Project co-funded by European Regional Development Fund.

POLICY FRAMEWORK RESULTS

including good practices from the RIS3 round tables

CONTENT

SECTION 1
Definition and background of the RIS3 Round Tables

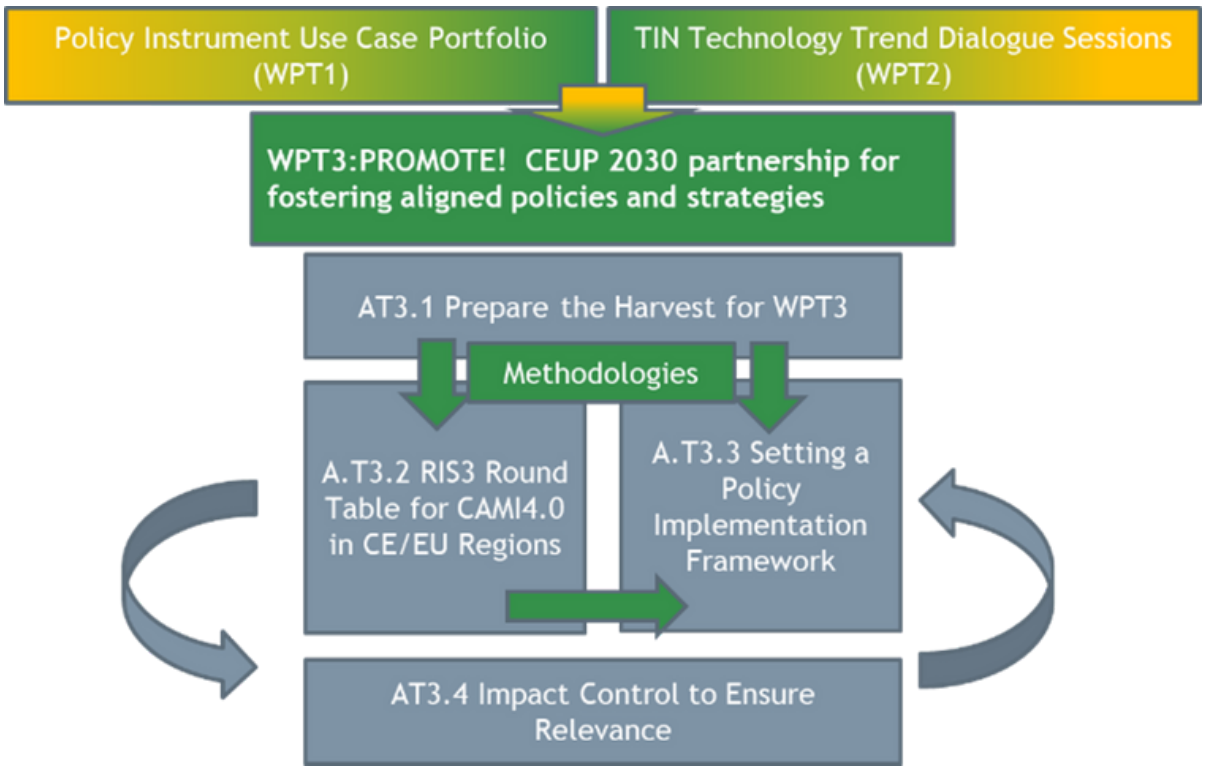
The RIS3 Round Tables were designed and implemented with the intention to foster the implementation of the consortium's Regional RIS3 Alignment Instrument Pilot Project Flagships ("Flagships"). The RIS3 Round Table had a goal of optimizing CAMI4.0 policy engagement between Central European (and wider EU) regions, by identifying and upgrading the consortium's chosen Use Cases to Flagships.

The key purpose of the RIS3 Round Tables was to balance a discussion on how the chosen Use Cases can create competitive advantage in each Partner's territorial eco-system and more broadly to Central Europe's Manufacturing eco-system.

The Partnership was looking to extend, adapt and upgrade existing mechanisms to promote the adoption and uptake of Advanced Manufacturing and Industry 4.0 technology, through expert dialogue. The consortium used this forum to deliver precise recommendations (evidenced through demonstrable actions) to our policy-making stakeholders as to how these policy instruments could emerge in a wider territorial context. The RIS3 Round Tables acted as the catalyst for the recommendations which the partners bring together in the Policy Implementation Framework.

From a practical point of view the RIS3 Round Table was a series of workshops which were delivered by all PPs in each participating PP region and further in 4 transnational settings. These workshops had a thematic focus of promoting regional and transnational dialogue to better optimize implementation and capitalization of support mechanisms for CAMI4.0.

The Partners were required to move from tangible discussion about the technological benefits that key target groups could gain from onboarding technologies in their organization, to a discussion about how organizations (including RIS3 policy makers) can most optimally work together to expand the impact of policy instruments. This dialogue generated clear and tangible recommendations on how this activity (the appropriate implementation of the consortium's Use Cases), could lead to enhanced competitive advantage in Central Europe's manufacturing eco-system and support the uptake of technologies, more broadly.



