



# ANALYSIS AND STUDY ON THE COMMON COLLABORATION GOALS, NEEDS AND REQUIREMENTS

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## Abstract

This deliverable provides a set of requirements, needs, goals, and cooperation models based on an analysis of the survey results (task 2.1), the workshops performed (task 2.2) and successful use cases collected from partners. The use cases have been described based on a standard template and BPMN Business Process Modelling Notation.



## Title Page

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<b>AB</b>	...	Aktiebolag ("stock company" in Swedish)
<b>ACEA</b>	...	European Automobile Manufacturers' Association
<b>AG</b>	...	Aktiengesellschaft ("shares corporation" in German)
<b>AGILE</b>	...	Software Development Process
<b>AI</b>	...	Artificial Intelligence
<b>AIT</b>	...	Austrian Institute of Technology
<b>AMSP</b>	...	Association of Small and Medium-Sized Enterprises and Crafts of the Czech Republic
<b>APTE</b>	...	Association for Promoting Electronics Technology
<b>ASA</b>	...	Automotive Skills Alliance
<b>ATIT</b>	...	Transilvania IT Cluster
<b>AVL</b>	...	Anstalt für Verbrennungskraftmaschinen
<b>BOSCH</b>	...	Robert Bosch GmbH
<b>BPMN</b>	...	Business Process Model and Notation
<b>CAD</b>	...	Computer-Aided Design
<b>CAE-CAD-CAM</b>	...	Computer-Aided Engineering-Computer-Aided Design-Computer-Aided Manufacturing
<b>CCAV</b>	...	Connected and Automated Commercial Vehicles
<b>COVID</b>	...	Coronavirus Disease
<b>CZ</b>	...	Czech Republic
<b>DRIVES</b>	...	The Development and Research on Innovative Vocational Educational Skills project
<b>EACEA</b>	...	Education, Audiovisual and Culture Executive Agency
<b>EACN</b>	...	The European Automotive Cluster Network
<b>EBA</b>	...	European Battery Alliance
<b>ECCP</b>	...	European Cluster Collaboration Platform
<b>ECQA</b>	...	European Certification and Qualification Association
<b>EDUCAM</b>	...	training centre for the automotive sectors
<b>EIT</b>	...	European Institute of Innovation and Technology
	...	Electric Power Systems Research Institute-Institute of Electrical and Electronics Engineers
<b>EPS-IEEE</b>		Engineers
<b>ERASMUS+</b>	...	European Region Action Scheme for the Mobility of University Students
<b>ESF+</b>	...	European Social Fund Plus

<b>ETP</b>	...	Education and Training Provider
<b>EU</b>	...	European Union
<b>FH</b>	...	University of Applied Sciences in German
<b>FLAMENCO</b>	...	Forward Looking Approaches for Green Mobility Ecosystem Network Collaboration
<b>HELLA</b>	...	Hella KGaA Hueck & Co.
<b>HR</b>	...	Human Resources
<b>IFAPME</b>	...	Institut wallon de Formation en Alternance et des indépendants et Petites et Moyennes Entreprises (French for Walloon Institute for Training in Alternation and Small and Medium Enterprises)
<b>INP</b>	...	Institut National Polytechnique (French for National Polytechnic Institute)
<b>INTACS</b>	...	The International Assessor Certification Scheme e.V.
<b>IP</b>	...	Intellectual Property
<b>IS EDISON</b>	...	Student Information System at VSB-TUO
<b>ISCN</b>	...	International Software Consulting Network
<b>IT</b>	...	Information Technology
<b>ITC</b>	...	InterTradeCard
<b>ITS</b>	...	Intelligent Transportation System
<b>JASPIC</b>	...	Japanese Software Process Improvement Consortium
<b>KTM</b>	...	KTM AG (formerly KTM Sportmotorcycle AG)
<b>LA</b>	...	Learning Agreement
<b>LG</b>	...	LG Corporation
<b>LLL</b>	...	Life-Long-Learning
<b>MAGNA</b>	...	Magna International Inc.
<b>MIH</b>	...	Mobility Innovation Hub
<b>MTA</b>	...	Mobility Transport Ecosystem
<b>PCB</b>	...	Printed Circuit Board
<b>SE</b>	...	Sweden
<b>SME</b>	...	Small Medium Enterprise
<b>SOQRATES</b>	...	SoQrates Initiative
<b>SPI</b>	...	Software Process Improvement
<b>SW</b>	...	Software
<b>TDK/EPCOS</b>	...	TDK-EPC Corporation
<b>TUG</b>	...	Technical University of Graz

