

## APPENDIX I TO D.T2.1.1. Elaboration of the training process to support actors to raise knowledge and increase competence – Circular 4.0 Transformation Course (CTC) manual

### **TRAINING NEEDS ASSESSMENT**

#### **A) Respondents: Representatives from intermediaries**

1. Who will be the participants of the training(s) from your organisation?

\_\_\_\_\_ (Names, Surnames)

2. How many are they, all together? (Recommended: 2 persons.)

\_\_\_\_\_

3. Can we organise the Operators Training Course (OTC) in several groups?

\_\_\_\_\_ (Yes. /No.)

4. Can the participants from your organisation travel and join trainings in other countries?

\_\_\_\_\_ (Yes. /No.)

5. What is the present level of general competencies / expertise of participants in the relevant fields:

Relevant field of expertise	Level of competence (1-lowest, 5-highest)
<ul style="list-style-type: none"> <li>a. target industry areas</li> <li>b. target / disruptive technologies</li> <li>c. digitalisation</li> <li>d. economics</li> <li>e. management (business)</li> <li>f. other expertise (legal / regulatory, etc.)</li> <li>g. teaching (consulting, mentoring and coaching) experience</li> <li>h. product design</li> <li>i. value recovery</li> <li>j. optimal use</li> </ul>	

6. Specifically, what is trainers' experience with corporate or business / industry / regional or urban transformation processes? Please, describe.

Type of social transformation	Level of competence (1-lowest, 5-highest)	Describe
Corporate business (SME)		
Industry level		
Regional (including national)		
Urban (city)		

7. What teaching language is expected to be used in:

a. The OTC (“Train the trainers”): \_\_\_\_\_

b. The CAT4.0 course: \_\_\_\_\_

8. Are there any specific analytical, teaching or decision-making tools used by your organisation that can be applied in the context of the Circular 4.0 project?

\_\_\_\_\_  
(Yes./No.)

If yes, which ones?

9. Are there best practices identified in your area of successful firms, who accomplished a transformation process towards a circular business model while at the same time combining a significant level of digital (or other, potentially disruptive) - 4.0 - technologies? If yes, who are they and why they qualify for that?

Please, name some:

10. (Optional) What is the number and the degree of complexity of target companies (i.e.: firms' size, level of internationalisation, level of industry diversity...) at the Cat Course?

Number of participating SMEs: \_\_\_\_\_

Firms' size:

- annual turnover \_\_\_\_\_

- number of employees); \_\_\_\_\_

Degree of internationalization:

- size and % of revenues deriving from foreign markets \_\_\_\_\_

- stable operations in other markets? \_\_\_\_\_

(Yes./No.)

Industry diversity:

- expressed in number of business units \_\_\_\_\_

- expressed in the number of products in portfolio \_\_\_\_\_

### Optional questions on digitalisation<sup>1</sup>

\_\_\_\_\_  
<sup>1</sup> TNA developed in the scope of the INTERREG: SMARTSPACE Intermediary self-assessment

**INDUSTRY 4.0 AND ORGANIZATIONAL CHANGES: IMPACT ON BUSINESSES AND NEW SCENARIOS**

11. How do you evaluate your level of knowledge and awareness on the main concepts beyond Industry 4.0?

Self-assess your degree of knowledge and awareness from 1 to 4, where 1 = “very low knowledge and awareness” and 4 = “full knowledge and awareness”

1	<input type="checkbox"/>
2	<input type="checkbox"/>
3	<input type="checkbox"/>
4	<input type="checkbox"/>

12. Are you informed on the main potential advantages for companies coming from the adoption of Industry 4.0 technologies?

Select ONLY ONE of the following answers

- I’m not informed about the main potential advantages
- I’m informed of some potential advantages
- I’m informed of most of the potential advantages
- I’m fully aware of the main potential advantages

13. Would you be able to provide at least one example of achievable impact coming from the adoption of digital technologies?

