

CLUSTER SMART

102

JOINT
CURRICULUM



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IO2 – Cluster4Smart Joint Curriculum

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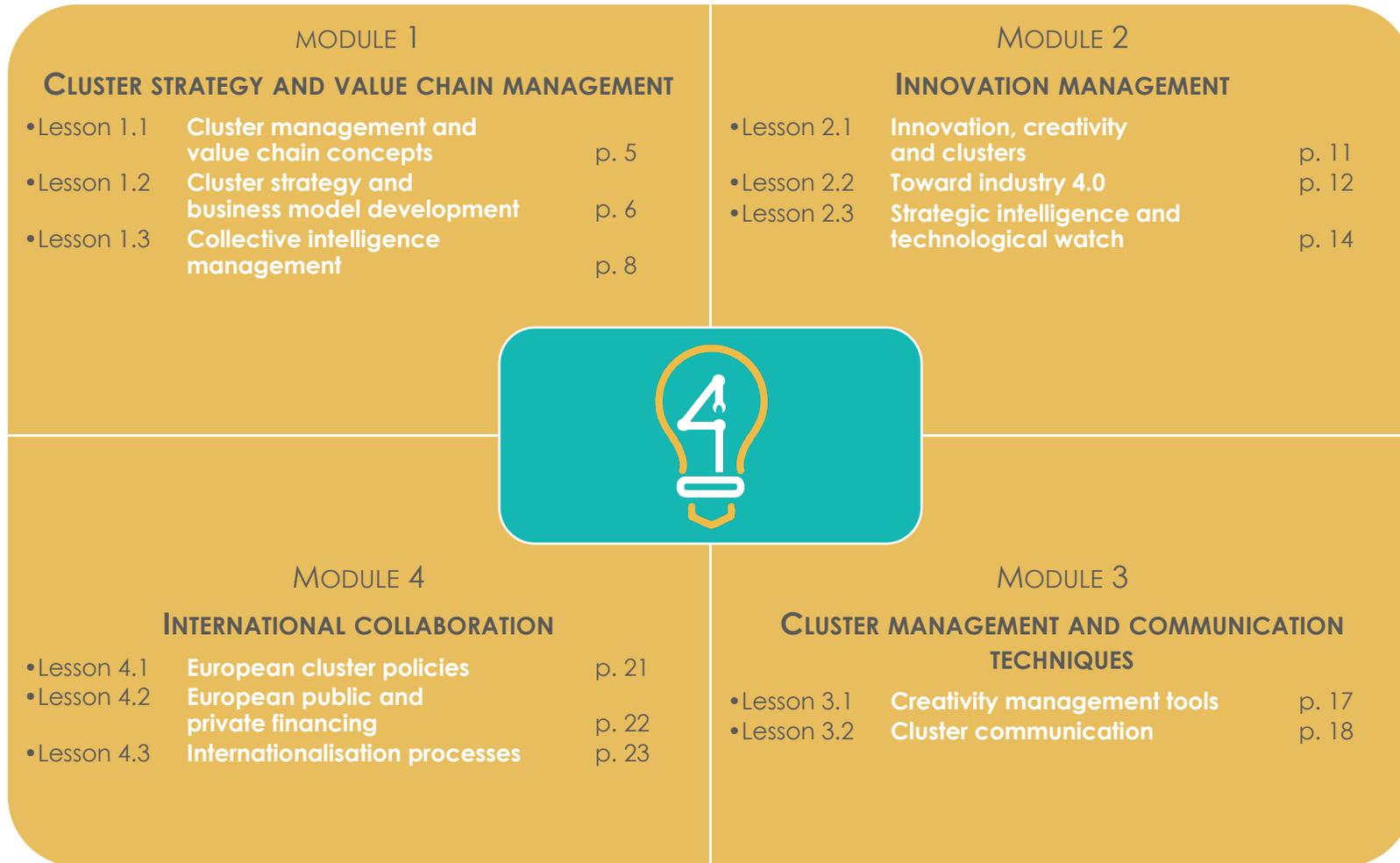
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Main learning outcomes



