

DESIGN OF AN IMPLEMENTATION ORIENTED STRATEGY UPGRADE & BOOST

D.T1.3.1 - A manual to guide in the
development of a practicable, future-robust
Strategy and Action Plan for CAMI4.0
Excellence

Version 2.0
07 2020





Document Control

Document Summary	
Project Number	CE1662
Project Title	CEUP 2030
Work Package/Activity	A.T1.3 - Strategy Upgrade & Boost Enhancement and Embedding for CAMI4.0
Deliverable	D.T1.3.1 - Design of an Implementation Oriented Strategy Upgrade & Boost Supported by an Action Plan
Deliverable Responsible (if applicable)	PP4 / IWU
Deliverable Reviewer (If applicable)	PP8 / PTP
Deliverable Due Date	May 2020 (Delayed to July 2020)

Dissemination Level		
PU	Public	
PP	Restricted to other programme participants	
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	CO

Document History			
Date	Version	Issuer	Description of Changes
06.07.2020	1.00.00	MCR	Working draft, for partner review
15.07.2020	1.00.02	MCR	Working draft, with responses & upgrades due to PP comments.
23.07.2020	2.00.00	MCR	Final Version



1. Executive Summary

1.1. Project Overview

CEUP 2030 aims to generate stable innovation networks which foster better understanding on Central Europe Advanced Manufacturing and Industry 4.0 (“CAMI4.0”) topics, to generate improved knowledge resource exchange on these technologies leading to an upgraded framework for policy-making and implementation.

Ultimately CEUP 2030 creates and tests a common method to promote improved knowledge dissemination to policy-making stakeholders using a collaborative exchange framework based in physical and digital-methods. These methods and the technology use-cases disseminated within the project, are harvested from existing, high-quality innovation know-how in the CE area.

The project focuses on:

- Identifying the highest-quality innovation know-how in the CE Area, on the CAMI4.0 Topics.
- Enhancing skills capabilities and knowledge of people in charge of local, regional, and (trans)national RTI Policies, associated to the CAMI4.0 Topics.
- Creating a sustainable structure for awareness-raising and shared, sustainable RTI knowledge resource use to enhance policy decision support.
- Anticipating and fast-tracking policy / strategy policy pilot actions to promote a joint RIS3 for CAMI4.0 Excellence in CE/EU.

1.2. Work Package and Activity Overview

The overall objective of WPT1 links to the project’s specific objective of enhancing skills, capabilities and knowledge of people in charge of local, regional and (trans)national Research, Technology and Innovation policies within the triple-helix context.

The challenge manifests in two sub-objectives which are:

- (1) To train and empower people to work in the environment of new technologies (strategically and operatively) regarding policy-relevant decisions
- (2) To pool a critical mass of trained stakeholders to generate sufficient power for policy-making and appropriate selection, adaption and fine-tuning of already proven tools, instruments and methodologies.

The specific activity which is of relevance for this document is Activity A.T1.3, which is a common activity for all WPs and covers the development of the project’s Strategy Implementation Framework, for a quick start of cooperation in the project on the CAMI4.0 topics, along with a future-robust approach which can develop into the Policy Implementation Framework for CAMI4.0 (WPT3)

Specifically, the practical activities which are supported in this document are:

- the generation of a common strategy, to set a vision for the four CAMI4.0 topics, based on the previous work and experience of Project Partners;
- the generation of a common action plan, to set a critical path for the four CAMI4.0 topics, based on the experience of Project Partners, and Policy Learning Lab engagement to create the base operating principles behind the RIS3 Alignment Actions.



1.3. Project-Relevant Reference Material & Reading Prerequisites

- (1) **CE1662 CEUP 2030 Application Form** (Version 1, 07/2019): The application form regarding CEUP 2030 for Interreg Central Europe
- (2) **Guidelines to T1 Implementation** (Version 4.0, 04/2020): A non-deliverable related description of the working processes to be followed for WPT1
- (3) **Guidance on Harvesting Agenda** (D.T1.1.1; Version final, 04/2020): A guidance document for A.T1.1 on harvesting protocols for the Policy Learning Lab and Strategy Upgrade & Boost
- (4) **Harvesting Agenda on CAMI 4.0 for Policy Learning Lab & Strategy Boost/Upgrade** (D.T1.1.2; version 1.0, 05/2020): A report and selection grid for best-in-class use of identified outputs and results in WPT1.
- (5) **CAMI4.0 Glossary** (D.T1.1.3, version 1.0): A report defining the key topics CAMI4.0, based on the technology use case and policy instrument experience of PPs.

All documents can be found on the project's central repository - [Alfresco](#)

1.4. Scope of Document & Deliverable Summary

Deliverable D.T1.3.1 is defined in the Application Form as a manual for filtering out the most practicable and future-robust strategies of the selected CE/EU project base. It will define a policy implementation orientated strategy and action plan, based on 10 PP-led use cases to get updated and exploited during the project duration.

This document contains the guiding principles which will lead to the steps that PPs must take to deliver their contributions for the reporting deliverables: D.T1.3.1 - Joint Strategy for CAMI4.0 Excellence in CE/EU Cooperation, and D.T1.3.3 - Action Plan for CAMI4.0 Excellence in CE/EU Cooperation.

1.5. Audience

This document is directed at all project partnership members, because all PPs are asked to participate in the development of the vision and objectives for each CAMI4.0 topic, along with providing their detailed insight on tangible next steps to develop coordinated actions between the Partners on the CAMI4.0 Topics (aka: RIS3 Alignment Actions). The appropriate status of this deliverable is reflected in the "Dissemination Level" table, on the Document Control page of this Guidance Document.

1.6. Change Control Procedure & Structure

The Deliverable Responsible: **Fraunhofer IWU (PP04)** created this guidance document and it is hosted on the Project's common repository in the appropriately named deliverable folder. The document is under project deliverable change control protocols whereby Partners are requested to give feedback on the Draft Version within five working days. Feedback will be incorporated and Final Version will be issued by IWU. Thereafter the PPs have five additional working days for any final comments. At any time, partners believe a project methodology should change, the request should be brought to the Deliverable Responsible (IWU/PP4) and the Work Package Leader (PTP/PP8) to consolidate feedback from other partners, and then further integrate and disseminate the final agreed changes. A new version of the document should be created, and recorded in the document's "Document History" table.



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2. Introduction

The purpose of the **Strategy Upgrade & Boost Design Guideline (T1.3.1)** is to provide the Partners the information which is required to create the Strategy Implementation Blueprint, the key content-related output of WPT1, also known as the “Strategy Upgrade and Boost”.

It provides the guidance on how to capitalize input from Partner’s result portfolios on strategy and action plans for the CAMI4.0 topics, and bring it together into one comprehensive vision for aligned RIS3 policy instrument development in Central

The document contains three key sets of information:

- (1) Background Information - connectivity & key insight on harvesting and project
- (2) Joint Strategy Development Process - methodology on joint strategy
- (3) Action Plan for CAMI4.0 Development Process - methodology on action planning

2.1. Output OT1.2

These components are connected to the development of the Strategy Upgrade & Boost activity, that is conceived as the working arena that completes Output 1.2 “CEUP 2030 Strategy Upgrade & Boost”. Ultimately setting the vision and working plan for the Trend and Innovation Networks (“TIN”) for CAMI4.0. The output consists of two parts:

Part 1 = The Joint Strategy for CAMI4.0 Excellence (D.T1.3.2), which sets strategic vision statements from each PP on the CAMI4.0 Topics. The vision should emerge from harvested strategies which the PPs have worked on this programming period, plus the feedback and insight gained from stakeholders during the PLL implementation. The latter aspect the “feedback and insight” are what represents the “Upgrade & Boost” element of this output.

Part 2 = The Action Plan for CAMI4.0 Excellence (DT1.3.3), which sets a structured working module for the 4 CAMI4.0 Topics. This Plan should identify the policy pilot actions, aka policy instruments for CAMI4.0 which PPs current have experience with, that will be the base of discussion in the RIS3 Round Tables (WPT3).

<p>Output O.T1.2</p>	<p>CEUP 2030 Strategy Upgrade & Boost - Fostering straight implementation among CE/EU project scheme</p>	<p>The Strategy Upgrade & Boost connects the lessons learnt from the PLL with an appropriate new joint improved strategy supported by a policy implementation action plan (A.T1.3). Thus a policy relevant exploitation of the CE/EU project scheme is set for an immediate use and in a long-term strategic manner. This will be further enhanced in T2 & T3. First CE/EU policy anchor will be set during EU Presidency of Croatia, continued during the PPs countries Presidencies of Slovenia & Germany.</p>	<p>S.O.1.1 - Number of strategies and action plans developed and/or implemented for strengthening linkages within the innovation systems</p>	<p>1,00</p>	<p>02.2021</p>
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2.2. Project Context

Activity 1.3 and the subsequent development of Output T1.2, is wholly connected to the project’s final output within WPT3, the Policy Implementation Framework. Work Package 1



work sets a basic vision, ideated on and developed amongst the partners on the 4 CAMI4.0 Topics.

Across the remaining project time, the Partners will validate their vision and objectives, along with a portfolio of use-cases which will be used to implement the vision and objective for the 4 CAMI4.0 Topics. A visualisation of this process can be seen in Figure 1.

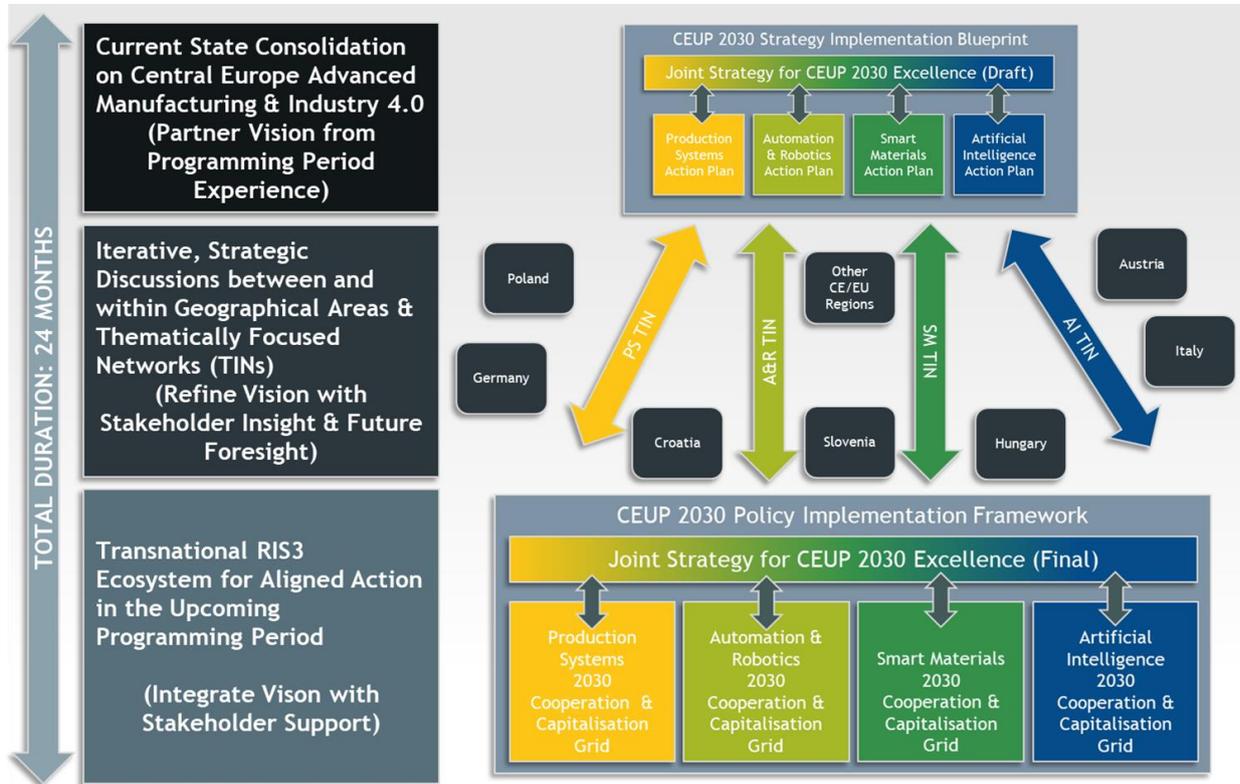


Figure 1 Project Concept for Developing & Validating the Policy Implementation Framework
(Source: Author Generated)

The Strategy Implementation Blueprint, developed in WPT1, acts as an input and impulse into a series of iterative, strategic discussions within thematically focused working groups (Trend and Innovation Networks), and within geographical areas. These discussions take place in all three work packages (the PLL in WPT1, the TIN workshops in WPT2, and the RIS3 Round Table in WPT3).

Across the project, the validation process takes place refining and integrating the PP vision with the needs, concerns and future foresight knowledge of various stakeholders. Through this process, each PP will develop two RIS3 Alignment Instrument Pilot Projects (Twenty total, five per CAMI4.0 topic). The basic framework for these RIS3 Alignment Instrument Pilot Projects are laid-out in each partner’s Use-Case portfolio of pilot actions.

Ultimately, the Project follows and incorporates the following strategy building principle phases across its development:

Phase 1 - Building a Common Understanding - this phase will be completed in WPT1, and is further described in this document. However, this phase will continue across the project as PPs and their stakeholders learn more about each other.

Phase 2 - Strategy & Action Plan Formulation - this phase will be completed in WPT1, and is further described in this document. It can be refined in WPT2 and WPT3, from the iterative discussions raised above.



Phase 3 - Strategy & Action Plan Implementation - this phase will be completed in WPT2 and WPT3. However, implementation starts by creation action and inspiration during your planning, therefore we recommend an implementation-oriented mindset in order to achieve the 20 Pilot Projects!

Phase 4 - Strategy & Action Plan Evaluation - this phase will be completed in WPT2 and WPT3, but evaluation and feedback should be gathered from PPs at all chances, in order to build Pilot Projects which are stakeholder-oriented.



3. Background Information

The purpose of this chapter is to provide three key pieces of further context for the rapid and effective development of the Strategy Implementation Blueprint:

- (1) insight on deliverable connectivity between the Activities in the WP and between WPs.
- (2) useful summaries from the project’s Harvesting Activity from a method & content input,
- (3) contribution to competency matrix and pre-deliverable brainstorming on future actions.

