

FINAL EVALUATION & IMPACT ASSESSMENT REPORT ON TIN AND PID IN A CE/EU POLICY CONTEXT

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Impact Assessment Report on TIN and PID in a
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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 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. Main Project Results

The main results of the projects are the 6 outputs contributing to the result indicator by setting up a stable network for trend monitoring on CAMI4.0 topics as well as the RIS3 Round Tables both fostering innovation in a regional and transnational context. For immediate cooperative innovation learning, the Policy Learning Labs & the Tech Radars/PID fit to the indicator. For a mid-term and long-term anchoring, the Strategy & Boost and the Policy Framework for 2021-2027 also contributes. The expected change at the territorial level will be noticeable by aligning structures & processes for a stable, future robust tech & innovation policy implementation scheme lasting far beyond project’s end & by integrating consequently stakeholders across Europe for strengthening CE. CEUP 2030 improves the situation of target groups through a deep-dive integration in both working group structure (TIN, RIS RT) & in the cooperative learning of the PLLs. In general, the project assures sustainability of outputs/results during project duration by the number of involved top level stakeholders & proven quality of PPs and their ASPs. After project’s end there will be an agreed capitalization agenda & a long-term validity stated in the Policy Framework 2021-2027 (political) and the subsequent action plan (financial). PLLs, TINs & RIS3 RTs will stay as network organizations from the triple-helix stakeholders (institutional). The outputs/results of CEUP 2030 can & will be transferred to additional target audiences/territories during project lifetime anyway (e.g. TIN/PID/PLL on 5 conferences, using 3 EU Presidencies, working groups from DGs, Vanguard, EFFRA, etc.). Also, beyond CEUP 2030 it is planned and will be agreed to foster a strong transfer scheme (Policy Framework 2021-2027).



1.3. Work Package and Activity Overview

The overall objective of WPT2 was to upgrade and establish strong partnerships around the 4 main CAMI4.0 topics to raise awareness and ensure a shared sustainable responsibility on using RTI knowledge resources in CE/EU for enhancing policy decision support. This was 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 were 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 was established, to work on future foresight, technology trend monitoring and scouting. These activities fed the PID with the gained data to produce Tech Radars and other insights able to support decision making.

The specific activity which is of relevance for this document is Activity T2.4, the development of the methodology for Impact Controlling & Evaluation of TINs & PID to optimise & streamline elaborated data for decision making to gain best results for CAMI4.0 excellence.

Table 1 A.T2.4 Deliverables

Outputs: WPT2 - A.T2.4 Impact Controlling (06.2020-04.2022)	
1. Coaching guidance for involved CAMI4.0 stakeholders on TIN & PID in CE/EU policy context (SIIT) [08.2020]	Design of WPT2 impact controlling system, linked to global impact controlling scheme
	PPs strategy to re-engage peer review group & extend review group (1/per TIN/PP - 40 total) & feedback mechanisms during activities & dissemination processes
	Guidance document to extend qualitative & quantitative impact controlling & evaluation to WPT2 TINs & PID
2. Interim Evaluation & Impact Assessment Report on TIN and PID in a CE/EU policy context (SIIT) [02.2021]	Engagement of peer reviewers
	Strengthening of the TIN/PID outputs through collection of feedbacks from peer reviewers.
	1 solid interim report on first insights on peer review and test group feedbacks
3. Final Evaluation & Impact Assessment Report on TIN	Shared sustainable ownership on the RTI strategic positioning in CE territories
	WPT2 final outputs collection and analysis



and PID in a
CE/EU policy
context (SIIT)
[11.2021]

1 final report, that brings all reviewers feedback together, and draws common conclusions

1.4. Impact Controlling System Overview

Impact Controlling System is a cross cutting activity where partners work together to determine a methodology and associated tools to monitor and measure the impact that the project has made on meeting its objectives. The applied methodology is a combination of qualitative and quantitative attributes which will be used across the lifecycle of the project.

Qualitative attributes are a series of questions that can be asked to a chosen group of Peer Reviewers, across the project's development; whilst quantitative attributes are based on project numerical indicators that are associated to connecting with Target Groups generally, and meeting content-relevant deliverables on a work package by work package basis.

1.5. Scope of Document & Deliverable Summary

D.T2.4.3 aims at collecting and analyzing the main outcomes after the conclusion of the rounds of TTTDMs (i.e. the TTTDMs performed till the end of April 2021), analyze their impact and the consequent activities about the establishment of PIDs.

Change Control Procedure & Structure

The Deliverable Responsible: SIIT Scpa Sistemi Intelligenti Integrati Tecnologie (SIIT/PP7), created document which is hosted on the Project's common repository in the appropriately named deliverable folder (**D.T2.4.3 Final Evaluation & Impact Assessment Report on TIN and PID in a CE/EU policy context**).

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. Feedback will be incorporated, and the final version will be issued by SIIT.

At any time, partners believe a project methodology should change, the request should be brought to the Deliverable Responsible and the Work Package Leader (SIIT/PP7) 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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Introduction

The purpose of this report is to provide a final analysis of the feedbacks collected from a select Peer Reviewer group (1 interview/PP/per CAMI4.0 topic), on an analysis and update recommendations for insights on the strategic vision for CAMI4.0 Excellence. The report was made based on three contributions from each PP (3 Sub-Report/PP) based on PP's qualitative and quantitative data from stakeholder interviews and draws common conclusions. The previous D2.4.2 analyzed the first round of TTTDMs and peer reviews.

In this report, one can find an overview of the methodology and partner contributions which have occurred to complete the work of Deliverable D.T2.4.3. The deliverable is part of activity A.T2.4 "WPT2 Impact Controlling & Evaluation of TINs & PID to prove Strategy & Policy Relevance" which ran from 2020.06 to 2022.04.

The Report provides a complete summary of the Peer Review interviews & stakeholder feedbacks from three TTTDMs that each partner has organized, in addition to an overview of the PIDs impact.

Background and Aims

Impact controlling is an essential part of project development because it provides a series of gateways (timely review periods), where Partners and the stakeholder network who were targeted by the project, can assess whether the project has successfully met its intended goals. This means that the methodology is inherently tied to the overarching project's aims, and the intended goals of the project's core outputs. A first deliverable containing the analysis of the first round of TTTDMs (1/partner) was delivered in June 2021 and was used as a base for this.

