especially in the sectors Textiles & Clothing
    - Increase productivity and competitiveness (67%)
    - Reduce manufacturing costs (63%) – especially in the sectors biotech and environment
  - **Barriers**
    - Equipment costs (63%),
    - Qualified staff costs (45%)
    - Raw material costs (35%)
- This shows the **necessity to have test facilities and FabLabs with shared infrastructures and qualified personnel as service platforms** which can be contracted by the companies. An Individual company cannot afford the necessary investment. The financial risk is too high.

# I&TT services offered by RDI organisation - NE Region

- **10 RDI organisations:** 3 universities, 7 research organisations, from which 1 define itself as an SME
- The highest number of research organisations are active in the sectors **agro-food, biotechnology** and **environment**. They have expertise in the following technological fields: advanced materials, nanotechnologies and industrial biotechnology.
- Their activities covers different **Technology Readiness Level (TRL)**. They are mainly active in the range of TRL1 to TRL4 covering fundamental research, proof of concept and validation in the lab. Very few organisations are active in TRL 5 to TRL 7 and none of them in TRL 8 and TRL 9.
- Companies are looking for support in high TRL, like TRL 5 to TRL 9 dedicated to validation, demonstration and qualification of technologies and systems in an industrial or operational environment. **This shows a gap in the offer of I&TT services.**

# I&TT services offered by RDI organisation (2) - NE Region

- **All** I&TT organisations of the NE region which have participated to the survey propose services in the domain of ***Scientific & technological Advice/Expertise/Consultancy***.

Around **50%** of the organisations offer services for:

- **Company visits**
- **Innovation partnership agreements**
- **Proof of concept / Lab testing of basic experimental set-up/ Characterisation**
- **Component/ process development & testing**
- **Project management of Research and Innovation projects**

Between **30% and 40%** offer services for:

- **Awareness raising events**
- **Feasibility Study / initial design / Simulation**
- **Prototyping (integrated system/ sub-system) development & testing**
- **IPR & Knowledge Management support**
- **Co-creation services**

**Less than 30%** offer services for:

- **Innovation audit**
- **Matchmaking events, brokerage events**
- **Networking support**
- **Living Labs and FabLabs / Pilot line/ demonstration line/ pre-series fabrication**
- **Product validation / certification**
- **Business plan support**

# Deficit of services in the I&TT phases in NE region

## Awareness raising

- Events
- Workshops
- Communication campaign
- Company visits
- Trainings

## Analysis of needs

- Innovation audits
- Business consultancy
- Survey, interviews
- ...

## Matchmaking

- Brokerage events
- TO/TR database
- Technology scouting
- Innovation partnerships
- Platforms, networks

## Implementation

- R&D consultancy, R&D contracts
- Innovation funding
- Innovation management (training, coaching, mentoring)
- Trainings
- Living labs, Fablabs
- Product validation / certification
- Co-creation
- Feasibility study, Prototyping

## Deficit of services in the I&TT phases in NE region (2)

The **awareness raising** phase is not sufficiently developed. The companies need more information and an overview of the services offered, **especially SMEs**

The services of **innovation audits** to analyse the specific needs of the companies is missing.

More **matchmaking events** and support for **new contacts** in different networks are necessary to be more extended.

In the **implementation phase services** on product validation & certification, feasibility study & prototyping and co-creation in the frame of FabLabs or Living Labs should be further developed (Innovation partnerships).

