

COACHING GUIDANCE FOR CAMI4.0 TREND & INNOVATION NETWORKS

D.T2.2.1 - A guidance document for A.T2.2
on the development and implementation of
CAMI4.0 Trend and Innovation Networks

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Document Control

Document Summary

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30.11.2020	2.0	AFIL	Finalisation of the document



1. Executive Summary

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.

1.1 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 show-cases disseminated within these method structures 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 WPT2 is to upgrade and establish strong partnerships around the 4 main CAMI4.0 topics in order to raise awareness and ensure a shared sustainable responsibility on using RTI knowledge resources in CE/EU for enhancing policy decision support. This will be pursued by establishing sustainable structures of stakeholders called Trend Innovation Networks (TIN) as well as practicable, efficient policy tools, the so-called Policy Intelligence Dashboard (PID). Both those instruments will be exploited by the partners to select and channel appropriate decision-relevant information out of the daily big data cloud, assess it and provide understandable knowledge in a compact and high-quality format.

Practically speaking, in each partner region a TIN will be established and it will work on future foresight, technology trend monitoring, scouting. These activities will also feed the PID with the gained data to produce Tech Radars and other insights able to support decision making.

1.3 The specific activity which is of relevance for this document is Activity A.T2.2, which is related to the establishment, development and upgrade of Trend and Innovation Networks (TINs) in CE regions.

Scope of Document & Deliverable Summary

This document provides guidelines on TINs set-up and management defining a specific methodology for the execution of TINs workshops on the basis of the best practices identified and analysed in A.T2.1

It also provides templates and support materials that Project Partners can exploit for the organisation of TINs workshops (also called TTTDM - TINs Tech and Trend Dialogue Meetings).

In order to fully understand this document, including the references made and abbreviations used, it is recommended to read the following deliverables in advance:



- **D.T1.1.2** CAMI4.0 Glossary
- **D.T1.3.1** Design of an implementation oriented Strategy Upgrade & Boost supported by an Action Plan
- **D.T1.3.2** Joint Strategy for CAMI4.0 excellence in CE_EU cooperation
- **D.T1.3.3** Action plan for CAMI4.0 excellence in CE_UE cooperation
- **D.T2.1.2** Harvesting Agenda on CAMI4.0 for Trend & Inno Networks / Policy Intelligence Dashboard

Audience

This document is addressed to all the project partners that will be involved in the organisation of TTDm, following the suggested methodology and exploiting the results of these workshops to further contribute to the project development.

1.4.

Change Control Procedure & Structure

1.5 The Deliverable Responsible, AFIL - Associazione Fabbrica Intelligente Lombardia (AFIL/PP6), created this guidance document which is hosted on the Project's common repository in the appropriately named deliverable folder ([CEUP2030](#)).

The document is under project deliverable change control protocols whereby Partners are requested to give feedback on the Draft Version according to the timing proposed in the final section of this document. Feedbacks will be incorporated and the Final Version will be issued by AFIL.

At any time, partners that believe a project methodology should change, should submit the request to the Deliverable Responsible and the Work Package Leader (AFIL/PP6) 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. Abbreviations

Abbreviation	Explanation
AF	Application Form
IPS	Intelligent Production Systems
AI	Artificial Intelligence
R&A	Robotics and Automation
CAMI4.0	Central European Advance Manufacturing and Industry 4.0
PLL	Policy Learning Lab
PP	Project Partner
RIS3	Regional Innovation Strategy for Smart Specialisation
S3	Smart Specialisation Strategy
TIN	Trend & Innovation Networks
IWU	Fraunhofer Institute of Machine Tools and Forming Technology
KIT	Karlsruhe Institute of Technology
PBN	Pannon Business Network Associations
PTP	Pomurje Technology Park
HAMAG	Croatian Agency for SMEs, Innovations and Investments
AFIL	Lombardy Intelligent Factory Association
SIIT	Intelligent Integrated Systems Technology SIIT
PIA	Association Industry 4.0 Austria
KPT	Krakov Technology Park
PRO	PROFACTOR GmbH
TTTDM	TIN Tech and Trend Dialogue Meetings



3. Background information on TINs

Description and goal of the TIN

The **Trend & Innovation Networks** are communities of stakeholders established/anchored around the 4 main topics of CAMI4.0: Intelligent Production Systems, Automation & Robotics, Smart Materials and Artificial Intelligence (Refer to D.T1.1.1 and 3.1 D.T.1.1.2 for detailed description of CAMI4.0 topics).

Each PPs will establish a TIN for each CAMI 4.0 area, inviting representatives of the triple-helix who will **discuss and share trend and innovation foresights** on the targeted topics. Those communities will build on the stakeholders involved in PLL in WP1 and will be enriched with key experts identified by each partner.

Although TINs will be arranged as digital community, 40 regional meetings (**TTTDM - TINs Tech Trend dialogue meetings**) will be organised fostering interregional connection and with the aim to build on the inputs collected during PLL to generate relevant inputs for a future robust policy implementation in the form of technical reports on technologies trend for WP3. Accordingly, PPs will organise 4 workshops focused on TINs topic and/or sub-topics starting from November 2020 and by November 2021. Due to the activities slow-down caused by COVID-19 consequences these meetings might be organised in a longer timeframe and should be held in a virtual form.

Besides their regional configuration, TINs will also have an interregional dimension thanks to action of PPs that will guarantee connections among the different network exploiting the synergies that will emerge during TINs development. In particular, PPs will contribute and foster the identification and development of use-cases in each network that can be concretely implemented in flagship projects involving partners from different regions, either PPs or their stakeholders. By the end of CEUP2030, each TINs will guarantee the generation of 5 use-cases contributing to increase the amount of funds leveraged based on project achievements.