<b>USA</b>	...	United States of America
<b>VDA</b>	...	Verband der Automobilindustrie (German for Association of the Automotive Industry)
<b>VET</b>	...	Vocational Education and Training
<b>VSU-TUO</b>	...	VSU-Technical University of Ostrava
<b>VW</b>	...	Volkswagen
<b>WG</b>	...	Working Group
<b>WO</b>	...	World Intellectual Property Organization
<b>ZF</b>	...	ZF Friedrichshafen AG
<b>ZKW</b>	...	ZKW Group GmbH

## Executive Summary

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This deliverable provides a set of needs, results, requirements, and cooperation models based on an analysis of the survey study results (task 2.1), the workshops performed (task 2.2) and good practices collected from project partners. The good practices have been described based on a standard template.

**Therefore, this deliverable is structured into three main chapters:**

- Success Criteria for Cooperation Models Derived from Task 2.1 Survey Study
- Success Criteria for Cooperation Models Derived from Task 2.2 Workshops about Cooperation Models
- Success Stories and Use cases which can be applied by Automotive Skills Alliance (ASA) and/or other Pact for Skills partnerships.

Each chapter contains a subchapter explaining the analysis method and further subchapters with results using the analysis method. The results highlight specific best practices, requirements, needs or cooperation models recommended for the ASA and other PFS partnerships.

This deliverable will be used as an input for defining concrete ASA cooperation models in work package 3 (WP3) – focused on setting up the structures and tools for collaboration.



## Introduction

The automotive-mobility ecosystem is undergoing rapid changes to support the green and digital transition, which affects all stakeholders, including companies, education and training providers, social partners, member states, and regions. Collaboration on the skills agenda is required at all levels to boost skills intelligence, identify trends and necessary skills and job roles, and provide relevant training and education courses.

To address this need, the Automotive Skills Alliance (ASA) was established in 2020 as a large-scale Pact for Skills Partnership to promote collaboration on the skills agenda in the automotive-mobility ecosystem. The ASA brings together industry, education and training providers, regions, and cluster representatives to develop up-/re-skilling activities for the current and future automotive-mobility workforce. The ASA supports continuous, pragmatic, and sustainable cooperation on the skills agenda in the automotive-mobility ecosystem.

To support collaboration, the ERASMUS+ project FLAMENCO was launched to define and improve the most effective and pragmatic ways of collaboration on the skills agenda in Europe and to develop a framework for collaboration that will enable stakeholders to work together to ensure that the automotive-mobility workforce has the necessary skills to meet the changing needs of the industry

### Project FLAMENCO Approach to Understand the Collaboration Goals, Needs And Requirements

Project partners executed an extensive desk research and study activity - contacted stakeholders in Automotive-Mobility Ecosystem through several channels - the survey, national and European workshops, and together with desk research resulted in analysis to develop a study and to identify the final requirements, needs and goals per different stakeholder types within the ecosystem.

The study results are summarized in this document, and good practice case studies are published in the [Good Practice Resource Tool](#).

### Methodology and Data Collection

Each partner executed a **desk research exercise** according to the defined and standardized method. The exercise aimed to select successful good practices of cooperation and identify how this can be re-used for an ASA cooperation and other PfS (Partnership for Skills) cooperations. A standard set of questions to be answered have been defined, and a model of cooperation had to be delivered. A set of templates have been provided; ISCN and EuroSPI led process. These success cases / good practices form an essential part of the deliverable. The good practices have been integrated into this deliverable.