Summary



MODULE 1
CLUSTER STRATEGY AND VALUE CHAIN MANAGEMENT

LESSON 1.1 CLUSTER MANAGEMENT AND VALUE CHAIN CONCEPTS	LESSON 1.2 CLUSTER STRATEGY AND BUSINESS MODEL DEVELOPMENT	LESSON 1.3 COLLECTIVE INTELLIGENCE MANAGEMENT
<ul style="list-style-type: none"> • Introduction to cluster management's main concepts • Topic 1 Cluster management basics • Topic 2 Value chain analysis 	<ul style="list-style-type: none"> • Introduction to cluster strategy • Topic 1 Diagnostic • Topic 2 Strategy • Topic 3 Monitoring and evaluation • Topic 4 Business model • Topic 5 Services • Topic 6 (Bonus) Best practices for Gold Label of Cluster Excellence Management benchmarking 	<ul style="list-style-type: none"> • Introduction • Topic 1 Gathering data from the cluster stakeholders • Topic 2 Generating innovative ideas and potential projects • Topic 3 Developing collaborative projects - Consortium agreement • Topic 4 Facilitating and coordinating project teams

→ Bonus: English vocabulary sheets related to each lesson's content

LEARNING OUTCOMES

<i>Competencies</i>	<i>Skills</i>	<i>Knowledge</i>
<p>Set up the cluster strategy: assessing the members' needs, defining the cluster's mission and its business model</p> <p>Detect key partnerships to strengthen the value chain across sectors and borders and for potential innovation</p> <p>Manage collective intelligence: Facilitate a network of economic agents, linking them to one another, fostering collaboration and handling the communication within the network</p>	<ul style="list-style-type: none"> • Conduct value chain analysis • Draw up a stakeholders' Mapping • Analyse the stakeholders' role • Set up a cluster strategy • Advise customers • Detect potential added value sources • Manage and coordinate a project • Assess a project's relevance and feasibility • Write project papers • Speak English 	<ul style="list-style-type: none"> • The main economic theories relative to cluster management • The essential steps to develop a strategy and a business model • The issues and approach of company's support

CONTENT DESCRIPTION

LESSON 1.1

CLUSTER MANAGEMENT AND VALUE CHAIN CONCEPTS

Introduction to cluster management's main concepts

<i>Key words</i>	<ul style="list-style-type: none"> • Value chain • Cluster initiative • Coopetition
<i>Summary</i>	<p>What are a cluster, a cluster initiative and a cluster organisation? From the souk market to the Silicon Valley, why do competitors cooperate? This introduction aims at providing a good understanding of the main concepts behind the idea of "coopetition".</p>

Topic 1 Cluster management basics

<i>Key words</i>	<ul style="list-style-type: none"> • Value chain • Porter's diamond model • Cluster management • Ecosystem
<i>Summary</i>	<p>What does cluster management mean? How to intensify cooperation among players in a cluster? This topic will define cluster management and its goals, through the theoretical approach of the Porter's diamond model.</p>

Topic 2 Value chain analysis

<i>Key words</i>	<ul style="list-style-type: none"> • Value chain • Porter's diamond model • Cluster management • Ecosystem
<i>Summary</i>	<p>The aim of this topic is to learn how to draw up a stakeholders' mapping and how to analyse a Value Chain.</p>

LESSON 1.2

CLUSTER STRATEGY AND BUSINESS MODEL DEVELOPMENT

Introduction
to cluster strategy

<i>Key words</i>	<ul style="list-style-type: none"> • Cluster strategy • Business model
<i>Summary</i>	Setting up a collective strategy involves identifying common challenges and issues to be tackled by the cluster organisation. This introduction will emphasise on the importance of defining a strategy methodologically, and will present the main steps of strategy development.

Topic 1
Diagnostic

<i>Key words</i>	<ul style="list-style-type: none"> • Cluster Strategy • Diagnostic • SWOT analysis
<i>Summary</i>	Trainees will learn how to realise a diagnostic: <ul style="list-style-type: none"> • identifying the different stakeholders, • conducting a SWOT analysis, • identifying the main challenges and issues.

Topic 2
Strategy

<i>Key words</i>	<ul style="list-style-type: none"> • Cluster Strategy • Action plan
<i>Summary</i>	Trainees will learn a method to produce a collective strategy: <ul style="list-style-type: none"> • sharing the diagnosis, • identifying collective challenges, • defining objectives and an action plan.

