

Industry 4.0 Collaboration in Central Europe (CE)
“How to stimulate CEE Involvement in I40 Networks and Initiatives”
Expert workshop to present the industry 4.0 study and discuss possible action tracks

Venue: THE EGG BRUSSELS
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1. Goal of the meeting

The workshop is organised in the frame of the European Commission study on “*mapping Central Europe (CE) countries’ inclusion to cross-regional Industry 4.0 networks*”. The study provides an analysis of the drivers and barriers to CE countries participation in Industry 4.0 networks and cross-regional initiatives and concluded on possible action tracks.

The goal of this workshop is to:

- 1) Validate preliminary results, key findings and conclusions of the study;
- 2) Test the action tracks with experts to elaborate on possible next steps, action tracks and implications for all policy making levels (including toward intermediary organisations).

2. Audience of the meeting

The meeting is open to all stakeholders, especially **national platform representatives and Industry 4.0 experts** from cluster organisations linked to CE platforms such as:

- IPAR 4.0 National Technology Platform (Hungary),
- Prumysl 4.0 (the Czech Republic),
- Platform Industry 4.0 (Austria),
- Initiative for Polish Industry 4.0 - The future Industry Platform (Poland),
- SRIP Factories of the Future (Slovenia),
- Chamber of Economy or digitalisation platform (Croatia),
- German Industry 4.0 Platform or Silicon Saxony (Germany), or
- Smart Industry Platform (Slovakia)
- Etc.

3. Organisation of the meeting

The meeting will be divided into two parts: **1) Validation of Conclusions** and **2) Action Tracks**:

1. **Presentation of the CE study**: context, methodology, and preliminary results, key findings and conclusions; experts will be invited to express their opinion;

2. **Open discussion on the action tracks:** experts will be invited to express their opinion, propose alternatives and vote. Practical operationalisation will also be discussed.

Following this meeting, a final European Commission meeting will validate the actions proposed in Brussels by **platforms owners** or **experts**. The meeting should bring European Commission representatives from all Directorate General connected to this topic (DG GROW, DG REGIO G1, JRC, etc.).

4. Draft Agenda

16:00 – 16:15	Welcome, context and tour de table ➤ <i>Introduction - Alexandra Olajos-Szabó – European Commission</i>
16:15 – 16:30	Presentation of the CEE study: findings and conclusions ➤ <i>Emmanuel Boudard – N-ABLE</i>
16:30 – 17:00	Validation and amendments of findings and conclusions ➤ <i>Open Discussion on study results, key findings and conclusions</i>
17:00 – 17:55	Action tracks and policy implications ➤ <i>Emmanuel Boudard – N-ABLE / Q&A</i> ➤ <i>Open Discussion on the recommendations and their practical implementation</i>
17:55 – 18:00	Conclusion and next steps – toward a final list of action tracks ➤ <i>Alexandra Olajos-Szabó – European Commission</i>

Please confirm your attendance to: emmanuel.boudard@n-able.io

5. Draft List of possible action tracks

Below is a tentative list of action tracks to start the discussion. To prepare the workshop, the following questions should be posed: Would you agree? Can it help for developing collaborations? What would be the incentive? Would you rank these proposals differently?

Action track 1 Umbrella organisation: Should the European Commission setup a structured Umbrella organisation to engage with stakeholders of the CE platforms. This Umbrella organisation would prepare/ facilitate joint actions, or coordinated actions, or peer learning, etc...

For example: Imagine all CEE regions/ countries industry 4.0 initiatives would be grouped under a virtual platform. It would provide a brokerage forum for collaboration, a unique organisation for issuing joint calls for tenders (see INTERREG office in CEE countries as an example).

Action track 2 Efficient Influence: Find incentives for stakeholders receiving funds to look for complementary funds (e.g. on the model of French competitiveness clusters). In CE countries, ESIF is mostly used for single projects (not collaborative ones). Use a similar model but not identical to convertible loans.

For example: In HU, a repayable support is provided with conditions. If conditions are met, there is no need to repay it. Otherwise, it has to be repaid.

For example: French clusters will receive governmental funds only as a top up to other sources of funds (membership, EU funds, etc..)

Action track 3 Awareness raising toward CE ecosystems: Propose soft actions such as brokerage events, virtual incubator for CE platforms, that do not impose a heavy burden over the shoulders of CE countries; etc...