3.1. Work Package Connectivity & Flow

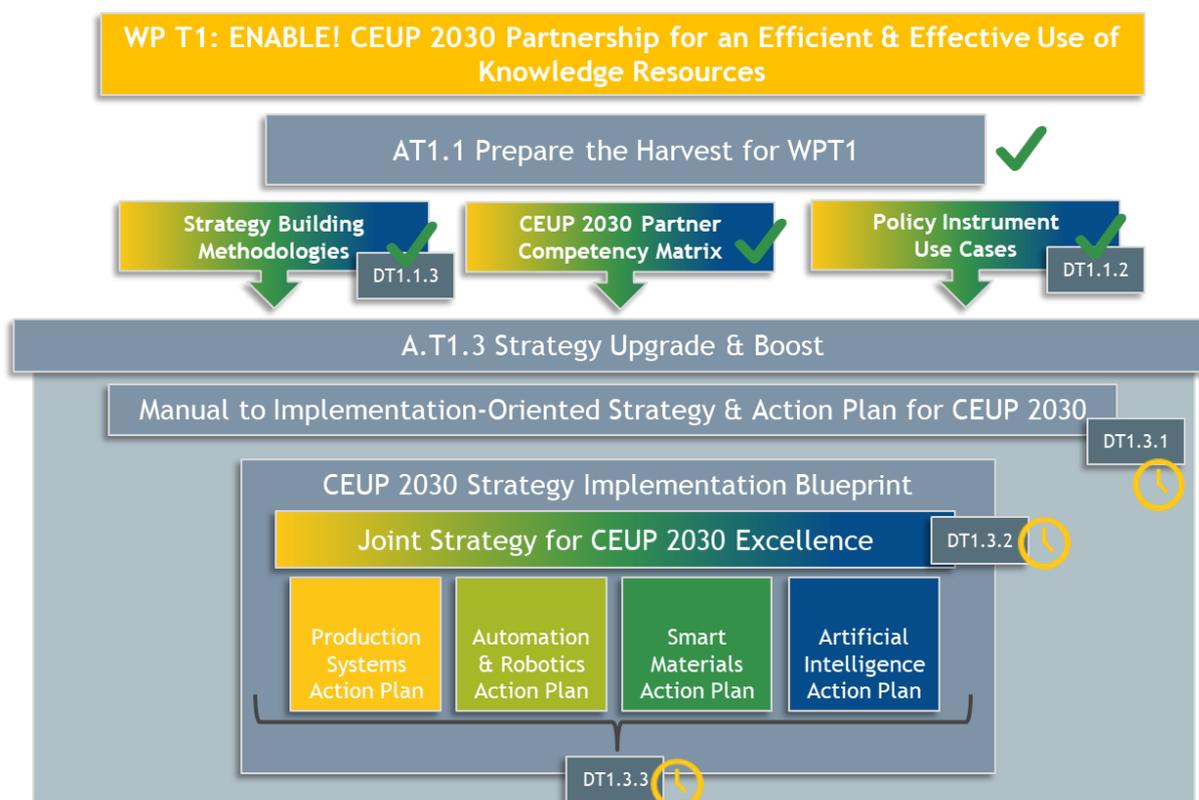


Figure 2 Activity Connections within WPT1 (Source: Author Generated)

Figure 2 provides a visual overview of the flow of the harvesting activity to the development of the Strategy Upgrade and Boost Activity. The context for harvesting, within this regard is to bring in a common understanding about strategy building and policy instrument usage amongst the project partners, so as to develop an upgrading framework which is in keeping with the competency-base of the PPs.

In addition to competency on the methodologies of strategy building and policy instrument usage, competency associated to the four CAMI4.0 topic areas, is a useful understanding in order to generate positive impulse into the working group formats which will be used to build the content contribution for each thematic topic.

Once harvesting of experiences and partner’s competencies have been understood, the thematic working groups will be established to manage the development of the strategy and



policy implementation building process. This will happen in parallel to the activity development associated to the Policy Learning Lab.

Figure 3 provides the context of how the two inputs and exchange from the Thematic Working Groups, and the Policy Learning Lab will lead into the development of the Strategy Implementation Blueprint.

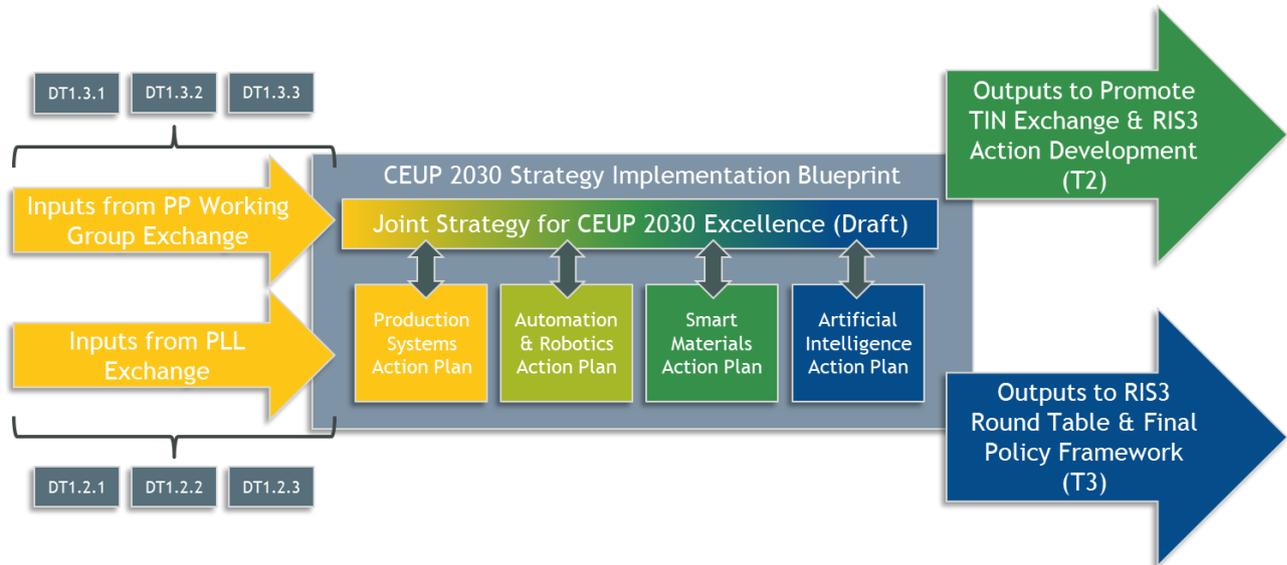


Figure 3 Activity Connection between Work Packages (Source: Author Generated)

It should be noted that once the Strategy Implementation Blueprint is developed, it is set as an impulse to the TIN Exchange and RIS3 Round Tables. It is through these iterative discussions that a final vision and objective for Central Europe will be established, linked to an implementation framework build on a model of effective RIS3 alignment between stakeholders and regions for the CAMI4.0 topics.

3.2. Key Definitions for Strategy Building in CEUP 2030

Strategy Implementation Blueprint: This is a named output of the project, also called “CEUP 2030 Strategy Upgrade and Boost” (O.T1.2), which connects lessons learnt from stakeholder engagement discussions with a joint strategy built from PP experiences and insight across other initiatives (projects / regional actions). This strategy will be supported by 10 practical use-cases (see: policy instrument use cases/ use case portfolio)

Policy Instrument Use-Cases & the Use-Case Portfolio: The 10 Use Cases (10 portfolios, 4 actions/PP), are the output of D.T1.3.3 (by February 2021), and should be good examples of results or experiences from each PPs in this programming period, which showcase how to use these instruments and in an understandable, how policy instruments create specific positive motion to support organisations in engaging with the CAMI4.0 topics.

Use Case Development Framework: The Use-Case Development Framework, is a theoretical model which is used to promote common understanding on the purpose of the use-cases, and the concept which should be achieved through the generation of the Use-Case Portfolio. The framework consists of three vectors, “challenges”, “technology-oriented solutions”, and “policy instruments”, which are used to create a common language associated to use-case formulation between the PPs.

RIS3 Alignment Instrument Pilot Projects: By WPT3 PPs should have evidence of starting/enabling 20 new regional RIS3 Alignment Instrument Pilot Projects (2/PP) (by September 2021), where they aim to showcase how specific policy instrument action can



improve regional S3 support for chosen CAMI4.0 topics. These pilot projects should be built from the “Policy Instrument Use Cases” identified at the end of WPT1. They also are the project’s primary tool to demonstrate sustainability of idea, and ongoing monitoring for the achievement of the CAMI4.0 Vision & Objectives.

Common Policy Use Cases: In WPT2 and WPT3 emerges the idea of the coordinated “alignment” of policy instruments. This is a key area of discussion which should occur between PPs (in CAMI4.0 Working Groups, aka TINs in WPT2) and their stakeholders (In RIS3 Round Tables, in WPT3). By the end of the project PPs operating across the 4 CAMI4.0 Topics create 4 common policy use-cases (**By February 2022**), where the stakeholders involved in each CAMI4.0 working group (TIN) agree a plan to align activities for the coming programming period.

Policy Implementation Framework: This is a named project output, also called “CEUP 2030 Policy Framework - Synergising CE/EU Policies and Strategies for CAMI4.0 Excellence” (O.T3.2), which is the final strategic output of the project. It presents a combined view of the project’s results - specifically a vision and objectives for each CAMI4.0 topic, with a signed capitalisation agenda showing the support of a diverse group of stakeholders (including Policy-Relevant stakeholders), and implemented through the formation and initiation of RIS3 Alignment Instrument Pilot Projects (See definition above). This should be achieved by February 2022, and must showcase the pilot projects and common policy use-cases.



3.3. Harvested Results Input

It is recommended that all PP's review the detailed harvesting documentation if there is specific interest in another PP's experience which has been summarized below. It is the responsibility of each PP to take advantage of the information provided, and build cooperation potential within the many working group meetings which will take place across the coming 18 months.

All Harvesting information is provided in this transparent way, and can be considered early "bread-crumbs" to identify useful areas of similarity between the PPs interests and competencies in order to develop long-lasting future cooperation potential.

Together there are two areas of harvest summaries, with sub-sections below:

- Strategy Building Methodology Experience; and
- Policy Instrument Use Experience;

3.3.1. Strategy Building Methodologies

Strategy Building Methodology harvesting activity was used to gather input from each PP on their experiences with strategy-building activities across the last programming period. It is believed this experience creates the basis from which the PPs can interpret the activity of strategy building within the context of CEUP 2030.

Table 1 provides a summary of the inputs from all PPs contribution to Strategy Building Methodology Harvesting. Altogether the 10 gathered methodologies have transnational, national and regional level, including:

- existing strategy frameworks in different development stages (4);
- institutional, network or outreach structures (3), and
- support tools (2)

All harvested aspects can be used to enhance Partnership's strategic work on Central Europe's vision for the future of Advanced Manufacturing and Industry 4.0. Using the strategy frameworks as the basis, the most common components identified were:

- Identifying Current Competencies and Current Challenges;
- Creating a Vision for the Future;
- Identifying Goals and Targets which enable the Vision;
- Create Monitoring Framework to Support Implementation;
- Strategic Support/Key Stakeholder "Buy-In"



Table 1 Strategy Building Methodology Experience Input Summary
(Source: Project Generated)

Partner	Title	Method Type & Scope	Geographic Scope
1 - KPT	<u>KACE Roadmap & Action Plan</u>	Strategic Framework for Developing Advanced and Additive Manufacturing Topics	Central Europe (Transnational)
2 - PRO	<u>upperVISION2030 - Economic & Research Strategy Upper Austria</u>	Strategic Programme Framework for Development, with Implementation and Monitoring Plans on Target Topic Areas,	Upper Austria (Regional)
3 - PIA	<u>Austrian-Innovation-and-Technology-Platforms & Platform Industry 4.0</u>	Institutional Framework with information management, community building, strategy development, and consulting/innovation management on key enabling technologies	Austria (National)
4 - IWU	<u>ElRoSens Network</u>	Network Framework to foster a specific technology	Germany (National)
5 - KIT	<u>Synergy profiling and synergic networking activities.</u>	Information Technology Tool to Promote Network Matchmaking	Central Europe (Transnational)
6 - AFIL	<u>KACE Roadmap and Action Plan</u>	Strategic Framework for Developing Advanced and Additive Manufacturing Topics	Central Europe (Transnational)
7 - SIIT	<u>CaxMen</u> (Innovation Shop?)	Outreach Framework on Advanced Manufacturing Technologies	Europe (Transnational)
8 - PTP	<u>Smart Factory Hub Mapping Tool & E-Learning Hub</u>	Information Technology Tool to Promote Smart Specialisation Understanding	Danube (Transnational)
9 - PBN	2014-2020 territorial plan of county Vas, Hungary	Strategic Programme Framework for Development, with Goals, Priority Action Areas	Vas (Regional)
10 - HAMAG	<u>The Smart Specialisation Strategy (S3) of Croatia</u>	Strategic Programme Framework for Innovation Development with Foundations for Innovation, with Monitoring and Evaluation System	Croatia (National)

3.3.2. Policy Instrument Experience

Policy Instrument experience harvesting activity was used to gather input from each PP on their experience with regard to the ascension and utilization of specific subsidized support mechanisms to enable an added-value for target groups within their functional area, on the topic of CAMI4.0.

Table 2 provides a summary of the inputs from all PPs contribution to Policy Instrument Harvesting. Altogether, 40 instruments split across:

- Geographical scope: transnational, national and regional level;
- Instrument types: funding scheme (19), subsidized services (10), infrastructure development (2), mixed support (9);
- Target Group: SME, HER, LE, BSO



Huge potential to learn from this structural support type, and provide impulse into working-group discussions on policy pilot action use case development and RIS3 alignment.