As an output of CEUP2030, Trend and Innovation Networks for CAMI4.0 will strongly contribute in the generation of stable innovation networks which will be designed to foster a better understanding, generate improved knowledge and exchange on new technologies relevant for Central Europe Advanced Manufacturing and Industry 4.0 and raise awareness on RTI knowledge resources to enhance policy decision making. Accordingly, the methodology and the processes of the TINs will enable for one side the exchange of good practices and available knowledge among stakeholders at regional and interregional level and on the other side the generation of professional inputs for future policies improvement.

Embedment within CEUP 2030

As mentioned in the Executive Summary, the TINs are one of the outputs envisaged in WP2. However, **TINs design has been carried out in strong alignment with Strategy Upgrade & Boost design in A.T1.3**, building from the results of harvesting activities as well as from the preliminarily inputs collected during the first round of PLL, which will continue to influence the contents and arrangement of TTTDM.



In addition to vision, mission and objectives alignment, TINs outputs will be delivered in accordance with the other WPs, in particular the organisation of TTTDM will build from the evidence collected in PLL and the targeted audience will include stakeholders involved in the two rounds of PLL related to WP1. The same will happen with activities and outputs planned in WP3, where **relevant insights emerged in the TTTDM are expected to feed RIS3 Round Tables and Policy Implementation framework** providing evidence on the specific needs and priorities related to technologies development and uptake.



4. Analysis of the harvest

The PPs have provided good practices as an inspiration for TIN that have been collected in D.T2.1.2., where a complete overview of partners contributions is available as well as a detailed analysis of the results.

The following table reports in synthesis the harvested good practices proposed by PPs that were exploited mainly to propose a robust methodology for the set-up of TINs and a common methodology for TINs workshops organisation.

Trend and Innovation Networks set-up	
1_KRAKOW TECHNOLOGY PARK LTD (KPT)	
KACE WORKING GROUP (3DCentral project - Interreg CE)	CAMI Sub-topics might be identified following the KACE two-steps methodology: design & development. Once defined topics, KACE implementation pillars might be considered: 1) <i>Leader</i> , 2) <i>Core Group</i> , 3) <i>Transferable Knowledge</i> , 4) <i>Opportunities for Transfer</i> , 5) <i>Opportunities for Transfer</i> , 6) <i>Awareness of future potential</i> - TINs can be organized according to the following principles: 1) to meet periodically on the basis of group's priorities or opportunities for projects, 2) to generate an open, stable community of companies, RTOs, policy makers, universities and associations, 3) to create an open structure to foster the innovation network 4) to promote the development of project ideas.
2_PROFACTOR GmbH (PRO)	
BIZ UA H2020 ERFA H2020	Having a limited number of participants, all experts in the targeted field, allows to organise successful meetings with interesting and high-level key speakers (from Industry and/or Commission). Topics must be also come from the participants and from the Host.
3_Association Industry 4.0 Austria (PIA)	
Haus der Digitalisierung	<ul style="list-style-type: none"> • Mixture of a top down and a bottom up approach when setting TINs up • TINs should ideally be sustainable with a long-term perspective, so they would ideally be set up with a 2-3 years plan in mind. • Regional “knots” of competences for creating content/for gathering information • Regular online meetings could serve as a practical solution for connecting regional stakeholders.
4_Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V. for its Fraunhofer (IWU)	
Smart³ Ideenmarktplatz (marketplace for ideas)	The marketplace was set up to promote and connected ideas that have not found their way into “formal” research project. In the same way during CEUP2030 an ideas and/or exchange marketplace can be set up for CAMI 4.0 topics and connecting Central European partners.
5_Karlsruhe Institute of Technology (KIT)	
Synergic Networking Activities (SYNERGY - Interreg CE)	For the purposes of CEUP 2030 building a competence map, on the existing partnership is already an underway activity. It could prove useful to create a similar competence map for associated partners of the CEUP 2030 partnership to help identify prospective partners or organisation for the network building activities in each region. This could help build a large and extensive network.
6_Lombardy Intelligent Factory Association (AFIL)	



GREENOMED Platform (GREENOMED - Interreg MED)	<ul style="list-style-type: none"> • Creation of a shared database • Exploitation of existing templates for the creation of the database • Initial list of potential stakeholders • Integration of the list during project lifetime
7_SIIIT S.c.p.a. Intelligent Integrated Systems Technologies (SIIT)	
PLUG-IN platform (MIUR)	The methodology applied for data collection in the mobility, transport & logistics application domain can be applied to CAMI topics too. In particular, information were collected using multiple sources, such as professional users, special instruments, sensors...
8_Pomurje Technology Park (PTP)	
KACE WORKING GROUP (3DCENTRAL - Interreg CE)	<ul style="list-style-type: none"> • KACE system, with knowledge axis, good practices, solution providers and experts can be replicated following the multi-step approach. • Exploitation of the set of tools identified within 3DCentral project
DIH2 Network (DIH2 - H2020)	<ul style="list-style-type: none"> • Cross-fertilization or exchange of experience potential as both projects are still in progress. • Self-sustainability orientation
9_Pannon Business Network Association (PBN)	
DIH network (DIHNET.EU) (S3HubsinCE - Interreg CE)	<p>Establishing a community on DIHNET.EU - which is controlled by the EU - can be very fruitful, it can attract the attention of other communities as well and the platform can give place for a wide range of dissemination.</p> <p>The experiences of the S3HubsinCE community can help to develop the TIN networks in CEUP: both the “technical” implementation and the methodology of building a community can be exploited.</p>
10_Croatian Agency for SMEs, Innovations and Investments (HAMAG)	
N/A	N/A

Figure 1. Overview of harvested results for TINs set-up

Trend and Innovation Networks orchestration	
1_KRAKOW TECHNOLOGY PARK LTD (KPT)	
SISCODE CO-CREATION JOURNEY WORKSHOPS	<ul style="list-style-type: none"> • Bottom up approach • Equal role in the process and open access: it is necessary to identify wide target group and enable them participation in the process at the same level, no matter which stakeholder they are representing. • Neutral facilitator • Tailored tools and co-design workshops • Flexibility • Design thinking and living lab methodology can be introduced to create a joint understanding and vision at first, then for developing the relevant policy and financial instruments; introducing Public Engagement (PE) and Responsible Research and Innovation (RRI) approach into discussion; organizing thematic roundtables, destroying sectarianized approach to STI policy making; introducing design methodologies and tools can inspire policy makers for developing perspective conditions for SMEs; emerging operationalization of CAMI4.0 introduction from vision to new policies and tailored instruments implementation in future EU finance programming.”