Impact Controlling System Overview

Impact Controlling System is a cross cutting activity where partners work together to determine a methodology and associated tools to monitor and measure the impact that the project has made on meeting its objectives. The developed methodology is a combination of qualitative and quantitative attributes which will be assessed across the lifecycle of the project.

Qualitative attributes are a series of questions asked to a chosen group of Peer Reviewers, across the project's development; whilst **quantitative attributes** are based on project numerical indicators that are associated to connecting with Target Groups generally and meeting content-relevant deliverables on a work package by work package basis.



Definitions

What is impact controlling?

Impact controlling, or more commonly known as impact monitoring, is a system and or a set of procedures which can be used to measure whether a project or task has reached its intended goal or is on track to reaching its goal. It can be succinctly defined as a continuous process of collecting data on specified indicators.¹

What is a Peer Reviewer?

Peer Review is defined as “a process of subjecting an author’s scholarly work, research or ideas to the scrutiny of others who are experts in the same field”²

A Peer Reviewer is a term which has emerged from academic/scientific writing, which refers to an individual or organization whose goal is to assess the validity, quality and often the originality of an article (or a concept in an article). This term can be similarly assessed in the project world, where an individual or organization will be assessing the validity and quality of the project’s goals and provide qualitative feedback on the group’s ability to achieve the goals with the project’s outputs.

What is a TTTDM

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 were 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 were envisaged as workshops to be organised not only with the aim to discuss technical contents and foster the matchmaking among participants, but to also address key challenges and barriers that might be overcome with the support of institutions. Indeed, the targeted audience included participants from the triple-helix to be engaged in the discussion, with the aim to generate inspiring content both for the definition of new flagship projects as well as for the definition of strategic policy guidelines to be transferred to policy makers at different levels.

Considering the contents, TTTDMs focused on specific CAMI4.0 topics or related sub-topics and they were structured to facilitate the discussion of technical contents and foster the matchmaking among participants. Moreover, with the aim to exploit these events to feed WP3 activities, partners were 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.

¹ “What is Impact?” in the Danish Demining Group’s “An introduction to Impact Monitoring” available at: http://danishdemininggroup.dk/media/1220258/im_manual_2012_web.pdf

² What Is Peer Review?” (2014). Int J Comput Appl. Web. Retrieved July 02, 2014, from <http://www.iicaon-line.org/peer-review> [Google Scholar] [Ref list]



TTTDM could 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. More information about the methodology can be found in D.T2.2.1

Due to the spread and consequences of COVID-19, physical meetings might have not been possible and so partners were encouraged to set-up virtual meeting rather than postpone the organisation of TTTDM. In the end, both the format were used.

The following TTTDMs have been organized:

Artificial intelligence

No, Name of PP	Date and Place of the PPL	CEUP 2030's Participants
PP1_KTP	CAMI 4.0. - Artificial Intelligence, regional meeting 13.04.2021, 10:00 -12:15 originally planned on 23.03.2021 (postponed due COVID-19)	148
PP2_PRO	CAMI4.0: AI 07/07/2021, Constance	58
PP3_PIA	Artificial Intelligence, regional, 17.06.2021,online	30
PP4_IWU	Artificial Intelligence, regional, 22. April 2021, online MS Teams	26
PP5_KIT	Regional - Joint TTTDM on SNM and AI - 30 September 2021- Karlsruhe (Virtual)	26
PP6_AFIL	CE1662 CEUP 2030AI TIN Tech Trend Dialogue MeetingVirtual - GoToMeeting, 9/12/2020	54
PP7_SIIT	“Intelligenza Artificiale e sue applicazioni”05/10/2021, Genoa (on-line)	33
PP8_PTP	Regional - TTTDM on AI- 23th November 2021,Online	36
PP9_PBN	CAMI4.0: Artificial Intelligence 29/03/2021, On-line (MT TEAMS)	16
PP10_HAMAG	AI TTDM; regional, Zagreb, 14 April 2021 ; 10 - 12 am Online via GoToMeeting platform	32
Total Number of Participants		459

Smart and New Materials



No, Name of PP	Date and Place of the PPL	CEUP 2030's Participants
PP1_KTP	CAMI 4.0. - Smart Materials regional meeting 7.09.2021, 10:00 -12:15 Online version (zoom platform)	21
PP2_PRO	CAMI4.0: SMART Materials02-03.12.2021, ONLINE, MS-Teams	182
PP3_PIA	Smart and New Materials, regional, 07.04.2021, online	59
PP4_IWU	Future of smart material clusters and upcoming projects/flagships discussion; Tuesday 02.11.2021; RUTHs in Berlin on-site	7
PP5_KIT	Regional - Joint TTTDM on SNM and AI - 30September - Karlsruhe (Virtual)	26
PP6_AFIL	CAMI4.0: Smart Materials28/10/2021 Virtual	29
PP7_SIIT	Il Sistema Ligure dell'Innovazione e il Piano Nazionale di Ripresa e Resilienza 27/07/2021, Genoa (on-line)	51
PP8_PTP	Regional - TTTDM on NM- 3rd December 2021,Online	24
PP9_PBN	CAMI4.0: Smart and New Materials 19/11/2021, On-line (ZOOM)	16
PP10_HAMAG	Smart materials TTDM; regional, Zagreb, 30November 2021;10 am -1 pm Zagrebački inovacijski centar, ZICER, Avenija Dubrovnik 15	21
Total Number of Participants		436

IPS

No, Name of PP	Date and Place of the PPL	CEUP 2030's Participants
PP1_KTP	CAMI 4.0. - Intelligent Production System regional meeting30.09.2021	18
PP2_PRO	CAMI4.0: Inteligent Production Systems29.11.2021, ONLINE, MS-Teams	43
PP3_PIA	Intelligent Production Systems, regional,15.06.2021, online	37