Table 2 Policy Instrument Experience Input Summary

(Source: Project Generated)

Partner	Instrument
1 - KPT	<ul style="list-style-type: none"> (1) <u>Vouchers for innovation</u>, subsidized service and funding scheme; (2) <u>ScaleUp Programme</u>, funding scheme; (3) <u>Bridge Alfa (Spin-Off investment)</u>, funding scheme; (4) <u>Digital Innovation Hub Policy of Poland</u>, subsidized services and equipment infrastructure.
2 - PRO	<ul style="list-style-type: none"> (1) <u>COMET, Competence Centers for Excellent Technologies</u>, funding scheme; (2) <u>Production of the Future Funding Program</u>, funding scheme; (3) <u>Digital Innovation Hubs of Austria</u>. Subsidized services; (4) <u>Innovation Check, Low-Level Support for SMES (1) (2) (3)</u>, funding schemes;
3 - PIA	<ul style="list-style-type: none"> (1) <u>Industry 4.0 Funding Program</u>, funding scheme; (2) <u>Digilift (Digitalisation Acceleration Funding Program- Sweden)</u>, subsidized service; (3) <u>Big Data in Production (Bilateral Funding Program Germany & Austria)</u>, funding scheme; (4) <u>Maturity Model for Industry 4.0</u>, subsidised service
4 - IWU	<ul style="list-style-type: none"> (1) <u>Performance Centres for Smart Production</u>; (2) <u>Trinity Network (Network of Digital Innovation Hubs)</u> subsidized service; (3) <u>Research Foundation for Tools and Materials (Funding Scheme)</u>; (4) <u>Smart3 Network (R&D Alignment Network, on Smart Materials & Funding Scheme)</u>
5 - KIT	<ul style="list-style-type: none"> (1) <u>Central Innovation Programme for Small and Medium Sized Enterprises, Funding Scheme</u> (2) <u>Karlsruhe Nano Micro Facility (R&D Alignment Network on Functional Micro and Nano Materials, Subsidized Service)</u>; (3) <u>Vanguard Initiative</u>, Funding Scheme; (4) <u>Allianz Industrie 4.0 Baden-Wuerttemberg (Technical support network, subsidized services)</u>
6 - AFIL	<ul style="list-style-type: none"> (1) <u>S3-Innodriver - Vouchers for SME Innovation</u>, funding scheme; (2) <u>Italian Industry 4.0 Plan</u>, Equipment/ Infrastructure finance scheme (3) <u>MADE Competence Center and Call System</u>, subsidized service and funding scheme (4) <u>3DP Pan EU Call for SMEs</u>, subsidized service and cascade financing scheme.
7 - SIIT	<ul style="list-style-type: none"> (1) <u>European Metaclusters, domain Advanced Materials and Connected Materials for Security and Defence</u>, funding scheme. (2) <u>Bonus Formazione 4.0</u> staff training on technology and digital transformation, subsidized service; (3) <u>Polo SOSIA Research and Innovation Center</u>, subsidized service. (4) <u>National Technology Cluster on “Intelligent Factory”</u>, R&D alignment network
8 - PTP	<ul style="list-style-type: none"> (1) <u>Innovative Company Launch Incentive</u>, Funding Scheme (2) <u>Strategic Innovation Partnership Support in Area of S3</u>, Funding Scheme (3) <u>Innovation Voucher for Cyber Security</u>, Funding Scheme (4) <u>Research Development an Innovation in Value Chains and Networks</u>; Funding Scheme



Partner	Instrument
9 - PBN	<p>(1) <u>INTENCIVE: Innovation and Technology Enhancing Oriented Health Services</u>, Funding Scheme (?) Project</p> <p>(2) <u>HGC Academy Mentoring Programme</u>, Subsidized Services</p> <p>(3) <u>Export Performance Boost of Hungarian SMEs</u>, Funding Scheme (?) - Project.</p> <p>(4) <u>Human-Machine Cooperation with Social Economy</u>, Subsidised Service.</p>
10 - HAMAG	<p>(1) <u>HR ZOO</u> building a computer and data cloud in HR, Equipment and Infrastructure Finance;</p> <p>(2) <u>IRI2</u>, new product development support, subsidised service and funding scheme;</p> <p>(3) <u>Integrator</u>, supplier relationship building with integrator companies, subsidized services and funding scheme;</p> <p>(4) <u>Innovation in the S3 Environment</u>, subsidized service and funding scheme.</p>



3.3.3. Technology Use Cases Experiences

Partners bring together a diverse set of technology use case experiences, emerging from private and subsidized project environments. Overall, the largest amount of technology use cases were in the topics of Big Data & Sensors and Automation and Robotics. However, nearly half of all technology use cases covered multiple topic areas, taking an approach which mixed the technology areas identified during the Application Form starting phase. Other interesting summaries is that the majorities of technology use cases address SME or LE needs (over half addressing both of these target groups), showing that the partnership has an overarching positive-bias towards helping these organisations. Table 3 provides a summary of all the use cases, their associated CAMI4.0 Technology topic areas, and the target groups they address.

Table 3 Technology Use Case Harvesting

(Source: Project Generated)

PP Name	Use Case	CAMI Topic					Target Group					
		BD & S	A&R	S&N M	AI	Other	SME	LE	BSO	HE&RO	ETC &S	Other
KPT	<u>ASTOR Robotics Center (ARC)</u>		1				1	1				
KPT	<u>ARIA by 1000 realities</u>				1			1				
KPT	<u>Exmetrix</u>	1			1		1	1	1	1		
KPT	<u>Smart S-Labs Plugin</u>	1			1	IoT		1				
PRO	Collaborative Robot Solutions		1				1	1	1			
PRO	<u>robotic system for the X-Ray inspection of large composite parts (Spirit)</u>		1		1		1	1				
PRO	<u>FUNCTIONALIZATION AND DECORATION OF LARGE SUBSTRATES (Robot-based inkjet printing)</u>		1	1				1		1		
PRO	<u>Assistance Systems in Production in the Context of Man - Machine Cooperation</u>	1	1				1	1		1		



PP Name	Use Case	CAMI Topic					Target Group					
		BD & S	A&R	S&N M	AI	Other	SME	LE	BSO	HE&RO	ETC &S	Other
PIA	<u>5G-Playground</u>	1	1				1	1	1	1		
PIA	<u>Green-Tech-Radar</u>	1			1		1	1	1	1		
PIA	<u>Industry40-Laboratory</u>		1				1			1		
PIA	<u>Pilot-Factories</u>	1	1		1		1	1		1	1	
IWU	<u>SensoTool</u>	1	1	1			1	1		1		
IWU	<u>PermaVib</u>	1	1	1			1	1				
IWU	<u>Smart eDrive</u>	1		1			1	1				
IWU	<u>KEIFFON</u>			1			1	1		1		Hospitals
KIT	<u>Overmolded Orthopaedic Implants</u>		1	1						1	1	
KIT	<u>SMARTLAM - A modular, flexible and scalable process</u>	1	1	1			1	1		1		
KIT	<u>DIMAP - Novel Nano Ink Development</u>		1	1			1	1		1	1	
KIT	<u>PAM2 - Topology Optimised Mould inserts</u>					Additive				1	1	
AFIL	<u>Glebanite: a new value added circular material</u>			1			1					
AFIL	<u>Rold SmartFab</u>	1					1					



PP Name	Use Case	CAMI Topic					Target Group					
		BD & S	A&R	S&N M	AI	Other	SME	LE	BSO	HE&RO	ETC &S	Other
AFIL	<u>Portable testing unit for statistical quality check control</u>	1	1					1				
AFIL	<u>Smart component for self diagnosis enabling predictive maintenance</u>	1			1			1		1		
SIIT	<u>CloudiFacturing</u>	1						1	1			
SIIT	<u>Innovative and holistic robotic system</u>		1					1	1		1	
SIIT	<u>Innovative control system integrated in production lines</u>		1					1	1		1	
SIIT	<u>Human-centric mechatronics framework</u>		1					1	1		1	
PTP	<u>USE THE POWER OF DATA TELEKOM SLOVENIJE</u>	1					IOT		1			
PTP	<u>SMIP - SMART INFORMATION PLATFORM</u>	1			1			1	1			
PTP	<u>IPSPlus</u>	1						1	1			
PTP	<u>RoboFlex</u>		1					1	1			
PBN	<u>Analysis of companies based on questionnaire</u>				1			1	1		1	
PBN	<u>Automated drone in the inventory</u>		1					1	1			
PBN	<u>Collaborative robot - Demo development with 3D printing</u>		1					1	1	1		
PBN	<u>Sensor application</u>	1						1	1	1	1	1



PP Name	Use Case	CAMI Topic					Target Group					
		BD & S	A&R	S&N M	AI	Other	SME	LE	BSO	HE&RO	ETC &S	Other
HAMAG	<u>Collaboration of researchers through a crowd innovation platform</u>	1							1	1		
HAMAG	<u>Infrastructure sharing</u>			1		Additive M&N	1		1	1		
HAMAG	<u>Crowdfunding for research and development</u>	1		1		M&N	1		1			
HAMAG	<u>Crowd innovation as an emergency response</u>	1	1	1	1	Additive	1	1	1	1		Emergency Services



3.4. Competencies and Future Interest Areas for CAMI4.0

The purpose of this section is to provide all partners a short overview of the results of the competency matrix exercise, and the one-to-one interviews which each PP completed with MIND CONSULT & RESEARCH. Especially for the second sub-section, **please review the notes which emerged from your organisation’s first brain storming session; and also the notes from other PPs, so you can identify opportunities.**

3.4.1. Competency Matrix Results

From this input, it is recommended that each Network leader (working with the active and interested partners) refines their topic & sub-topic to be sure they are in keeping with the skills and competencies of the PPs in the project, and their interest areas.

For Example: It would be valuable if Network 1 was reimagined (From Big Data and Sensors to “Production Systems”), so as to meet the competencies and resources of the partnership more effectively. The Network 1 Leader, KIT will have an opportunity to bring forward their vision for a revision on this topic & the sub-topics which the partnership will work on.

Other topics are likely to require a less significant refinement, as there exists a balanced set of competencies amongst players within the project group. However, it may be valuable to reduce the number of sub-topics, depending on the specific development goal of the working group to promote common, RIS3 alignment.

Table 4 Competency Matrix Partner Input Summary

(Source: Author Generated, via PP contributions)
Experience in the Topic; 3 = Interest in Learning about the Topic.

	KPT	PRO	PIA	IWU	KIT	AFIL	SIIT	PTP	PBN	HAMAG
Network 1: Big & Real Data Processing & Sensors / PP5/KIT										
Efficient storage devices and databases for Big data	2	3	3	3	1	2	3	3	2	2
Big Data Analytics	2	3	3	3	2	2	2	3	1	2
Big Data Application	2	3	3	3	2	2	3	3	1	3
Big Data Visualization	2	3	3	3	3	2	2	3	1	3
Sensors and Sensor networks	2	3	3	3	2	2	1	2	1	3
Network 2: Automation& Robotics / PP2/PRO										
Robotic and Assistive Systems	1	1	3	2	2	1	1	2	1	2
Machine Vision - Zero Defect Manufacturing for Automation	2	1	3	2	1	1	1	2	2	2
Augmented and virtual reality, visualization	1	1	2	2	3	1	3	3	1	3
Simulation and modelling, Flexible Production Systems	1	1	2	2	1	1	1	2	1	2
Robots for non-Industrial Applications	1	2	3	2	3	1	1	2	2	3
Network 3: New Materials / PP4/IWU										
Functional Materials	3	1	3	1	2	2	3	3	3	3
Improved technologies for Smart Material manufacturing and Processing	3	1	3	1	2	2	2	2	3	1
System Design and Implementation	3	1	3	1	2	3	2	3	3	3
Smart Structures	3	2	3	1	2	3	3	3	3	3
Manufacturing of Smart Material Systems	3	2	3	1	3	2	3	3	3	3
Network 4: Artificial Intelligence / PP6/AFIL										
Machine Learning (ML)	2	1	2	3	1	1	1	3	2	3
Natural Language Technologies (NLP)	2	3	2	3	3	1	3	3	3	3
Recognition technologies	2	2	2	3	3	1	2	3	2	3
Decision management:	2	2	2	3	2	1	2	2	3	3
AI-enhanced/powering hardware and robotics	1	2	3	3	2	1	2	2	3	3



3.4.2. Future-Oriented Action Interest Areas

In the weeks 25 to 27, a series of one-to-one calls were had between MCR and the partners within the project. The purpose of these meetings was to kick-start PP brainstorming on the action areas they'd like to develop as part of their work in CEUP's thematic topic areas. Furthermore, it was to gain initial insights on strategy building and network management preferences from each PP, leading into the vision and objective-building session, which will take place across the coming 8 weeks.

All calls contained discussion about topic-based initiative ideas, and also more general ideas related to cross-cutting themes of Industry 4.0/Advanced Manufacturing. All calls also included requests or ideas on how to improve cooperation, network management, or fast-tracking a strategy development process. Notes from the calls have been summarised below:

Partner	Discussion Insights
1 - KPT	<p>Discussion took place on the 26/06/2020</p> <p>Cross CAMI4.0 Initiative Ideas</p> <ul style="list-style-type: none"> ➤ European Digital Innovation Hub, Transnational Network (built on infrastructure sharing/demo factory sharing/ and training/support services alignment) ➤ Train the trainer collaboration opportunities to exchange on cross-technology/cross-thematic area support for entrepreneurs. ➤ How to develop monitoring & measurement tools to understand the effectiveness of implementation of RIS3. <p>General Comments on CEUP 2030 Strategy Building & Network Building</p> <ul style="list-style-type: none"> ➤ Connect all actions to a set of recommendations which can help address “short-comings” or improvement areas for the set-up of the new RIS3 Programmes. ➤ Connect CEUP 2030 actions (especially stakeholder engagement events) to the Entrepreneurial Discovery Process (EDP) which is being fostered as a recommended methodology to match top-down development targets, with bottom up company needs. ➤ Developing a common understanding of the knowledge base & expertise of partners is important - can use Speed Networking opportunities during the Virtual Kick-Off Meeting (and also other physical meetings at the next face-to-face opportunity to develop this understanding).
2 - PRO	<p>Discussion took place on the 23/6/2020</p> <p>General Comments:</p> <ul style="list-style-type: none"> ➤ Clear definition of cooperation and its conditions - e.g. common research, transfer, training, etc. <p>Initiative Ideas:</p>



Partner	Discussion Insights
	<p>(1) Strengthening network with PP and their eco system / stakeholder network - in particular to address industry/SME and complementary R&I partners, experienced project coordinators (e.g. AFIL; SIIT)</p> <p>(2) Technology monitoring inside PP group and their eco system, i.e. who can provide what kind of technology/knowledge</p> <p>(3) Immediate use from (1) und (2) for HEU Horizon Europe, etc. (e.g. already submitted H2020 project on robotics with IWU)</p> <p>(4) Permanent task: How to manage learning on new technologies and their applications for/with stakeholders.</p> <p>(5) E*DIH: How to consider/establish/manage a consistent result-oriented project system - from now on to the full implementation.</p> <p>(6) Sharing direct access to stakeholders on EU level.</p>
<p>3 - PIA</p>	<p>Discussion took place on the 19/6/2020</p> <p>General comments:</p> <ul style="list-style-type: none"> ➤ Useful to complete a Gap analysis between regions which haven't used a certain topic or certain policy instrument to assess opportunities for new initiatives; ➤ Would be supportive of combined topics on I4.0 generally; ➤ Useful to know what service and what target group partners have in common; also, what "level" of support/ coordination should occur from an instrument (workshops are easier than creating a full-fledged funding scheme in common) <p>Initiative ideas:</p> <p>(1) Cross-CAMI4.0 Topics:</p> <ul style="list-style-type: none"> ○ EIT Manufacturing, connecting on the topic of advancing I4.0 education (Using regional, national or some dedicated education-focused funding to develop this - like ERASMUS+, e.g. DITA) ○ I4.0 Platform System in Europe (dedicated action for system development) ○ Business Models for Commercialisation of Pilot Factories ○ Digital Innovation Hub Coordination ○ Resource Sustainability (processes to promote energy efficiency, and material for CO2 reduction e.g. in cement/steel industry - also life cycle sustainability - SH comment: AFIL, Vanguard, working group; TECOS: renewable raw materials, waste materials / BMI, new digital value chains) ○ Post-COVID Actions (e.g. new value chains = comment from WS)