	YES	NO
Environmental Impact	<input type="checkbox"/>	<input type="checkbox"/>
Social Impact	<input type="checkbox"/>	<input type="checkbox"/>
Operative Impact	<input type="checkbox"/>	<input type="checkbox"/>
Economic Impact	<input type="checkbox"/>	<input type="checkbox"/>

14. Do you think companies need changes in order to successfully digitalize their business?

Select ONLY ONE of the following answers

- No changes need to be undertaken by companies
- Minor changes need to be undertaken by companies
- Some changes need to be undertaken by companies, at an operative level
- Important changes need to be undertaken by companies, including the business level

15. Are you aware on the main challenges that companies need to face when embarking the digitalization journey?

Select ONLY ONE of the following answers

- I’m not informed about the main challenges
- I’m informed of some potential challenges
- I’m informed of most of the potential challenges
- I’m fully aware of the main challenges

**AVAILABLE INSTRUMENTS FOR COMPANIES AND INTERMEDIARY NETWORK**

16. Are you informed on the main Regional/National/European specific plan and policies on Industry 4.0?

	I'm not informed	I'm partially informed	I'm fully informed	I'm fully informed and I can provide support to companies in its implementation
Regional Policies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National Policies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
European Policies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. Are you informed about policy instruments/initiatives to support companies undertaking the digitalization process?

Select ONLY ONE of the following answers

- I'm not informed
- I'm informed only at a Regional level
- I'm informed only at a Regional and National level
- I'm informed at Regional, National and European level

18. Companies have to be supported during the digitalization path and need to be addressed to the right partners (e.g. technologies providers, research centers, ...). Did you map or are you aware of the main partners and experts that could respond to companies' needs in your Region?

Select ONLY ONE of the following answers

- I'm not aware
- I know few local experts/potential partners thanks to personal relationships
- I know some local experts/potential partners
- I'm fully aware of the local experts/potential partners

19. Are there any tools or instruments for intermediaries where they can find all relevant information and services to support companies on digitalization?

Select ONLY ONE of the following answers

- I suppose there are NO tools or instruments for this purpose
- I don't know if there are tools or instruments for this purpose
- I know some tools or instruments for this purpose, but they are incomplete
- I know some tools or instruments for this purpose

## INTRODUCTION TO INDUSTRY 4.0 ENABLING TECHNOLOGIES

20. What is your level of knowledge and awareness on the key Industry 4.0 enabling technologies?

Select ONLY ONE of the following answers

- I'm not aware on the key Industry 4.0 enabling technologies
- I'm aware of some of the key Industry 4.0 enabling technologies
- I know some of key Industry 4.0 enabling technologies and their related advantages and challenges
- I'm fully aware of the key Industry 4.0 enabling technologies and their related advantages and challenges

21. Competence is considered one of the main challenges to be faced for a company when adopting Industry 4.0 technologies. Do you have some clues about this challenge?

Select ONLY ONE of the following answers

- I'm not informed
- I'm partially informed
- I'm fully informed
- I'm fully informed and I can provide support to companies in its implementation

## CHANGE MANAGEMENT AND BUSINESS MODEL INNOVATION

22. Are you aware of the main principles of change management?

Select ONLY ONE of the following answers

- I'm not aware of the main principles of change management
- I'm aware of some of the main principles of change management
- I'm aware of most of the main principles of change management
- I'm fully aware of the main principles of change management

23. Would you be able to use some of the main principles of change management to support companies in undertaking the digitalization journey?

Select ONLY ONE of the following answers

- I would not be able to put change management principles in practice, and I think they are not useful
- I would not be able to put change management principles in practice, and I think they are very useful
- I would be able to put change management principles in practice, but I think they are not useful
- I would be able to put change management principles in practice or to redirect SME to the right partner, and I think they are very useful

## CASE STUDIES

24. When explaining SMEs the added value and potential advantages coming from digitalization, it is important to provide them with some concrete examples of companies that have already successfully implemented digital technologies. Would you be able to show concrete examples?

Select ONLY ONE of the following answers

- No, I would not be able to provide concrete examples of companies successfully implemented digital technologies.
- Yes, I would be able to provide few concrete examples of companies successfully implemented digital technologies.
- Yes, I would be able to provide many concrete examples of companies, varying according to the size and the industry, successfully implemented digital technologies
- Yes, I would be able to provide many concrete examples of companies, varying according to the size and the industry, successfully implemented digital technologies and also concrete examples of companies that have failed in adopting digital technologies, and the related reasons.

THE APPROACH WITH COMPANIES: TOOLS AND METHODS AND FOLLOW-UP OF THE TRAINING PROGRAM

25. Are you aware of the main tools to assess company's digital readiness level?

Select ONLY ONE of the following answers

- I'm not aware of the main existing tools to assess company's digital readiness level
- I'm aware of some existing tools to assess company's digital readiness level, but only theoretically.
- I know some of the main tools to assess company's digital readiness level, and I would be able to perform the assessment in the company
- I'm fully aware of the main existing tools to assess company's digital readiness level, and I would be able to choose the right assessment according to company needs and perform it in the company, or to redirect SME to the right partner.