THE GOALS OF THE RIS3 ROUND TABLE WORKSHOPS

1. **Use Cases Dissemination,**

informing key stakeholders about the CAMI4.0 Strategy, and accompanying Use Cases (specifically, those Use Cases which are chosen to become Flagships) which was chosen by your PP organisation.

2. **Use Cases Validation,**

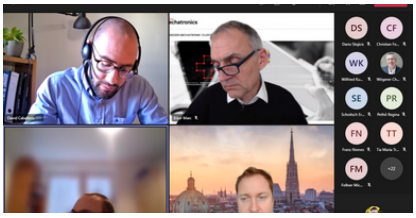
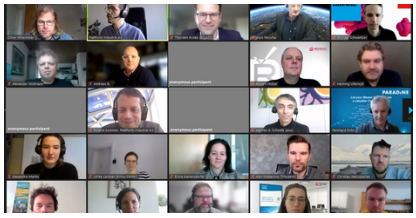
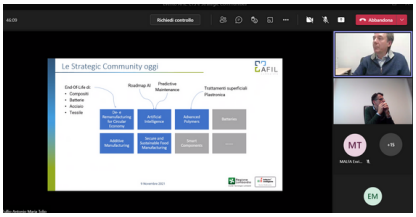
gaining feedback and recommeninforming key stakeholders about the CAMI4.0 Strategy, and accompanying Use Cases (specifically, those Use Cases which are chosen to become Flagships) which was chosen by your PP organisation.dations from key stakeholders about the context of your Use Cases, the conclusions you made to choose the specific challenge-solution-instrument, and how to bolster the implementation of your Use Case (or bolster support for the challenge you have chosen to tackle).

3. **Use Cases Capitalisation,**

gaining recommendations on which elements of the use case can be used as a base for further regional or transnational capitalisation and cooperation. What is specifically important in the context of CEUP 2030, is that capitalisation efforts intended to answer the questions:

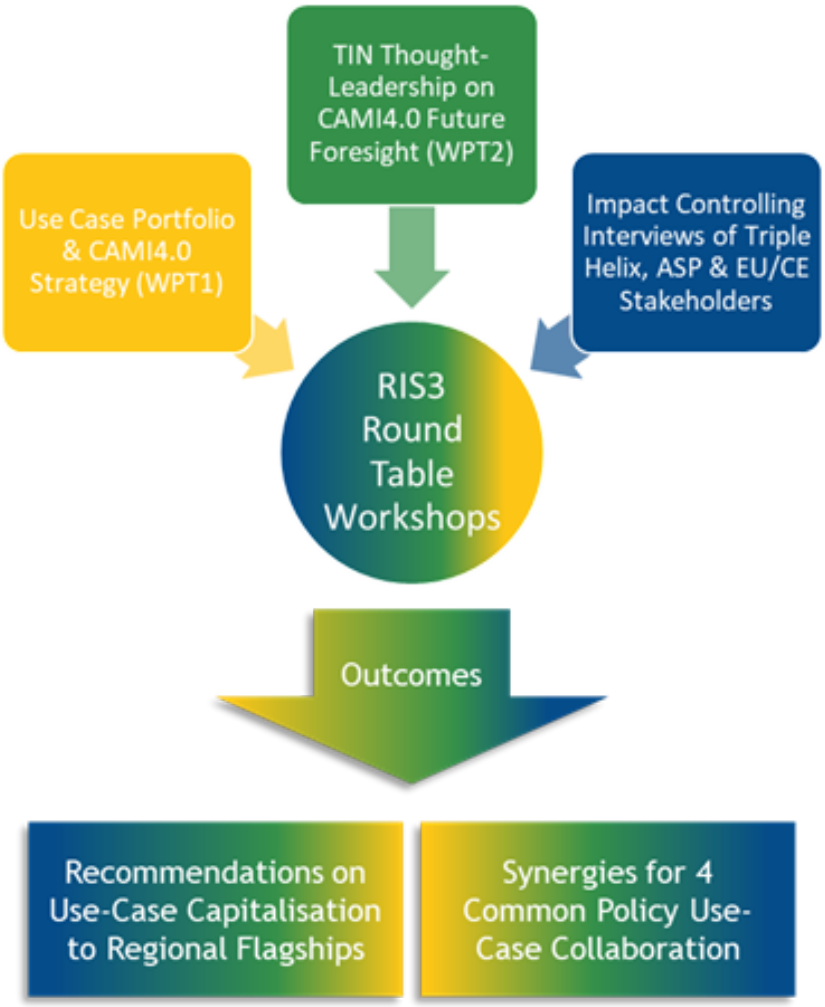
- “How can we make strategic influence on policies in Central Europe, through the utilization of Use Case actions?”
- “How can we further expand the benefits of this specific Use Case, with tangible actions and enhance Central European competitive advantage (RIS3)?”