For example: the HU conference targeting specific stakeholders such as intermediary organisation or sector or industry across the CE region....

Action track 4 Soft Instruments for match making. Should the European Commission setup soft instruments. These will be used for match making events in CE countries (and outside), other, etc...

For example: The CE conference targeting specific stakeholders such as intermediary organisation or sector

Action track 5 Capacity building at intermediary/supervision levels. The European Commission could finance formal or informal training for intermediary organisations.

For example: the European Commission finance a network of National Contact Points (NCPs). It is the main structure to provide guidance, practical information and assistance on all aspects of participation in Horizon 2020. In addition to national funding, the European Commission also finance capacity building across countries on specific topics.

Action track 6 Strategy and vision building. Most partners in CE countries/ regions are afraid of a fair return. They prefer international collaborative projects (H2020) because funded projects offer a fair return (results vs low costs). The Human Capital is a crucial element. People drive a network

and search for expertise. The human factor implies that “we” need to know each other and trust each other to collaborate. When human connexion is made, it can open opportunities at different time scales.

For example: SI demonstrates the capacity of its facilities, paying for travel costs, and demonstrating them.

Action track 7 Visible knowledge repository. A knowledge repository would provide a complete overview of what is available in terms of technologies according to the needs instead of a partial knowledge as currently available from any consulting company / manufacturer. In addition, an exchange of experience for CE countries on: pilot factories (viable business model, etc), leaving labs, DIH, etc... would spread viable business models, organisational tips, and good practices exchanges, etc...

For example: the Vanguard Initiative is a key entry point to a unique network of research and technology infrastructure as well as associated equipment – whether in private or public sectors. It currently acts as an information repository and although it does not provide financial support, it allows for match-making of any organisation located in a member region with any relevant infrastructure/organisation

Action track 8: ... following propositions made during the workshop

For example:

Actions should be split according to the target group: EU, Members States, regions, other stakeholders...

In case you would like to make an additional proposal or bring additional information during the meeting, please send your proposal to: emmanuel.boudard@n-able.io (Deadline for proposals submission: 12/11/19).

6. CEE industry 4.0: Study Brief in view of the 14/11/2019 Workshop

Purpose:

This informal “Brief” provides an overview of key highlights from the Expert Report commissioned by DG REGIO on Industry 4.0 Collaboration across CEE. The results are based on the expert assignment meant to map Central Europe (CE) countries’ inclusion to cross-regional Industry 4.0 networks. It analyses drivers and barriers to their participation and sets some possible action tracks. Desk and interview research were carried out in that respect.

The workshop will aim at validating (and/or amending) but also deepening these initial findings. It will also aim to the definition and prioritization of key action tracks. In view of preparing the workshop, we would like participants to question the findings and action tracks (Would you agree? Can the proposed action(s) help to develop collaborations? What would be a missing incentive? Would you rank these proposals differently? Etc.)

1. Industry 4.0 faces challenges in CE

The intermediary results show that the level of Industry 4.0 adoption is asymmetric across regions and that although some key strengths could be identified, CE lags behind.

Strengths. While they seem to lag behind in terms of robotisation and industrial digitisation as a whole, CE countries also show key strengths in Industry 4.0 (key technological capabilities, application areas that would be well developed or even cutting-edge) which are showcased in the table below.

CE countries seem to be lagging behind in terms of Digitisation and Robotization. One can notice:

- Sectorial strengths: Agriculture (especially SI & CR), Automotive (HU, SK, SI) and white goods (SI), Food industry, for example for apples / juice (PL)
- Technological capabilities: In SI: automatization, process automatization, and robotization are advanced; In HU: automation, sensors, VR, IoT tech. coming from the automotive sector is transferred to other sectors through ICT associations