PP4_IWU	Intelligent Production Systems, regional, in German Thursday, 15 July 2021; 14:00 - 15:30 honline-Workshop MS Teams	30
PP5_KIT	Regional - TTTDM on IPS - 18 March - Karlsruhe (Virtual)	18
PP6_AFIL	CAMI4.0: Intelligent Production Systems, regional 22/07/2021 Virtual	42
PP7_SIIT	Data management per la mobilità urbana 16/07/2021, Genoa (on-line)	31
PP8_PTP	Regional - TTTDM on IPS - 18th March 2021, Online	28
PP9_PBN	CAMI4.0: IPS 17/11/2021, On-line (Zoom)	26
PP10_HAMAG	Intelligent production systems TTTDM; regional, Zagreb, 27 May 2021; 10 -12 am	42
Total Number of Participants		315

Automation and Robotics

No, Name of PP	Date and Place of the PPL	CEUP 2030's Participants
PP1_KTP	CAMI 4.0. - Automation and Robotics regional meeting 23.09.2021 Physical meeting (Astor Robotic Centre)	129
PP2_PRO	CAMI4.0: Automation and Robotic Workshop 10.-11.06.2021, Haus der Ingenieure, ÖIAV Festsaal, Eschenbachgasse 9, 1010 Vienna	45
PP3_PIA	Robotics, regional, 18.05.2021, online	35
PP4_IWU	TIN / CAMI4.0 topic: Automation and Robotics Regional, online Thursday, 22.07.2021	21
PP5_KIT	Regional - TTTDM on A&R - 27 July - Karlsruhe (Virtual)	28
PP6_AFIL	CAMI4.0: Automation and Robotic, regional 14/07/2021 Made Competence Centre Industry 4.0, Milano	53
PP7_SIIT	CAMI4.0: Automation and Robotic 18/03/2021, Genoa (on-line)	70



PP8_PTP	Regional - TTTDM on AR - 9th September 2021, Pomurje Technology Park	14
PP9_PBN	CAMI4.0: Automation and Robotics 18/11/2021, On-line (Zoom)	32
PP10_HAMAG	A&RTTDM; regional, Zagreb, 7 October 2021; 9.30-11.30 am Hotel Capital. Zagreb	25
Total Number of Participants		452

Target groups of the TTTDMs

TTTDM 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 should 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
- Large enterprises - 20
- SME - 80
- Business support organizations - 20

In the end, the target groups reached (based on the numbers of the questionnaire received, which are 220, in comparison with a total attendance of 1662 recorded participants) are:

Local public authority	13/20
Regional public authority	13/20
National public authority	6/7
Interest Groups, including NGOs	5/10
Higher education and research	40/10
Education/training center and school	6/10



Large enterprises	25/20
SME	43/80
Business support organizations	65/20
Total	140

As shown in the table above, the numbers (although only a small percentage of participants filled the questionnaires) are a positive success, especially given the fact that are only about specific activity of WP2 and are compared with the KPIs of the whole project.

Feedback collection

As defined in D.T2.4.1, to evaluate the impact of the TTTDMs two actions were put in place:

- a questionnaire in the form of an online survey was distributed among participants to collect quantitative information,
- a peer-review was conducted through targeted participants that were involved in a structured interview aimed at collecting qualitative information on TTTDM relevance and effectiveness. The specific peer reviews can be found [here](#).



Peer-reviews and outcomes

Peer Reviewers Identified by Partner:

Partner Name	PP No.	No. of PR Identified	No. of Peer Reviewers Interviewed
KPT	PP1	4	4
PROFACTOR	PP2	4	4
PIA	PP3	4	4
IWU	PP4	4	4
KIT	PP5	4	4
AFIL	PP6	4	4
SIIT	PP7	4	4
PTP	PP8	4	4
PBN	PP9	4	4
HAMAG	PP10	4	4
Total Peer Reviewers		40	40

In total, 40 Peer Review interviews took place between December 2020 and April 2022.

That means all Peer Reviewers were interviewed for the qualitative analysis. Interviews took from 30 minutes up to two hours, depending on the project partner's approach to discussion and in how much detail the interviewees wanted to go.

Methodology

Responsible partner for Task 2.4. (SIIT) prepared a questionnaire for an interview with a peer reviewer. The questions were related to:

- **General** (basic questions related to the project CEUP 2030)
- **Relevance & Effectiveness** (referring to the relevance of the project work to the objective and aim of the project, and effectiveness at building a sustainable transnational support structure & enhancing regional innovation capacity)
- **Value- Creation** (referring specifically to the project's future activities using WPT2 outputs, to showcase how value can be created with transnational support structures - for instance: access to knowledge, personal networking, concrete cooperation)
- **Sustainability/Transferability** (referring specifically to the ability of the work package outputs to be utilized for other RIS3 aims & integrated into other initiatives to sustain and transfer results)
- **Closing Remarks**

Each partner's organization conducted an interview with peer reviewers after the TTTDM workshop ended.

SIIT prepared a summary of the answers.

GENERAL



- **When hearing the objectives of CEUP 2030, generally, what opportunities do you expect this project to bring to your organization? Your region? Central Europe?**

As per the previous round, in general, most of the peer-reviewers when hearing the objectives of CEUP2030 and not being familiar with Interreg programme, found the targets ambitious, and found the potential impact on the regions relevant and significant. For higher education and research organizations, the objectives of CEUP2030 are significant: the direct contact with industrial stakeholders allows to collect real needs to work on. Research centres, indeed, risk to be disconnected to industrial applications not knowing companies who are already working on innovative solutions or conducting theoretical research without an industrial transferability. The CEUP2030 objectives on triple-helix collaboration gives the opportunity to start a dialogue between Academia and Enterprises on innovation topics for the competitiveness of the region and Central Europe. This is also useful to help SMEs to understand new running opportunities: they could not have expertise on robotics, automation or AI solutions and it is important to share the knowledge for a mutual growth. From a policy point of view, CEUP2030 represents an important opportunity to highlight the current challenges and needs to institutional organizations to consequently align funding opportunities and supporting tools.

It was also mostly highlighted how stronger cooperation, and such initiatives are a gain for the regions. Industry4.0 is highly important for Central Europe.

Through the exchange of information, different organizations and industrial fields can learn from each other, like the manufacturing sector from the area of health and the other way around - CEUP 2030 creates value through the facilitation of this exchange.

One of the main expected outcomes was to be better linked with potential project partners and to participate in upcoming calls form EU programs such as Interreg.



Figure 2 Wordcloud analysis for Question 2

RELEVANCE AND EFFECTIVENESS

- How relevant and effective is the organization of Trend and Innovation network meetings in reaching the project's wider aims & objectives? What would you change?

