19th EUROPEAN WEEK of REGIONS and CITIES

11 - 14 OCT 2021

Together for Recovery

European Digital Innovation Hubs (EDIH) and the digital transition of Regions

12 October 2021— 14:30-16:00

How to measure EDIH impact? Overview of Digital Maturity Assessment Framework for SMEs

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#EURegionsWeek

Digital Europe KPI 5.5 – Increase in digital maturity of EDIH customers

Indicator	Baseline	Milestone	Target
5.5. Number of entities that have been supported by the European Digital Innovation Hubs reporting a significant increase in their digital maturity	0 The indicator is strictly linked to the implementation of DEP; therefore, at the start of the Programme, the baseline is 0.	tbd As this indicator is based on a new digital maturity assessment, the milestone should be set after the first data is collected.	tbd As this indicator is based on a new digital maturity assessment, the target should be set after the first data is collected. Experience from existing Digital Innovation Hubs will be considered.

*Digital maturity will be defined based on a **questionnaire** that asks EDIH supported organisations (i.e. customers) how they are dealing with the following categories: **INTELLIGENCE, CONNECTIVITY, FLEXIBILITY, AUTOMATION, SUSTAINABILITY, SERVICES, SOCIAL** and through **the Innovation Radar:** the market maturity of innovations ("Market Maturity Indicator"); the market creation potential of any given innovation ("Market Creation Potential Indicator")*

Digital Maturity Assessment tool

Goal: monitor the digital transformation of entities that received support from EDIHs (i.e. EDIH customers)

Target groups: SMEs/mid-caps, less digitised industries; public sector entities

Timeline:

Investigate the **base digital maturity level** of every beneficiary organisation **before** the EDIH intervention starts
Observe its evolution **until 3 years later** to understand their **digital maturity's growing curve**

Timing:

T0 = before EDIH intervention
T1 = 1 year after T0 (if EDIH intervention still running, wait until it is concluded)
T2 = 2 years after T1

Self-assessment online tool:

Respondents: EDIH potential & actual beneficiaries (1. SMEs/small mid-caps; 2. Public sector organisations)
Administrator: EDIH (can also second/guide respondent during first test)
Goals: EDIH/beneficiary engagement + individual/aggregated DM progress monitoring

Preliminary analysis of existing DMA methods and tools

1. DIHNET Champions Challenge, DIHNET project
2. **MDI 4.0** Model for Industry 4.0. TECNALIA, Spain
3. VTT's **DigiMaturity** tool, AI DigiMaturity and Manu Maturity, Finland
4. ACATECH MATURITY INDEX, Germany Academy for Science and Technology, Germany
5. The IMP³rove Digital Innovation Quotidient (DIQ), Germany
6. Connecting Europe Facility (CEF) Monitoring, EC
7. COTEC Maturity Tools: **THEIA**, THRUST, Innovation Scoring, Portugal
8. The Digital Maturity Assessment Tool (DMAT), Aarhus University Denmark
9. DREAMY 4.0, Politecnico di Milano, Italy
10. HADA Advanced Digital Self-diagnostic Tool, Industria conectada 4.0, Spain
11. ATI- Advanced Technologies for Industry, EC
12. Ipar 4.0, Hungary
13. The European Enterprise Network, EC

Deeper analysis of a subset of 3 selected ones (SME & I4.0 oriented)

- *There is **no one-fits-all needs existing tool** but a targeted tool is necessary (inspired on existing ones)*
- *One linked to **Digital Europe & EU policy priorities** (incl. sustainability, recovery & territorial development)*
- *With questionnaire(s) pointing out where the **potential impacts** at customer level are expected*

DMA DESIGN: **DMA MODULES → QUESTIONS → INDICATORS**

		EDIH Customers			
		Enterprises		Public sector orgs.	
		T0	T1/T2	T0	T1/T2
M1	Customer Data	X	X	X	X
M2	Digital Maturity (pre-EDIH)	X		X	
	Digital Maturity (post-EDIH)		X		X
M3	**EDIH Support** (pre-EDIH)	X		X	
	EDIH Support (post-EDIH)		X		X
M4	**Innovation Maturity (IR)**		X		

→ Strategy & business model
→ Digital readiness
→ Data & connectedness
→ Intelligence & automation
→ Green digitalization
→ Human-centric digitalization
→ External support
→ Innovation maturity
→ EDIH support

Module 1 – CUSTOMER DATA

Basic Data

- Enterprise Identification
- Contact

Statistical Filters

- Staff Size
- Foundation Year
- Special SME Categories
- Country/Region (NUTS2, ZIP code)
- Sector of Activities (NACE compatible)