In addition, the **survey results** (task 2.1) and the **results of the workshops** (task 2.2) have been analysed to extract a set of needs, requirements, and goals which ASA and other PfS partnerships can apply in future.

**Measurable Objectives** planned:

- At least **10 good practices** extracted from the survey, workshops, and desk research activity;
- Collect more than 100 responses in the survey;
- **National workshops organized:** Czech Republic, Belgium, Romania, and Austria;

- **Stakeholder-type workshops organized:** Industry, Training and Education Providers, Regional Representatives, and Social Partners;

The project achieved 30 best practices from the survey study, 12 best practices from the workshops, 16 use case studies, and **21 best practices** based on desk research were identified. This will be updated with more models during the project.

# 1. SURVEY RESULTS ANALYSIS

The survey included **102 respondents from the automotive area from 17 countries**. Especially sections 3 and 4 of the questionnaire focused on collaboration needs and frameworks. Therefore, the analysis is based on the questionnaire's feedback from sections 3 and 4. The survey study continues over the project's lifetime, and this report will be updated annually.

## Extraction Methods for Survey Results

To extract a good practice that can be repeated across European Union member countries of the European Union, it is essential to select aspects that showed a significant statistical result. Results which were not correlated with a statistical significance were not considered when extracting general recommendations for the ASA. Extraction is based on the survey results interpretation, accessible here: [FLAMENCO Survey Responses Interpretation](#).

Question numbering is based on the survey structure [here](#).

## 1.1. Derived Success Criteria, Requirements, and Needs of Cooperation

The following section contains selected **relevant questions** and derived cooperation model success factors, criteria, requirements or needs based on the survey results.

### 1.1.1. COLLABORATION NEEDS - Ways of Collaboration and Collaboration Activities among Sectoral Stakeholders

Respondents in Q3.2-Q3.4 rated various pre-selected types of activities on which to collaborate regarding skills agenda/training and opted to provide other ideas or other ways of collaboration in which they practice.

Question 3.2: *How would you rate the need for collaboration between your organization and other stakeholders in the automotive-mobility ecosystem, focusing on topics such as skills development, skills intelligence, training development, or skills and job definitions?*

**Analysis:** A significant number of respondents in Q3.2 highlighted that ASA cooperation models shall:

1. Support collaboration in networking, engaging in discussions, and matchmaking.
2. Offer a platform for attending and contributing to webinars, events, and conferences.
3. Manage joint efforts in understanding skills requirements, shaping job profiles, and conducting relevant research in teams.
4. Share resources, transfer knowledge, and set up collaborative training initiatives to address the evolving skill demands of the automotive-mobility ecosystem.

Question 3.3: *Please comment on your selection or specify other ways of collaboration:* with a given list of models to select from (based on Q3.2).

**Analysis:** The study showed several general statements, but no specific model was proposed (as the result of the selection was merely equal). Most of the statements overlapped with the criteria in Q3.2 (see previous section). Here are just the additional identified criteria listed (based on optional comments which respondents could submit):

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5. Collaboration between academia and other stakeholders in the automotive-mobility ecosystem.
6. Joined service projects (connecting services from companies with ASA offers).
7. Connection to EDUCAM, FOREM and IFAPME (universities working on ASA topics).
8. Trade Profiles and corresponding Training profiles in collaboration with Social partners (employers, workers, trade unions), public employment services and vocational education and training operators.
9. Form working groups on specialised topics.
10. Cooperate with automotive clusters.
11. Empower digital workplace technology and virtual collaboration.

Question 3.4: *Do you have any other suggestions for collaborating on skills development, skills intelligence, training, and job definitions within the automotive mobility ecosystem?*

**Analysis:** The study showed that of 102, 45 did not answer, 25 said no, and among those who answered, everyone had a different opinion. No common pattern is visible.

On a strategical level, best practice to be extracted is to understand that each region in Europe seems to have a slightly different approach leading to different strategies to develop skills nationally.

**Best practices extracted:**

12. Be aware that skills development in regions of Europe is addressed differently (open courses, trainer cooperation, company visits, etc.), and when ASA connects to a region, first find out what preferred concept is there to launch a skill on the market there.