2_PROFACTOR GmbH (PRO)	
GMAR Workshop Series	The success of the GMAR Robotik Talks is the variation of different formats, so that periodically every customer group is addressed. Important is periodic marketing, thorough preparation and a lot of advertising. The results must also be prepared and reported back to the participants.
3_Association Industry 4.0 Austria (PIA)	
AI Focus of Platform Industry 4.0 Austria	<ul style="list-style-type: none"> • Focus on specific content, not general, to attract stakeholders interest. • Assume a neutral perspective on topics • Include different perspectives to involve different stakeholders having different interest.
4_Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V. for its Fraunhofer (IWU)	
Strategy Workshops together with “Go-Cluster” Programme	<p>When setting up the TINs and when orchestrating workshops for the stakeholders involved, the following lessons learnt should be considered:</p> <ul style="list-style-type: none"> - Gather data - Workshop - Repeat - Neutral facilitator
5_Karlsruhe Institute of Technology (KIT)	
Synergy Regional and International Workshops	<ul style="list-style-type: none"> • Interactive workshops are a proven means to directly involve relevant stakeholders into a projects specific research questions; • The concept of design thinking as a new co-creation process proved as an incentive for active participation of stakeholders; • The participation of external experts is an effective way for enriching the content of the workshops, as well as attractive for more stakeholders; • The iterative nature of the Synergy workshops (regional followed by international) allowed the initial workshops to inspire and improve the quality of the international workshops."
6_Lombardy Intelligent Factory Association (AFIL)	
Technology and Innovation Camp (TIC)	<ul style="list-style-type: none"> • Consolidate a share a common agenda structure for TIN workshop • Focus on matching session to foster new project ideas in specific CAMI4.0 topics/sub-topics
7_SIIT S.c.p.a. Intelligent Integrated Systems Technologies (SIIT)	
ENTRUST Energy System Transition Through Stakeholder Activation, Education and Skills Development	<ul style="list-style-type: none"> • direct contact with the participants • collect the feedback in person/verbally, in order to be sure to dissipate doubts
8_Pomurje Technology Park (PTP)	
Tech & Innovation Camps (TIC)	<ul style="list-style-type: none"> • Exchange of best practice and knowledge and demonstrate the potential of cooperation among large interregional networks. • Partners presentations and project ideas matching • Presentation of solution providers • Panel discussion • Showcasing the solutions • Opportunity for direct B2B meetings Matching - Workshop"
Robotdays (DIH2)	<ul style="list-style-type: none"> • Latest technologies showcase from expert also to give insights to policymakers that might consider introduction of this into industry by offering supportive measurements for SMEs; • Policy level stakeholders presenting their vision and obtain bottom-up feedbacks;



	<ul style="list-style-type: none"> • not only solutions but also tools and platforms are given to policy level stakeholders to test the appropriateness for their purposes. • invite SMEs to learn more about the thematic and find good practices."
9_Pannon Business Network Association (PBN)	
Local Robot Days - DIH2 project	<ul style="list-style-type: none"> • Interactive workshops combined with physical demonstrations on latest technologies and solutions. • Establishment of personal connections between the DIHs and the audience in order to know, where and how to obtain more information.
10_Croatian Agency for SMEs, Innovations and Investments (HAMAG)	
Smart Factory: Digital Croatia	Panel discussion or similar knowledge exchanging events with actors from the triple-helix learning environment are necessary to help the dialogue between the actors and establish a common ground of understanding for strategic technology-oriented policy-making
Local Capacity building seminars for intermediaries	That kind of workshop involving several actors from the quadruple-helix and providing different perspectives can be used to raise awareness and importance, but also to exchange knowledge on the CAMI 4.0. topics. In addition, something similar to HACKATON can be organized too.

Figure 2. Overview of harvested results for TINs orchestration

In the process of creating this document, the harvested good practices were analysed and inspiring points were highlighted to define guidance for TINs set-up ad TINs orchestration that will be largely presented in the following chapters.

TINs set-up	TINs orchestration (organisation of TTDM)
<ul style="list-style-type: none"> • Mixture of a top down and a bottom up approach when setting TINs up • Ensure long term sustainability defining a clear plan for the next 2-3 years. • Define the role of each partner in contributing to the different TINs • Plan regular online meetings to connect regional networks at interregional level • Set-up and continuous update of stakeholders' database to monitor their involvement in the networks 	<ul style="list-style-type: none"> • Identify wide target group and facilitate the long-term participation of stakeholders in this network • Allow flexibility in the workshop structure • Focus on a specific topic or sub-topic • Include different perspectives to involve different stakeholders having different interest • TTTDM structure should have different sessions organised to achieve diverse objective (<i>i.e. technical panel to present specific applications + round table with experts to address challenges and foster the interactions among different type of stakeholders + matchmaking session to favour the establishment of fruitful collaborations</i>)

Figure 3. Key "take-aways" from harvesting activities



5. Design and implementation of TINs

As anticipated, Trend & Innovation Networks will be organised as digital communities of stakeholders anchored around the 4 main topics of CAMI4.0: **Intelligent Production Systems, Automation & Robotics, Smart Materials and Artificial Intelligence**. These topics have been selected in the framework of CEUP2030 project, since they have been recognised as the most strategic topics to be developed in the Central Europe area to maintain the competitiveness of Advanced Manufacturing stakeholders and further develop their knowledge and competences. More in details, each CAMI4.0 topic has also been specified in term of sub-topics to clearly identify the contents to be discussed and developed within the network (Figure 4).