Each PP's Use Case Portfolio and CAMI4.0 Topic Strategy set the thematic basis of discussions in the RIS3 Round Table. The goal was that the Partners refined their Use Cases within their Portfolio to foster two ideas further into regional Flagship Projects.

Impact Controlling Interviews were one of the most critical "pre-steps" to the RIS3 Round Tables. The subject was that interviewed stakeholder should be Triple-Helix Stakeholders, Associated Partners and Selected EU/CE Stakeholders of Critical Importance to the Implementation of the Use Case. These organisations are the knowledge suppliers/knowledge facilitators, knowledge receivers, and knowledge enablers who are critical to implementing the Use Cases' development.
In the framework of the RIS3 Roundtable organisation, each partner was required to complete one set of impact (validation and capitalisation) interviews for each Use Case chosen to be advanced to Flagship stage (= 2 sets of interviews, totalling 6 to 8 interviews). Six of the interviews (the stakeholders who represent the suppliers, facilitators, receivers and enablers), took place as part of the Impact Controlling procedures.



SECTION 2
Summary and conclusions of Partners' Regional RIS3 Round Tables

The Regional Roundtables have been implemented successfully and all events turned out to be beneficial and fruitful in terms of flagship implementation process.
What is common in all stakeholders' replies is that all of them have validated the proposed flagship initiatives by Partners and they also expressed some valuable recommendations in terms of flagships' capitalisation in the current and in the later stage of their implementation.

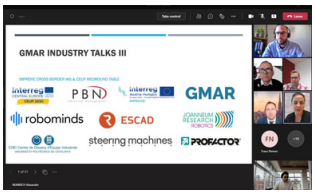
• The discussed flagship projects are in line with the local/regional/national/EU strategies in the field of digital transformation and Industry 4.0 application
• All the activities that have been/shall be conducted in the flagship projects are consistent and related to the smart specialisations of the region/country
• Recognizing the importance of cooperation in supporting the digital transformation of the economy the interviewed stakeholders advocate the implementation of the flagship projects
• It is necessary to deepen the exchange on the content of Industry 4.0, in the political and in the operative realm.
• For striving in a global economy, it is necessary to work together, to have an exchange of information and knowledge, to work collaboratively on standards etc. – all of that needs strong and active relationships, the projects need to facilitate that.
• Connecting to regional networks in particular with industry will allow for better uptake of innovation approaches / generate incentives to restructure existing production / innovation procedures
• Continuation and emphasis on the implementation of activities that let regions learn from one another, exchange experiences, and present cases of financial instruments that work for them.
• Apart from the specific use cases, based on the feedbacks of some interviewees,
the following areas should be also taken into consideration, in order to create specific, strategic support for advanced manufacturing and industry 4.0

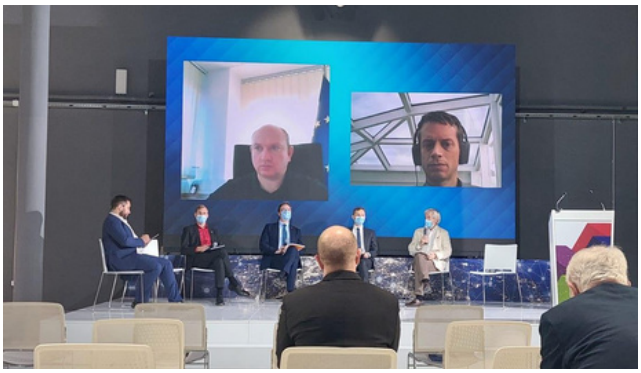
DATA SHARING ECONOMY	INDUSTRY5.0	ROBOTICS MANIPULATION	DATA MANAGEMENT AND AI
CIRCULAR ECONOMY	HUMAN-CENTERED TECHNOLOGY	NEW MOBILITY	ZERO DEFECT MANUFACTURING

- Some Roundtables took the advantage to present the upcoming service offers provided by DIHs which are related to the flagship discussed
- To strengthen the regional network and to facilitate discussion with triple helix stakeholders on relevant aspects of the topics discussed
- Assess and revise the latest activities of the project focusing on each PPs' outcomes and plans
- To present the identified problems faced by companies in the transition to Industry 4.0 and proposing suggestions on how to make transition to digital transformation smoother and reduce the gap between developed and underdeveloped regions in the countries.
- Due to several conversations (including the Roundtables) with the local/regional policy makers are getting more and more acquainted with industry4.0 terms, definitions and its significance in the region.
- To create awareness on the ongoing digitalization of regional SMEs
- The stakeholders, shared their experiences and suggestions how to improve current situation in the regions in favour of industry 4.0 digital transformation