# **FDI Roadmap in 3 sectors**

## **ICT, Agrofood, Biotech/Pharma**

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## **NE Region**

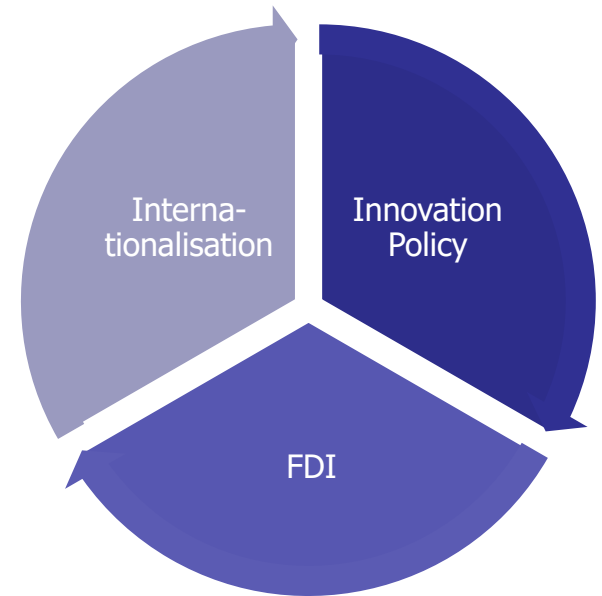
## FDI in the EU-13

(Source: JRC Technical Report 09/2015)

### **Strong link between Innovation Policy, FDI and internationalisation of local firms to achieve regional economic development**

#### **Demand driven FDI in R&D and Innovation**

- Technology oriented FDI – Foreign investments (complemented by local investments) in technology and firm specific infrastructures
- Upgrade of existing manufacturing and services



# FDI Matrix in the ICT sector

## Short-term

## Medium-term

## Long-term

### Direct actions

Communication,  
marketing

Info campaign on IT&C as driving force of the region with **local SMEs** to advocate for the region e.g. in High School

Create **local brands** in order to promote also the Region in Romania and internationally

IT&C tools for the relationship between citizens and local authorities

Value-chains, supplier network, PPP

Strong dissemination by **clusters** among their members on opportunities between private sector & academia (land available, services needed, etc).

SME's have to **join European Networks** in order to get access to the latest state-of-art technology evolution

Develop and adopt a regional development strategy for the ITC industry

R&D, Innovation, High-tech

Description of the **regional innovation system**.  
**Promote innovation potential of young entrepreneurs** on specific topics.  
Fill the **value chain missing links**.

**IPR** protection in SME's.  
**Cooperation** between Universities and companies.  
Further support start-up and cluster dev.

**Joint Venture** with other international organisation.  
Attract **business angels**

Education

**Partnership** created between companies and local educational entities in order to train students in the fields requested by the private sector

**Private training centers** founded by companies where their staff can be professionally trained

Implement **dual educational** systems which combines apprenticeships in a company and vocational education at a vocational school. Recreate vocational school/Technical college.

Infrastructures

Setting up at regional level a special department in charge with facilitating a private investment (partner information, legal information, etc) – "**Safe landing of investors**"

Extend **local transport routes** to industrial areas.  
Setting up by local authorities of a "**special industrial area**" with all utilities necessary for an investor.

Development of the regional ecosystem

Financing prog., Tax investment facilities

Tax exemption for reinvested profit

Invest in industrial parks  
Development of a state aid scheme for ICT investment according to life cycle phases

PPP law can not be used because no implementation methods exist

### Indirect actions



# FDI priorities in the ICT sector

Types of activities	Time frame	Title
Communication and marketing	Short-term	Info campaign on ICT as driving force of the region with <b>local SMEs</b> to advocate for the region
	Medium-term	<b>Create local brands/slogans</b> in order to promote also the NE Region in Romania and internationally
Value-chains, supplier network	Short-term	Strong <b>dissemination by clusters</b> among their members on opportunities between private sector & academia (land available, services needed, etc)
R&D, Innovation, High-tech	Short-term	<b>Description of the regional innovation system</b> to increase the attractiveness of the region
	Short-term	Promote innovation potential of young entrepreneurs on specific topics
	Short-term	Fill the <b>value chain missing links</b>
	Long-term	<b>Joint Venture</b> with other international organisations
	Long-term	Attract <b>business angels</b>

# FDI regional infrastructure

The **ICT** stakeholders emphasized the need to set up at regional level a special department in charge with facilitating a private investment (partner information, legal information, etc) in order to **allow a “Safe landing of investors”**.