Topic 3
Monitoring and evaluation

<i>Key words</i>	<ul style="list-style-type: none"> • Cluster Strategy • Monitoring • KPI • Strategy evaluation • Dashboard
<i>Summary</i>	This topic will answer the following questions: What is an indicator and how to build it? How to set up a dashboard? What is assessable in a cluster organisation?

Topic 4
Business model

<i>Key words</i>	<ul style="list-style-type: none"> • Cluster Strategy • Business model • Income
<i>Summary</i>	To ensure the cluster performance and sustainability, designing a suitable and clever business model is essential. Trainees will learn to analyse the cluster organisation income sources in order to define a sustainable business model.

Topic 5
Services

<i>Key words</i>	<ul style="list-style-type: none"> • Cluster Strategy • Services offered
<i>Summary</i>	Services are an important part of a cluster organisation business model. Trainees will learn how to define the services to be offered.

Topic 6 (Bonus)
**Best practices for Gold Label of
Cluster Excellence Management benchmarking**

<i>Key words</i>	<ul style="list-style-type: none"> • Gold cluster label • Cluster Excellence Management • ESCA qualification • Cluster Strategy • Services offered
<i>Summary</i>	<p>This topic consists in a guideline for clusters in preparation for ESCA qualification. The objective is to provide guidance and best practices for clusters aiming for enhanced gold certification in cluster excellence management.</p> <p>The content will cover the formal requirements of the qualification (i.e. procedures, organisation, document management, client management, etc.) and the guidance on how to implement cluster service developments according to the needs of the cluster's members in a strategic manner.</p>

LESSON 1.3

COLLECTIVE INTELLIGENCE MANAGEMENT

Introduction

<i>Key words</i>	<ul style="list-style-type: none"> • Collective intelligence • Collaborative projects • Knowledge sharing
<i>Summary</i>	We will define “collective intelligence” and introduce the main steps to generate collective intelligence among the cluster's stakeholders.

Topic 1

Gathering data from the cluster stakeholders

<i>Key words</i>	<ul style="list-style-type: none"> • Stakeholders mapping • Value chain analysis • Semi-structured interview • CRM • Data gathering
<i>Summary</i>	In this topic trainees will learn: <ul style="list-style-type: none"> • how to collect data from their stakeholders, • what kind of data are useful for cluster managers, • how to distinguish between demand and needs. They will also get tips to manage their semi-structured interviews.

Topic 2

Generating innovative ideas and potential projects

<i>Key words</i>	<ul style="list-style-type: none"> • Collaborative project • Added value sources
<i>Summary</i>	Trainees will learn how to manage the gathered knowledge thanks to a CRM software and how to transform generated ideas into collaborative projects.

Topic 3

Developing collaborative projects – Consortium agreement

<i>Key words</i>	<ul style="list-style-type: none"> • Innovation • Concept note • Intellectual Property protection • Framework paper
<i>Summary</i>	Trainees will go through the main issues of consortium agreement, including intellectual property issues.

Facilitating and coordinating project teams

Key words

- Innovation
- Concept note
- Intellectual Property protection
- Framework paper

Summary

This topic will define the role the cluster management team through the different steps of collaborative project lifecycle.

MODULE 2
INNOVATION MANAGEMENT

LESSON 2.1
INNOVATION, CREATIVITY AND CLUSTERS

- Introduction
- Topic 1
Innovation: Knowledge and creative process
- Topic 2
From business to innovation
- Topic 3
Generating collaborative innovation

LESSON 2.2
TOWARD INDUSTRY 4.0

- Introduction to Industry 4.0
- Topic 1
IoT and Robotics
- Topic 2
VR and AR
- Topic 3
Additive manufacturing
- Topic 4
Artificial intelligence
- Topic 5
Big data and cloud computing
- Topic 6
New organisation and processes
- Topic 7
Accompanying the human resources

LESSON 2.3
STRATEGIC INTELLIGENCE AND TECHNOLOGICAL WATCH

- Introduction to strategic intelligence
- Topic 1
Designing a strategic intelligence system
- Topic 2
Technological watch
- Topic 3
Strategic intelligence tools