Strengths	Brief illustrations
Urban	Urban is more advanced than peri-urban. For ex: front runners are South Germany, Warsaw, Bratislava, etc.
Company size & tier 1	Some companies have manufacturing facilities in different countries. For example: Trumpf (AT, PL, CZ, HU, SI...). Tier 1 supplier are also advanced, but SI entrepreneurs are not the owner (it is rather BOSCH...). Large companies can invest, they are digitalized for all CEE countries (not SMEs)
Sector specific	Agriculture (especially SI & CR) and & to some extent activities linked to tourism Automotive and white goods: top tiers 2 to tiers 3 suppliers to the automotive sector and OM of white goods are advanced, but SI entrepreneurs are not the owners Car industry in HU, and SK are more receivers of investment than others. I HU, car manufacturers have established R&D centers PL: the food industry, for example for apples / juice In SI: automatization, process automation, and robotization are advanced In HU: automation, sensors, VR, IoT tech. coming from the automotive sector is transferred to other sectors through ICT associations
Size	SMEs are usually key drivers but lack capacity. Large (and small) companies do not believe in industry 4.0 if they do not see technology demonstrators. Thematic Smart Specialisation Platform (TSSP) is relevant in that respect as it focused on the integration of I40 by SMEs.
Collaboration agreements	For ex: AU, DE, -reference as well to CH- and CZ, or DE and CZ on industry 4.0 focusing on mid-sized companies. AT also cooperates closely with: PL, SI, SK, and HU. These countries are highly interested in replicating the structure of the Austrian platform.
National funding	Both, SI & CZ, are dynamic. They are supported by national agencies for innovation, with funding, or academy of science. For example, the CZ has funded Czech Invest (https://www.czechinvest.org/en).
I40 platform	Coordinating role in AT: bring together industry and science. Membership based, the platform has established a unique network. Representatives of employee associations included: the platform has included representatives of employee associations in all of its working groups (Sweden and Germany have only representatives of employee associations in one of their working groups) Strong interaction with the regions/ national government

Obstacles. Hindering factors hampering the adoption and deployment of Industry 4.0 to regional/national industry across CE were identified. They range from the lack of trust and understanding across regions to more practical issues such as capital expenditures (CAPEX) and skilled workforce (which should be able to collaborate internationally and thus speak English). The lack of demonstrators and up-to-date infrastructure, norms and champions are to be highlighted as should be the fragmentation and lack of intermediary players to support the deployment at a large scale. These factors are listed as obstacles but also risks – the line between both often being thin. Priority obstacles include:



Obstacles	Insights drawn from the interviews
Lack of trust and lack of understanding across the regions	<p>The island of innovation needs to work with others by creating linkages. Difficult to find a trusted partner (neutral) to facilitate connectivity</p> <p>CEE regions are afraid of not ending up with a fair return on their investment. Their vision of the international collaborative projects is more fit for research (H2020) where funded projects offer a fair return (results vs low costs).</p>
CAPEX	<p>The most important is capital expenditures, especially for small and medium-sized companies. Buying equipment for industry 4.0 is a long-term investment that implies risks.</p> <p>Both CAPEX and knowledge (next row) are cross-border issues: they often cannot be tackled by a region alone.</p>
Human factor: Knowledge / education (also to talk EN)	<p>To fully use the equipment and tap into its potential. Company staff is usually not sufficiently educated to implement industry 4.0. Its complexity may prevent its use, and there is a clear need to train employees and attract skilled workforce.</p> <p>Lack of specialists who can work in advanced technological companies. The technical schools are less attractive for younger generations than business schools. But immigration from Ukraine for instance is compensating the lack of specialists.</p> <p>Companies are (still) often not familiar with industry 4.0. The old-generation companies see industry 4.0 as a threat.</p>
Lack of demonstrators (and public support to demonstration)	<p>Besides their product-focused function for the company or consortium demonstrating a specific technology/solution, demonstrators are needed to build awareness and trust including in large corporates. Clear examples are missing: showing what industry 4.0 is and what its gains are remains difficult. What are the actions? What is the hardware? Software? How to reach lower costs?</p>
Lack of up-to-date technological infrastructure	<p>The Czech Rep for instance has identified very good DIH, but interviewees from Slovakia and Hungary had difficulties to identify good technological infrastructures.</p>
Lack of national champions	<p>The biggest investors are companies from “the West”, not national champions to carry a fair share of the financial contribution towards SMEs.</p>
Lack of norms	<p>The technology is not accepted by the market, because the standard is not fulfilled (e.g. the Kinect camera in collaborative robotics, the research applications are oriented toward the safety but the Kinect camera is not certified for industrial application by a standardization institution).</p>
Intermediary structures & enough human resources	<p>They are needed to facilitate collaboration and seem to be missing. The Vanguard Initiative is one example of such structure that built across regions with still limited involvement of CE regions – although one region from Poland and Slovenia are now in the Vanguard Initiative.</p> <p>Regions should also be more active, participating in existing structures (Slovenia is making clear progress in that respect with numerous initiatives ranging from EIT to Vanguard, TSSP, and other networks)</p> <p>Still funding / solution to have permanent employees are needed. The association must be active at international level to connect with other</p>