Module 2 – DIGITAL MATURITY (6 Dimensions)

Digital Strategy & Business Model

- Digital Transformation Motivation
- Enterprise Readiness
- Digital Business Models

Digital Readiness

- Digital Technologies in Use
- Business Areas of Application

Data & Connectedness

- Documents Digitalisation
- Structured Data
- Centralised Data
- Connected Devices

Intelligence & Automation

- Automated Tasks
- AI Solutions
- I&A Support to Business

Green Digitalisation

- Environmental Aspects of Digital Choices
- Digital Solutions for Eco-Sustainability
- Business Areas of Application

Human-Centric Digitalisation

- Enterprise Means for Staff Skilling
- Workflow Streamline
- Enterprise Strategies for Staff DT Engagement

Module 3 – EDIH SUPPORT

Potential need of EDIH support services

- Digital Maturity Dimensions
- More Useful EDIH Services (*a priori*)

Module 4 – INNOVATION MATURITY

Expected (Digitally Driven) Innovation

- Business Model
- Product
- Service
- Process

Pilot of the DMA framework (Portugal, Lithuania, Romania)

Local SME profiles – size, sectors

Type of Questionnaire	Sector of Activity	Average Turnover (€)
T0	Agrifood (2)	15M
T0	Shoe making, industrial equipment (4), textiles (2), furniture (1), waste management (1), paper making (1), electronics (1)	12M
T0	Certification (1)	8M
T1	Industrial equipment (1)	15M
T1	IT, Telecommunications Equipment (2)	15M

COTEC Portugal

FIRM A

LOCATION: Ponte, Guimarães

AGE: 38 yr.

INDUSTRY: Industrial Packaging

EMPLOYEE: 70

TURNOVER € 14 M,

EXPORT 10%

DIGITAL PROJECTS: Sales, document management and training

FIRM B

LOCATION Águeda, Aveiro

AGE: 26 yr

INDUSTRY, Electronics

EMPLOYEE 150

TURNOVER € 13,5 M,

DIGITAL PROJECTS:
Identification of intangible assets, Production support software