→ Bonus: English vocabulary sheets related to each lesson's content

LEARNING OUTCOMES

Competencies

Skills

Knowledge

Detect key partnerships to strengthen the value chain across sectors and borders and for potential innovation

- Detect potential added value sources
- Accompany change
- Speak English

- The principles of innovation management
- The main places of innovation
- The new requirements in cluster management: Cluster 4.0
- The main megatrends impacting the market and the industrialisation processes
- The strategic intelligence tools and methods

CONTENT DESCRIPTION

LESSON 2.1

INNOVATION, CREATIVITY AND CLUSTERS

Introduction

<i>Key words</i>	<ul style="list-style-type: none"> • Innovation • Research & development • Discovery • Creative process
<i>Summary</i>	We will introduce the concept of innovation, its evolutions over time, announcing the main related concepts we will deal with in this lesson, and clusters' significance in innovation management.

Topic 1

Innovation: Knowledge and creative process

<i>Key words</i>	<ul style="list-style-type: none"> • Innovation • Research & development • Discovery • Creative process • Knowledge-based economy • Creative economy • Creativity
<i>Summary</i>	This topic will introduce the main concepts of innovation, knowledge-based economy and creativity, and go through the evolution of the innovation concept from economy of technology to creative economy.

Topic 2

From innovation to business

<i>Key words</i>	<ul style="list-style-type: none"> • Innovation • Demand-based innovation • Technological innovation • Open innovation
<i>Summary</i>	This topic will present two different models of innovation: technology push and demand pull; and will define the model of "Open innovation".

Topic 3

Generating collaborative innovation

<i>Key words</i>	<ul style="list-style-type: none"> • Collaborative innovation • Collective intelligence • Creativity • Innovation
<i>Summary</i>	How to deal with innovation in a cluster organisation? This topic will define the role of management and territories in the innovation generating process.

LESSON 2.2
TOWARD INDUSTRY 4.0

Introduction

<i>Key words</i>	<ul style="list-style-type: none"> • Disruptive technologies • Industry 4.0 • Industry of the future • 4th industrial revolution
<i>Summary</i>	This topic will define Industry 4.0, going through the different industrial revolutions, giving its characteristics, explaining how it changed the entire economy with digitalisation and "servitisation", and discussing the main issues and the new business models it generates.

Topic 1
Additive manufacturing

<i>Key words</i>	<ul style="list-style-type: none"> • Disruptive technologies • Industry 4.0 • Additive manufacturing • 3D printing
<i>Summary</i>	The main objective of this topic is to provide a good understanding of additive manufacturing, how it works, its diverse use cases in industry and services, its potential evolution, and its issues on processes, management, as well as social impacts.

Topic 2
Virtual and augmented reality

<i>Key words</i>	<ul style="list-style-type: none"> • Disruptive technologies • Industry 4.0 • Virtual reality • Augmented reality
<i>Summary</i>	The main objective of this topic is to provide a good understanding of virtual and augmented reality, how they work, their diverse use cases in industry and services, their potential evolution, and their issues on processes, management, as well as social impacts.

Topic 3
Internet of things and robotics

<i>Key words</i>	<ul style="list-style-type: none"> • Disruptive technologies • Industry 4.0 • Internet of things • Data gathering
<i>Summary</i>	The main objective of this topic is to provide a good understanding of the IoT, how it works, its diverse use cases in industry and services, its potential evolution, and its issues on processes, management, as well as social impacts.

Topic 4

Big data and cloud computing

<i>Key words</i>	<ul style="list-style-type: none"> • Disruptive technologies • Industry 4.0 • Additive manufacturing • 3D printing
<i>Summary</i>	The main objective of this topic is to provide a good understanding of Big data, how it works, its diverse use cases in industry and services, its potential evolution, and its issues on processes, management, as well as social impacts.

Topic 5

Artificial intelligence

<i>Key words</i>	<ul style="list-style-type: none"> • Disruptive technologies • Industry 4.0 • AI • Machine learning • Deep learning • Artificial neuronal • IoT • Data gathering
<i>Summary</i>	The main objective of this topic is to provide a good understanding of artificial intelligence, how it works, its diverse use cases in industry and services, its potential evolution, and its issues on processes, management, as well as social impacts.