Obstacles	Insights drawn from the interviews
	associations, but it cannot do a lot at the moment and recruit a large number of SMEs (limited number of members) while for SRIP ToP/FoF industry 4.0 a wider range of companies would be needed.
Fragmentation	Fragmentation is higher in CE regions, making their position/ participation less structured. Intermediaries such as clusters, do not see cross regional collaboration as natural. Feedback from regions such as from existing stakeholders is very slow when existing.
State Aid for high TRL	Could also potentially block collaboration

2. Toward Strengthened CE Collaboration

The factors driving industry 4.0 deployment are often led by funding and connectivity but also the availability of structural elements (infrastructure, demonstration support, etc.). The importance of human capital but also lead users is critical in that context:

Drivers	Insights drawn from the interviews
EC funding	Programmes providing connection opportunities (and support for it, such as INTERREG), allow for the introduction/diffusion of new concepts and increased capacity. Facilitation is offered in contexts such as Digital Innovation hubs, Open calls from the Commission (H2020, others), KIC active in various manufacturing areas (good examples are available from ICT KIC, and health KIC). Twining is also good for technology transfer, etc.
CE lead for EC funding	Include CE regions in the governance of the platforms (EUREKA plaforms, DIH, TSSP, etc.) stimulates collaboration. It allows for a better understanding of the interest of collaboration, educates players involved and put forward, and pushes the choice for networks to collaborate in. Dedicated resources (e.g. expert) should be hired to ensure continuity of the effort.
Public private partnership	For ICT and machine tool suppliers to support the digitization, pilot lines, investments and actors with complementary expertise
Demonstrator	Demonstrators are important to foster companies' awareness. Industry 4.0 initiatives with demonstrators in general (see for example the H2020 Resistant Project with 2 pilot lines)
Visit demonstrators in other places	B2B meetings and visiting existing solutions are the start an industry 4.0 contract
Better governance	Participation / governance should be improved at regional level. Existing networks such as Vanguard are welcoming new regions, but they do not join (which could also be linked to resources – whether human or financial) but some did (SI/PL) with great interest and international progress. Participating to a network creates further collaborations.
Intermediary structures¹	Create intermediary organisations regionally embodied in the ecosystem, being connected to have technical knowledge to progress, and with leadership:

¹ Austrian 4.0 platform provides help for free (and the national Austrian ministry does the same for free), because the digital supply chain shows that many productions sites are located in CEE countries

	<p>Examples discussed include:</p> <p>GP 1: Spain: has a national technological agency CDTI (https://www.cdti.es/index.asp?idioma=2) provides quite a lot of support. Same agency in Czech Rep: Technology Agency of the Czech Rep which also has their own budget (https://www.tacr.cz)</p> <p>GP 2: Thesame innovation (https://www.thesame-innovation.com)</p> <p>Contact would be needed such as with Italy and Austria (industry 4.0 platform) to establish trust / long-term collaborations (also with EFFRA and Vanguard (Slovenian SRIP is a member of a virtual centre)</p>
People	<p>People/experts/... Human Capital. It is a crucial element. People drive a network and search for expertise. The human factor implies that “we” need to know each other and trust each other to collaborate. When human connexion is made it can open opportunities at different time scales. SI demonstrates the capacity of its facilities, paying for travel costs, and demonstrating them.</p>
Digitisation	<p>Due to shortage of skilled labour force and linking the process, make it more reliable. Reduce the possibility of mistakes, reach benefits. Also improving access to specific materials – in the food sector for instance.</p>
Value Chain traction	<p>Companies in the automotive sector are candidates for industry 4.0 (although no easy connections are available there). This can be discussed with companies and the ministry for instance to approach collaboration along the value chain.</p>
Lack of skilled workforce	<p>The unemployment rate being low in CEE countries, the industry has to automate and digitalize the industry. The industry is running out of qualified people.</p> <p>In addition, there is a huge brain drain of good and highly qualified personnel, especially in ICT, due to discrepancies of wages (one third to one fourth)</p> <p>CEE countries see Germany, Austria, Sweden and they are heavily interested in replicating the model</p>

Opportunities. They encompass organisational and operational support but also network-driven opportunities. Current and upcoming opportunities that could foster the collaboration of CEE Countries with other countries in the area of Industry 4.0 are listed below as perceived by interviewees:

Opportunities	Insights drawn from the interviews
National initiatives bridging with the market	<p>Most efforts emphasize the step between research and prototyping. Not enough effort towards the market (between the prototype stage and the market – piloting and demonstration). There is more opportunities by looking at bringing the effort to the market. See for example the Vanguard initiative, Component 5, etc. CE countries are in need of a reinforced effort towards a market-oriented innovation support</p>
EU initiatives bridging with the market	<p>They provide: a wider network, transfer/ exchange of knowledge,</p> <p>Good clients come back for new contracts. The new EU Commission will also provide opportunities</p> <p>EC contracts allow for further collaborations. For example, in agriculture. One good implementation allows further implementation.</p>



	Be included in the governance is also an opportunity to catch
Existing (both formal and informal) networks	Transfer of knowledge, new ideas for production and new products....
New approaches such as Circular Economy	The development of recycling in the automotive sector is an opportunity, for example for the electric motor and magnets (with the example of France put forward). The same applies to food where circular economy but also other technologies steered by responsible business approaches (traceability etc.) can be observed
Intermediary organisations	Creation of technological intermediary organizations (sufficiently staffed). The Czech Rep institution TACR has 10 years. Creating platforms such as Thesame (FR) would also be an interesting opportunity.

Although rather sector-agnostic, collaboration areas were identified that could be sector-driven (food, automotive, materials) but mainly oriented toward specific technologies (AI, robotisation, automation, business process digitisation, industrial photonics and optics, additive manufacturing and plasma).

3. Mapping CE participation in cross-regional networks and initiatives

10 networks running without any dependence on the existence or funding of the European Commission were mapped, completed by 20 networks and initiatives deemed dependent on EU support.

Independent. “Independent” networks are networks that do not depend on fixed-term EU funding. The focus is here on collaboration across countries/regions that can be beneficial to accelerate the diffusion of Industry 4.0 across Central Europe:

#	CE sustainable Networks	Link	CE Countries participating	Resources
1	Industry platform 4.0 ²	https://plattformindustrie40.at/?lang=en	Austria	*** *
2	Alliance Society 4.0 (Prumysl industry 4.0)	https://www.ncp40.cz/en	Czech Rep	**
3	IPAR 4.0 National Technology Platform	https://www.i40platform.hu/en/about_us	Hungary	***

² The platform signed a memorandum of understanding with: Germany, Switzerland, and the Czech Republic. The platform also cooperates closely with: Poland, Slovenia, Slovakia, and Hungary.

4	Network / Initiative for Polish Industry 4.0 - The future Industry Platform or ITEE	http://przemysl-40.pl	Poland	**
5	German Industry 4.0 Platform	https://www.plattform-i40.de/PI40/Navigation/EN/Home/home.html	Germany	*** *
6	SRIP Factories of the Future/JSI	http://www.svrk.gov.si/en/areas_of_work/slovenian_smart_specialisation_strategy_s4/strategic_research_and_innovation_partnerships_srip_in_detail/	Slovenia	**
7	Croatian Chamber of Economy or digitalisation platform	https://ec.europa.eu/growth/tools-databases/dem/monitor/sites/default/files/DTM_Slovakia_FINAL.pdf	Croatian	*
8	Silicon Saxony	https://www.silicon-saxony.de/en/home/	Germany	*** *
9	Smart Industry Platform established under the "Smart Industry" initiative	https://ec.europa.eu/growth/tools-databases/dem/monitor/sites/default/files/DTM_Slovakia_FINAL.pdf	Slovakia	*
10	Vanguard Initiative	https://www.s3vanguardinitiative.eu/	AT, DE, PL, SI	*

EU-dependent networks. Below is a list of selected EU networks that are dependent on EU funding or EU existence (with the example of sectorial organisations which exist is not directly linked to the level of funding they receive from the European institutions). These can however prove to be critical fora to access clients, partners but also strategic information, influence and funding/financing.