Partner	Discussion Insights
	<p>(2) Materials - Material Health & Safety, and Resource Efficiency in Materials (Low Carbon, Waste Reduction etc.)</p> <p>(3) Big Data - Extending the Common Data Programmes on data sharing, standards and standardization of data and software used for data sharing (European industrial policy scheme)</p>
<p>4 - IWU</p>	<p>Discussion took place 25/06/2020</p> <p>Initiative Ideas:</p> <p>@Materials -material components for acoustics/building and medical sector</p> <p>@production - predictive maintenance and additive manufacturing</p> <p>Cross CAMI4.0</p> <ul style="list-style-type: none"> ➤ Cross-clustering of technology competencies in I4.0 to ideate on solving key problems for SMEs - smart3 initiative could be a good starting ground for this. ➤ Technology “cocktails” - sell problem solving, not technology development (instead cross-technology cooperation) ➤ Exchange on technology application fields, cross-sector applications (such as applying principles of I4.0 in Medical sector) - IWU have a key role with the University Clinic in Leipzig to connect companies and technology providers with doctors/medical staff, via an on-site research laboratory. ➤ Exploit and expand 2020 initiatives or other connected initiatives <p>General Comments on Thematic Network Management / CEUP Goals</p> <ul style="list-style-type: none"> ➤ Need to keep market focused, and in line with institutional aims and competencies ➤ Tie into the strategic mission and strategic intent of Mittelstand4.0, and other initiatives (DIH & projects), to build bridges between initiatives. ➤ Trust and understanding needs to be built between PPs in order to generate new project ideas, this starts with each PP doing some “homework” to provide an overview of how their organisation functions to solve target group’s problems with regards to Industry 4.0 (generally & for the CAMI4.0 topic areas...) ➤ Harvest vision from other Central Europe projects (S3HubsinCE? 3DCentral) for the thematic topics, and use the PP exchange to upgrade the vision to be future-proof. So, we don’t start from scratch. ➤ Each thematic topic area needs some time (on a targeted brainstorming call) to harmonize views on a strategic path for each topic
<p>5 - KIT</p>	<p>Discussion took place 23/06/2020</p>



Partner	Discussion Insights
	<p>Initiative Ideas:</p> <ol style="list-style-type: none"> (1) @Big Data: would prefer to take a wider view on data usage, towards Production System, focusing on scalable and flexible production, along with hybrid production systems, and tailor-made production. Big Data specific competencies are (2) @Robotics: fostering collaborative robotics, training robots by AI / self-learning, bionic robots (especially printed components for such robots), adaptive robotics (3) @Materials / Printing: sensors, actors, skeleton; insert nano particles with specific features; print “human” robot arms KIT; nano safety (cooperation with BNN/AT/Graz, member of European Association) (4) @AI: see Robotics - aka self-learning robots using AI (5) Cross CAMI4.0 Topics <ol style="list-style-type: none"> a. Sustainability, circular economy and resource efficiency - especially with regards to how production systems can communicate with the electricity grid to provide demand-response. b. Printing technologies integrated as a research area across all topics. <p>General Comments on Thematic Network Management/ CEUP Goals</p> <ul style="list-style-type: none"> ➤ A simple, but robust format is needed to develop Network 1 & manage resources effectively to deliver tangible future goals. ➤ Secure location for discussion/collaborative development is key (non-Google), to ensure GDPR requirements are met. ➤ Tie all thematic network management to the strategic intent of organisations involved (each organisation involved should bring the strategies in which they work & engage to frame the development of the policy implementation framework; for KIT this is their mission with regards to Helmholtz and the testing of functional printing concepts to “solve big problems of society”). ➤ Use opportunities like Vanguard (common to all regions) or specific regional funds (Allianz 4.0 B-W, zb), to pool network competencies and develop pilot actions, so as to deliver a practical approach to support industry 4.0 development
<p>6 - AFIL</p>	<p>Discussion took place on the 26/06/2020</p> <p>Initiative Ideas:</p> <ol style="list-style-type: none"> (1) Artificial Intelligence - how to make textile production smarter (specific); generally creating demonstration use/cases on the topic of AI (2) Materials - develop a regional demo-case on the topic.



Partner	Discussion Insights
	<p>Cross-CAMI4.0</p> <ul style="list-style-type: none"> ➤ Generate connections / formal actions with DIH system (DIH Lombardy), MADE and EIT Manufacturing; ➤ Utilise Target Group Challenges (or Sector Challenges) to frame the actions which PPs collaborate on. ➤ Focus on specific needs (what is valuable to the short/mid-term for strategy planning?) ➤ Infrastructure/lab equipment financing tool to promote test before buy, as a method of challenge solving. <p>General Comments on CEUP 2030 Network & Strategy Development</p> <ul style="list-style-type: none"> ➤ Balanced contribution between PPs should be expected and fostered by network leaders; ➤ We need to consider the different competencies and functional roles of each PP with regards to the strategy work & technology development the PP is responsible for. ➤ Connect CEUP 2030 to key initiatives which the PPs are already representing in, with regards to Advanced Manufacturing & I4.0 (Vanguard / EIT etc.) ➤ Will be valuable to give PPs time to develop their competency contribution to the network (Deadline circa end of July for the presentations) ➤ @Strategy work should conclude with a document that provides in-depth insight on the involved region's priorities and outlook for Industry 4.0, including recommendations of how and with whom to enhance cooperation using regional policy instrument (based on aligned and synergistic needs to fill gaps which exist in the subsidy landscape).
7 - SIIT	<p>Discussion took place on the 19/06/2020</p> <p>Initiative Ideas:</p> <p>(1) Materials - European MetaCluster - direct request for partners to join a COSME consortium on the topic of advanced materials and textiles for the defence sector (open for some flexibility on the sectoral focus.) in partnership with France and Netherlands</p> <p>(2) Cross-CAMI4.0 Topics</p> <ol style="list-style-type: none"> a. Polo Sosia - looking for partners who also provide training and infrastructure support on multiple I4.0 topics (specifically via the creation of demo/prototype laboratory), to potentially develop exchange (via two aligned regional initiatives) on good practices (organisational management, participant exchange etc.) and also



Partner	Discussion Insights
	<p>b. company experience exchange within this support structure (also to develop research and market opportunities)</p> <p>c. Alliance/network development on all topic areas.</p> <p>General Comments on CEUP/Strategy Development Process</p> <ul style="list-style-type: none"> ➤ Involved in the regional development process to identify key technology topics, and assess the technical feasibility and technology readiness of supporting on these topic areas. This was a company-led process, to suggest topics & needs.
<p>8 - PTP</p>	<p>Discussion took place on 29/06/2020</p> <p>(1) Robotics - cascade financing opportunities though DIH2</p> <p>(2) Cross CAMI 4.0 Topics</p> <ul style="list-style-type: none"> ➤ Start-Up & Scale Up Support Coordination (tech scouting, test before invest, partnership development) ➤ Training coordination (cross manufacturing topics - lean manufacturing), on company led- training interest areas. ➤ Knowledge Transfer alliance (connecting technology solution providers with company needs) ➤ Horizontal actions- across topic/technology coordination & support. <p>General Comments on CEUP / Strategy Development Process</p> <ul style="list-style-type: none"> ➤ Playing a bridging role between top-down policy making and bottom up needs. Exchange on how support system could operate from a transnational point of view. ➤ Connect to H2020, National and other Interreg initiatives where Slovenia (and all PPs) are doing AM/ I4.0 work - to promote stakeholder access.
<p>9 - PBN</p>	<p>Discussion took place on 22/06/2020</p> <p>Initiative Ideas:</p> <p>(1) Artificial Intelligence - Education programme development in machine learning, post-grad and industrial seminars on the topic. Looking to advance competencies and promote specialisation in this field, currently working on a project to develop 14 pilot applications in the Health sector.</p> <p>(2) Robotics - Collaborative robotics application development</p> <p>(3) Materials - Joint material audit with other players in Europe towards organisations in Hungary, to discern application opportunities.</p> <p>(4) Big Data - international network development for a connected supply chain for big data services.</p> <p>(5) Cross CAMI4.0 Topics</p>



Partner	Discussion Insights
	<ul style="list-style-type: none"> a. EIT Manufacturing, co-location centre in Hungary as Lead representative, together with TU Budapest b. Digital Innovation Hub experience exchange and service development/alignment. c. Infrastructure development to create a demo laboratory system for industry 4.0 support topics and training center. <p>General Comments on CEUP 2030:</p> <ul style="list-style-type: none"> ➤ Essential to anchor development in Project with regional and local governments, and ensure communication with DG Connect; ➤ Interested in arranging cooperation to transfer knowledge into the region from outside, in network format and also via coordinated training/ audit schemes. This can promote both internal skills developments, whilst also raising awareness of new technology to stakeholders.
10 - HAMAG	<p>Discussion took place on the 2/7/2020</p> <p>Initiative Ideas:</p> <ul style="list-style-type: none"> ➤ Interested in sharing experiences like e.g. FFG/DLR Big Data in Production, transnational cooperation of RIS3, ... ➤ Interested in taking a cross-I4.0 (horizontal) approach. <p>General Comments on CEUP 2030:</p> <ul style="list-style-type: none"> ➤ Leverage the strategic and functional role of each PP, for instance HAMAG is the JS of S3 in Croatia. ➤ Leverage the project experiences and project network of each PP, and the competencies which each have on industry 4.0



4. Strategy Implementation Blueprint Development

The Strategy Implementation Blueprint (“Blueprint”) sets a basis of common understanding between the partner regions involved in the project, on the four CAMI4.0 focus areas. It carries two aspects, (1) Joint Strategy and (2) Action Plans, containing PP use-cases for the four CAMI4.0 Topics.

As previously described, the Blueprint sets a baseline for cooperation between partners, and will evolve through iterative discussions across the project. Through these discussions, use-case ideas will be formalised with the development & implementation (in certain cases) of two RIS3 Alignment projects, which are used to monitor the sustainable development of the common model for each CAMI4.0 Topic. These projects will be marketed under the Policy Implementation Framework, (“PIF”) which ultimately represents a strategy and action plan which have gained support and buy-in from policy-relevant stakeholders

4.1. Joint Strategy Building

4.1.1. The Idea

This section will provide basic information on strategies and the components which will be part of the CEUP 2030 Joint Strategy. It builds on PP’s previous experience and directly brain-storming which occurred during the one-to-one discussion sessions. All content of how strategy building is up for discussion, and your earliest reflection is key to set the appropriate baseline for both the Blueprint and the PIF (for WPT3).

4.1.1.1. What is a Strategy?

Strategy is an action that managers (in our case, thematic Networks) take to attain one or more of the organization’s goals. Strategy can also be defined as “A general direction set for the company and its various components to achieve a desired state in the future. Strategy results from the detailed strategic planning process”.

4.1.1.2. Components of the Strategy According to CEUP 2030

By balancing expectations from the application form, and good practice developed from PPs across multiple regional, national and transnational projects, the following components will be prioritised as the operating units of the CEUP 2030 Strategy:

Vision: A vision statement identifies where an organization wants or intends to be in future or where it should be to best meet the needs of the stakeholders.

Within CEUP this vision will be formulated by taking a combined view of the regional and national strategies of each PP organisation (for the WPT1 output). This will be formulated on the level of Advanced Manufacturing & Industry 4.0 as a whole topic (after feedback from PPs regarding the fact that most strategic visions do not break-down AM to a topic by topic approach, instead focusing on “challenges” which are addressed by single & multiple technology streams.

Mission Statement: Mission statement is the statement of the role by which an organization intends to serve its stakeholders. It describes why an organization is operating and thus provides a framework within which strategies are formulated. It describes what the organization does (i.e., PRESENT CAPABILITIES), who all it serves (i.e., TARGET GROUPS & STAKEHOLDERS) and what makes an organization unique (i.e., REASON FOR EXISTENCE - FUNCTIONAL ROLE).



Within CEUP this mission will be formulated by providing a view of the functional role, capabilities and strengths, and the stakeholder network of each PP, associated to the CAMI4.0 Topics. It has been raised in multiple conversations that understanding these components, first on a disaggregated level (i.e. what each partner brings to the mix), and then on a partnership-wide level (what the partners can bring together), is going to be critical to formulate a mission. For WPT1, the partnership will focus on building understanding of what each other can bring (and simultaneously, what is their organisation’s role to bring to address its target group needs)

Objectives: Objectives are defined as goals that an organization wants to achieve over a period of time in order to reach the vision and deliver the mission. These are the foundations of planning, and should lead to concerted actions in order to mobilize the vision and mission into reality.

Within CEUP these objectives will be formalized in the strategy, and should represent the PPs views on the common-areas of action which could be done together, based on harmonizing the functional role and target group challenges, which the PP and their regions face for delivering their vision and mission on Advanced Manufacturing (generally), and more specifically for the 4CAMI4.0 Topics. Each Network Leader will work with the PPs to create a set a common definition, sub-topic and sub-topic objectives for the CAMI4.0 topic. Furthermore, these should link directly to the Action Plan and Use Case formulation.