The general opinion was that this kind of sessions are **useful and relevant**; multiple reviewers underlined that having continuous involvement through the project was very **effective**.

In particular, the demonstration of several industrial cases was considered interesting and participated, focusing the discussion on current innovation trends.

In terms of network creation, the impact of a physical meeting would have been greater, but the space dedicated to questions was good also in virtual mode. The material shared after the session was useful to contact the speakers or to deepen the explained concepts.

Among the suggestions there was the increase of the outreach with a stronger focus on the "value proposition".

The initial introduction on the development and the objectives of TIN (networking, collaboration, etc.) was appreciated to understand the opportunity represented by the community. At the same time, also the presentation of European current opportunities collected participants' interest as well as the possibility of meeting different stakeholders (DIHs, policy, business, and research) and experience use cases in the thematic fields.

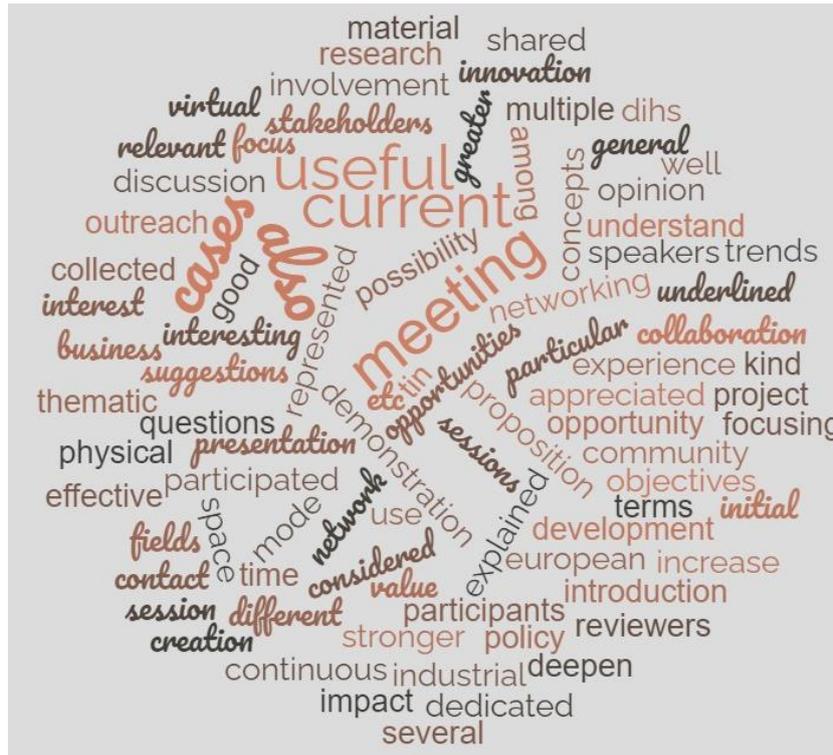


Figure 3 Wordcloud analysis for Question 3

- Could the content of the TIN meeting be quickly felt and understood? What would you change?

The two main outputs were that the content of the various presentations was easy to understand and interesting and that some of the sessions were judged a bit full, causing less time for discussion.

In the sessions in which more space was given to networking it was well received and the public was **very reactive**, but it was stressed the **need for concrete and tangible inputs** (e.g: coming from the networks of stakeholders in terms of priorities; use cases in CAMI topics.) to policy makers who might **influence future policies** and therefore companies can exploit the funding possibilities in a better way.

The industrial cases were well presented through brief but precise pitches. The content was technical but easily comprehensible also by non-expert stakeholders. In case of requests of insights, the speakers were available for discussion generating a good exchange of knowledge and competencies. There was a good balance between technical details and strategic plans. The showed topics were interesting and strongly innovative. They were well described and quickly understandable by participants.



wasted materials to reach the proper purity and dimensions represents a significant challenge to be faced. Another research trend is about the 3Dprinting of smart products constituted by materials able to change their properties according to precise stimulus: in this case they act as sensors giving additional functionalities to the final products. Finally, the use of Additive Manufacturing as mass production technology is largely investigated for an effective industrial transfer of the developed innovative solutions.

In the sessions about Artificial intelligence, it was stressed how this technology is becoming more usable in the production and industrial sector, so **more resources and support** should be addressed overall.

Starting from the analyses of these trends, the policy makers should support the academic and industrial research dedicating specific tools and funding opportunities or regulating the associated issues. All the four CAMI topics are trending very much in the moment and should be communicated with policy makers.

Policy makers should understand the technological trends to favour and support manufacturing innovation. At industrial level, the main technological trend on materials is related to circularity and sustainability, e.g. self-repairing materials, in-life monitoring and prediction, etc.

Policy makers play a crucial role to push and create a new vision and approach towards Industry4.0 topics. In particular, they provide both funding opportunities and normative for the implementation of concrete actions. Lots of activities, in fact, require authorizations that should be simplified and made easier to support the use of innovative solutions at high TRL.

Policy makers on different levels can be also inspired by the thematic fields and use cases presented and they can lobby for funds/influence strategies accordingly.