Note: two networks can be considered as potentially not fully dependent on the EU but this assessment is still to be validated: the Eureka network (multi-national and thus funded by National State Authorities), and the Vanguard Initiative (funded by the Regional governments of its members). They were however included as they are not areas where CE is greatly represented relatively to other countries and regions

#	Eye on EU-level networks	website	CEE Countries participation
1	Smart Eureka Industry 4.0 ³	https://www.smarteureka.com -> note that Eureka is a multilateral network (not EU but EU MS) co-sustained by the EC	AT, CZ, DE, SI, SK, PL

³ SMART EUREKA (lead by Basque country, MCC Mondragon cooperation who is also a partner in the KIC manufacturing) is one of the 6 EUREKA clusters. They are joint undertaking funded by public entities. 5 other EUREKA clusters:

- PENTA <https://www.eurekanetwork.org/content/penta>
- Métallurgy Europe <https://www.eurekanetwork.org/content/metallurgy-europe>
- EURIPIDES2 <https://www.eurekanetwork.org/content/euripides2>
- ITEA3 <https://www.eurekanetwork.org/content/itea-3>

#	Eye on EU-level networks	website	CEE Countries participation
2	EFFRA	https://www.ffa.eu	AT, DE, PL, SI, SK
3	Food Drink Europe	https://www.fooddrinkeurope.eu/ <i>that network acts as industry representative body</i>	AT, CZ, DE, HU, PL, SI, SK
4	EIT food	https://www.eitfood.eu/ -> see Regional Innovation Scheme https://eit.europa.eu/activities/outreach/eit-regional-innovation-scheme-ris	AT, CZ, DE, HU, PL, SI, SK
5	EIT digital	https://www.eitdigital.eu/ see Regional Innovation Scheme	DE, HU, HR, SI
6	EIT manufacturing	https://eit.europa.eu/our-communities/eit-manufacturing	AT, CZ, DE, SK (under development)
7	EPP Network	https://www.eppnetwork.com/	AT, CZ, DE, PL, SI
8	Digital Innovation Hubs	http://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool	AT, HR, CZ, DE, HU, PL, SI
9	CECIMO	https://www.cecimo.eu <i>that network acts as industry representative body</i>	AT, CZ, DE
10	ECHORD++	http://echord.eu	CZ, DE, SI
11	EU ROBOTICS (SPARC)	eu-robotics.net	AT, HR, CZ, DE, HU, PL, SI, SK
12	I4MS	https://i4ms.eu	AT, HR, DE, HU, PL, SI
13	IOTA	http://www.smartex.com/IOTA/	DE
14	INTERREG-based Networks	Some ex. Biocompack-CE - http://interreg-central.eu/Content.Node/BIOCOMPACT-CE.html http://interreg-central.eu/Content.Node/AMiCE.html S3HubsinCEv http://interreg-central.eu/Content.Node/KETGATE.html SMEs4I4.0 http://interreg-central.eu/Content.Node/FabLabNet.html https://www.era-learn.eu/network-information/networks/manunet-iii/manunet-call-2019	EU
15	Thematic Smart Specialisation	http://s3platform.jrc.ec.europa.eu/s3-thematic-platforms	AT, HU, SI, PL, CZ, DE

- CELTIC NEXT <https://www.eurekanetwork.org/celtic-next>

SMART EUREKA is recent (about 18 months) and is a more modern collaborative platform than the others. Its objective is closer to innovation (higher TRL) than research and the degree of collaboration is higher. As for others, the platform is led by industry but this one is more inclusive and open to all sectors / technology for collaboration.



#	Eye on EU-level networks	website	CEE Countries participation
	Platform (TSSP) Industry Modernisation and in particular the Partnership on Industry 4.0		
16	IPCEI Forum on industrial IoT	http://europa.eu/rapid/press-release_IP-18-6862_en.htm	ALL
17	ERASMUS network	https://eacea.ec.europa.eu/erasmus-plus_en	ALL
18	H2020 networks (ERA-Net MANUNET, AM Platform, EIP/ETP/thematic networks, etc.)	https://www.manunet.net/ , https://www.rm-platform.com/ , https://ec.europa.eu/programmes/horizon2020/en , https://ec.europa.eu/programmes/horizon2020/en/news/thematic-networks-under-horizon-2020	ALL
19	Eurostars	https://www.eurostars-eureka.eu/	AT, HR, CZ, DE, HU, PL, SI, SK
20	ASTM Committee and equivalent standardisation instances for advanced manufacturing	https://www.astm.org and https://www.cencenelec.eu/Pages/default.aspx	EU

A short selection of 7 cases were presented in more details to assess the presence of CE in these networks. The selection is based on 3 main criteria:

- Industry 4.0 representation - the best national representation of Industry 4.0 collaborations, especially in the international context;
- Sustainability - networks/ initiatives that are independent from EU funding and therefore show potential sustainability;
- Maturity - degree of maturity represented by the formalization of their organization and their support to other countries' platforms.