Survey PROCESS

Selection Firms

- Firm Selected: 56
- Mature business
- Turnover> 4 M€

Mail contact

- Firm Surveyed: 17
- Quest. Pre-sent

Interview

- Date: August 2021
- Duration: 45 m
- Respondent profile: CEO, CTO, R&D manager

Debriefing

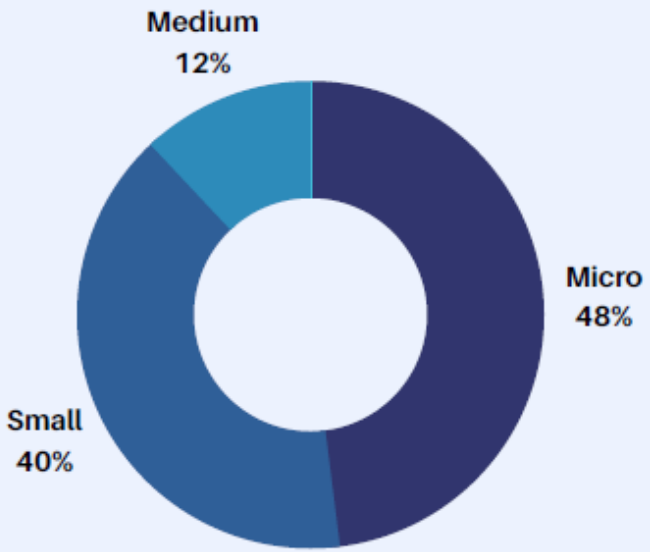
Response analysis

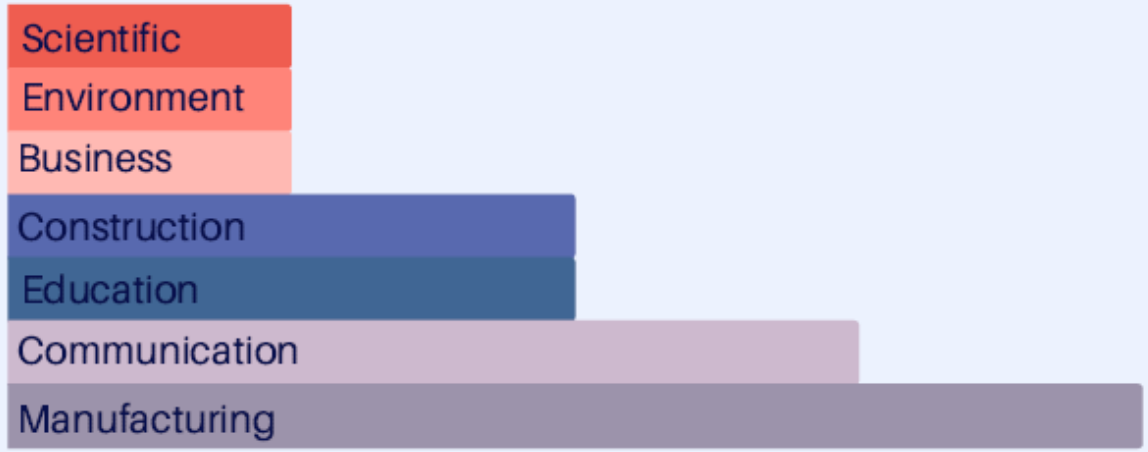
COTEC Portugal

- Low awareness of DIH concept: however, interest on knowing more about DIH services
- Most of cited technologies are not of firms' knowledge
- Most of the dimensions easily understood, with room to subjective interpretation
- Questionnaire should provide practical examples (as a online help tool)
- The 'green digitalization' dimension was not so easily apprehended
- Business models under ongoing digital transformation projects → improve alignment with *business strategy*

SUNRISE VALLEY
SCIENCE AND TECHNOLOGY PARK

SME characterisation





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Digitalization prospects of local SMEs

→ Internal process optimization

→ Product & service quality improvement

→ Separate company & product evaluation

Half plan increase in investments in next year

Half claim senior management ready to lead

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SCIENCE AND TECHNOLOGY PARK

Digital maturity of local SMEs

→ E-commerce & remote business model

→ >60% marketing, sales & customer areas

→ 85% administrative & financial sectors

→ 1/3 digital data storage & connectivity

→ Mostly privately funded

→ 'Green digitalization' foreign

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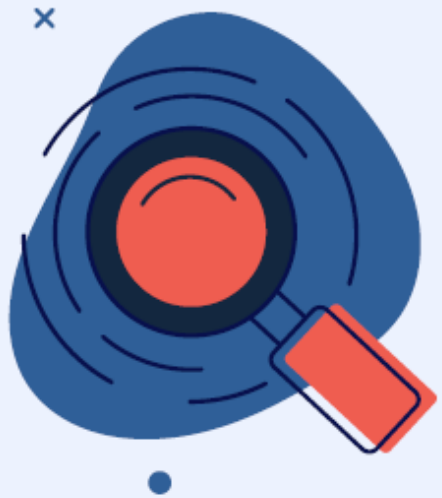
DMA tool additions

- → DMA purpose
- → Definition of data use
- → Data contribution to indicators
- → Performance evaluation transferability
- 'Green Digitalization' redefined
- Data analytics addressed