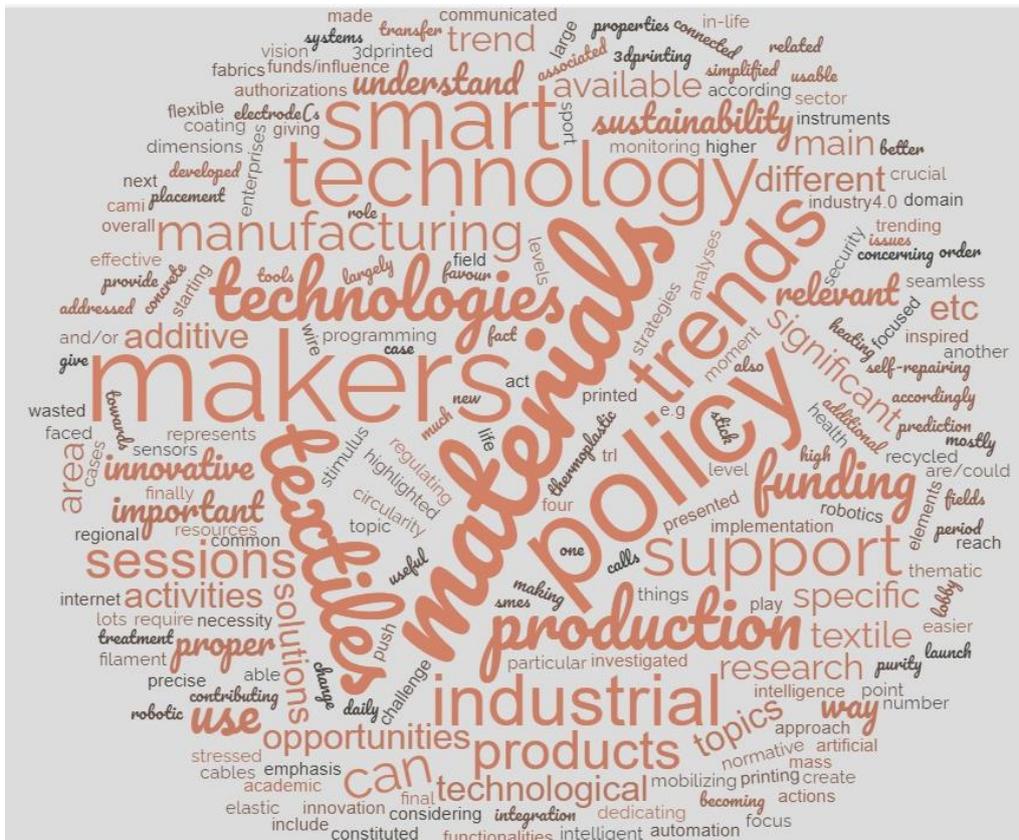


Figure 7 Wordcloud analysis for Question 7



- Are the chosen topics relevant for the region and what are their limitations?
Are there sub-topics that should be more considered more better treated?

Mostly, the topics were deemed relevant, but it was also highlighted the need to narrow down the target to have a clearer perspective and path. The chosen CAMI4.0 topics are very wide with several sub-topics covering all the different innovation aspects. Maybe further attention could be addressed to the human relationship with the operative systems, in terms of support to the operators. Within these topics, an important role is played by circular economy, in terms of material sustainability, consumption reduction, etc. AI and Robotics represent tools to be then implemented in different sectors and applications, also connected to Circular Economy. Another important point discussed was the transversality of Production Systems. It means the use of technologies normally applied to specific applications/plants/sectors in other ones to explore and exploit their potentialities from a different point of view.

Community building and internationalization are highly relevant topics. It is helpful when networks encounter each other.

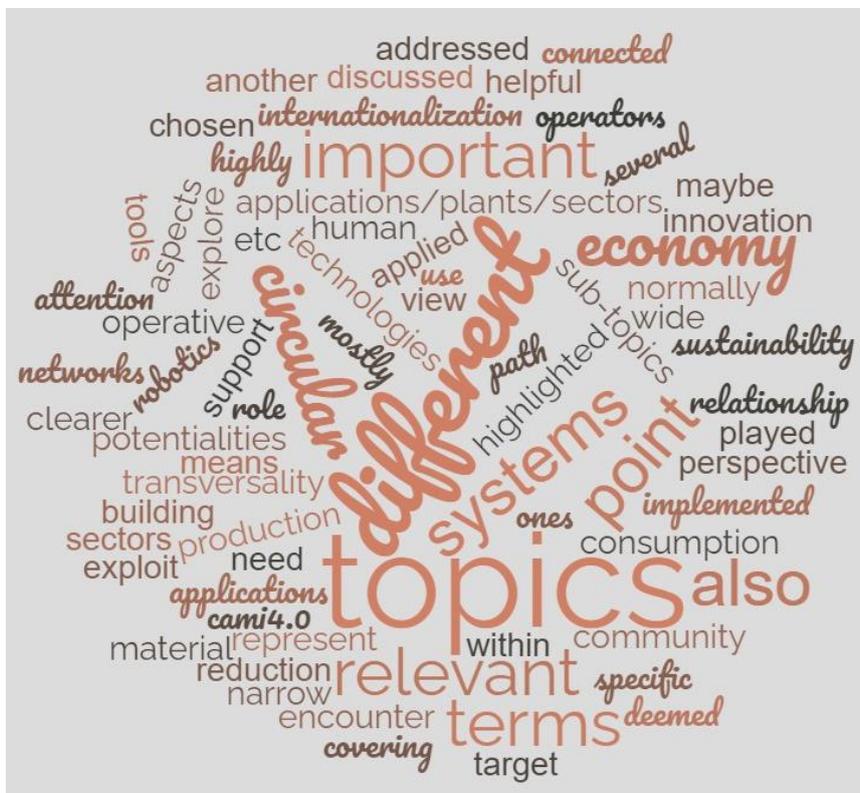


Figure 8 Wordcloud analysis for Question 8

SUSTAINABILITY/TRANSFERABILITY

- What are the strengths, weaknesses, and where do you see the opportunities and potential challenges in Industry 4.0 in your region and country?

A lot of comments were made on how private and public investments have been done in last years to promote innovative technologies and how SMEs should be involved in these actions, but in some cases, they are not fully aware of the current opportunities. Another limitation is the lack of skilled operators: particularly in SMEs, it is necessary to share the knowledge on new technologies to increase the technological readiness of enterprises.

An actual weakness and a potential challenge are the sharing of all the opportunities, because generally the involved enterprises are always the same ones. It is important to increase the awareness reaching as many SMEs as possible. The strength of Industry 4.0 is