SECTION 3
Summary and conclusions of the four Transnational RIS3 Round Tables

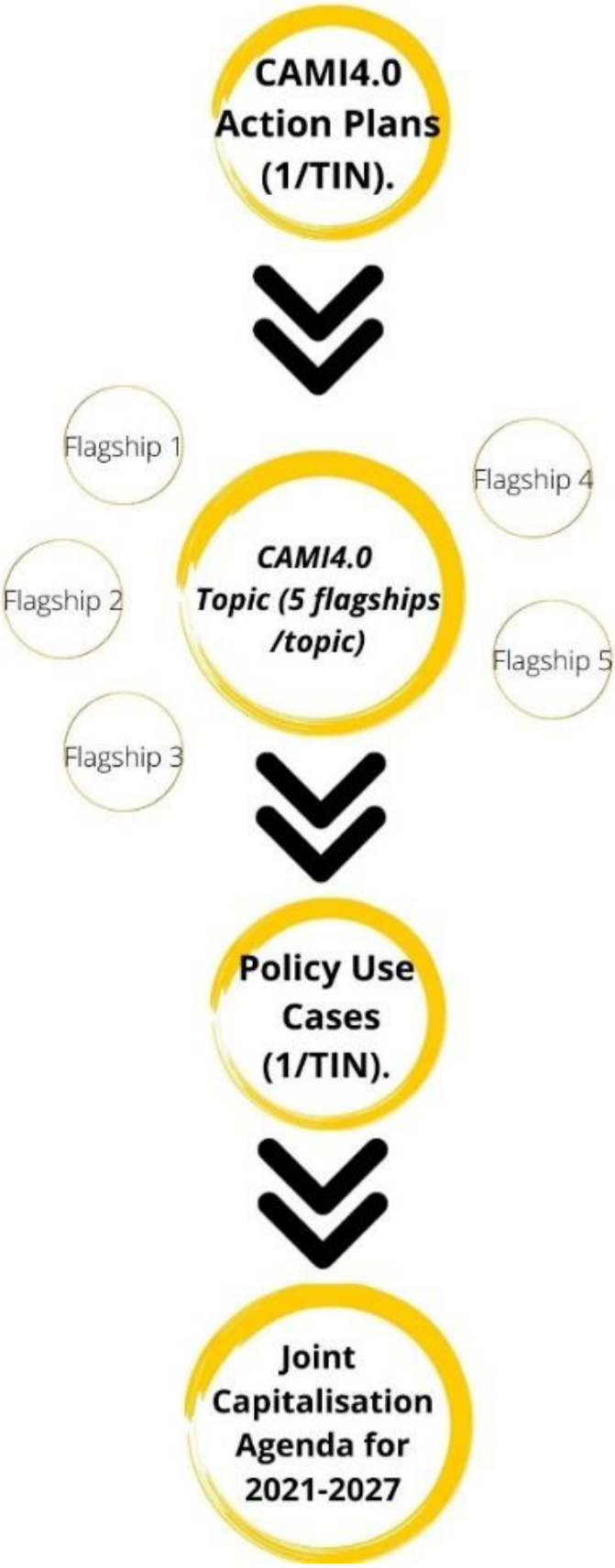
- Figuring out appropriate instruments and smart tools to support SMEs which can be used cross-sectional as companies have different levels of digital technology readiness and are operating in different branches.
- The engagement of companies in activities to define smart specializations of the regions, is important.
- Adjusting supporting mechanism and financial instruments to companies' needs, and simply funding processes, should be considered.
- For digital transformation companies need professional support from the organisations like BSO or DIHs to advise them how to plan and implement the transformation process as well as the needed technology and where to get funding for dedicated improvements in the company.
- The creation of one common framework for digital transformation at a European level is highly critical and difficult as it implies various political interests and all the dominant actors within regions and markets. Furthermore, this needs a common language and understanding.
- To mitigate the risk of unsuccessful governmental spending in projects a "test before invest" regulation would be helpful. This would also reduce the wasted resources for companies.
- The creation of regional innovation strategies should lead to an elaboration of a joint conceptual framework of RIS3 establishments of sustainable transnational Digital Innovation Hubs for RIS3 and merging them with the ecosystem of regional innovation.
- Among all countries the business support organizations and digital innovation hubs are seen as highly important actors to promote digitalization in the different industries and countries. Additionally, the main interest of all regions is to improve the competitiveness of local small and medium sized companies in the markets they are operating.
- However, the main challenges to effectively foster small and medium sized companies are on a country's macro level, as funding process are often connected with many sacrifices for the companies such as personnel resources, time and money. Also, on the other side, governments want to ensure that their investments result in successful implementation. As a result, digital transformation in manufacturing must have a positive "return of investments" for all parties included in the transformation and value chain of digitalization.





SECTION 4
Joint Transnational CAMI4.0 Strategy for 2021-2027

For every CAMI4.0 Topic



DEFINITION OF PARTNER FLAGSHIPS

Project Partners have worked in their TINs (Trend and Innovation Network) to develop the 4 Use Cases (WPT1) thanks to many webinars and alignment discussions organized by the partners with their stakeholder groups on the future of the CAMI4.0 topic areas (IPS, Automation and Robotics, Smart materials, and AI). On this basis, each TIN identified its own Action Plan and each PP have chosen 2 Flagship projects (20 in total) to develop, implement and create a strong agenda for capitalisation through a stakeholder supported roadmap.