Question 3.5: *What do you consider to be the areas in which you need to improve the collaboration of your organization with public institutions acting in the area of skills agenda for green and digital transition?*

Question 3.6: Please comment on your selection or/and add other items:

**Analysis:** A significant number of respondents in Q3.5/Q3.6 highlighted, that ASA cooperation models shall:

13. Provide early knowledge and awareness of initiatives or legislative proposals that public authorities plan to initiate. Become an ASA information centre for the automotive industry.
14. Provide an interface for ASA members to participate in institutional dialogues and debates related to draft laws or regulations.

Question 3.7: How do you think that authorities, clusters, training providers, and companies could work together on skills intelligence and training-related topics?

Question 3.8: Please comment on your selection or/and add other items. (relates to Q3.7 choice)

**Analysis:** A significant number of respondents in Q3.7 and Q3.8 highlighted that ASA cooperation models shall

15. Support the conduction of a skills gap analysis in working groups.
16. Share information on industry trends and technological advancements.
17. Support the collaboration on curriculum development (at all levels – school, university, industry and workplace)

### 1.1.2. COLLABORATION FRAMEWORK – Format and Frequency

Question 4.1: *What is the ideal format of the sectoral collaboration on the topics related to the skills agenda?*

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Question 4.2: Please comment on your selection or/and add other items (related to Q4.1 choice)

**Analysis:** A significant number of respondents in Q4.1, Q4.2 highlighted, that ASA cooperation models shall:

- 18. Support regular online meetings (showed the highest significance).
- 19. Support regular onsite meetings (showed second highest significance).
- 20. NOT just distribute information without online or onsite meetings (the acceptance of just information without contact showed low acceptance).

Question 4.3: How frequently would you prefer your company to collaborate on topics related to the skills agenda?

Question 4.4: Please comment on your selection or/and add other items (related to Q4.3 choice)

**Analysis:** A significant number of respondents in Q4.3, Q4.4 highlighted, that ASA cooperation models shall:

- 21. Perform main regular events quarterly (showed the highest significance).
- 22. Perform regular events on specific topics monthly (showed second highest significance).
- 23. NOT do the meetings too often (weekly showed a low response).
- 24. NOT just do an annual event (annual showed a low response).

### 1.1.3. COLLABORATION FRAMEWORK – Organisational Structure

Question 4.5: What is the best way or organisational structure for collaborating with external stakeholders (companies, education, training providers, social partners, and public authorities)? Consider governance structure, decision-making, involvement of personnel and communication. How can these stakeholders efficiently work with your organization to achieve mutual objectives?

**Analysis:** The study showed that of 102, 14 did not answer, and among those who answered, everyone had a different opinion. No common pattern is visible.

On a strategy level, best practice to be extracted is to understand that each organisation has a different organisational structure and technical environment. The role of ASA could be to standardise a specific set of tools used by ASA and agree on standard interfaces with all (a kind of integrator position).

**Best practices extracted:**

- 25. Be aware that organisational structures and IT environments differ from company to company, and you need to agree on a common platform.

### 1.1.4. COLLABORATION FRAMEWORK – Financial Support and Sustainability

Question 4.6: As a stakeholder, are you willing to financially support the collaboration?

**Analysis:** Ca. 34% would say no, and 46% would expect an EU-funded project. Only 20% said yes.

- 26. Be aware that ASA must support achieving EU-funded projects to satisfy most partners.
- 27. Offer for those 20% partners willing to fund activities opportunities and win-win situations.

Question 4.7: Do you have any examples of good practices focusing on sustainable collaboration on the skills agenda?

**Analysis:** The study showed that of 102, 66 did not answer, and among those who answered, everyone had a different opinion. No common pattern is visible.

On a strategy level, best practice to be extracted is to understand that selecting and elaborating on good practices is a future task of ASA.

**Best practices extracted:**

- 28. Be aware that ASA must guide the selection of good practices and standards to describe good practices.