Topic 6

New organisation and processes

<i>Key words</i>	<ul style="list-style-type: none"> • Disruptive technologies • Industry 4.0 • Organisation model • Internal processes • Change management
<i>Summary</i>	Integrating disruptive technologies implies deep changes in all organisation processes and functions. In this regard, a reflection must be driven taking in consideration a lot of factors that we will go through in this topic.

Accompanying the human resources

<i>Key words</i>	<ul style="list-style-type: none"> • Disruptive technologies • Industry 4.0 • Skills management • Human resources • Change management
<i>Summary</i>	Industry 4.0 transition doesn't only imply technological change but also social change. This topic will deal with the evolutions of skills management, and will give tips to better make human resources agree with these deep changes.

LESSON 2.3

STRATEGIC INTELLIGENCE AND TECHNOLOGICAL WATCH

to strategic intelligence

<i>Key words</i>	<ul style="list-style-type: none"> • Strategic intelligence • Strategic watch • Information sharing
<i>Summary</i>	This introduction aims at defining strategic intelligence and the relevance of sharing strategic information among cluster members.

Designing a strategic intelligence system

<i>Key words</i>	<ul style="list-style-type: none"> • Strategic intelligence • Information resources
<i>Summary</i>	In order to be able to design a strategic intelligence system within their cluster, trainees will go through the following steps: <ul style="list-style-type: none"> • Identification of cluster members' needs for information • Identification of information resources • Search strategy

Technological watch

<i>Key words</i>	<ul style="list-style-type: none"> • Strategic intelligence • Technological watch • Information resources
<i>Summary</i>	This topic will deal with cluster-specific technological watch processes and information resources, emphasising on the cluster roles and responsibilities in this regard.

Strategic intelligence tools

<i>Key words</i>	<ul style="list-style-type: none">• Strategic intelligence• Strategic intelligence tools• Watch software
<i>Summary</i>	This topic aims at introducing the main relevant strategic intelligence tools for clusters, as well as technological watch software.

MODULE 3
CLUSTER MANAGEMENT AND COMMUNICATION TECHNIQUES

LESSON 3.1 CREATIVITY MANAGEMENT TOOLS	LESSON 3.2 CLUSTER COMMUNICATION
<ul style="list-style-type: none"> • Introduction to creativity management • Topic 1 Design thinking process • Topic 2 Mind mapping • Topic 3 Problem solving methods • Topic 4 Decision making tools • Topic 5 Meeting facilitation tools • Topic 6 Agile techniques 	<ul style="list-style-type: none"> • Introduction Communication basics • Topic 1 Setting up a communication strategy for my cluster • Topic 2 Selecting the communication tools • Topic 3 Action plan implementation and monitoring • Topic 4 Organising and managing the communication function

→ Bonus: English vocabulary sheets related to each lesson's content

LEARNING OUTCOMES

Competencies	Skills	Knowledge
<p>Manage collective intelligence: Facilitate a network of economic agents, linking them to one another, fostering collaboration and handling the communication within the network</p> <p>Increase creativity within the team and among the cluster members in order to facilitate innovation</p>	<ul style="list-style-type: none"> • Facilitate a meeting • Resolve conflicts • Manage a team • Write specific guidelines for its members • Condition information intelligibly • Speak in public • The agile techniques of management • Handle internal and external communication of the cluster • Set up a communication strategy • Speak English 	<ul style="list-style-type: none"> • The main tools for decision making • Problem solving methods • Creative management tools • The main principles of communication • New communication tools

CONTENT DESCRIPTION

LESSON 3.1

CREATIVITY MANAGEMENT TOOLS

Introduction *to creativity management*

<i>Key words</i>	<ul style="list-style-type: none"> • Creativity management • Design thinking • Creativity tools • Creative thinking
<i>Summary</i>	We will define "creativity management", introduce its diverse tools, and show its relevance for cluster management and collective intelligence generation.

Topic 1 *Design thinking process*

<i>Key words</i>	<ul style="list-style-type: none"> • Creativity management • Design thinking
<i>Summary</i>	Trainees will learn the design thinking process in order to be able to generate innovative ideas among the cluster members responding to new demands.