These 20 Flagship projects were divided according to the reference CAMI4.0 topics (5 Flagship/topic) and acted as inputs to determine a common vision for promoting the growth, adoption and uptake of advanced manufacturing and industry 4.0 in Central Europe.

This common vision emerged from a common characteristic analysis of the contributing Flagships and took advantage of these common themes to generate a model and roadmap for future activities which could promote transnational collaboration across Central Europe in the specific thematic topic area. More specifically it represents a capitalisation agenda which consolidates recommendations on how we build strong connections across territorial areas (30 regions), towards a common vision for our manufacturing future. According to this, Partners also identified and involved a clear stakeholder network with whom they will work to deliver the identified steps.

At the end of this activity, there are 5 flagship projects per CAMI4.0 topics where each partner has two flagship projects, with a total of 20 Flagship projects.

IPS	AUTOMATION & ROBOTICS	SMART MATERIALS	ARTIFICIAL INTELLIGENCE
Human Centered AI Based Production Optimization (HAIPrO) project PP2-PRO	Hub4Industry PP1-KPT	3DoP project PP1-KPT	AI ROADMAP PP6-AFIL
Testbed Exchange PP3-PIA	CoRTeam proejct PP2-PRO	STEPUP smart3 project PP5-IWU	FORGING project PP7-SIIT
Smart Circuit project PP4-IWU	Shared4.0 - SK-AT PP3-PIA	Startegic Community "Advanced Polymers" PP6-AFIL	National Demo Center initiative for advanced technologies in Agrofood processing industry PP8-PTP
NEXT4FUN (Next Generation InkJet-based Process Chain for 3D/4D Multi-material Function Printing) project PP5-KIT	BIOSAM (Bilogicalisation for Sustainable Advanced Manufacturing) PP5-KIT	EUAlliance PP7-SIIT	Establishment and development of a smart senior room PP9-PBN
Autonomous production line (teaching and Learning Factory) and smart mateial board PP9-PBN	Adriatic multifunctional smart buoys PP10-HAMAG	Smart and green innovation approaches for scaling up DT opportunities in CE PP8-PTP	CROBOHUB++: CROatian Industry and Society Boosting-European Digital Innovation HUB PP10-HAMAG

INDIVIDUAL FLAGSHIPS IN IPS

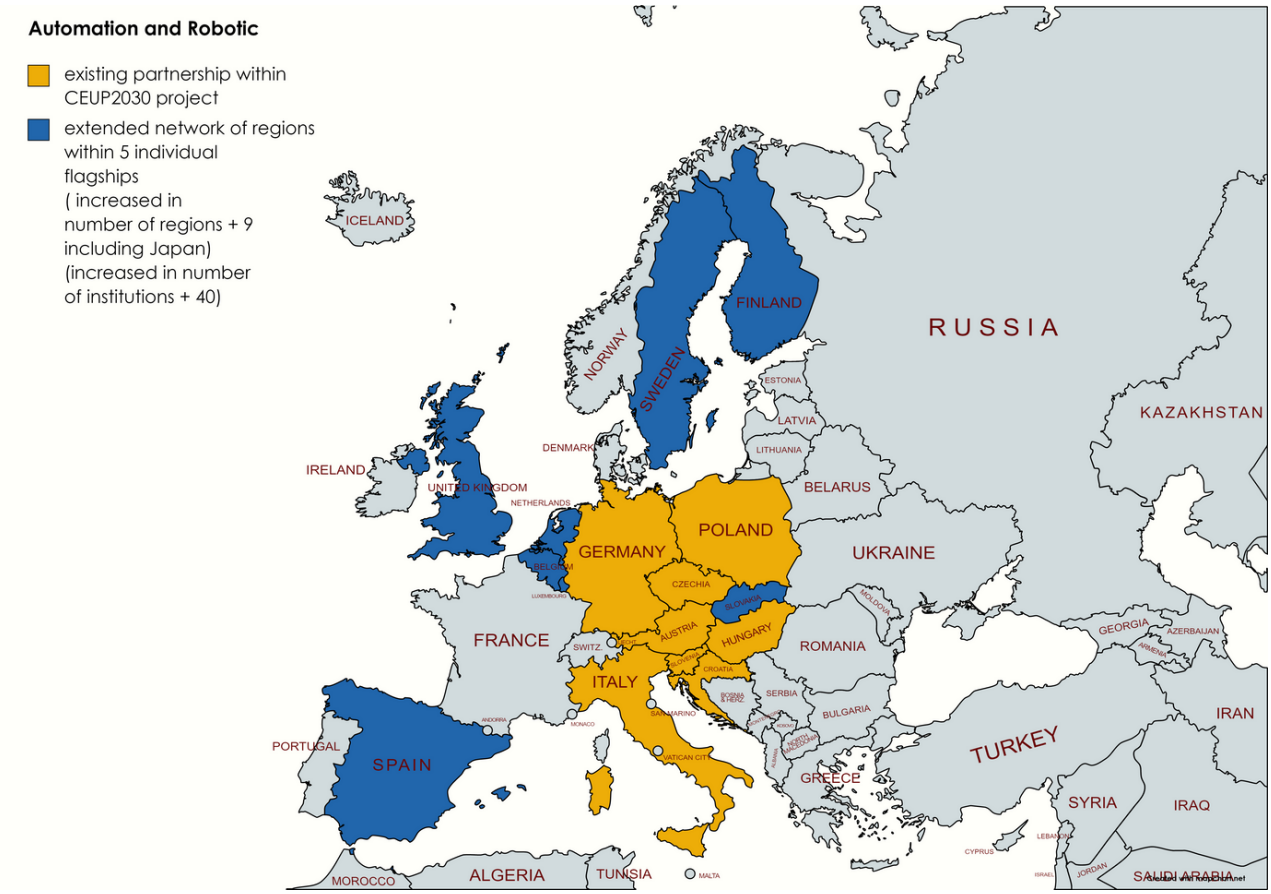
The main challenge addressed in all the PPs individual flagships on IPS topics was the exploitation of enabling I4.0 technologies and thereby production optimisation in manufacturing sector for large as well as SMEs. All PPs developed solutions based on AI tools and advanced manufacturing processes such as 3D Printing through the development and execution of advanced R&D projects, the running of testbeds and the set-up of pilot lines for advanced manufacturing.