One can observe that CE is present in EU networks but in an uneven fashion, with different levels of proactivity. It also shows that collaboration initiatives more specific to CE countries tend to push toward collaborations with Western parts of CE (Austria, Germany). Networks therefore seem to be bound to specific collaborations or diluted at a European scale, with no existence of a CE area to build capacity and channel better.

#	Network / Initiative	CEE resources
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1	Industry platform 4.0 (AT)	Independent
2	Alliance Society 4.0 (Prumysl industry 4.0) (CZ)	Independent
3	IPAR 4.0 National Technology Platform (HU)	Independent
4	Network / Initiative for Polish Industry 4.0 - The future Industry Platform or ITEE (PL)	Independent
5	Germany Industry 4.0 Platform (DE)	Independent
6	SRIP Factories of the Future/JSI (SI)	Independent
7	Vanguard Initiative	Independent

These networks (or initiatives) have very diverse levels of resources and ambition. For example, some platforms have a formal organisation setup while others are virtual organisations. As a result, their capacity to achieve their initial objectives is more (****) or less (*) possible. Another indicator of their degree of maturity is their support to the other countries' platforms. Both Germany and Austria are supporting other platforms for instance.

#	Selected Networks / Initiatives	Organisation setup (Y/N)	Degree of maturity	Support others (Y/N)
1	Industry platform 4.0 (AT)	Y	****	Y
2	Alliance Society 4.0 (Prumysl industry 4.0) (CZ)	Y	***	N
3	IPAR 4.0 National Technology Platform (HU)	N (association)	**	N
4	Network / Initiative for Polish Industry 4.0 - The future Industry Platform or ITEE (PL)	N	**	N
5	Germany Industry 4.0 Platform (DE)	Y	****	Y
6	SRIP Factories of the Future/JSI (SI)	Y	***	N
7	Vanguard Initiative	Y	***	Y

When crossing the mapping with insights from the interviews the following can be highlighted. For a start, the **Added Value** of these networks lies in the availability or facilitated access to funding but also knowledge, especially Good Practices; network development and acquiring new connections (including access to experts) is a key as is the possibility to share resources and potential burdens. The table below highlights some key elements:

Added value	Brief description/justification
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Funding access to knowledge (Good Practice)	<p>+ Bring funding and spread knowledge, etc... They act as facilitator</p> <p>An exchange of experience for CEE countries on: pilot factories (viable business model, etc), leaving labs, DIH, etc... would spread viable business models, organisational tips, etc...</p> <p>It is important to have collaborations nearby the market. To have connected factories, and to compete, we need to have the top factories. We need to find resources in the neighborhood countries to increase the competitiveness and respond faster to the market needs</p> <p>Compatibility is a must</p>
Networks + connections	<p>+ For example, PT association: bilateral visits, B2B meetings, and best-case scenario are key.</p>
Network of experts	<p>Important for TECOS to deliver any contract, it is to have the expert who can provide the technology</p> <p>Be able to compete, especially for small places. Europe, and especially SL, is small in comparison to China where 200 engineers can be mobilized in any technical center.</p>
Sharing resources	<p>Increase the chances to access public funding for individual organisations. If you act internationally, more chances to get funded. With S3 platform, joint work toward tenders/calls – not possible individually</p>

Numerous studies identified have analysed drivers and obstacles to industry 4.0 deployment. The table below however highlights **challenges** that are put forward by interviewees and can be considered as more specific to CE. It shows that the efficiency of public entities, the lack of funding and resources as well as missing opportunities for networking together with missing trust and interest are critical barriers:

Challenges	Insights drawn from the interviews
Efficiency of national authorities	Local/ regional and national authorities are not as efficient as those (above) networks. They may slow or even stop networks
Funding	Funding to provide the agreed project is a challenge. IDONIAL submitted several H2020 propositions as a coordinator. Usually companies need money -> More funding tools are needed to get more participation. This the main challenge, finding the money
Opportunity to be in EU networks	<p>Lack of connection to the right networks / association. Lack of association or well-connected one. Starting to participate in one network create many more opportunities. The country (SI) is so small, than there is no other way than going international.</p> <p>But, the opportunity to participate in a EU project within existing consortiums are rare. It is a long shot to get a position sufficiently interesting in term of tasks / funding, etc... e.g. factory of the future that are too big, and only for big players who can satisfy their needs</p>
Companies lose interest	<p>Companies may lose interest when they do not see the benefits (e.g. TSSP meeting).</p> <p>Some members left SRIP / SI because there is no real advantage. SRIP attracts based on something to propose: solutions, networks, etc...</p>
Lack of resources	Due to a lack of capacity (expert / stakeholders), knowledge / understanding (training), and funding (to incentivize)