Figure 4 provides an overview of these components within the wider Blueprint, and also shows the connection to the action plan (DT1.3.3)

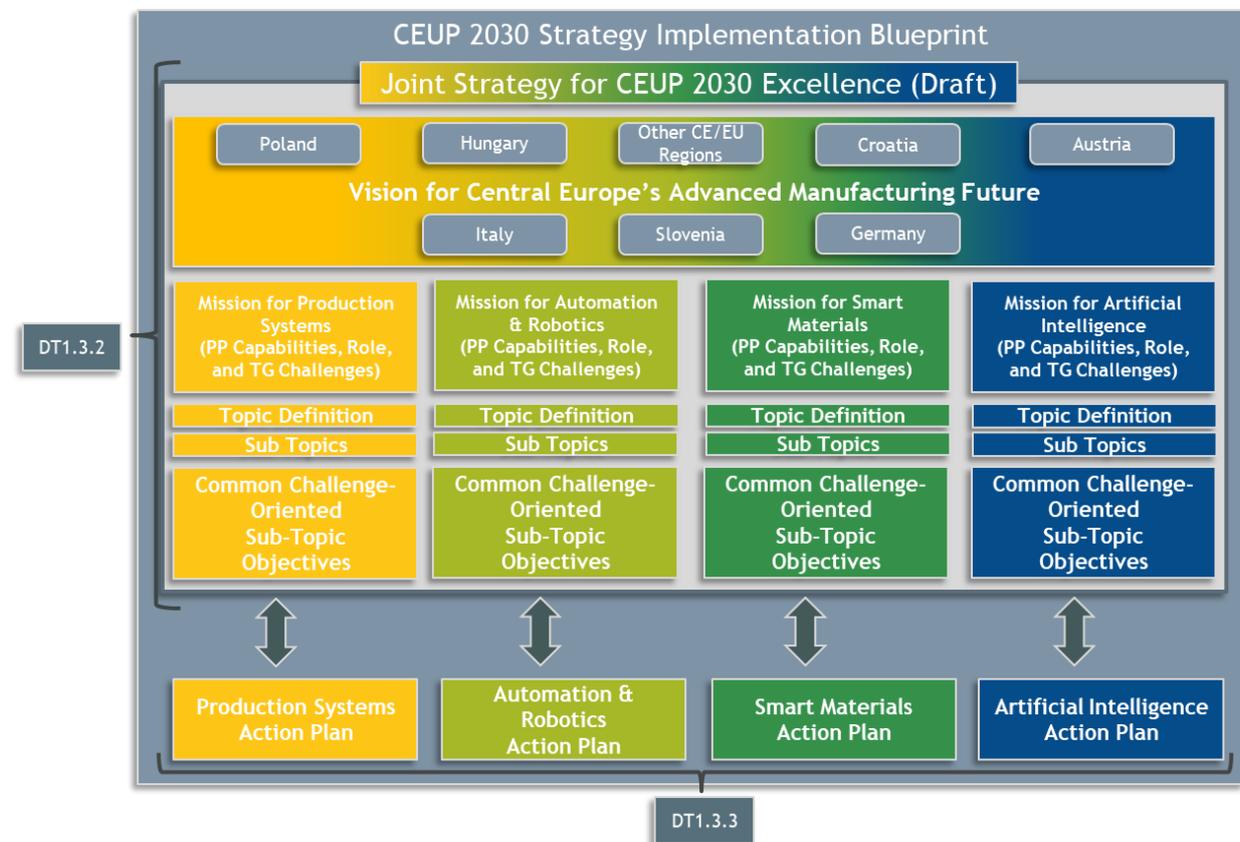


Figure 4 Joint Strategy Blueprint Components
(Source: Author Generated)



4.1.2. The Methodological Approach

Figure 5 provides a working timeline for the Strategy Upgrade and Boost Activity. Each PP is expected to participate in the creation of the Joint Strategy, and the methodology of participation will be discussed in the following sub-sections.

It is important to note that through discussions with PPs and LP it was agreed that for a more thorough trust-building exercise to occur between PPs, the Joint Strategy reporting activity (D.T1.3.2), will be delayed by approximately 1.5 months (to account for time for all PPs to complete “pre-work”, and further steps).

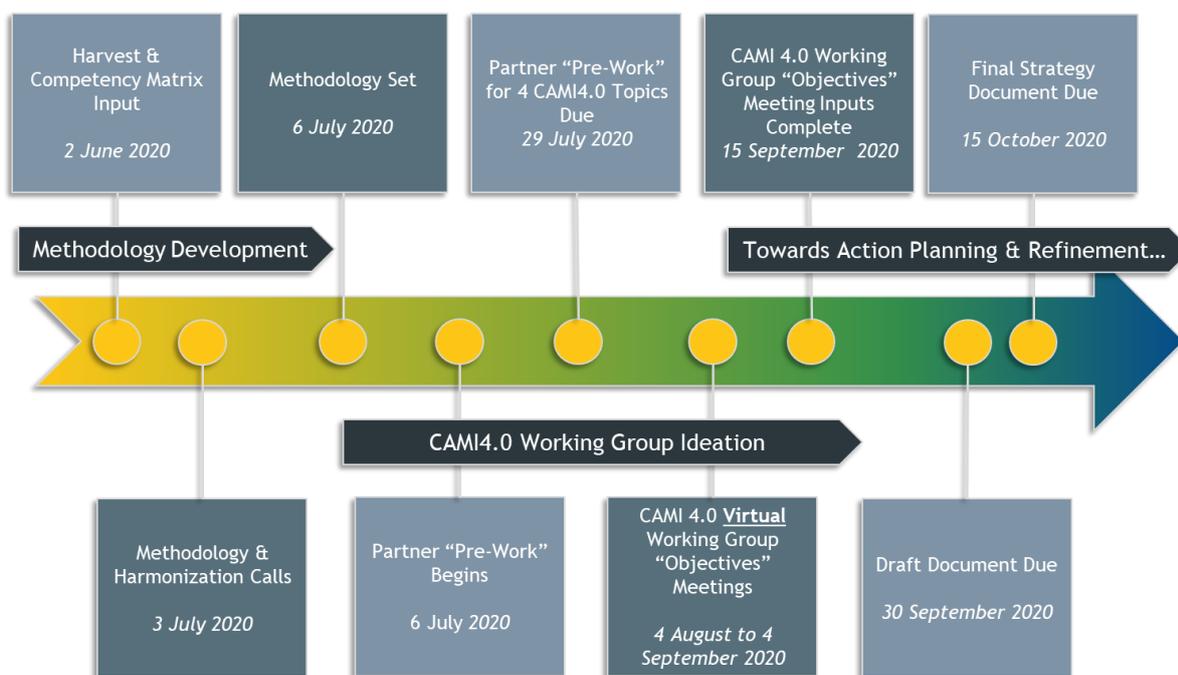


Figure 5 Timeline for Strategy Upgrade & Boost
(Source: Author Generated)

4.1.2.1. Phase 1 - Building a Common Understanding

This phase is characterised by trust building between partners, enhanced and targeted information sharing so as to develop a common view as to what common-objectives could be between the partners, on the four technology streams. Following the discussions with PPs, it was agreed that there needs to be enhanced understanding:

- Regional/National goal or “vision” with regards to advanced manufacturing/ Industry 4.0, including how this relates to their R&I and RIS3 strategy.
- Each PP’s reflection on the functional role your organisation plays for achieving the AM & I4.0 vision and strategic intent;
- Challenges (target group challenges, sector challenges, value chain challenge - see the Challenge Wheel in Appendix 7.1) which your region or nation faces with regard to CE Manufacturing, which are related to or could be addressed by solutions emerging from the CAMI4.0 topic area (or by connecting that area to other Advanced Manufacturing/ I4.0 technology streams).
- Each PP’s reflection on the capabilities and competencies that your organisation has to address the challenges through activating solutions via the CAMI4.0 technology



topics (are you creating knowledge, fostering transfer or allowing innovation & upgrading of the knowledge - See the Technology Transfer Tree in the Appendix 7.2)

- Each PP’s reflection on the network with whom it works to address these challenges.
- Each PP’s reflection on potential opportunities which exist for developing use-cases which connect CE Manufacturing Challenges with the CAM4.0 Technology areas (through the use of targeted policy instruments)

It is recommended that PPs review the full guidance document (including the action planning section), to understand the connectivity between strategy and action plan use cases. In Table 6 is presented a description of the steps which will make up “Phase 1” - Building a Common Understanding. It is critical to note that the Due-Dates reflected in this document are currently tentative, and are dependent on all PPs completing their work on-time and to a high-quality. Network Leaders are responsible for ensuring the virtual meetings take place, and deliver the consolidated inputs on Technology-Area objectives.

NOTE: If there are any delays within the delivery of work, it is each PPs responsibility to report on the progress of their work in their periodic PP Report, and to clarify to the Partnership and to your FLC/JS (via your reporting), when you will complete your activities. As per project rules, any deliverable delay (if unjustified), risks your funds for this activity being decommitted from your organisation’s PP budget.

Table 6 Joint Strategy Phase 1 Description
(Source: Author Generated)

Step	Description	Due Date
<p>1 - Partner “Pre-Work”</p>	<p>All PPs will complete one “pre-work” PPT deck. The purpose is to address the key areas highlighted in building a common understanding, which are perceived to be lacking right now as the partners brainstorm potential action areas.</p> <p>The key will be to highlight to the network leaders the specific areas where you see potential for addressing or more deeply engaging in a specific or “connected” CAM4.0 technology area.</p> <p>The Pre-Work will be reviewed in detail by the Network Leaders (all PPs will be able to access each other’s PPTs).</p> <p>Network Leaders (with the help of all PPs) will be looking to harmonize provided information into a series of draft objectives, based on the challenges/gaps being addressed and competencies of PPs.</p>	<p>29 July 2020 (Wednesday)</p> <p>12 August 2020 (Wednesday)</p>



Step	Description	Due Date
	<p>Network Leaders will invite specific partner's, to present their ideas/their challenges/their network needs and competencies, within a Virtual Working Group (see Step 3).</p> <p>Note: Not all PPs will be presenting in each Virtual Working Group, see Step 2 for more detail.</p>	
<p>2 - Network Leader Coordination & Exchange Meeting</p>	<p>All Network Leaders (IWU, KIT, PRO and AFIL), should have one alignment call or alignment discussion, to determine which PPs can and should present their ideas, based on Pre-Work material completed.</p> <p>This is to ensure that there is a balance of competencies and work across the PPs - also to show-case high quality ideas which could generate common-action.</p>	<p>4 August 2020 (Tuesday)</p> <p>26 August 2020 (Wednesday)</p>
<p>3 - CAMI4.0 Virtual Working Group "Objective" Meetings</p>	<p>Each Network Leader must host one to two virtual meetings, in order to have selected PPs present their "pre-work" and key challenges and objective ideas (3-4 PPs should be chosen to give a 5-7-minute presentation).</p> <p>All PPs must attend one of each (4 total) CAMI4.0 Virtual working group meetings. However, PPs are not expected to present in all meetings (this is to allow topic experts a chance to showcase their ideas).</p> <p>Once presentations are complete, the participants on the call should complete a brainstorming session on some practical objectives which the project should present for the specific Technology-topic area. It is recommended that each Network Leader, reflect on the inputs of PP's Pre-Work, and the Insight provided in this document, to create draft objectives for the PPs which are brought to the virtual meeting for discussion.</p>	<p>4 September 2020 (Friday)</p> <p>24 September 2020 (Thursday)</p>



Step	Description	Due Date
	<p>In Appendix 7.4 of this Document sits a template which showcases an example of how the brainstorming discussion can work. It is built using the formulation of a “SWOT” Analysis, as a means to promote discussion.</p> <p>However, it is broadly most important that the PPs gain some common understanding about:</p> <ul style="list-style-type: none"> (1) Key challenges faced by the regions; (2) Key technology-oriented solutions which can be offered to meet the challenge or “fill the gap”. (3) Key instruments (“policy instruments” which can be used to provide financial support to those solutions. <p>Through these discussions it is presumed that PPs will begin to reflect on how best to Harmonize activity.</p>	
<p>4 - CAMI4.0 Virtual Working Group Meeting Objectives Worksheet Finished</p>	<p>Each Network Leader must <u>fill out and get feedback</u> from working group members on a set of common objectives, based on the type of objectives which are needed to harness the opportunities highlighted by partners during their brainstorming session.</p> <p>A Worksheet to guide these discussions can be found in the appendix 7.4 of this document.</p> <p>These objectives should recognise the functional role of the partners, and the unique tapestry of challenges in the manufacturing sector of Central Europe which need to be overcome, and the capabilities and competencies which the partners have to foster technology-oriented cooperation and action in the CAMI4.0 technology work-streams which form the base of the project.</p>	<p>15 September 2020 (Tuesday) 8. October 2020 (Thursday)</p>





4.1.2.2. Phase 2 - Strategy Formulation

This phase is characterised by harmonising and distilling the information provided across all aspects of the project, into a Partnership oriented Joint-Strategy for CAMI4.0 Excellence.

The formation of the strategy will be the responsibility of KIT, as per the Application Form. However, they cannot do this task alone. All PP's pre-work for the "building a common understanding" phase, and PP's harvesting contributions will be used to set a strategic intention for CEUP 2030, in its goal to bridge challenges utilising technology-oriented cooperation approaches, supported by policy instruments fostered and aligned by the partnership.

Table 7 Joint Strategy Phase 2 Development Description
(Source: Author Generated)

Step	Description	Due Date
1 - Harvesting PP's Pre-Work	KIT will review the pre-work of each PP.	18 August 2020 (Tuesday)
2- Harvesting CAMI4.0's Glossary & Other Project Work Highlighted during	KIT will review the work contributed from PPs of different projects.	18 August 2020 (Tuesday)
3 - Harvesting Inputs from the Objectives Meeting	KIT will review the Objective worksheet from each Network Leader's virtual objective's meeting	15 September 2020 (Tuesday) 8. October 2020 (Thursday)
4 - Formulation of the PP's Joint Strategy for CAMI4.0 Excellence	KIT will formulate a draft Strategy Document, which showcases the tapestry of CE Vision & Strategic Intent, the unique Challenges faced by stakeholders and sectors in the territorial area, and the capabilities and competencies of the Partners to overcome those challenges. It will then introduce a draft vision and objectives for the topic areas, built on the contributions from the partner's "building a common understanding" work, and the objectives to commonly work to bridge challenges with technology-oriented cooperation.	30 September 2020 (Wednesday) 15 October 2020 (Thursday)



4.2. Action Plan Development

Project work does not stop at the creation of a joint vision, it is activated and ultimately realised in the creation of dedicated action plans which move rhetoric to reality. Similar to the joint strategy, the action plan also goes on a development path across the project’s work packages, from its partner-focused starting ideation in WPT1 to the creation of a joint implementation plan which has gained stakeholder buy-in through iterative discussion and feedback, rooted in capitalisation and cooperation.

Fundamentally, by the end of the project, partners must activate two RIS3 Alignment Pilot Projects (20 in total, 2/PP), which should be the manifestation of the project’s vision, mission and objectives within a unique tapestry of practical models for the optimisation of support provision to the Central Europe Advanced Manufacturing & Industry 4.0 ecosystem.