All PPs' individual flagships in the IPS topic were involved in the promotion of advanced manufacturing processes and aimed at furthering the reach and penetration of these new technologies amongst SMEs as well as large industries. This main commonality has been implemented either through the creation of research and innovation projects aimed at creating the next generation of young specialists or through creating pilot lines for improving the transfer of knowledge to SMES and for reskilling.

INDIVIDUAL FLAGSHIPS IN AUTOMATION & ROBOTICS

The main challenge addressed in all the PPs individual flagships on A&R topics was the setup of collaborations between the different regional Hubs, favouring the networking and the exploitation of the existing infrastructures dedicated to the development of automation & robotic solutions. According to this, the proposed methodology was focused on the testing of technologies for different applications.

All PPs' individual flagships focused on interregional collaboration and creation of a A&R network to favour the sharing of knowledge and the exchange of best practices between the innovation actors and the manufacturing stakeholders. Together with this, other main commonalities were the development and implementation of innovative technological solutions and the re-skilling of human resources through educational initiatives able to show the benefits and improve stakeholders' competencies.



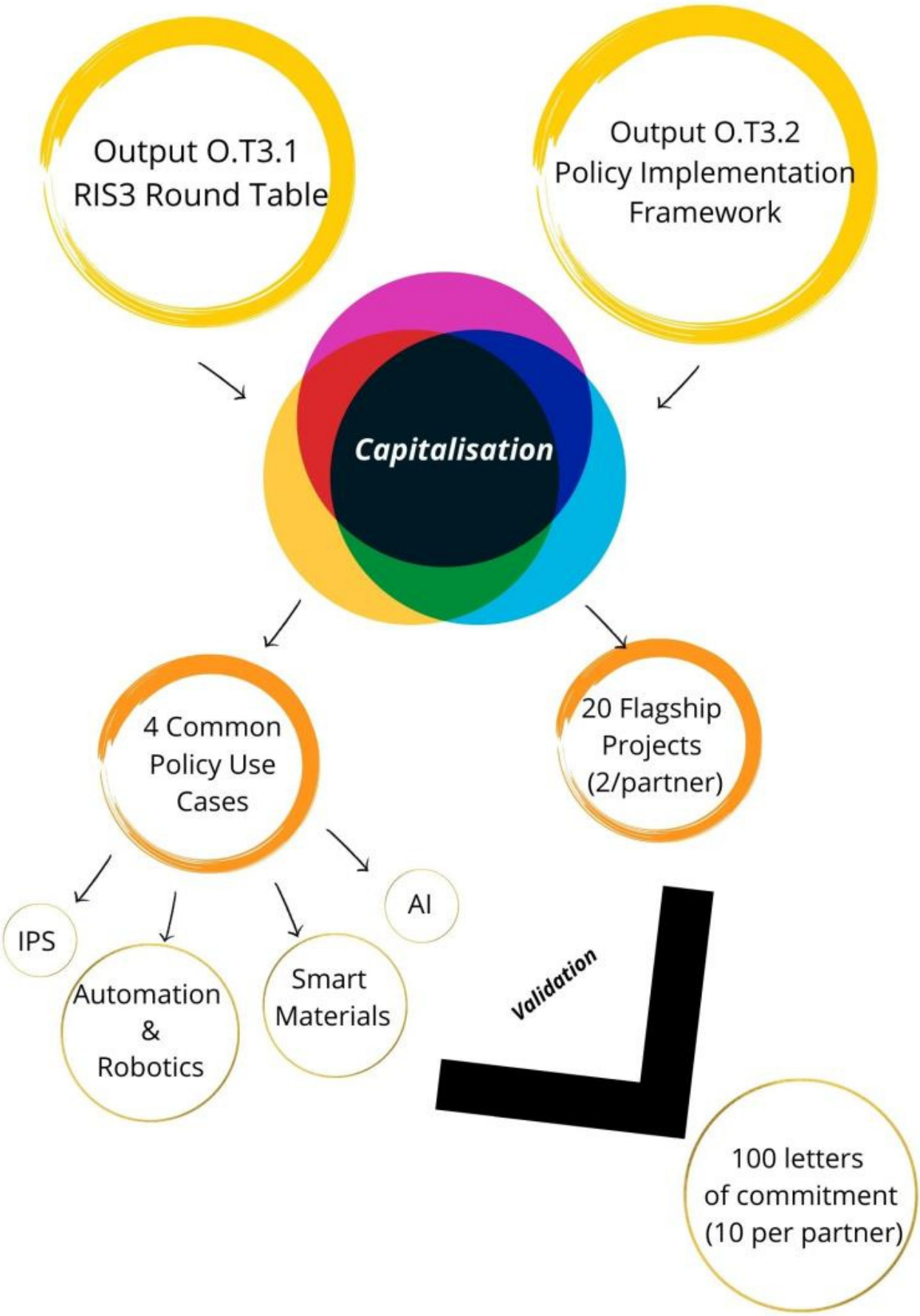
INDIVIDUAL FLAGSHIPS IN SMART MATERIALS