The **Biotech/Pharma** stakeholders proposed to further develop a **Regional structure for FDI** at RDA NE with the following improvements:

- **Increase the administrative capacity and capability** of the Private Investments Office
- **Offering of different services for investors** (e.g.: legal, administrative, juridical advice, translation)
- **Mapping the region** to see every investment opportunity (existing fields)

# **North-West Region**

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## **Results on I&TT services**

# Survey on companies' needs on I&TT services

## – NW region

- **Profile of companies**

- **125 companies** have participated to the survey - 78% of the companies are established companies older than 5 years and **22% younger than 5 years**– all sizes of companies are represented (<10, 10-50, 51-250 and >250 employees), especially micro-enterprises.
- **Economic sectors** represented: Agro-food, Cosmetics & food suppliments, Health & well being, IT&C, Metal working, Plastics & Rubber, Production technologies, Wood processing & furniture

# Survey on companies' needs on I&TT services – NW region

- **I&TT services – 3 groups**

- The main support services needed from **more than 60%** of companies are in the domain of
  - **Contacts for innovation partnerships** in the domain of research labs, fablabs, living labs, test bench (70%)
  - **Innovation Financing / funding** (64%)
  - **R&D contracts** to integrate new knowledge/technology in products or services (prototyping, tests, consultancy, technical assistance) (61%)
- **Around 35%-40%** of the companies are looking for support for:
  - **Business support** (Technology scouting, Benchmarking, Market survey, commercialisation bootcamps) (45%)
  - **Innovation Management support** (Training / Coaching / Mentoring) (42%)
  - **Databases with technology offers, studies, roadmaps** (38%)
- **Less than 30%** of the companies are looking for support in *Technology assessment, analysis of innovation potential, brokerage events* and *IPR issues*.

# Survey on companies' needs on I&TT services - NW Region (3)

- **Main drivers and barriers to use new technologies and R&D knowledge in products or services**
  - **Drivers**
    - Increase productivity and competitiveness (76%)
    - Increase performance of existing products / services (68%)
    - Provide new functions / develop innovative products (68%)
  - **Barriers**
    - Equipment costs (63%),
    - Qualified staff costs (45%)
    - Raw material costs (35%)
- This shows the **necessity to have test facilities and FabLabs with shared infrastructures and qualified personnel as service platforms** which can be contracted by the companies. An Individual company cannot afford the necessary investment. The financial risk is too high.

# I&TT services offered by RDI organisation - NW Region

- **15 RDI and intermediary organisations:** 7 are accredited, 8 are not accredited
- (1) **All services with the exception of the domain 'Living Labs and FabLabs / Pilot line / Demonstration line / Preseries fabrication' are offered by more than 60% of the organizations**
- (2) **The following services are proposed by more than 80% of the organizations:**
  - Scientific & technological Advice/Expertise/Consultancy
  - Innovation partnership agreements
  - Awareness raising events
  - Project management of Research and Innovation projects
  - Company visits
  - Component/ process development & testing
  - Feasibility Study / initial design / Simulation
  - Proof of concept / Lab testing of basic experimental set-up/ Characterisation

**Gap analysis**

**NW Region**



# I&TT services offered by RDI organisation - NW Region (2)

A deficit of services is especially high in the last category '**Living Labs and FabLabs /Pilot line/ demonstration line/ pre-series fabrication**'.

But **although a large support** in the different domains of services is proposed, the **demand from the companies is still very strong** in the same domains.

**Two reasons** can be responsible for this situation:

- **lack of resources** at I&TT organisations to respond to the demand
- the services proposed are **not adapted to the demand**.

**A combination of both** can also be considered.

# Demand for services in the I&TT phases in NW region

## Awareness raising

- Events
- Workshops
- Communication campaign
- Company visits
- Trainings

## Analysis of needs

- Innovation audits
- Business consultancy
- Survey, interviews
- ...