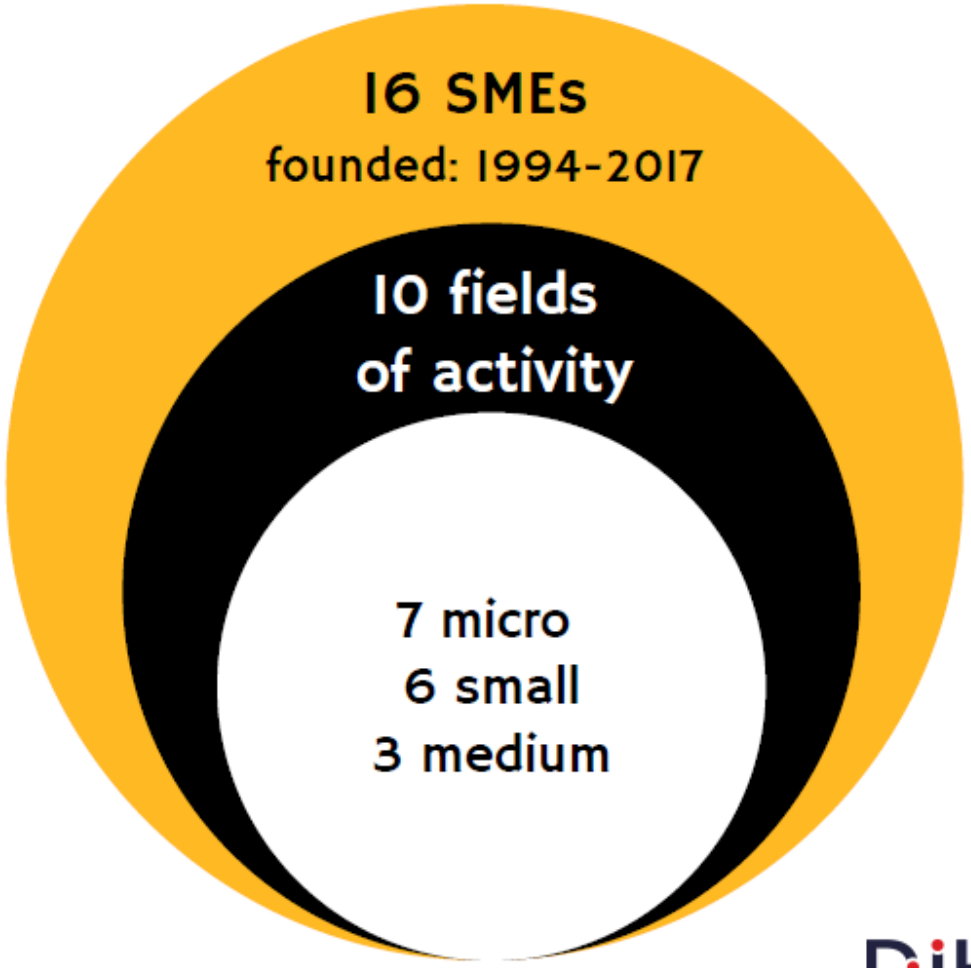
Pilot Outcomes

The principle of proportionality was the key point in the selection process.
The companies participating in this initiative covered a wide range of fields of activity in 4 of the 8 NUTS 2 regions in Romania

Selection criteria:

1. Geographical area;
2. Sector of activity;
3. Company size
4. Companies foundation year

DATA ABOUT THE SAMPLE



Pilot Outcomes

Questionnaire - based on the respondents' inputs, the piloted TO model need adjustments and/or further details for the following questions:

D1	D2	D3	D4	D5	D6
Q1	Q4	Q7	Q11	Q13	Q15
Q2	Q5	Q8	Q12	Q14	Q16
Q3	Q6	Q9			Q17
		Q10			

Expert Recommendation

CLUJ IT

We added a new layer of organization

We reformulated and reorganized dimensions to be better aligned with the business system path towards business excellence

We enhanced questions with new items, we relocated some questions, and we added 4 more questions

V1. Direction for digital transformation	D1. Digitalization strategy for business support and transformation	Q1.Digital transformation motivation Q2.Enterprise readiness
	D2. Digital culture & skills and readiness for digital innovations	Q3. Digital business model **Q4. Digital culture and skills at operational level** **Q5. Management systems for digital innovation**
V2. Execution of digital transformation	D3. Digitally-driven organization, business model and processes	Q6. Mainstream digital technologies Q7. Specialised digital technologies
	D4. Digital infrastructure, digitally-driven technology, data management and knowledge creation	Q8.In which business areas has your enterprise already adopted digital solutions? Q9.Document digitalisation Q10. Structured data Q11. Centralized data Q12. Connected devices Q13. Automated tasks **Q14. Data security** Q15. Automated and/or intelligent processes support to business
V3. Results from digital transformation	D5. Digitally-driven strategic and operational performance	Q16.Environmental aspects of digital choices Q.17 Eco-sustainable business areas **Q18. Market eco-solutions enabled by digital technology**
	D6. Creation of a multi-lateral sustainable value	Q19. Staff wellbeing and empowerment Q20. Staff **development for** digital skills Q21. Working environment

ADAPTED DMA MODEL WITH 21 QUESTIONS

DiH 4.S

Expert recommendations

CLUJ IT

ADMINISTRATION AND DATA COLLECTION

- APPLY THE QUESTIONNAIRE ONLY BY TRAINED AND CERTIFIED INTERVIEWERS OF E-DIHS
- DEPLOY THE SURVEY INTO A WEB TOOL AND WHERE TO HAVE THE POSSIBILITY TO PERFORM BENCHMARKING (ANONYMOUSLY)
- CENTRALIZED DATA BASE FOR EASY AND INSTANT ADMINISTRATION OF RESULTS
- CORRELATING THE TIMING OF TO/TI WITH THE DEADLINES FROM THE ACTION PLAN
- CERTIFIED EXPERTS OF E-DIHS WILL HAVE ACCESS IN THE WEB PLATFORM
- USE DIFFERENT COEFFICIENTS FOR DIFFERENT QUESTIONS

CENTRAL SERVICES MUST ENSURE THE CERTIFICATION PROCESS OF THE E-DIH EXPERTS.

Final steps

- ✓ Adjust DMA Dimensions and Indicators System
- ✓ Adjust Questionnaire accordingly
- ✓ Provide a set of Recommendations for Survey implementation under DIGITAL EUROPE

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Thank you for your attention!

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