4.2.1. The Idea

The purpose of this section is to provide insight behind the action planning concept, and the critical perspectives which were raised by PPs during project harvesting and one to one interviews. This leads to an introduction for delivering use-cases which bridge the challenges faced by sectors and target groups within Central Europe’s manufacturing sector.

4.2.1.1. What is an Action Plan?

An action plan is a sequence of steps that must be taken, or activities that must be performed well, for a strategy to succeed. It should be a detailed plan which outlines the actions which are needed to reach one or more objective. It should contain enough detail to achieve objectives, and provide clear guidance on what, when and how the actions will be achieved.

4.2.1.2. Components of the Action Plan According to CEUP 2030

It is often characterised in literature, that action plans are developed by describing three major elements, in detail:

- (1) **the specific task**, which explains what will be done, and by whom.
- (2) **the time horizon**, which explains when it will be done; and
- (3) **the resource allocation**, which explains what specific funds are available for specific activities.

For CEUP 2030, the first aspect “specific task” and “time horizon” will be rooted in the concept of the creation of use-cases. See Figure 7, for the generic visualisation of this framework. These use-cases should be demonstration projects which ultimately showcase how Central Europe’s manufacturing challenges, can be overcome and bridge, or addressed through technology-oriented cooperation and collaboration. Very importantly, one of the interesting aspects of these use cases is that they will actually show the Partner’s ideation on how innovative “resource allocation”, emerging from policy-instrument support, can be utilised in order to activate the use-case.

Therefore, the first use cases will be called “Policy Instrument” Use Cases (which will be developed as an outcome of D.T1.3.3 by February 2021), is where partners bring their ideation to the forefront, based on their experiences, their role and the recognition of need from their territorial area. Figure 8 provides a visualisation of this deliverable.

The second, and more detailed and worked-out use-cases will be called “RIS3 Instrument Alignment” Use Cases. These second use cases will need to be formalised in real, tangible action, by the Project Partner by February 2022. These RIS3 Instrument Alignment use cases



will become the units whereby the Partnership will create “common use cases for RIS3 instrument alignment”, which will be a series of recommendations and lessons learnt on how to foster support for CE manufacturing, along with the model of implemented successful RIS3 Instrument Alignment, which can be used as a basis for those recommendations. A simple graphic to show the movement from WPT1 to WPT3 can be found in Figure 6.

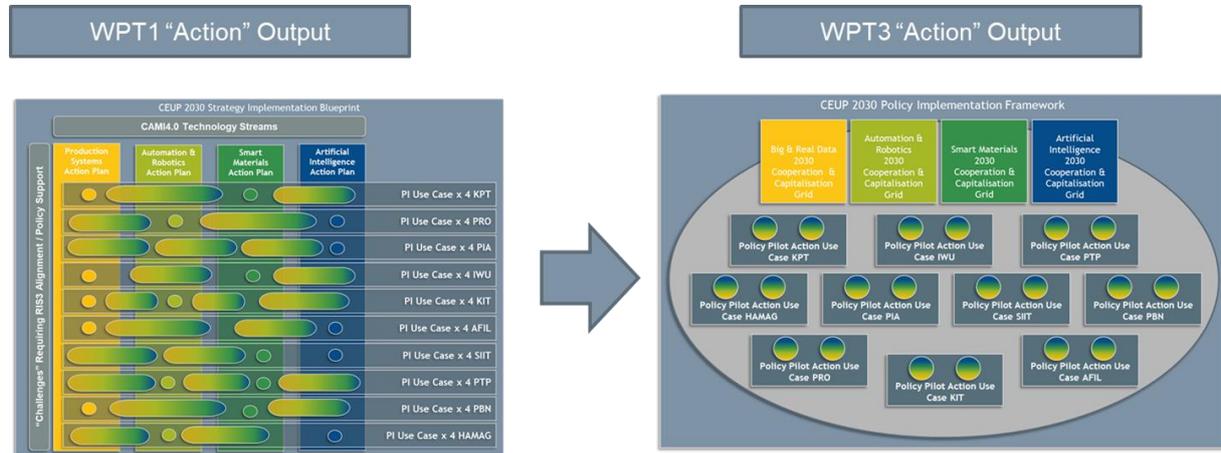


Figure 6 The Development of Actions and Use Cases from WPT1 to WPT3
(Source: Author Generated)

Within this framework we present two tools, which are used to help present some structure around discussions of use cases. The first is the “Challenge Wheel”, which can be found in Figure 10 in the Appendix with a further description of its origin and function. This represents a visual manifestation of the challenges faced by the CE Manufacturing sector’s actors and value chain components. The second is the Technology Transfer Tree, which can be found in Figure 11 in the appendix, with a further description of its origin and function. This represents a visual manifestation of a functional characterization of the roles which organisations play with regard to technology-oriented solutions and collaboration.

Both of these items are tools which can be used to create a common nomenclature, or common visualisation of the challenges and technologically-oriented solutions which are on offer to the territorial area. The Challenge Wheel will act as a first “vector” for framing the use case, the Technology Transfer Tree will act as a second vector for framing the use case. The third vector will naturally be the “policy instrument” which is used to finance or support the connection of the challenge to the solution.

As a reminder, a policy instrument is any individual economic tool which can be used to manipulate an economic variable to achieve an economic objective (from a very technical definition they can include: include interest rates, tax rates, subsidies, minimum prices and wages, and legislation). Instruments are essentially support tools to promote a specific outcome, and in the case of CEUP 2030, instruments are tools which promote CE manufacturing challenges to be solved through the pursuit of technology-oriented cooperation. See [OECD definition of policy instrument](#), and for more inspiration on instrument types to promote innovation see [Borras & Edquist \(2013\)](#) or [Edler & Georghiou \(2007\)](#).



CEUP 2030

We would love your view on these tools and such a framework, and any updates which you think are needed to keep the project focused on the most important objectives.

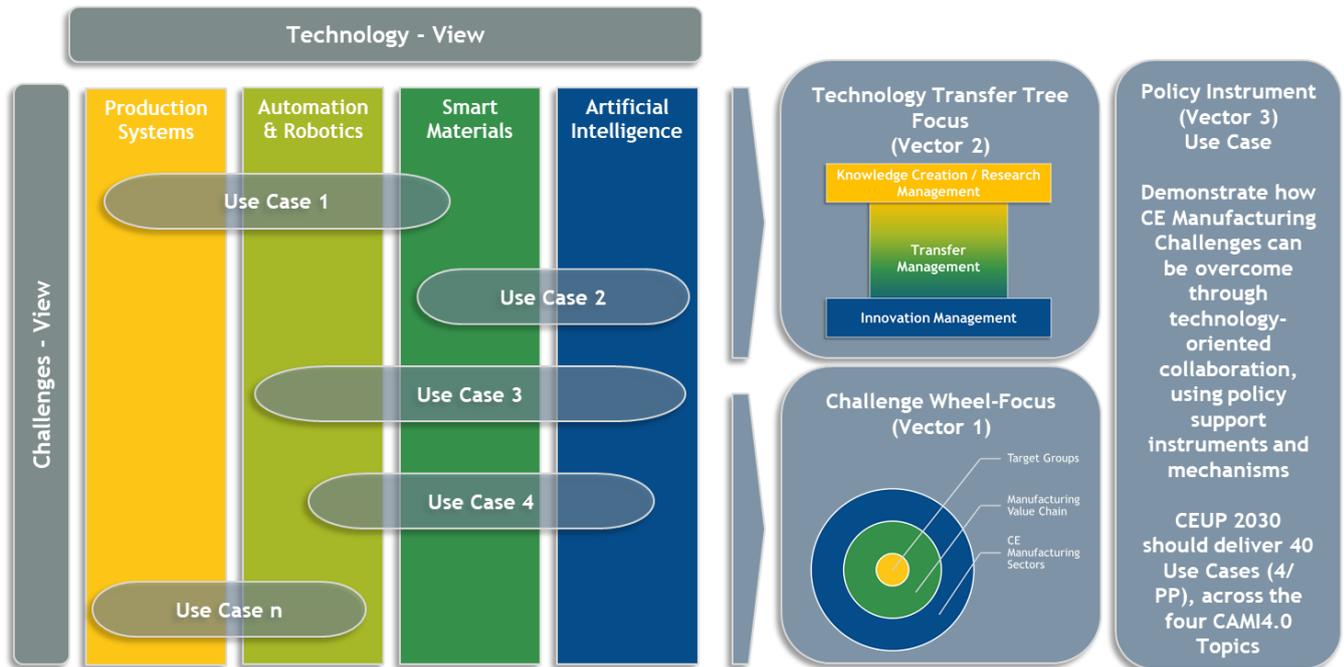


Figure 7 Policy Instrument Use Case Development Framework for CEUP 2030

(Source: Author Generated, and inspired from Smart City Research at ASPERN, Vienna)

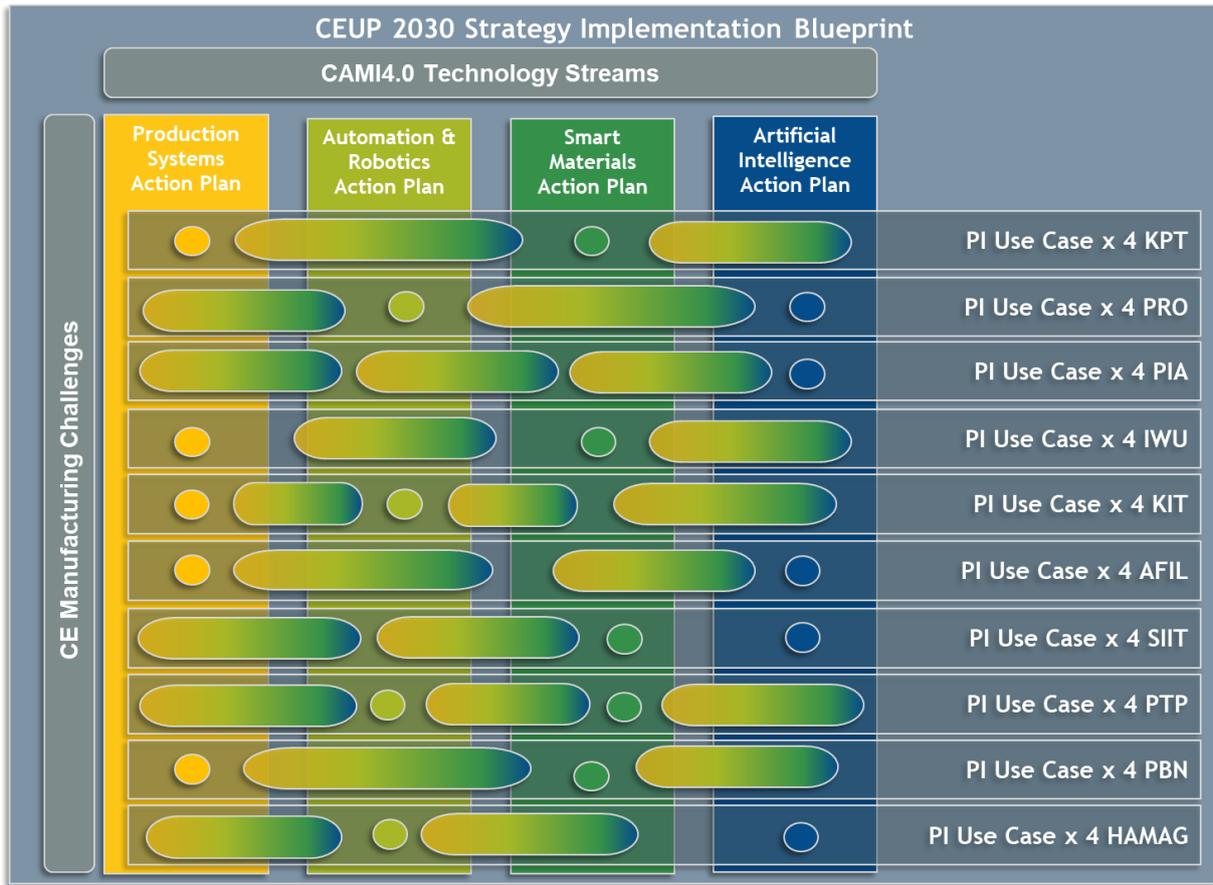


Figure 8 CAMI4.0 Action Plan (WP1 D.T1.3.2, deliverable), visualised (Source: Author Generated)



4.2.2. The Methodological Approach

Figure 9 provides a visual overview of the methodological approach which is recommended for developing the four CAMI4.0 Action plans, which are required as an output of D.T1.3.2. the “Action Plan for CAMI4.0 Excellence in CE/EU Cooperation”.

Through the discussion with PPs, it was agreed that a more cross-technology and challenge-orientation was needed. Therefore, the framework which has been created to develop the use-cases, is built with these requests, in mind. However, your organisation’s feedback (especially through review of this framework and the completion of your organisation’s “Pre-Work”, gives us indications on whether we need to refine the ideas which underpin the methodology.

Therefore, it is important to note that this guidance document does not create a PI “Use-Case” Template, which will be the basis for the physical PP contribution to the Action Plans. This is because we would like feedback on the guidance concept prior to formulating a “use-case template”. IWU will work with KPT (Action Planning Responsible, PP) to take on board feedback from the PP review of this, and issue a template which can be used for formalizing the use-cases which each PP will bring into the Action Plan.