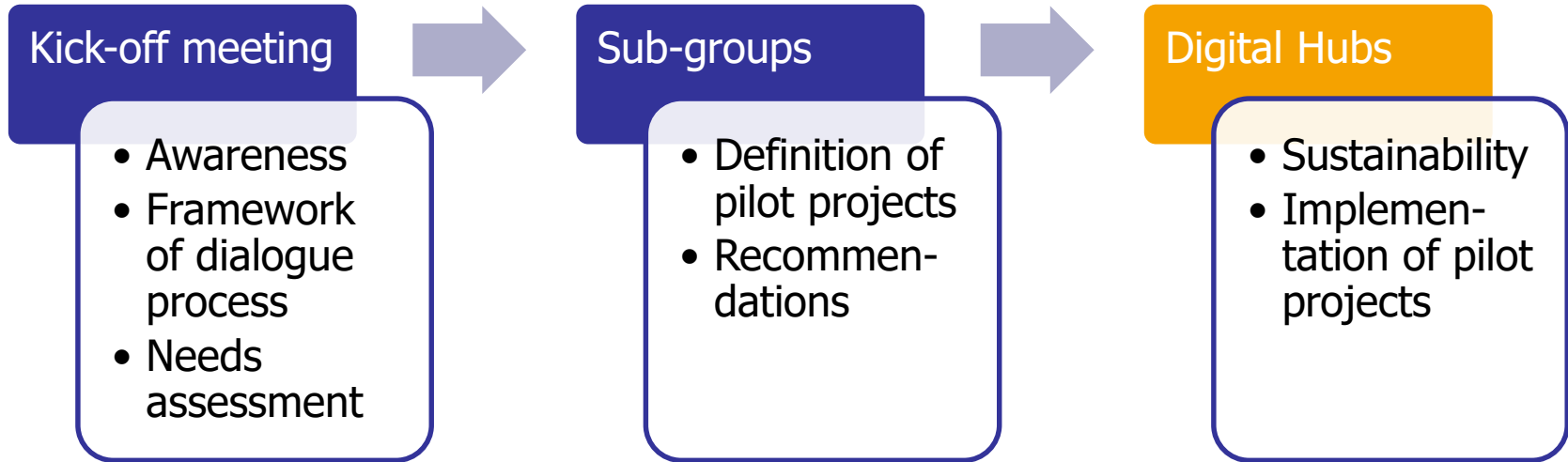
## Matchmaking

- Brokerage events
- TO/TR database
- Technology scouting
- Innovation partnerships
- Platforms, networks

## Implementation

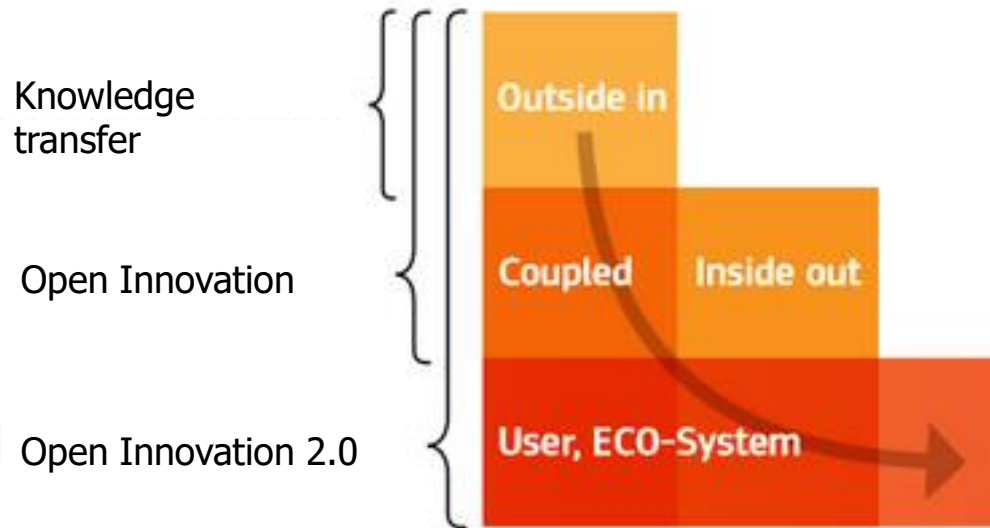
- R&D consultancy, R&D contracts
- Innovation funding
- Innovation management (training, coaching, mentoring)
- Trainings
- Living labs, Fablabs
- Product validation / certification
- Co-creation
- Feasibility study, Prototyping