26. Would you be able, according to the current digital level status of the company, to define a digital roadmap/strategy for the company?

Select ONLY ONE of the following answers

- No, I would not be able to define a digital roadmap/strategy for the company
- Yes, I would be able to define a basic general digital roadmap/strategy for the company
- Yes, I would be able to define a specific digital roadmap/strategy for the company, but only for some industries
- Yes, I would be able to define a specific digital roadmap/strategy for the company independently from industries, or to redirect SME to the right partner.

27. Trend monitoring can be of big relevance in the future for intermediary institutions.

Are you familiar with current and upcoming trends of various professional fields?

Select ONLY ONE of the following answers

- No, I'm not aware of the main innovation trends
- Yes, I'm aware of the main innovation trends but only related to my action field (e.g. one of the S3 specialization area)
- Yes, I'm aware of the main innovation trends in several action fields
- Yes, I'm aware of the main innovation trends in several action fields and I'll be able to guide SMEs accordingly, supporting them in defining a coherent innovation roadmap/strategy.

Additional questions to consider for CAT4.0

Who should participate in CE training?

- a) top managers (directors)
- b) production managers
- c) analysts in the area of CE
- d) responsible for introducing innovations
- e) responsible in environmental protection
- f) all employees in advanced companies
- g) others: \_\_\_\_\_

Would you engage in specific CE training?

Y

N

don't know

If yes, why (please provide succinct explanation) \_\_\_\_\_  
If not, why not (please provide succinct explanation) \_\_\_\_\_

How do evaluate your competence in the area of CE; 'good', 'average', 'don't know'?

- production processes (specific): \_\_\_\_\_
- services (specific): \_\_\_\_\_
- digitalisation (specific): \_\_\_\_\_
- environmental protection, sustainability: \_\_\_\_\_
- management (specific): \_\_\_\_\_
- consultancy (specific): \_\_\_\_\_
- finance (specific): \_\_\_\_\_
- licensing, legal processes: \_\_\_\_\_
- other: \_\_\_\_\_

Have you been engaged in implementing CE in SMEs?

N

Y (describe):

Are you experienced in digitalization and related process support?

N

Y (describe):

Where do you see highest potential for implementing CE in your company?

- a) raw material use,
- b) re-use of materials/products (also in other production processes),
- c) water (use, purification, re-use, circulation),
- d) energy (rationalisation, new (renewable) sources),
- e) waste (reduction, usage),
- f) re-design of production processes and services,
- g) new products,
- h) needs analysis and alternatives to meet these,
- i) other: \_\_\_\_\_

Are indicators appropriate mechanism (tool) for effective monitoring level of CE in your company?

Y

N

If your answer is Y please indicate types of indicators to be applied (number of answers is not limited)

- a) quantitative, specific for individual production and activity
- b) quantitative, strategic at the company level
- c) qualitative, specific and strategic
- d) indicators should measure efficiency, effectiveness, and trends
- e) indicators should relate to material and energy consumption, processes, environmental protection etc., according to the subject business

- f) indicators should evaluate rationality
- g) indicators should evaluate innovations (investments in research and development)
- h) indicators should monitor managerial decision-making
- i) indicators should enable regular evaluation of the CE level in the company
- j) other: \_\_\_\_\_

For the purpose of evaluating level of CE in a company it is appropriate to apply:

- a) system of indicators; evaluation should be made regularly as to be able to present trends
- b) auditing (internal, external)
- c) combination of the above and linked to managerial decision-making

What is appropriate frequency of evaluating level of CE in your company?

- a) once a year
- b) once in two years
- c) every five years
- d) as needed (managerial decision)

In which of the areas given below should your company apply indicators for evaluating CE level?

- a) Management
- b) Development and innovation
- c) Organisation of production processes
- d) production processes
- e) Material consumption
- f) Water
- g) Waste
- h) Transport
- i) Energy
- j) Land-use

Which kind of indicators would be appropriate?

- k) General qualitative indicators showing the level of CE and sustainability, e.g. environmental and health and safety auditing
- l) Quantitative indicators showing trends in the area, e.g. shares of recycled materials waste reduction through time, water recirculation and water use reduction, etc.
- m) Other: \_\_\_\_\_