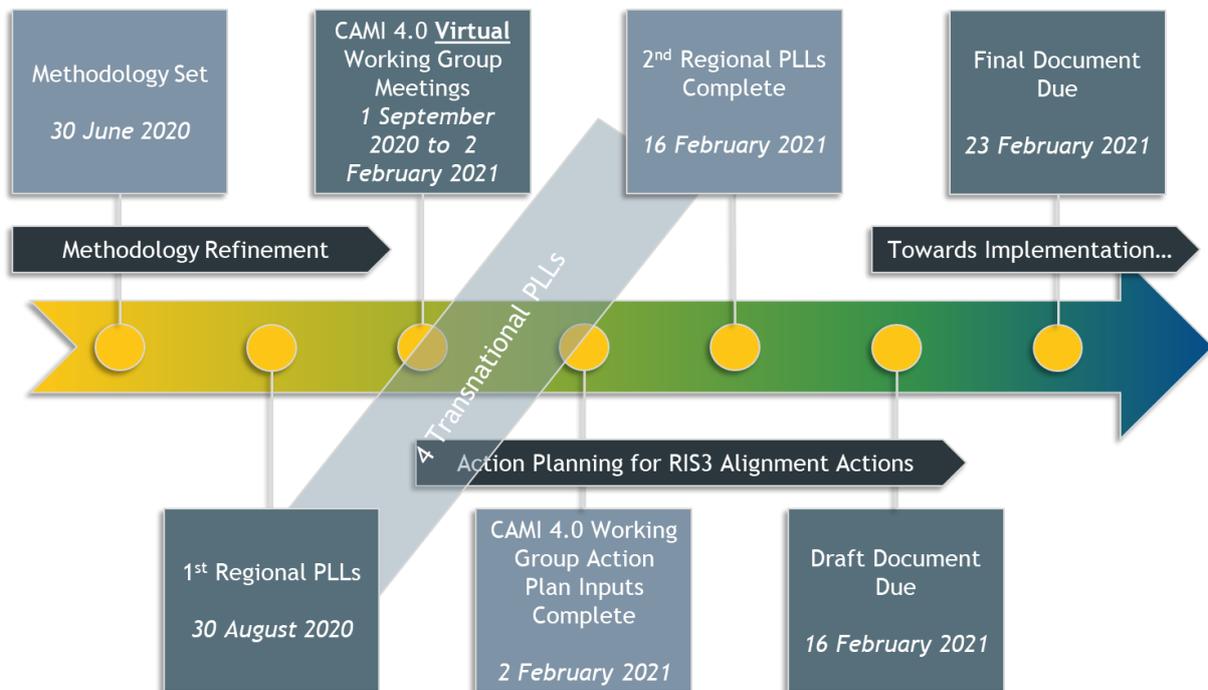


Figure 9 Timeline for Action Plan
(Source: Author Generated)



4.2.2.1. Phase 1 - Building a Common Understanding

Phase 1 of Action Planning is linked to the understanding and trust building which has been profiled in the Joint Strategy methodology section, therefore this will not be further described here. However, it is important that PPs utilise the information they have about one another, from Harvesting, and from the “Pre-Work”, in order to ideate together on tangible actions which could be delivered in the framework of the project.

Therefore, the steps below are the steps, which are interlinked with the opportunities that PPs have to work on independently developing Use Cases, and also working in common to create technology-oriented solutions underpinned by aligned policy instrument action. These steps, are therefore up to the PPs to deliver as obligations of wider project work in WPT1 and WPT2, but it is up to the PPs to recognise the interlinkages about the content which they should be discussing during these stakeholder interactions.

Table 8 Action Planning Phase 1 Description
(Source: Author Generated)

Step	Description	Due Date
1 - Partner “Pre-Work” on Potential Use-Case Ideation	<p>All PPs will complete one “pre-work” PPT deck. The purpose is to address the key areas highlighted in building a common understanding, which are perceived to be lacking right now as the partners brainstorm potential action areas.</p> <p>The key will be to highlight during the ideation phase, any use-case opportunities you foresee your organisation developing because of the nature of the project or the timeliness of specific policy-instrument developments (Due to new programming period development)</p>	<p>29 July 2020 (Wednesday)</p> <p>12 August 2020 (Wednesday)</p>
2 - Partner’s Regional PLL1	<p>SEE PLL GUIDANCE FOR FULL DETAIL</p> <p>PPs should use this time to test their ideas with Stakeholders, and develop their understanding about emerging policy-instrument options on the back of RIS3 programme development (or wider EU opportunities).</p>	<p>By 30 August 2020</p>
3 - CAMI4.0 Virtual Working Group (TIN) “Use Case Ideation” Meeting 1	<p>SEE WPT2 TIN GUIDANCE FOR FULL DETAIL</p>	<p>By October 2020</p>



Step	Description	Due Date
	PPs should use this time to develop their understanding of each other's ideas and to enhance cross-partnership ideation efforts on use case development, in addition to all dialogue on policy intelligence dashboard development.	
4 - Transnational PLLs	SEE PLL GUIDANCE FOR FULL DETAIL PPs should use this time to enhance cross-partnership exchange on use case ideation, whilst also developing channels to explain to a mixed stakeholder group about the potential of this model and approach.	By February 2021
5 - Partner's Regional PLL2	SEE PLL GUIDANCE FOR FULL DETAIL PPs should use this time to test their ideas with Stakeholders, and develop their understanding about emerging policy-instrument options on the back of RIS3 programme development (or wider EU opportunities). They can also use these as opportunities to get specific buy-in for PPs ideas.	16 February 2021
6 - CAMI4.0 Virtual Working Group (TIN) "Use Case Ideation" Meeting 2	SEE WPT2 TIN GUIDANCE FOR FULL DETAIL PPs should use this time to enhance cross-partnership ideation efforts on use case development, in addition to all dialogue on policy intelligence dashboard development.	By February 2021
7 - PP's Policy Instrument Use Case Templates Completed (4/PP, 1 Per CAMI4.0 Topic)	This Template Does NOT Exist Yet PPs will write out a draft concept for their Use Case contribution to the Action Plan. The template will be built on the principles laid forward regarding action planning, and ultimately present the PP's model for use-case development on each CAMI4.0 Topic. PPs will fill out 4 templates (1 Per CAMI4.0 Topic).	23 February 2021 (Tuesday)



Step	Description	Due Date
	<p>These templates will be uploaded on ALFRESCO, in an appropriately named folder.</p>	
<p>8 - CAMI4.0 Virtual Working Group Meeting Use Case Worksheet Finished</p>	<p>This Template Does NOT Exist Yet</p> <p>Network Leaders will check the use-cases presented by the PPs, and consolidate the draft use-cases into a simple table. They will then be asked to highlight some common aspects, based on the “challenges” and “technology-oriented cooperation solutions” which are used to frame the use case description.</p> <p>This table, and short summation will be uploaded on ALFRESCO, in an appropriately named folder.</p>	<p>26 February 2021 (Friday)</p>



4.2.2.2. Phase 2 - Action Plan Formulation

This phase is characterised by harmonising and distilling the information provided across all aspects of the project, into a Partnership oriented Action Plan for CAMI4.0 Excellence.

The formation of the strategy will be the responsibility of KPT, as per the Application Form. However, they cannot do this task alone. All PP's pre-work for the "building a common understanding" phase, and PP's harvesting contributions will be used to set a strategic intention for CEUP 2030, in its goal to bridge challenges utilising technology-oriented cooperation approaches, supported by policy instruments fostered and aligned by the partnership.

Table 9 Action Planning Phase 2 Description
(Source: Author Generated)

Step	Description	Due Date
1 - Harvesting PP's Pre-Work & Creating the Use Case Templates	KPT will review the pre-work of each PP. From this insight and any other feedback gained on the methodology. IWU and KPT will have a meeting about Use-Case Template design, and issue a draft to the Partners.	11 August 2020 (Tuesday)
2 - Harvesting PP's PLL Discussions with Stakeholders	KPT will review the outputs that the TIN & PLLs bring to give light to common development paths which should be highlighted.	By February 2021
3 - Harvesting PP's Use Case Templates	KPT will review the templates which PPs have provided detailing their Use-Case descriptions.	23 February 2021 (Tuesday)
4- Harvesting Network's Use-Case Worksheet	KPT will review the Use-Case worksheet from each Network Leader's virtual use-case's meeting	26 February 2021 (Friday)
5 -Formulation of the PP's Action Plan for CAMI4.0 Excellence	KPT will formulate a draft Action Plan, which showcases the diverse action-oriented Use-Cases that the Partners are creating to deliver on their strategic objectives, and utilise policy-instruments to address the challenges of their territorial area's manufacturing sector. This draft will be provided to the partners for feedback and review.	4 March 2021 (Thursday)



5. Conclusions & Next Steps

The purpose of this document has been to provide a sound basis for development for the CEUP 2030 partnership, to embark on the development of a Joint Strategy and Action Plan for CAMI4.0. The methodology is rooted in an interest of creating common understanding between the Partners in a way that builds trust and cooperation opportunity. It ultimately asks PPs to bridge the challenges which Central Europe’s manufacturing sector faces, with technology-oriented cooperation that provide solutions to the needs and gaps which currently exist.

Remember: We need your review and comments on this framework, for us to ensure the use-case development is robust. We challenge you to show us that you’ve reviewed it, by taking a picture of you reviewing this in your coolest holiday destination! Post it to our COMMS channels, and tag the project 😊.

5.1. Call to Action

This section summarizes all the key dates and responsibilities for the dedicated actions which need to be delivered in order to complete the creation of the Joint Strategy and Action Plan.

5.1.1. Joint Strategy

Table 10 End-to-End Process for Joint Strategy (DT1.3.2)

(Source: Author Generated)

Action	Responsibility	Due Date
Provide Feedback on Framework	ALL PPs	13 July 2020 (Monday)
Partner “Pre-Work” (See Deep- Dive PowerPoint on Alfresco)	ALL PPs	29 July 2020 (Wednesday) 12 August 2020 (Wednesday)
Network Leader Coordination & Exchange Meeting	NETWORK LEADERS (KIT, IWU, PRO, AFIL)	4 August 2020 (Tuesday) 26 August 2020 (Wednesday)
Harvesting PP’s Pre-Work	KIT (TO HAPPEN IN PARALLEL TO ALL ACTIONS)	26 August 2020 (Wednesday)
Harvesting CAMI4.0’s Glossary & Other Project Work Highlighted during	KIT (TO HAPPEN IN PARALLEL TO ALL ACTIONS)	26 August 2020 (Wednesday)
3 - CAMI4.0 Virtual Working Group “Objective” Meetings	NETWORK LEADERS (To ARRANGE & MODERATE)	4 September 2020 (Friday) 24 September 2020 (Thursday)



Action	Responsibility	Due Date
	ALL PPS (To ATTEND & PRESENT, where requested)	
4 - CAMI4.0 Virtual Working Group Meeting Objectives Worksheet Finished (See Appendix 7.4 - for Worksheet)	NETWORK LEADERS (To FILL OUT & STEWARD FEEDBACK) ALL PPs (To PROVIDE CONTENT & CHECK)	15 September 2020 (Tuesday) 8. October 2020 (Thursday)
3 - Harvesting Inputs from the Objectives Meeting	KIT	15 September 2020 (Tuesday) 8. October 2020 (Thursday)
Formulation of the PP's Joint Strategy for CAMI4.0 Excellence, Draft	KIT	30 September 2020 (Wednesday) 15 October 2020 (Thursday)
Joint Strategy Feedback	ALL PPS (To PROVIDE FEEDBACK)	8 October 2020 (Thursday) 22 October 2020 (Thursday)
Incorporation of Feedback, and issuance of the Joint Strategy for CAMI4.0 Excellence, Final	KIT	29 October 2020 (Thursday)

5.1.2. Action Plan

Table 11 End-to-End Process for Action Planning (DT1.3.3)

(Source: Author Generated)

Action	Responsibility	Due Date
Review Framework of Use-Case Formulation, including the Challenge Wheel & the Technology Transfer Tree	ALL PPs	29 July 2020 (Wednesday) 12 August 2020 (Wednesday)



Action	Responsibility	Due Date
Partner “Pre-Work” on Potential Use-Case Ideation	ALL PPs	29 July 2020 (Wednesday) 12 August 2020 (Wednesday)
Harvesting PP’s Pre-Work & Creating the USE CASE TEMPLATES	KPT & IWU	26 August 2020 (Wednesday)
Partner’s Regional PLL1	ALL PPs	By 30 August 2020
CAMI4.0 Virtual Working Group (TIN) “Use Case Ideation” Meeting 1	NETWORK LEADERS (To ARRANGE & MODERATE) ALL PPS (To ATTEND & PRESENT, where requested)	By October 2020
Transnational PLLs	ALL PPs	By February 2021
Partner’s Regional PLL2	ALL PPs	16 February 2021
CAMI4.0 Virtual Working Group (TIN) “Use Case Ideation” Meeting 2	NETWORK LEADERS (To ARRANGE & MODERATE) ALL PPS (To ATTEND & PRESENT, where requested)	By February 2021
PP’s Policy Instrument Use Case Templates Completed (4/PP, 1 Per CAMI4.0 Topic)	ALL PPs	23 February 2021 (Tuesday)
CAMI4.0 Virtual Working Group Meeting Use Case Worksheet Finished	NETWORK LEADERS (To FILL OUT & STEWARD FEEDBACK) ALL PPs (To PROVIDE CONTENT & CHECK)	26 February 2021 (Friday)
Harvesting PP’s PLL Discussions with Stakeholders	KPT	By February 2021
Harvesting PP’s Use Case Templates	KPT	23 February 2021 (Tuesday)
Harvesting Network’s Use-Case Worksheet	KPT	26 February 2021 (Friday)



Action	Responsibility	Due Date
Formulation of the PP's Action Plan for CAMI4.0 Excellence, Draft	KPT	4 March 2021 (Thursday)
Action Plan Feedback	ALL PPs (To PROVIDE FEEDBACK)	11 March 2021 (Thursday)
Incorporation of Feedback and issuance of the Action Plan for CAMI4.0 Excellence, Final	KPT	16 March 2021 (Tuesday)



5.2. Next Steps

There are multiple next steps which the PPs face on this journey through the project, especially as each deliverable D.T1.3.2 and D.T1.3.3. are only the start of the project's strategy building activities.

We recommend that everyone starts by reviewing this document in detail (maybe a couple of times!) to get an understanding of the process and the expectations of what needs to be developed over the coming months and years of this project.

Strategy building continues into work package 2 and work package three, with the following “phases” keeping nomenclature formalized in this document:

- **Phase 3- Strategy & Action Plan Implementation** - Partners are expected to utilise this joint strategy and action plan as an impulse for discussions within the technical working groups (and TIN), which will characterise Work Package 2. Ultimately the PPs will formalise two of their four Policy-Instrument Use Cases, in their “RIS3 Instrument Alignment” Use-Cases, which must be built in WPT2 and WPT3, along with other tools (Policy Intelligence Dashboard), which should assist PPs and their Stakeholder Network (including Policy Makers!) on this journey towards common understanding and solution development.
- **Phase 4 - Strategy & Action Plan Evaluation** - This is the basis for iterative discussions (workshops/ roundtables/ peer review interviews), which the Partners will embark on across WPT1, WPT2 and WPT3 activities. These discussions culminate in the Partner's key policy-making stakeholders generating “Buy-In”, and acceptance of the model and recommendations which have been provided in CEUP 2030. The formation of this buy-in, is yet to be decided but a signed capitalization agenda representing the Joint, Transnational Strategy is the aim, from an Application Form point-of-view.

There is a separate call to action, embedded in this guidance document, for the WPT2 and WPT3 Leaders, along with the Lead Partner to work on aligning their content-related activities to this wider aim, and ultimately leading towards a harmonized understanding and strategic intention of all PPs operating in CEUP 2030.