Topic 2 *Mind mapping*

<i>Key words</i>	<ul style="list-style-type: none"> • Creativity management • Mind mapping
<i>Summary</i>	Trainees will learn to transpose and visualise their mind on a map, through different kinds of mind maps, and different use cases.

Topic 3 *Problem-solving methods*

<i>Key words</i>	<ul style="list-style-type: none"> • Creative thinking • Problem solving
<i>Summary</i>	This topic will provide the trainee several creative problem-solving techniques.

Topic 4 *Decision making tools*

<i>Key words</i>	<ul style="list-style-type: none"> • Creative thinking • Decision making
<i>Summary</i>	This topic will provide the trainee the main tools for decision making.

Topic 5

Meeting facilitation tools

<i>Key words</i>	<ul style="list-style-type: none"> • Creativity management • Meeting facilitation
<i>Summary</i>	In this topic we will provide the trainee with the main creativity tools used in meeting facilitation, and their use cases.

Topic 6

Agile techniques

<i>Key words</i>	<ul style="list-style-type: none"> • Creativity management • Agile
<i>Summary</i>	We will define the "agile" concept and provide the trainee with agile techniques they can use in cluster management.

LESSON 3.2

CLUSTER COMMUNICATION

Introduction

Communication basics

<i>Key words</i>	<ul style="list-style-type: none"> • Internal communication • External communication • Upward communication
<i>Summary</i>	The objective is to let the trainees integrate the main communication principles, for them to be able to lead the communication on good basis in their cluster.

Topic 1

Setting up a communication strategy for my cluster

<i>Key words</i>	<ul style="list-style-type: none"> • Communication strategy • Cluster communication
<i>Summary</i>	Communication is crucial in a cluster organisation. Trainees will learn how to design a communication strategy in line with the cluster organisation's goals, going through different kinds of communication goals.

Topic 2

Selecting the communication tools

<i>Key words</i>	<ul style="list-style-type: none"> • Communication tools • Communication strategy
<i>Summary</i>	This topic will introduce different communication tools and their characteristics, thanks to what trainees will learn how to choose the best tools to contribute to the strategy.

Action plan implementation and monitoring

<i>Key words</i>	<ul style="list-style-type: none"> • Communication strategy • Monitoring • Key performance indicator (KPI)
<i>Summary</i>	Trainees will learn how to translate the communication strategy into an action plan, defining communication KPIs.

Organising and managing the communication function

<i>Key words</i>	<ul style="list-style-type: none"> • Cluster communication • Communication function
<i>Summary</i>	Trainees will learn how to organise the communication in a cluster organisation: Who must be in charge? How to work with service providers?

MODULE 4
INTERNATIONAL COLLABORATION

LESSON 4.1 EUROPEAN CLUSTER POLICIES	LESSON 4.2 PUBLIC AND PRIVATE FINANCING	LESSON 4.3 INTERNATIONALISATION PROCESSES
<ul style="list-style-type: none"> • Introduction • Topic 1 EU cluster and innovation support policies • Topic 2 National cluster policies 	<ul style="list-style-type: none"> • Introduction • Topic 1 EU and international subsidies for clusters • Topic 2 Suitable financing tools according to development stages 	<ul style="list-style-type: none"> • Introduction Setting up an international strategy for my cluster • Topic 1 Selecting partners • Topic 2 Building "C2C" relations • Topic 3 Organising international missions • Topic 4 Internationalisation cases • Topic 5 (Bonus) Intercultural communication guide

→ Bonus: English vocabulary sheets related to each lesson's content

LEARNING OUTCOMES

Competencies	Skills	Knowledge
<p>Detect key partnerships to strengthen the value chain across sectors and borders and for potential innovation</p>	<ul style="list-style-type: none"> • Set up an international cluster strategy • Find the best financing opportunities to support the cluster members' development and internationalisation projects • Work in a multicultural context • Speak English 	<ul style="list-style-type: none"> • The main European cluster policies and public subsidies • The main private financing opportunities • The internationalisation processes • The protocol relations related to different cultures

CONTENT DESCRIPTION

LESSON 4.1

EUROPEAN CLUSTER POLICIES

Introduction

<i>Key words</i>	<ul style="list-style-type: none"> • EU policies • Cluster policies
<i>Summary</i>	Short summary of the learning objectives and the addressed topics of this lesson: Knowing the existing policies, understanding the policy making mechanism to be aware of the evolutions, and be able to support the cluster members to public institutions.