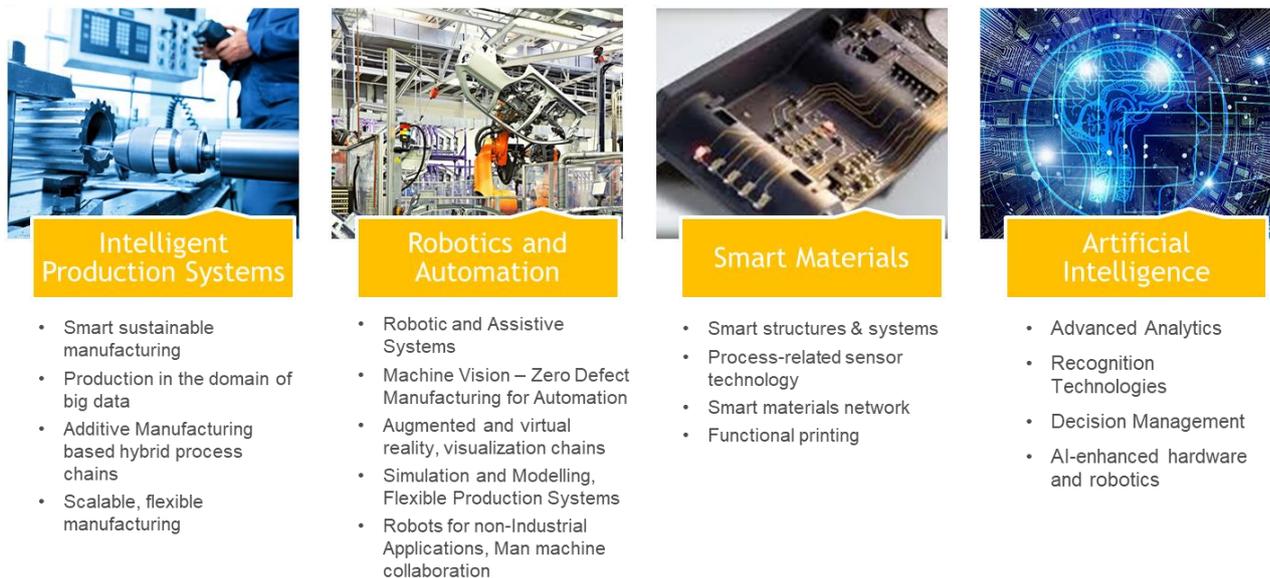


Figure 4. CAMI4.0 topics and sub-topics

Each TIN will be leaded by one of the CEUP2030 partner. TIN Leaders will be responsible to guide the definition of the TIN specific objectives as well as supervise actions to be implemented by the group of partners involved ensuring that, by the end of the project, TINs goals and the targets will be met.

Trend and Innovation Network	Leader
Intelligent Production Systems	KIT - Karlsruhe Institute of Technology
Robotics and Automation	PROFACTOR
Smart Materials	Fraunhofer IWU
Artificial Intelligence	AFIL - Associazione Fabbrica Intelligente Lombardia

Figure 5. TINs Leaders



CEUP2030 partners will all contribute to the development of TINs by establishing a regional network in the different CAMI 4.0 areas, inviting representatives of the triple-helix who will contribute discussing and sharing trend and innovation foresights on the targeted topics.

In the following paragraph a detailed guidance on the objectives to be pursued and the methodologies suggested to partners for TINs set-up and orchestration is provided.

The information reported is the result of some brainstorming sessions organised among TINs leaders and all the partners, which were focused on the definition of a clear and shared strategies for TINs. As already anticipated, harvesting results, WP1 main contents and PLL preliminary outcomes triggered the discussions in this context.

Objectives

CEUP2020 Trend and Innovation Networks are one of the main outputs of the project and 5.1 they are meant to:

- Generate improved knowledge and exchange on new technologies relevant for Central Europe Advanced Manufacturing and Industry 4.0;
- Set-up stable innovation networks of stakeholders, where to generate new project ideas and foster interregional cooperation
- Enhance policy making fostering a better understanding of stakeholders' needs and related priorities as well as highlighting existing knowledge gaps of the institutions

In line with this strategic goals and with expected project results, a set of detailed objectives to be pursued by each TINs has been defined, including concrete activities to be implemented by each partners as well as more strategic actions to be conducted in cooperation with all the partnerships:

> Trend and Innovation Network Workshops

In order to foster the discussion on trend and innovation foresight on the targeted CAMI4.0 topics, 40 TTTDM - TIN Tech Trend Dialogue meetings will be organised by CEUP2030 partners involving the regional stakeholders identified in the community. TTTDM represent the main instruments that TINs should exploit to deliver the outcomes expected and meet the objectives set. TTTDM are envisaged as workshops that will be organised not only with the aim to discuss technical contents and foster the matchmaking among participants, but they will also address key challenges and barriers that might be overcome with the support of institutions. Indeed, the targeted audience will include participants from the triple-helix to be engaged in the discussion, with the aim to generate inspiring content both for the definition of new flagships projects as well as for the definition of strategic policy guidelines to be transferred to policy makers at different levels.

A dedicated paragraph (4.3. TTTDM Methodology) has been elaborated to describe in details the requirements connected to these meetings, complemented with a proposal of methodology to be implemented by partners in the organisation of the workshops.