6. Abbreviations

Abbreviation	Explanation
AF	Application Form
ASP	Associated Partner (i.e. Strategic Partner)
CAMI4.0	Central European Advance Manufacturing and Industry 4.0
PI	Policy Instrument
PIF	Policy Implementation Framework
PLL	Policy Learning Lab
PP	Project Partner
RIS3	Regional Innovation Strategy for Smart Specialisation
S3	Smart Specialisation Strategy
SBU	Strategy Boost & Upgrade
TGP	Technology Good Practice
TIN	Trend & Innovation Networks



7. Annex

7.1. The Challenge Wheel for CE Manufacturing

The challenge wheel, is a visualisation of the types of “challenges” PPs mentioned during one to one discussion about the focus and components of the problems they are working out on behalf of their stakeholders. PPs are balancing the needs of target groups, the needs of different manufacturing sectors, and the needs of different value-chain aspects. What we wanted to do was to create one image which showcases that you can move any aspect of the wheel, to create a view upon a challenge, which carries multiple components. These components could be used by the PPs to create a common language and framework within which to view the challenges they face. By having a common classification framework for the challenges, one is able to also commonly classify (and ultimately transfer) solutions which have been used to target challenges.

The challenge wheel will be used as one vector for classifying developed use-cases, and therefore can be utilised during workshops as a way of coordinating discussions on the type of target group challenges for which each PP is generating solutions.

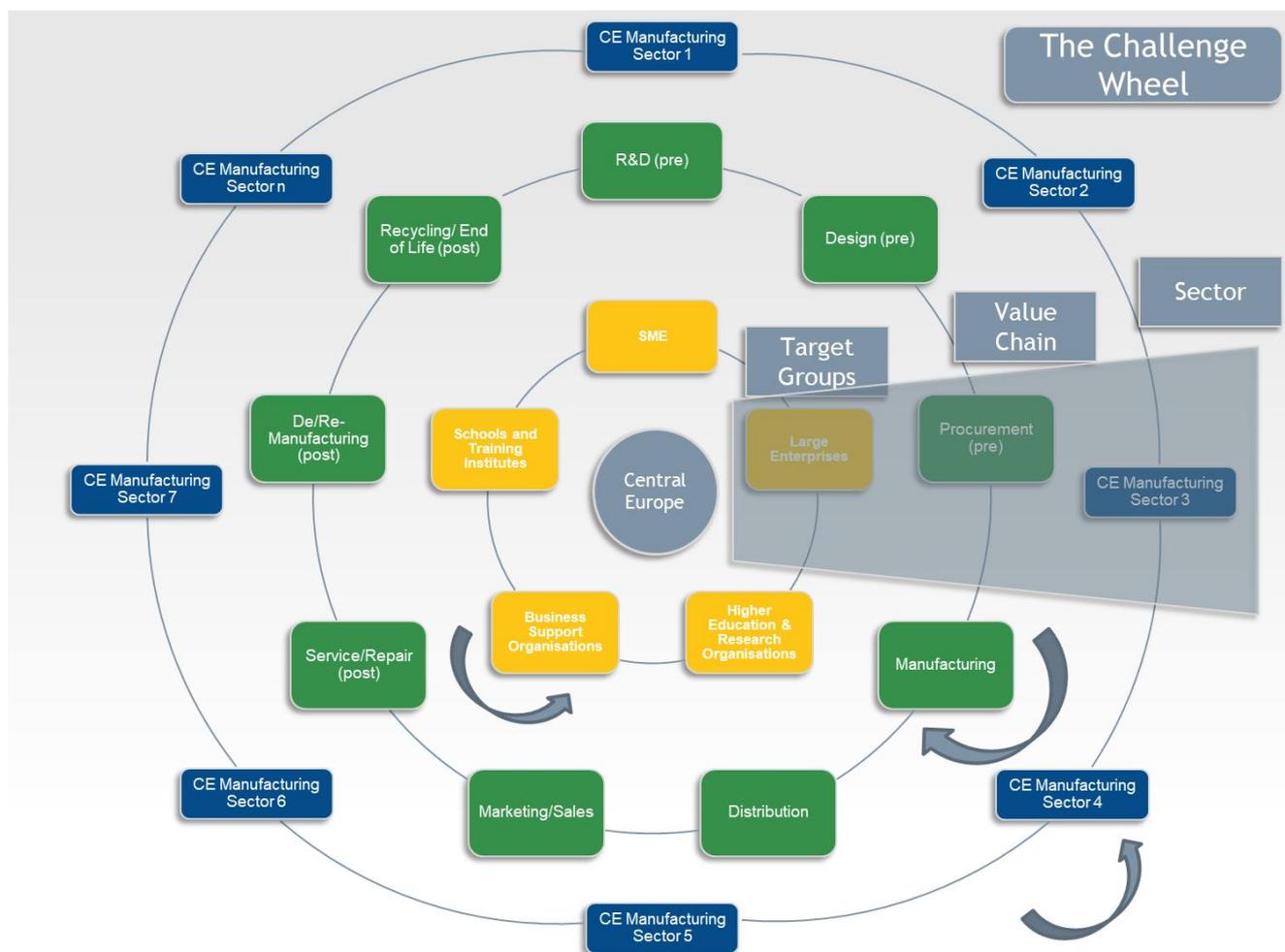


Figure 10 The Challenge Wheel, example

(Source: Author Generated)

NACE C Level 2 Manufacturing Categories, which can be refined and chosen as a select list can be found on the [website of the European Union](#).



For instance, sub sectors of manufacturing are:

C10, Manufacturing of food products; C11, Manufacturing of beverages; C12 Manufacturing of Tobacco Products; C13, Manufacturing of Textiles; C14, Manufacturing of Wearing Apparel; C15, Manufacturing of Leather and Related Products; C16, Manufacturing of Wood and Products of Wood and Cork, except furniture, C17, Manufacture of Paper and Paper Products; C18 - Production of Recorded Media; C19 Manufacture of Coke and Refined Petroleum Products; C20, Manufacture of chemicals and chemical products; C21, Manufacturing of Basic Pharmaceutical Products and Pharmaceutical Preparations; C22, Manufacturing of Rubber and Plastic Products; C23, Manufacture of other non-metallic mineral products; C24, Manufacture of basic metals; C25 Manufacture of fabricated metal products; C26, Manufacturing of Computer Electronics and Optical Products, C27, Manufacture of Electrical Equipment; C28, Manufacturing of Machinery and Equipment; C29, Manufacturing of Motor Vehicles, Trailers and Semi-Trailers, C30, Manufacturing of other transport equipment; C31, Manufacturing of Furniture; C32, Other; C33, Repair and Installation of Machinery and Equipment.



7.2. The Technology Transfer Tree for CE Manufacturing

The Transfer Tree is a way to visualise the types of solutions (offered by different organisations), in order to overcome the challenges. These are the “technology-oriented” solutions, which can be linked to multiple technologies in order to solve “challenges”. This framework emerged in Interreg Central Europe’s 3DCentral project, and appeared to be relevant for the discussion of different roles which PPs take with regard to solution provision. However, this tree can also be expanded (or “upgraded”), based on input from PP’s pre-work and explicit roles they foster.

- Knowledge Suppliers (the top line) create knowledge or ideas to target issues and develop/scale the knowledge towards commercialisation, and is akin to a normal research development or invention processes.
- Knowledge receivers (the bottom line) obtain knowledge and capitalise it towards market operations, ultimately completing the commercialisation of the product/service and bringing it to market. It can also be described as moving invention to innovation.
- Knowledge facilitators (or knowledge “transferrers” represented in the bridging area between supplier and receiver), support to connect research/knowledge to the market. The facilitator searches for knowledge, infrastructure, applications (aka research and market monitoring), and match it to needs of those target groups seeking innovation (or experiencing challenges which require innovation!). Facilitators will also create the framework in which to facilitate the transfer of the knowledge and application, or promote the access to infrastructure.

The Transfer Tree will be used as a second vector by which to classify use-cases. It provides common nomenclature and framework for PPs to view solution-provision. For the strategy-building “workshop”, this can be used to frame the competency and role “pre-work” which each PP brings to the discussion-round with regard to the specific technology-stream.

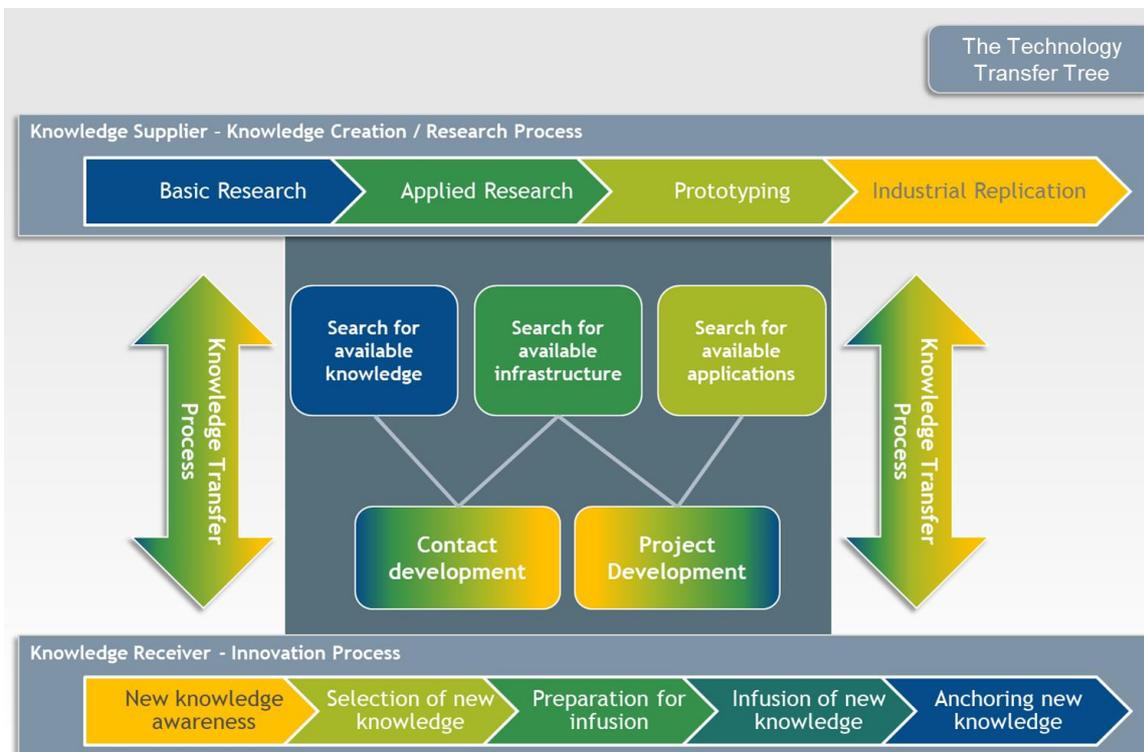


Figure 11 The Technology Transfer Tree
(Source: 3DCentral’s Learning Curriculum)



7.3. Template for Partner “Pre-Work”

The full template can be found on [ALFRESCO](#), a couple of screen shots below, so you know you are in the right place, when you are on ALFRESCO:



- (1) **Each PP creates one “Pre-Work” presentation**, detailing the PP’s:
 - Regional/National (“territorial area”) Strategic Intent & Vision for Advanced Manufacturing & Industry 4.0 (highlight RIS3 or R&I Strategy Input);
 - Specific territorial area’s (or PPs) perspective on manufacturing Gaps/Needs/Challenges which are relevant for discussion under the CAMI4.0 topic area (3 perspectives of the Challenge Wheel for each CAMI4.0 Topic: Target Group-view, Value-Chain-view, and Manufacturing Sector-view);
 - Partner’s Functional Role for meeting the Advanced Manufacturing vision of the territorial area (generally) and the specific Capabilities and Competencies to address the highlighted gaps/needs/challenges in the territorial area’s manufacturing arena, utilising technology-oriented solutions emerging from the CAMI4.0 topic (thinking of the Technology Transfer Tree);
 - PP’s Stakeholder Network with whom they work to address these gaps/needs/challenges, considered on a CAMI4.0 topic by topic analysis (Agencies? DIHs? Other organisations?)
 - PP’s Ideation on Opportunities, formalised as a “Use-Case concepts” which could bridge the gap & target the challenges and needs of CE’s manufacturing sector, using technology-oriented cooperation.
- (2) PP will upload their presentation to the appropriate folder on ALFRESCO
- (3) Network Leaders will review this content & invite specific PPs to present on their experiences at the Objective-Building Virtual Workshop.
- (4) 4 Objective-Building Virtual Workshops will take place, and present a draft vision (based on PP Inputs), and allow a brainstorming / refining conversation to take place.



...+25 Slides



7.4. Template for Objective-Setting Brainstorming Workshop

Objective-Setting Worksheet for CEUP 2030			
Working Group Name	Choose an item.		
Working Group Members	<input type="checkbox"/> KPT <input type="checkbox"/> PRO <input type="checkbox"/> PIA	<input type="checkbox"/> IWU <input type="checkbox"/> KIT <input type="checkbox"/> AFIL	<input type="checkbox"/> SIIT <input type="checkbox"/> PTP <input type="checkbox"/> PBN <input type="checkbox"/> HAMAG
Part 1 - “What Do Want to Do”			
<i>Provide a final written description about the definition and sub-topics your working group will work on for the CAMI4.0 Topic. The purpose of this additional section is to have one transparent final statement of topic scope which can be inserted into the joint strategy.</i>			
CAMI4.0 Topic Definition <i>Write-out the Agreed Definition of your CAMI4.0 Topic)</i>			
CAMI4.0 Sub Topics <i>Write-out the Name of the Agreed Sub-Topics which will be the focus</i>		Sub Topic 1:	
		Sub Topic 2:	
		Sub Topic 3:	
		Sub Topic n:	
Part 2 - “Where Do You Want to Go” Brain Storming			
<i>Reflecting on what you’ve heard and read from the other PPs, you will work together to consider the wider question of “where do you want to go” with this topic area, whilst completing a SWOT analysis.</i>			
Strengths		Weaknesses	
[1]...		[1]...	
[2]...		[2]...	
Opportunities		Threats	
[1]...		[1]...	
[2]...		[2]...	
Part 3 - “How Do You Want to Get There” Brain Storming			
<i>Reflecting on what you’ve discussed, consider tangible or practical ways of moving the opportunities to reality. Consider at least three ways of grabbing those opportunities</i>			



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(especially considering the policy-support mechanisms you or your target group/stakeholder network would need at a regional, national or transnational level). Please feel free to add as many objectives as you'd like, just add rows to the sheet & number/name the objective, accordingly.

Number	Objective Name	Objective Description
1		
2		
3		
n...		