Considering all these commonalities among the individual flagships on SM topics, a joint strategy in smart materials should be based on the establishment of network and communities who target and work with new materials in some form depending on where is the expert area of the respective project partner. In this way, all PPs flagship projects could contribute to establish smart and new materials in the innovation and research environment of the future.
On the other side, the major difference among PPs' individual flagships is the interpretation and definition of a NEW and SMART materials. Some partners highlighted the circular aspect, others focused on textiles and again others talked about functional materials which merge structure and function with reduced complexity. However, even if the exact field may be different, the methodologies and ways of fostering the uptake of new materials are similar and underline the importance of such approaches.

INDIVIDUAL FLAGSHIPS IN ARTIFICIAL INTELLIGENCE

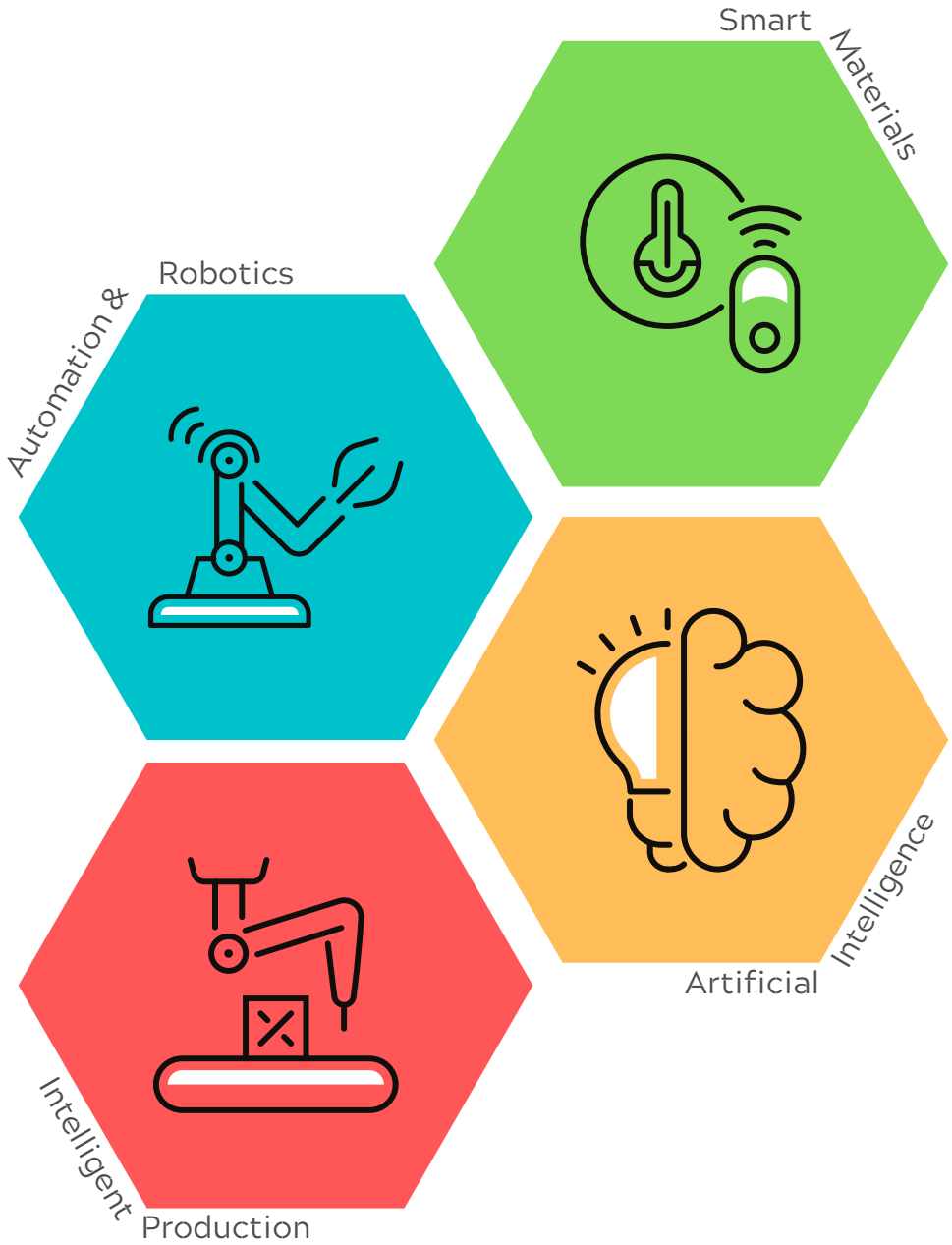
Different sectors have been addressed and all flagships on AI topics do not exclude the implementation of innovative AI-driven solutions for applications different from the initial ones. In case of technological spaces for testing, for example, the activities could start from a specific sector (e.g., the smart senior room dealing with health care), but could then be adjusted and expanded to Advanced Manufacturing sectors and topics. This demonstrates the transversality and the interdisciplinarity of AI-driven solutions in each flagship.