> Roadmaps Tips

Leveraging on the outcomes of TTTDM, partners should elaborate a list of recommendations for policy makers, to be taken into account in WP3 and eventually



further developed during RIS3 Round Table. These policy recommendations could be elaborated from the preliminary inputs derived from PLL as well as from the discussions that are engaged during the TTTDM. More in details, they should be finalised to elaborate suggestions for improving industrial policies, based on the main needs and priorities highlighted by stakeholders participating in TINs and related to the development and uptake of specific technologies in the targeted CAMI4.0 area.

> **Use-cases and Flagship projects**

Project partners will have the opportunities to exploit TINs and TTTDM to foster the identification and development of use-cases that can be turned into flagship projects involving CEUP2030 partners and or their stakeholders. Each TINs, based on the topics and sub-topics identified and building on the competences and knowledge available in the participating regions, is expected to identify 5 use-cases in alignment with what has been pre-defined in WP1 Harvesting for the different CAMI4.0 topics.

Interregional cooperation and connections among the regional communities have to be ensured by project partners involved in the TINs, making sure that their stakeholders can grasp all the opportunities coming from the TINs and more in particular ensuring their participation in relevant use-cases or flagship projects. To support this action, partners can also constantly look for funding opportunities coming from interregional or EU programmes. To this end, open calls connected to EU projects as well as new INTERREG calls can be considered.

> **Community Building**

While establishing and reinforcing the connection among the ecosystems in the different regions, project partners will set-up cooperation mechanism to ensure long term sustainability of TINs. This will allow to continue activities beyond the project lifetime focusing on the implementation of flagship projects and fostering the cooperation also at institutional level, supporting policy maker in improving existing schemes and eventually

5.2.

TINs set-up methodology

The establishment of Trend and Innovation networks will require a strong effort from partners in the set-up phase, which will specifically address: *i) definition of partners' role in the TINs; ii) preliminary identification of potential stakeholders; iii) Definition of TINs calendars*

5.2.1. Definition of partners' role in the TINs

Considering the heterogeneity of CEUP2030 consortium as well as the regional priorities, partners are expected to play different roles in the TINs based on their competences, knowledge and potential stakeholders' interest. Accordingly, 3 functions have been identified:

- **Leader:** partner in charge of guiding the development of the TIN, making sure that all the partners involved contribute to the definition of objectives and strategy and comply with the requirements. Leaders will also take care of ensuring alignment among regional communities, organising periodic meetings and making sure synergies are properly exploited. Finally, the leader of the TIN will also be the responsible of writing the TIN



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deliverable reporting on the meetings organised by the group and the main achievements.

- **Core:** partners in this role are considered the main contributors to the TIN contents. They have well developed knowledge and competences in the field and through the organisation of TTTDM they are going to present regional best practices as well as building the basis for interesting use-cases to be developed with other partners or their stakeholders.
- **Learner:** partners who do not have a grounded experience in the field and consider the CAMI4.0 topic addressed not being a strategic priority for the region. PP in this role will provide a minor contribution to the TIN and they can also decide to not run a TTTDM in that specific field (as long as they meet the target of 4TTTDM focused in other CAMI4.0 areas). Learner can also leverage on TINs of other regions to improve their competences and knowledge, exchanging with leader and core partners and eventually organising meetings with their support.

Thanks to the activities already put in place in WP1 for the development of “D.T1.3.1 Design of an implementation oriented Strategy Upgrade & Boost supported by an Action Plan”, it was possible to preliminarily define the configuration of the partners along the four TINs according to the criteria explained above:



Lead	KIT			PRO			IWU					AFIL			
	PRO	KTP		KTP	KIT	PBN							PIA	PBN	
Core	PBN	AFIL		AFIL	SIIT								KTP	PRO	
	PIA	PTP	SIIT	PIA	PTP		KTP	PIA	KIT	PTP	PRO		PTP	SIIT	KIT
Learner	IWU	HAMAG		IWU	HAMAG		AFIL	SIIT	PBN	HAMAG			HAMAG	IWU	

Figure 6. CEUP2030 Partners roles in TINs

5.2.2. Identification of potential stakeholders

In addition to the definition of partner’s role in the different TIN’s, another set-up action envisaged is the identification of potential stakeholders to be involved in future activities connected to TINs. As described in detail in the previous chapters, TINs networks have to include stakeholders from the triple-helix to bring different points of view, competences as well as needs, in the communities. In order to support the creation of these network at regional level, partners are invited to fill a list of potential stakeholders in their region that might be invited to the TTTDM and, more in general, involved in the TINs development. This list can build from the stakeholders already engaged in CEUP2030 activities thanks to PLL sessions and should be enriched with participants from the different target groups:

- Local public authorities



- Regional public authorities
- National public authorities
- Interest Groups, including NGOs
- Higher education and research
- Education/training centres and schools
- Large enterprises
- SMEs
- Business support organisations

An excel sheet has been designed to guide partners in the creation of TIN Stakeholders database that can be further enriched during the project lifetime, considering that it has been designed to facilitate the invitations of key stakeholders to TTTDM but it can itself be enlarged by attendees who were not yet tracked in the preliminary list. In order to avoid GDPR issues, this file is not including name and contacts of the people representing an organisation. It can be easily filled with information regarding:

- **Region**
- **Name of the organisation**
- **Type of organisation**
- **Status of the contact:** highlighting the level of engagement of the targeted stakeholders (potential interest, stakeholder only contacted, stakeholder engaged)
- **Topic(s) of interest:** associating each stakeholder to one or more topic(s) of interest

For partners who are approaching the same stakeholders, due to geographical reasons, it is suggested to split the community of interest according to the core competences of each partner, avoiding duplication in the list of stakeholders.

The document is available for all the partners in the project repository folder and it can be edited online at the following link:

https://doc.kpt.krakow.pl/share/s/3WSF1_TzQWavRI_eRjn53w

5.2.3. Definition of TINs calendar

Considering the amount of meetings to be organised in the framework of TINs and more in general in the context of CEUP2030, a detailed planning of the TTTDM is required to make sure all the targets are met in terms of numbers of meetings for each TINs as well as to avoid overlaps. Accordingly, all the partners are asked to define their plan of workshops in line with the requirements, recalled also in Section 5, leading to the **organisation of 40 TTTDM in total** (10 Meetings per TINs - 4 per each partner).