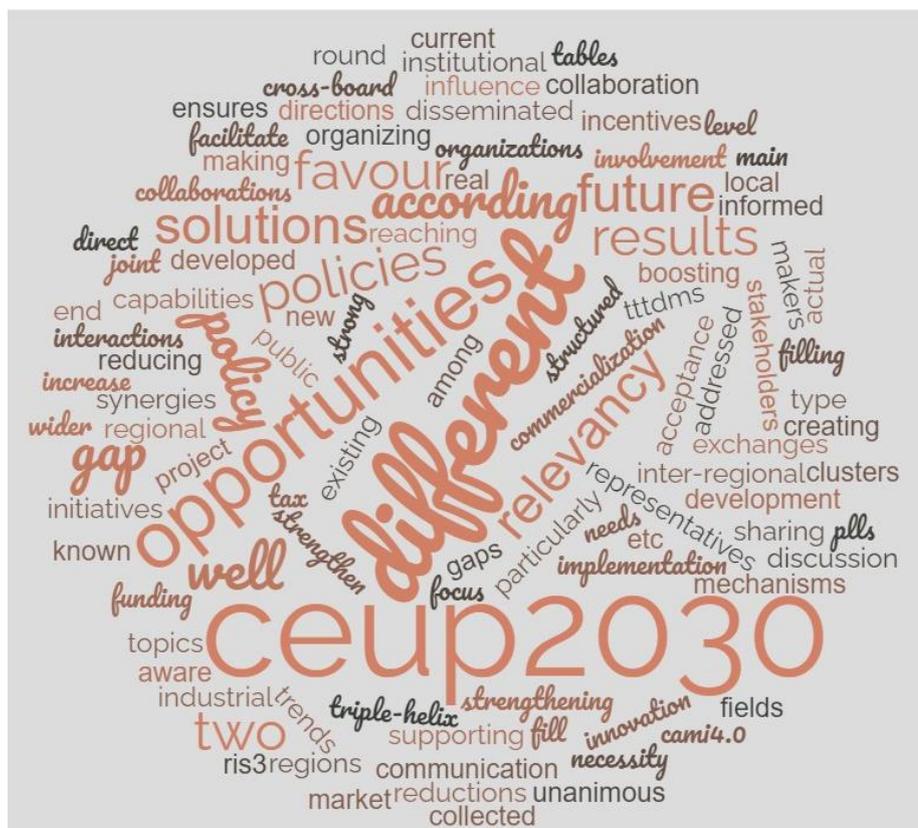


Figure 12 Wordcloud analysis for Question 12

CLOSING REMARKS

- **What other comments or recommendations do you have about CEUP 2030 and its goals & visions, which have not been mentioned/asked yet?**

Not many comments were suggested by peer-reviewers. Most of them wished for the project to be successful and the results useful for next generation of researchers and workers.



Quantitative Indicators

Provides an overview about quantitative measurements about the whole 4 TTDMs round conducted (number of participants, satisfaction with the workshops, etc.). This chapter quantifies the impact of the workshops on each TTDM participant that filled in the questionnaire.

The indicators were based on the impact of the workshop on the individual participant. In the evaluation questionnaire, the participants assessed their satisfaction with individual parts of the workshop. They had a scale from 1 to 10, with 1 as minimum and 10 as maximum

Line		Number of ALL Participants ³	Average Score ⁴ per participant
1.	How satisfied are you with the activity of the hosting institution in organizing the event?	220	9,2
2.	How satisfied are you with the infrastructure provided by the organizer institution?	220	9,25
3.	How satisfied are you with the communication of the hosting institution?	220	9,31
4.	To what extent did the event / workshop meet your expectations?	220	9,05
5.	How satisfied are you with the information provided on the event?	220	9,2
6.	How satisfied are you with the structure and content of the event?	220	9,18
7.	How satisfied are you with the presenters of today's event?	220	9,24
8.	How satisfied are you with the quality of the event/workshop materials provided? You only have to answer if the workshop material has been provided.	218	8,91

Table 1 impact of the workshop on the individual participant

To summarize it, the participants were more than satisfied with the workshops. Some participants would have liked to have the presentation performed in English (rather than in the local language), but mostly, participants were glad that the events were held in the local language. Some commentors, while praising the effort and presentations, suggested to make presentation a bit more dynamic. Perhaps instead of using only power point as a presentation template it could be used mixed of videos, ppt, etc., to make it

³ Participants who completed the questionnaire



easier to follow the presenter's explanation. One other commentor was funny enough to suggest to "use less beautiful and sweet moderators because they are a source of distraction". Other than this, our effort was largely appreciated.



PID Design Elaborate Technology Radars to Improve CE-EU Policy Making

The Policy Intelligence Dashboard monitors, fine-tunes and streamlines policy relevant data on technology trends for a fast-track assessment based on a solid data gathering and evaluation (Tech Radars, A.T2.3). The PID were tested in a common transnational manner, established and anchored in the activated stakeholder scheme (PLLs, TINs). The PID methodology sets the base for the joint policy exploitation with pilots as well as a future planning for 2021-2027 and beyond project's end. The PID is built around a core project principle, that policy-makers can directly benefit, and create onward benefits for the entire innovation eco-system, when they have practical and streamlined knowledge and insight on technology trends and potential industry impact.

Ultimately, CEUP 2030's Policy Intelligence Dashboard activity involved the development and implementation of a practicable and efficient policy tool. This tool is the medium by which select, decision-relevant information is siphoned from the "daily big-data cloud", assessed and provided in an understandable way to key actors. These stakeholders benefit from updates and insight on technology trend monitoring, future foresight, and technology and actor scouting, in the form of compact and high-quality technology radars and risk heat maps for Central Europe industry.

The knowledge embedded in the PID is high quality and relevant to the policy-making stakeholders. Therefore, the tool is embedded in a cross-skilled pool of experts who can provide the appropriate insight and interpretation of key technology trends on industry

It was also thoroughly tested to ensure relevance is maintained across territorial areas. At least 40 (4/PP) institutions were involved in applying and testing the Policy Intelligence Dashboard, and were incorporated into the Trend & Innovation Network dialogue sessions, along with the RIS3 Roundtables, to prioritize the brainstorming and upstreaming of the insight into policy-implementation action. The PID were presented to and received feedback from key RIS3 partners and the DGs (CONNECT, GRO, RTD, REGIO).