(HR, funding)	It is a lot of time and money to participate into the TSSP process or others. CEE countries may lack the resources
Trust	Collaboration is mainly based on trust across members

4. Action Tracks

Networks bring added value that matches the challenges faced by CE countries and more structured actions can be taken in that direction. Entry barriers encompass diverse factors such as organisational, human and financial support as well as awareness and trust. Actions are however possible to undertake with different levels of institutionalisation and efforts.

Below is a tentative list of action tracks to start the discussion. They should be assessed with the following questions in mind:

- Would you agree?
- Can it help for developing collaborations?
- What would be the incentive?
- Would you rank these proposals differently?

Action track 1 Umbrella organisation: Should the European Commission setup a structured Umbrella organisation to engage with stakeholders of the CE platforms. This Umbrella organisation would prepare/ facilitate joint actions, or coordinated actions, or peer learning, etc...

For example: Imagine all CEE regions/ countries industry 4.0 initiatives would be grouped under a virtual platform. It would provide a brokerage forum for collaboration, a unique organisation for issuing joint calls for tenders (see INTERREG office in CEE countries as an example).

Action track 2 Efficient Influence: Find incentives for stakeholders receiving funds to look for complementary funds (e.g. on the model of French competitiveness clusters). In CE countries, ESIF is mostly used for single projects (not collaborative ones). Use a similar model but not identical to convertible loans.

For example: In HU, a repayable support is provided with conditions. If conditions are met, there is no need to repay it. Otherwise, it has to be repaid.

For example: French clusters will receive governmental funds only as a top up to other sources of funds (membership, EU funds, etc..)

Action track 3 Awareness raising toward CE ecosystems: Propose soft actions such as brokerage events, virtual incubator for CE platforms, that do not impose a heavy burden over the shoulders of CE countries; etc...

For example: the HU conference targeting specific stakeholders such as intermediary organisation or sector or industry across the CE region....

Action track 4 Soft Instruments for match making. Should the European Commission setup soft instruments. These will be used for match making events in CE countries (and outside), other, etc...

For example: The CE conference targeting specific stakeholders such as intermediary organisation or sector

Action track 5 Capacity building at intermediary/supervision levels. The European Commission could finance formal or informal training for intermediary organisations.

For example: the European Commission finance a network of National Contact Points (NCPs). It is the main structure to provide guidance, practical information and assistance on all aspects of participation in Horizon 2020. In addition to national funding, the European Commission also finance capacity building across countries on specific topics.

Action track 6 Strategy and vision building. Most partners in CE countries/ regions are afraid of a fair return. They prefer international collaborative projects (H2020) because funded projects offer a fair return (results vs low costs). The Human Capital is a crucial element. People drive a network and search for expertise. The human factor implies that “we” need to know each other and trust each other to collaborate. When human connexion is made, it can open opportunities at different time scales.

For example: SI demonstrates the capacity of its facilities, paying for travel costs, and demonstrating them.

Action track 7 Visible knowledge repository. A knowledge repository would provide a complete overview of what is available in terms of technologies according to the needs instead of a partial knowledge as currently available from any consulting company / manufacturer. In addition, an exchange of experience for CE countries on: pilot factories (viable business model, etc), leaving labs, DIH, etc... would spread viable business models, organisational tips, and good practices exchanges, etc...

For example: the Vanguard Initiative is a key entry point to a unique network of research and technology infrastructure as well as associated equipment – whether in private or public sectors. It currently acts as an information repository and although it does not provide financial support, it allows for match-making of any organisation located in a member region with any relevant infrastructure/organisation

Action track 8: ... following propositions made during the workshop

For example: ...

Actions should be split according to the target group: EU, Members States, regions, other stakeholders...

In case you would like to make an additional proposal or bring additional information during the meeting, please send your proposal to: emmanuel.boudard@n-able.io (Deadline for proposals submission: 12/11/19).

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