Differently from what initially reported in the AF (Figure 7), partners will have more flexibility in the organisation of their TTTDM during the project lifetime so TINs deliverables can be delivered by TINs Leader by November 2021 including the overview of the meeting organised.



CEUP 2030

<p>D.T2.2.2. Trend & Innovation Network 1: Big & Real Data Processing & Sensors /</p> <p>Responsible: KIT Deadline: 11.2020</p>	<p>D.T2.2.3. Trend & Innovation Network 2: Automation & Robotics</p> <p>Responsible: PRO Deadline: 02.2021</p>	<p>D.T2.2.4. Trend & Innovation Network 3: New Materials</p> <p>Responsible: IWU Deadline: 06.2021</p>	<p>D.T2.2.5. Trend & Innovation Network 4: Artificial Intelligence</p> <p>Responsible: AFIL Deadline: 11.2021</p>
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Figure 7. Timeline TINs deliverables

However, to avoid problems with the scheduling and delays in the implementation of the activities, some milestones have to be agreed among the partners to make sure TTTDM are all delivered in time. Accordingly, while planning the meeting calendars, each partner should make sure that:

- **By March 2021: 1st TTTDM organised**
- **By September 2021: 2nd and 3rd TTTDM organised**
- **By November 2021: 4th TTTDM organised**

Concurrently with these deadlines, all the partners will be invited to take part in **CEUP2030 sessions dedicated to the 4 TINs (the so called “TINs Afternoon”)**. In these sessions, TINs leaders will be asked to coordinate its group and guide them in reporting about the TTTDM organised so far. This will contribute not only to share best practices and experiences in the organisation of the meeting, but it will be also fundamental to ensure that interregional connections are established among CEUP2030 communities and new flagship projects are fostered.

The document is available for all the partners in the project repository folder and it can be edited online at the following link:

https://doc.kpt.krakow.pl/share/s/gaL0ntBIRG6__pXdldeyoQ

5.3.

TTTDM methodology

The methodology proposed in this paragraph is supposed to guide and support partners in the organisation of TINs meetings. However, partners can be flexible in defining the structure of their events adapting the methodology to the specific needs and outcomes expected by the audience.

As anticipated in the objective sections **40 TTTDM will be organised along the 4 TINs, counting 10 meetings for each CAMI4.0 area. Meetings are expected to be organised targeting regional stakeholders, but interregional workshops are also welcomed if partner can ensure that holding the meeting in English is not seen as a barrier for regional stakeholders.** Differently from PLL, TIN Tech Trend Dialogue Meetings are expected to have a larger audience (around 30 people) and so they will be conducted more in the form of a seminar rather than a co-creation session. Indeed, allowing interactions in such a large group would raise some problems.

Considering the contents, TTTDM have to focus on specific CAMI4.0 topics or related sub-topics and they have to be structured to facilitate the discussion of technical contents and foster the matchmaking among participants (Figure 8). Moreover, with the aim to exploit these events to feed WP3 activities, partners are also strongly suggested to



address key challenges and barriers that might be overcome with the support of institutions, for example through the organisation of round tables with stakeholders involved representing diverse type of organisation.

TTTDM can be also co-organised with other ongoing projects if proven synergies exist and with the aim to further capitalise the opportunity of identifying interesting use-cases to be developed.

Content	Potential Methodology
<p>Introduction (20 min)</p>	<p>In order to create the right atmosphere, partners who are hosting the meeting are suggested to give a speech on CEUP 2030 project including an overview on TINs.</p> <p>In case the meeting is co-hosted with another project, an introduction should be given also for the other project highlighting the synergies among the two networks.</p> <p>During the introduction, partners should also make sure to clarify the scope of the meeting to the participants, highlighting the different sessions envisaged.</p>
<p>Technical Panel (30-60 Min)</p>	<p>The core part of the TTTDM should be represented by technical panels presenting use-cases or industrial applications in the area targeted by the events. In order to provide a complete overview of the topics, different perspectives can be included, starting from industrial applications already in place and then moving to more innovative and challenging projects which could be presented by research institutes or universities.</p> <p>Physical (or virtual) tour of laboratories or plants can be planned to bring the audience at the core of the implementation and break the session with a more interactive moment.</p>
<p>Round Table (40 Min)</p>	<p>Starting from specific challenges or barriers connected to the topics addressed, a round table could be an interesting moment where engage the discussion among stakeholders from diverse type of organisations.</p> <p>Therefore, besides defining key questions it is important to select stakeholders from the triple-helix that can be involved in the debate bringing their perspective to the table. Ideally, the panel should include representatives from industrial sector (SME and/or LE), universities or research centers, associations and institutions.</p> <p>Here below a set of questions that can be addressed to the participants. It only serves as an example, round table questions can be designed by partners according to the peculiarities of the participants.</p> <ul style="list-style-type: none"> • <i>How could innovation around this topic be fostered in your region? How is the interaction among different type of stakeholders in the development of innovation projects?</i> • <i>Which are the main barriers who are impeding the adoption and integration of advanced solutions in this area? How could barriers be overcome?</i> • <i>What are the existing policy instruments implemented with the aim to increase the leading position of your region regarding in</i>



	<p><i>this topic? Do you see any gap between stakeholders needs and the policy instrument offer?</i></p>
<p>Matchmaking (optional)</p>	<p>Considering that these workshops have also the aim to foster and promote the design and development of new use-cases or flagship projects, a matchmaking session could be useful to facilitate the connections among the participating stakeholders.</p>

Figure 8. TTTDM methodology

Due to the spread and consequences of COVID-19, physical meetings might not be possible and so partners are encouraged to set-up virtual meeting rather than postpone the organisation of TTTDM. Indeed, considering the consistent number of meetings to be organised in a relatively short timeframe, it would be better to start the planning taking into account the restrictions in place in the different regions.