# Phases in the dialogue process – Sustainability & Flexibility through **Digital Hubs**

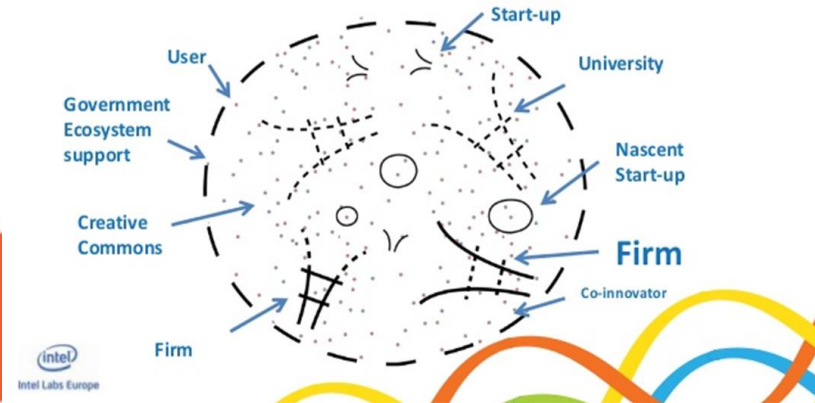


**HOW TO CONTINUE? OPEN INNOVATION APPROACH FOR SMEs**

# From knowledge transfer to Open Innovation 2.0 – Good practices in Baden Wurttemberg



## Open Innovation 2.0: A new Milieu



# **Comparison between North-West and North-East Region**

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## **Results on I&TT services**

## Differences between NW region and NE region

- The portfolio of S&T services is more developed in the NW region
- Services addressing TRL 5 to TRL 9 are less present in NE region
- Stronger focus on:
  - NW region: business development (new markets, new clients) and R&D activities
  - NE region: internal development by improving product quality and reducing costs (production, energy, materials)
- RDI partnership:
  - 47% of companies in NW and only 11% in NE
  - 32% at **international level** in NW and only one company in NE
  - 30% have RDI partnerships with **clusters** in NW, only 6% in NE
  - From the companies not having RDI partnerships yet, more than **46% in NE and 86% in NW** have the interest to join RDI projects

## Differences between NW region and NE region (2)

- **Support services needed in I&TT**
  - **Strong in both regions**
    - *Innovation financing / funding* (NW 64%, NE 50%)
    - *Business support* (Technology scouting, Benchmarking, Market survey) (NW 45%, NE 46%)
  - **NW region**
    - Contacts for *innovation partnerships in the domain of* research labs, fablabs, living labs, test bench (70%)
    - *Research contracts* to integrate new knowledge/technology in products or services (prototyping, tests, consultancy, technical assistance) (61%)
  - **NE region**
    - Support to recruit *technology qualified personnel* (51%)
    - *Databases* with technology offers, studies, roadmaps (41%)
- **Long-term vision on innovation**
  - **Product innovation: 75% in NW** and 54% in NE
  - **Service innovation: 65% in NW** and **68% in NE**

# Recommendations for NE region

1. **Develop RDI partnerships (only 11% of companies)**
  - Involve clusters – only 6% of Innovation partnerships
  - Strong demand of 46% of companies not having a partnership yet
2. **Concentrate on process innovation to reduce production costs and improve product quality - Fablabs with shared infrastructures and qualified personnel as service platforms**
3. **Support Innovation Financing**
4. **Focus on the missing links in the value chains in the sectors ICT, Agrofood and Biotech/Pharma combine with FDI activities**
5. **Training on Innovation Management (80% have no systematic approach on innovation)**



# Recommendations for NW region

1. **Contacts for innovation partnerships** in the domain of research labs, fablabs, living labs, test bench (shared infrastructures) (70%)
2. **Innovation Financing / funding support** (64%)
3. **Contractual Research** to integrate new knowledge/technology in products or services (prototyping, tests, consultancy, technical assistance) (61%)
4. **Adapt the existing I&TT services to the demand**
5. Training on **Innovation Management** (67% have no systematic approach on innovation)
6. **Support business development**
  - International RDI contacts
  - Technology scouting at European level to expand product assortment

# Build the bridge