SECTION 5
Elaboration of Common Policy Use Cases


Output O.T3.1
RIS3 Round Table
Output O.T3.2
Policy Implementation
Framework
Capitalisation
4 Common
Policy Use
Cases
20 Flagship
Projects
(2/partner)
IPS
Automation
&
Robotics
Smart
Materials
AI
Validation
100 letters
of commitment
(10 per partner)

PPs participated in defining the Joint Strategy and Capitalisation Agenda. They took into account the opinions of Associate Partners and stakeholders who signed the Letters of Commitment, making sure to have a diverse stakeholder group from their own region and from other territorial areas who are committed to building elements of this common model with the consortium in the years to come.

In particular, PPs worked in Trend and Innovation Network (TIN) working groups to create one Policy Use Case per CAMI4.0 Topic. These core TIN working groups have been formed around the CAMI4.0 Topic in which Partners are enabling their flagships. Regular meetings at least two per TIN, have been organized virtually to talk about the Common Policy Use Case that has been developed for every CAMI4.0 topic. Four Common Policy Use Cases emerged from those discussion at the end of the Activity through brainstorming sessions enabling sharing experiences and the analysis of commonalities and opportunities for further capitalisation. These four common policy use cases have the potential for further collaboration between important stakeholders and countries.



In Intelligent Production Systems topic the elaborated policy use case centres around the creation of a core network with a specific thematic focus in which different funding opportunities on national and transnational level are being explored and potentially coordinated to create long-term cross-border realisation of relevant R&D topics across different funding schemes accompanied by efficient knowledge and technology transfer actions, networking and application oriented transfer to relevant stakeholder groups.

According to Partners' specific expertise and interests, the developed Common Policy Use Case in Automation and Robotics focuses on the provision of services to industrial stakeholders, particularly SMEs, on Automation and Robotic topics exploiting existing competencies and infrastructure of CEUP members. The main idea was to develop a service catalogue for the development of hardware solutions, the testing of different A&R applications in test facilities, the access to software (also Open Source if needed) and to simulations, the customized consulting for SMEs and the access to info on new research projects and achieved results from the different participating regions.

In the Smart Materials topic, the basic idea was to enhance the access to knowledge in the wide area of new materials research and achieve research capitalisation, particularly for SMEs, in the different CE countries participating in the planned endeavour. To achieve this knowledge boost, partners want to create a Central European community and facilitate triple or quadruple helix exchange through the 3C4MaterialsResearch "Circular Capitalisation Concept for Smart Material Research of Polymers and Textiles" project.

PPs involved in Artificial Intelligence thematic group identified as Common Policy Use Case a project focused on the increase of awareness related to the benefits of AI in Advanced Manufacturing, namely TrAIn2adma "Interregional collaborative training for social, industrial and political awareness of AI-related benefits within Advanced Manufacturing". The proposal could also address other significant topics linked to advanced manufacturing, such as digitalization and green transition. The idea is to promote interregional collaborations towards the acceptance and the sharing of knowledge of innovative and AI-based technologies with a cross-sectorial approach, promoting cross-fertilization among different manufacturing sectors.

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