Either virtual or physical it is important, that these workshops fulfil the criteria and reporting obligations outlined in Section 5 of this document. In particular, regarding the timing of virtual events, it is suggested to not organise webinars longer than 90-120 min., otherwise participants may left the meeting or decrease their active participations. Following this principle, for each session included in the methodology, an indicative timing is reported that can in any case be adjusted according to the needs of organisers and stakeholders.

For more inspiration regarding workshop designs and remote workshops, the internet can be a very helpful source of inspiration. For instance, the following sources can be helpful:

- “*IDEO Design Kit for human-centered design*”: www.designkit.org/methods
- “*8 tips for hosting your first participatory workshop*” in a [Medium blogpost](#)
- *The Definitive Guide To Facilitating Remote Workshops*”: www.mural.co/ebook
- *Audience Interaction Made Easy* - sli.do
- *Live polls, quizzes, word clouds, Q&As and more to get real-time input*: [Mentimeter](#)
- “*Connectivity through effective matchmaking*”: [B2Matchplatform](#)

6. Requirement for PP

Each PP of CEUP 2030 is required to set-up a Trend and Innovation Network in its region focusing on each CAMI4.0 topics. In total, project partners will have **4 digital communities established** that will be involved in the actions and activities described above. The main outcomes of these TINs will be the organisation of TTTDM. **Each PP is required to organise 4 TTTDM** that can either cover all the 4 CAMI4.0 topics or some of them according to the needs and the competences expressed in its TINs.

Trend and Innovation Networks is one of the WP2 outputs and it consists of four main parts which must be achieved for it to be considered “complete”:



- **Part 1, TINs Methodology Harvesting:** This part of the output has already been completed by all the partners and results are reported in D.T2.1.2. To comply with this task, PPs have identified good practices and methodologies to be exploited for the set-up and development of TINs.
- **Part 2, TINs set-up:** This part of the output is targeted to the establishment of TINs communities and it encompasses the identification of potential stakeholders to be involved and the contribution to the definition of TINs objectives and contents to be developed. *(See paragraph 4.2)*
- **Part 3, TINs orchestration:** This part requires PP to organize 4 TTTDM connected to the TINs in which they are contributing either as a core partner or a learner. Although some freedom is left to the partners for the organisation of the different meetings, each PP is recommended to provide a detailed plan of the workshops to comply with the timeline of WP2 *(see paragraph 4.3)*
- **Part 4, Stakeholder Feedback Loops:** After each TTTDM, the PP will complete a detailed interview scheme with identified Peer Reviewers, to ensure the methodology structures are effective and to eventually implement corrective measure in the following round of TTTDM. In addition to interviews, participants should deliver online survey to workshop participants, with the aim to collect quantitative information on participants' satisfaction with each TTTDM. More information on this part can be found in paragraph 5.3 and in the deliverable related to WP2 Impact Controlling (D.T2.4.1).

Considering specifically the organisation of TINs Tech Trend Dialogue Meetings

There is no specific requirement on the length of a TTTDM session. However, considering the need to organise virtual sessions, it is recommended to squeeze the different slots proposed in the methodology to not have too long workshops. Indeed, the experience has shown that, due to COVID-19 situations, people (in particular from industrial context) are more and more involved in virtual sessions and their time available is usually around 2 hours. This is also the perfect timing to ensure the active participations of attendees. When physical meetings will be possible, workshops durations can be extended to half-day and enriched with matchmaking sessions either pre-organised with a proper tool or fostered through the organisation of coffee breaks, light lunches or cocktails.

Building on Paragraph 4.4 of this document, **the TTTDM should:**

- **Be focused on a specific topic (or sub-topic)** addressed in CEUP2030 Trend and Innovation Networks
- **Present regional good practices or use-case** that can raise awareness on the audience in the targeted area
- **Promote the generation of new use-cases or project ideas** based on the topics discussed
- **Engage the discussion among different type of stakeholders involved** referring in particular to gaps and barriers faced by companies in further developing a technology or a solution
- **Foster the matchmaking among participants**



After a PLL attending stakeholders...

- ... have a clear and concrete overview of specific technologies implementation and their impact
- ... have collected some food for thoughts on potential projects/actions in which she/he can be involved
- have shared their experiences or problems with the audience
- have understood the opportunities available in the framework of CEUP2030 project, referring in particular to interregional cooperation
- ... have raised some priorities that can be mentioned as guidelines for policy makers to be specifically addressed in WP3

Target group

- 6.1. **TTTDM will contribute to reach the target 300 policy-relevant stakeholders mentioned in the Application Form.** In each workshop, there should be around 30 participants, that can be either stakeholders already involved in PLL sessions or new ones invited for the TTTDM purpose. PPs should be very accurate when reporting about target groups reached since it is necessary to count and report unique-stakeholder, meaning that in each period a single participant attending PLLs and TTTDM can be counted only once.

These stakeholders will be policy-relevant individuals working for critical organisations which have experience in CAMI4.0 topics development or it is interested in acquiring more competences and knowledge in the area. As it happened for PLL, TTTDM should enable **triple-helix collaborative exchange** - for this to happen, each PP has to invite stakeholders from the fields of policy, research and business to the PLL. However, each PP is responsible for selecting and inviting their most important stakeholders for the TTTDM.