Four "PID in Practice", one for each CAMI4.0 topic of CEUP 2030, were created. These are indicated by the following deliverables:

- D.T2.3.2 PID in practice 1: Policy implementation relevant Tech Radar on IPS, PP10/HAMAG
- D.T2.3.3 PID in practice 2: Policy implementation relevant Tech Radar on Automation & Robotics /PP3/PIA
- D.T2.3.4 PID in practice 3: Policy implementation relevant Tech Radar on New Materials / PP8/PTP
- D.T2.3.5 PID in practice 4: Policy implementation relevant Tech Radar on Artificial Intelligence / PP9/PBN

Each PID in Practice represents a tech Radars (TR) including a risk heat map (RHM), where policy-relevant data sources (use cases, organisations, actors, instruments) are identified and classified with a goal to transfer and interpret to policy-decisions. Key use cases were presented in each CAMI4.0 Topic. The partners created an aligned demonstration PID, to provide a model for how this information could be provided in an ongoing way to key stakeholders to ensure sustainable data provision in the form of brochures



Discussion

As this is the final impact report of WP2, it is great to notice to main aspects:

- 1) Our effort as a consortium was successful. Events were generally appreciated, participants were glad, and although we had to face initial difficulties and change of plans due to the pandemic, the consortium could manage to finalize its activities positively
- 2) Actions such as the ones pursued by CEUP2030 have a good impact on regional realities, especially on SMEs, because the organized events created the possibility of links and liaisons among very different entities and instruments and triple helix stakeholders.

The goal of this report is to summarize the collected recommendations, lessons learnt and to draw common conclusions.

Quantitative

We can say that the impact on the ecosystem and everyone involved in the CEUP 2030 project, as far as WPT2 is concerned, surpassed the expectations. If we look at those actors included in the TTDMs (at least those who completed the evaluation questionnaire), we see that most of them came from BSO, SMEs and higher education and research, SMEs. The number of policy-makers involved was increased in this last round, mainly those from the area of Regional Decision-Makers and Local Decision-Makers, and Education/training center and school representatives.

The questionnaire analysis showed that participants were generally satisfied with the workshops. According to survey, they received good information related to the CEUP2030 project, the information was well presented with all project objectives. Most participants expressed that the TTTDMs met their expectations and saw an improvement after the first round (maybe also due to the lowering of COVID related restrictions, which allowed events to take place in person). Especially important to notice, was the eagerness to learn more about use-cases and practical matters, rather than generic information.

These activities in WPT2 built connections between quadruple helix actors, with a primary delivery focus on Enterprises and Government and a bit less towards Civil Society and academia. This seems rather reasonable given the strongly industrial focus of the events.

Qualitative

This section summarizes the lessons learnt from peer reviewers and address how this can be useful for future generations working on these topics.

40 peer-reviews were collected from the partners.

Which aspects of the TTTDMs should and should not be used in future workshops?:

USE	Won't use
<ul style="list-style-type: none"> • Assure the relevancy and concreteness of the contents. 	<ul style="list-style-type: none"> • Too little time for discussion



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<ul style="list-style-type: none"> • Fine tune the presentations with the audience. • Possibility of pitch presentation from the audience • Flagship presentation • Boost face to face events, or at least facilitate bilateral sessions. • More time for group discussion between the participants. • Needs assessment of the stakeholders. • Best practice and use-case examples, • Incorporation in the big picture and connecting to European plans. • Information about DIHs, competence centers and clusters. • Matchmaking between technology developers and possible receivers. • Funding instruments and business support possibilities showcase 	<ul style="list-style-type: none"> • Difficulties in interacting • Too generic and intangible presentations (need to narrow down the target to have a clearer perspective and path) • Too technical presentations • Too full agendas
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The TTTDM outcomes and performances were key for CEUP2030 project for two reasons. First, these sessions have created a group of informed and relevant participants that will stay in touch and kept in the loop of the project after life. In addition, they were the basis for the finalization of T2 activities as well as for the development of T3. Trend & Innovation Networks were established based on the PLLs initial stakeholder group, that were enlarged by foresight & tech experts and the TIN´s work base is used to enhance policy making inputs in T3.



Conclusions & Next Steps

The Report provides a complete summary of the Peer Review interviews & stakeholder feedbacks, to deliver improvement recommendations for actions that will follow up CEUP2030 project.

The qualitative and quantitative review of the activities in Work Package 2 (WP2) has shown that impact on the participants in the TTTDMs has been made and has the potential to generate connections of potential cooperation between Central Europe triple-helix actors and to really improve the technological transfer.

Overall, Peer Reviewers contacted see the benefit of CEUP2030 and the relevancy of its objectives.



Abbreviations

Abbreviation	Explanation
AF	Application Form
CAMI4.0	Central European Advance Manufacturing and Industry 4.0
CE	Central Europe
CEUP 2030	Central Europe Upstreaming for Policy Excellence in Advanced Manufacturing & Industry 4.0 towards 2030
EU	European Union
KPT, HAMAG, PRO, PBN, PIA, PTP, IWU, SIIT, KIT, AFIL	Acronyms for project partners in CEUP 2030
KACE	Key Axis for Central Europe
NGO	Non-Governmental Organization
PID	Policy Intelligence Dashboard
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
TTTDM	TINs Trend & Technology dialogue meetings



Annexes

Distributed Monitoring Impact Controlling Tool

Link to the Tool's Location:

https://docs.google.com/forms/d/e/1FAIpQLSeajLDBizORMFQzZ6joliKiUn0Lqv_st-Tv4f3XQ9KSqY4xVA/viewform?usp=pp_url&entry.303677342=TTTDM+-+TIN+Technology+Trend+Dialogue+Meeting

Basic data about the event:										
Place:							Date:			
Event title:										
Type of the event:										
<input checked="" type="checkbox"/> TTTDM (TIN Technology Trend Dialogue Meeting)					<input type="checkbox"/> Policy Pilot Action Meeting (RIS3 round table)					
<input type="checkbox"/> International conference					<input type="checkbox"/> Other:					
<input type="checkbox"/> No information / it was not defined										
Central Europe Advanced Manufacturing and Industry 4.0 related topic(s) on the event:										
<input type="checkbox"/> Intelligent Production Systems					<input type="checkbox"/> Automation & Robotics					
<input type="checkbox"/> Smart & New Materials					<input type="checkbox"/> Artificial Intelligence					
Your country:										
Your type of organization:										
<input type="checkbox"/> Local Public Authority					<input type="checkbox"/> Education/training centre and school					
<input type="checkbox"/> Regional Public Authority					<input type="checkbox"/> Large enterprises					
<input type="checkbox"/> National Public Authority					<input type="checkbox"/> SME					
<input type="checkbox"/> Interest Groups including NGOs					<input type="checkbox"/> Business support organisation					
<input type="checkbox"/> Higher Education & Research										
Host organisation:										
Satisfaction survey:										
1. How satisfied are you with the activity of the hosting institution in organizing the event?										
	1	2	3	4	5	6	7	8	9	10