Topic 1

EU cluster and innovation support policies

<i>Key words</i>	<ul style="list-style-type: none"> • EU policies • Cluster policies • Innovation support
<i>Summary</i>	Trainees will have an overview on the EU policies dedicated to cluster initiatives and development. They'll learn the different thematic of these policies, their objectives, how they are implemented, some results, and especially their importance for clusters and how companies can benefit from them.

Topic 2

National cluster policies

<i>Key words</i>	<ul style="list-style-type: none"> • Cluster policies • National policies • Regional policies
<i>Summary</i>	This topic will give the trainee an overview on the cluster policies implemented in Hungary, Spain and France at national and regional level. Emphasis will be put on the opportunities they generate and how cluster can concretely benefit from them.

LESSON 4.2

PUBLIC AND PRIVATE FINANCING

Introduction

<i>Key words</i>	<ul style="list-style-type: none"> • Public subsidies • Cluster financing
<i>Summary</i>	Short summary of the learning objectives and the addressed topics of this lesson. Trainees will learn the different financing opportunities as well as the players and methods of financing, through two approaches: the thematic approach of EU and international financing, and the approach of project and enterprise development phases.

Topic 1

EU and international subsidies for clusters

<i>Key words</i>	<ul style="list-style-type: none"> • EU subsidy programs • EU funds
<i>Summary</i>	This topic will inform the trainee about all EU and international funds and subsidies which are relevant for clusters. For each program or fund, they'll learn its objective, the kind of project they can submit, the way the policies are defined and when they are adjusted, as well as the call for projects mechanism, and essential sources to make an efficient watch.

Topic 2

Suitable financing tools according to development stages

<i>Key words</i>	<ul style="list-style-type: none"> • Cluster financing • Company development stages • Venture Capital • Business angels • Crowdfunding • Public financing
<i>Summary</i>	The trainee will learn each feature of relevant private financing solutions for cluster organisations and companies: the kind of players, terms and conditions, the kind of projects they can finance, the advantages and risks.

LESSON 4.3

INTERNATIONAL COLLABORATION

Introduction

Setting up an international strategy for my cluster

<i>Key words</i>	<ul style="list-style-type: none"> • Internationalisation • Strategy
<i>Summary</i>	An internationalisation project requires to take a lot of factors in consideration before its implementation. We will introduce different steps to optimally set up a cluster internationalisation strategy.

Topic 1

Selecting partners

<i>Key words</i>	<ul style="list-style-type: none"> • Internationalisation • Benchmarking
<i>Summary</i>	How to identify and select international partners, based on the cluster organisation strategy? This topic will set out a method: from benchmark to direct contacts.

Topic 2

Building “C2C” relations

<i>Key words</i>	<ul style="list-style-type: none"> • Internationalisation • Cluster to cluster relations • Matchmaking
<i>Summary</i>	When potential partners are identified, it is necessary to test and strengthen the relationship. In this regard, this topic goes through different matching possibilities (participating in a EU project, organising a delegation visit, a matchmaking event...) and partnership structures (joint services...), with the objective to develop long-term partnerships.

Topic 3

Organising international missions

<i>Key words</i>	<ul style="list-style-type: none"> • Internationalisation • International mission
<i>Summary</i>	This topic will provide a "vital check list" for a successful international mission.

Internationalisation cases

<i>Key words</i>	<ul style="list-style-type: none"> • Internationalisation • B2B matchmaking • Permanent office • Trade fair
<i>Summary</i>	The trainees will go through different types of international case studies, and will learn how to choose the best one adapted to their needs thanks to specific criteria.

International communication guide

<i>Key words</i>	<ul style="list-style-type: none"> • Intercultural communication • Protocol relations
<i>Summary</i>	This topic will provide a guide of “intercultural communication sheets” explaining the specific protocol behaviours related to different cultures.

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