For this process, it is necessary to keep in mind the overall CEUP 2030 target groups:

- Local public authority - 20
 - Regional public authority - 20
 - National public authority - 7
 - Interest Groups, including NGOs - 10
 - Higher education and research - 30
 - Education/training center and school - 10
- 6.2.
- Large enterprises - 20
 - SME - 80
 - Business support organizations - 20

Reporting and Communication

In order to build on the outcomes of TTTDM and to generate useful insights for the projects, a detailed reporting of the meetings has to be elaborated by each partner. **Therefore, each PP has to create a report of each TTTDM including the following aspects:**

- List and description of attending stakeholders
- Description of the TTTDM including methodologies used



- Summary of the outcomes and key achievements
- Key lessons learned
 - *For stakeholders: potential collaboration on strategic topics, priorities-gap-barriers for technologies development and updates*
 - *For PP: improvements for upcoming TTTDM, recommendations to be highlighted for RIS3 Round Table in WP3, potential flagship projects to be developed*

Besides reporting requirements, communication is another important and strategic task to be implemented in CEUP2030. Therefore, PPs are recommended to collect as many contents as possible from the workshops (i.e. pictures, video content-if feasible-, meeting notes, flipcharts and presentations). Thanks to this materials, relevant contents for CEUP2030 communications will be elaborated and disseminated through the project communication channels. In particular, while during the event social media posts can be exploited to share real-time updates on TTTDM, reports and other media contents can be included in dedicated articles that can be published after the meetings.

Feedback

- 6.3. At the end of each TTTDM each PP should provide the necessary documentation to contribute to the Impact controlling activities (see D.T2.4.1). Accordingly, each partner is required to collect quantitative and qualitative information to allow the evaluation of the workshops organised highlighting, in particular, its impact on project activities as well as on stakeholders attending the event.

Based on the information reported in the dedicated deliverable, **a questionnaire in the form of an online survey will be distributed among participants to collect quantitative information**, while peer-review will be conducted through targeted participants that will be involved in a **structured interview aimed at collecting qualitative information on TTTDM relevance and effectiveness**.

The document, including specific indication and requirements on WP2 Impact Controlling, is available for all the partners in the project repository folder at the following link: https://doc.kpt.krakow.pl/share/s/VTd03oibQIC_h2K0egzf8w

- In addition to the feedbacks that can be collected from external stakeholders, PPs can reciprocally exchange opinions and suggestions on the meetings organised and the outcomes achieved. In particular, to promote these exchanges **3 TINs afternoon sessions** will be organised and guided by TINs leaders supporting partners in sharing their experiences gained from the organisation of TTTDM. These sessions will be held in March 2021, September 2021 and November 2021 (see the timeline below for more information).

Timeline

Summarising, activities related to TINs set-up and development has already kicked-off in alignment with A1.3 and it will last until November 2021. Although in the AF it has been planned to organise activities related to a TIN in a single semester, it was agreed to give partners more flexibility to **organise the TTTDM indicatively starting from November**



2020 until November 2021. Regular TINs sessions will be organised to check the advancement of each partners and a dedicated Calendar will be used to make sure PPs are properly planning their workshops.

Monthly CEUP2030 meeting will be exploited to updates each other on the upcoming events and new plans for the future months. Each PP is required to inform the other PP about the dates of the planned PLL in the monthly CEUP 2030 meeting.

Here below, you can find an overview of the timeline planned for A2.2

Deadline	Action
October 2020	Definition of partners' role in TINs and TINs objectives
November 2020	Elaboration of a preliminary list of stakeholders to be involved in the for TINs
November 2020	Start the planning of TTTDM according to the scheme proposed in paragraph 4.2.3
March 2021	Deliver 1 st TTTDM and related follow-up documentation
March 2021	TINs afternoon sessions to be planned <ul style="list-style-type: none"> - <i>Intelligent Production Systems (23rd March 14.00-15.00)</i> - <i>Automation and Robotics (23rd March 15.00-16.00)</i> - <i>Smart Materials (24th March 14.00-15.00)</i> - <i>Artificial Intelligence (24th March 15.00-16.00)</i>
September 2021	Deliver 2 nd and 3 rd TTTDM and related follow-up documentation
September 2021	TINs afternoon sessions to be planned <ul style="list-style-type: none"> - <i>Intelligent Production Systems (28th September 14.00-15.00)</i> - <i>Automation and Robotics (28th September 15.00-16.00)</i> - <i>Smart Materials (29th September 14.00-15.00)</i> - <i>Artificial Intelligence (29th September 15.00-16.00)</i>
November 2021	Deliver 4 th TTTDM and related follow-up documentation
November 2021	TINs afternoon sessions to be planned <ul style="list-style-type: none"> - <i>Intelligent Production Systems (23rd November 14.00-15.00)</i> - <i>Automation and Robotics (23rd November 15.00-16.00)</i> - <i>Smart Materials (24th November 14.00-15.00)</i> - <i>Artificial Intelligence (24th November 15.00-16.00)</i>
November 2021	TINs deliverables prepared by TINs Leaders collecting PPs inputs and reports (D.T2.2.2 - D.T2.2.3 - D.T2.2.4 - D.T2.2.5)



Reporting Template

TTTDM Reporting Template	
Name of the PP	Choose your PP Name
7.2 TTTDM Type (CAMI4.0 topic, regional/interregional), Date and Location	[Free Text Response]
Description of the TTTDM	[Free Text Response]
Methodologies applied in the TTTDM and description of the methodologies	[Free Text Response] 1) 2) 3) ...
Which technologies and/or applications were discussed in the TTTDM?	
How many stakeholders participated in the TTTDM?	
Which Triple Helix stakeholder group did the participants belong to? (add number of participants)	___ policy ___ research ___ business ___ Supporting Organisations
Which EU project(s) was synergically involved in the TTTDM, if any?	



<p>Key Outcomes of the TTTDM and description</p>	
<p>Which lessons learned do you have as a project partner (a) and which lessons learned emerged for participants (b)?</p>	
<p>Hyperlink to picture and video content of the PLL</p>	
<p>General Summary of the TTTDM</p>	