2. How satisfied are you with the infrastructure provided by the organizer institution? (equipment for educational technology, material conditions for the workshop, heating, lighting, hygiene, etc.)										
	1	2	3	4	5	6	7	8	9	10
3. How satisfied are you with the communication of the hosting institution?										
	1	2	3	4	5	6	7	8	9	10
4. To what extent did the event / workshop meet your expectations?										
	1	2	3	4	5	6	7	8	9	10
5. How satisfied are you with the information provided on the event?										
	1	2	3	4	5	6	7	8	9	10
6. How satisfied are you with the structure and content of the event?										
	1	2	3	4	5	6	7	8	9	10
7. How satisfied are you with the presenters of today's event?										
	1	2	3	4	5	6	7	8	9	10
8. How satisfied are you with the quality of the event/workshop materials provided? You only have to answer if the workshop material has been provided.										
	1	2	3	4	5	6	7	8	9	10
9. Other comments, suggestions										



Distributed Peer review template

EXTERNAL PEER REVIEW TEMPLATE FOR WPT2 OUTPUTS	
Partner Name	Choose an item.
Institution name	
Region	
Type of organization	Choose an item.
CAMI 4.0 related topics	
Date	30/09/2021
Duration	
Name	
Address	
E-Mail	
Position	
<p>Introduction Text for Interviewer: <i>(It is recommended that a short project overview is given by the PP to the Interviewee, which includes insight into the plans the PP is working on to deliver value and innovation capacity building in your region)</i></p> <p>You are selected as external peer review individual from your regional CEUP 2030 project, due to your expertise, competence, experience and relevance to our quality monitoring programme.</p> <p>Thank you very much for your time and support.</p> <p>This interview is part of the impact controlling for the project; your answers will be summarized, so that no conclusion to individuals will be possible.</p> <p>The objective of the interview is:</p> <ul style="list-style-type: none"> • to learn what impact you expect from CEUP 2030 • to receive an opinion on how the current outputs, work can reach these goals. 	
<p>Overall Objective of CEUP 2030</p> <p>The main objective is to set up stable innovation network with better understanding & improved knowledge, exchange of new technologies, relevant for Central Europe Advanced Manufacturing & Industry 4.0 (CAMI4.0), fostering the exploitation of available outputs/results that will lead to an upgraded policy-making & implementation.</p>	



Specific Objective of CEUP2030:

- S01_Enhance skills, capabilities and knowledge of people in charge of local, regional and (trans)national Research, Technology and Innovation policies within the triple-helix context
- S02_Ensure awareness and shared sustainable responsibility on using the Research, Technology and Innovation knowledge resources in CE/EU for enhancing policy decision support
- S03_Anticipate and fast-track policy strategies focused on the CE/EU sustainable and continuous development, necessary to promote an aligned joint S3/RIS3 for CAMI4.0 excellence

WPT2 Objective:

The overall objective of WPT2 is ensuring awareness & shared sustainable responsibility on using RTI knowledge resources in CE/EU for enhancing policy decision support and upgrading & establishing strong partnerships for the 4 main CAMI4.0 topics. This is managed by establishing sustainable structures such as Trend Innovation Networks (TIN) & practicable, efficient policy tools (Policy Intelligence Dashboard (PID)). Both are crucial to select & channel appropriate decision-relevant information out of the daily big data cloud, assess it & provide understandable knowledge in a compact & high-quality format In total WPT2 increases knowledge on new technology & methods to deal with emerging data flows. Thus, contributing optimally to the current policy stakeholder needs.

WPT2 has two main outputs:

- CEUP 2030 Trend & Innovation Networks for CAMI4.0 - with the aim of establishing sound dialogue on future foresight
- CEUP 2030 Policy Intelligence Dashboard - with the aim of refocusing technology trend insights for policy makers

Category & Question	Answer
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A. General	
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– When hearing the objectives of CEUP 2030, generally, what opportunities do you expect this project to bring to your Organization? Your region? Central Europe?	
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– If you know Interreg Central Europe (https://www.interreg-central.eu/): How relevant do you guess CEUP2030 for Interreg Central Europe is?	
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B. Relevance & Effectiveness	
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(referring to the relevance of the project work to the objective and aim of the project, and effectiveness at building a sustainable transnational support structure with sustainable linkages & enhancing regional innovation capacity)

– How relevant and effective is the organization of Trend and Innovation network meetings in reaching the	
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<p>project's wider aims & objectives? What would you change?</p>	
<ul style="list-style-type: none"> - Could the content of the TIN meeting be quickly felt and understood? What would you change? 	
<p>C. Value- Creation <i>(referring specifically to the project's future activities using WPT2 outputs, to showcase how value can be created with transnational support structures - for instance: access to knowledge, personal networking, concrete cooperation)</i></p>	
<ul style="list-style-type: none"> - How can the Trend and Innovation Networks create value for your region's key stakeholders? 	
<ul style="list-style-type: none"> - How can the results of CEUP 2030 be utilized to create added value for your region's key stakeholders? 	
<ul style="list-style-type: none"> - What are relevant technology trends in the field? How they are (or might become) relevant to regional policy makers? 	
<ul style="list-style-type: none"> - Are the chosen topics relevant for the region and what are their limitations? Are there sub-topic that should be more considered or better treated? 	
<p>D. Sustainability/Transferability <i>(referring specifically to the ability of the work package outputs to be utilized for other RIS3 aims & integrated into other initiatives to sustain and transfer results)</i></p>	
<ul style="list-style-type: none"> - What are the strengths, weaknesses, and where do you see the opportunities and potential challenges in Industry 4.0 in your region and country? 	



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<ul style="list-style-type: none"> – How can the TIN create value for this region’s key stakeholders? 	
<ul style="list-style-type: none"> – Where do you want to see your region, country, related to CAMI 4.0? 	
<ul style="list-style-type: none"> – How can CEUP2030 strengthen future policy in the field? Would that be relevant? 	
<p>E. Closing Remarks</p>	
<ul style="list-style-type: none"> – What other comments or recommendations do you have about CEUP 2030 and its goals & visions, which have not been mentioned/asked yet? 	