### 1.1.5. COLLABORATION CHALLENGES and OUTCOMES – Benefits and Outcomes

Question 5.2: *What are the example outcomes of the collaboration which would be valued within your organization? Please confirm those relevant from the list and add more, if necessary/appropriate.*

Question 5.3: *Please comment on your selection or/and add other items (related to the previous Q5.2 choice)*

**Analysis:** The study shows many separate answers. Grouping them by a key word leads to 3 principal recommendations:

- Provide information about industry trends.
- Support skills definition and data gathering.
- Training course offer and development.

The above-listed best practices already cover these 3 points, so no additional best practice has been added.

### 1.1.6. COLLABORATION CHALLENGES and OUTCOMES – Effectiveness Assessment

Question 5.4: *Based on what should the collaboration effectiveness and success be measured and assessed?*

Question 5.5: *Please comment on your selection or/and add other items (related to the previous Q5.4 choice).*

**Analysis:** In the study, 61 of 102 (the highest significant number) responses highlighted the need for measurable KPIs (Key Performance Indicators).

**Best practices extracted:**

- 29. Define with ASA members an agreed set of KPIs (Key Performance Indicators) to measure the success of cooperation models.

### 1.1.7. COLLABORATION CHALLENGES and OUTCOMES – Challenges

Question 5.6: *What challenges has your organization encountered in past collaboration on the previously mentioned topics, what might be the risks involved?*

**Analysis:** In the study, 69 of 102 (the most significant number) responses highlighted that the management does not provide effort/budget for such cooperating activities and that motivation is missing.

**Best practices extracted:**

30. ASA must play a disseminator role to the managers in the automotive industry to understand the benefits of cooperating with other companies.

## 1.2. Summary of Best Practices Extracted from the Survey Results

The below list is based on the results described in the previous chapters.

### COLLABORATION NEEDS

1. Support collaboration in networking, engaging in discussions, and matchmaking.
2. Offer a platform for attending and contributing to webinars, events, and conferences.
3. Manage joint efforts in understanding skills requirements, shaping job profiles, and conducting relevant research in teams.
4. Share resources, transfer knowledge, and set up collaborative training initiatives to address the evolving skill demands of the automotive-mobility ecosystem.
5. Collaboration between academia and other stakeholders in the automotive-mobility ecosystem
6. Joined service projects (connecting services from companies with ASA offers)
7. Connection to EDUCAM, FOREM and IFAPME (universities working on ASA topics)
8. Trade Profiles and corresponding Training profiles in collaboration with social partners (employers, workers, trade unions), public employment services and vocational education and training operators.
9. Form working groups on specialised topics.
10. Cooperate with automotive clusters.
11. Empower digital workplace technology and virtual collaboration.
12. Be aware that skills development in regions of Europe is addressed differently (open courses, trainer cooperation, company visits, etc.), and when ASA connects to a region, first find out what preferred concept is there to launch a skill on the market there.
13. Provide early knowledge and awareness of initiatives or legislative proposals that public authorities plan to initiate. Become an ASA information centre for the automotive industry.
14. Provide an interface for ASA members to participate in institutional dialogues and debates related to draft laws or regulations.
15. Support the conduction of a skills gap analysis in working groups.
16. Sharing information on industry trends and technological advancements.
17. Support the collaboration on curriculum development (at all levels – school, university, industry and workplace)

### COLLABORATION FRAMEWORK – Format and Frequency

18. Support regular online meetings (showed the highest significance)
19. Support regular onsite meetings (showed second highest significance))
20. NOT just distribute information without online or onsite meeting (the acceptance of just information without contact showed low acceptance)
21. Perform main regular events quarterly (showed the highest significance)
22. Perform regular events on specific topics monthly (showed second highest significance))
23. NOT do the meetings too often (weekly showed a low response)
24. NOT just do an annual event (annual showed a low response)



**COLLABORATION FRAMEWORK – Organisational Structure**

- 25. Be aware that organisational structures and IT environments differ from company to company, and you need to agree on a common platform.

**COLLABORATION FRAMEWORK – Financial Support and Sustainability**

- 26. Be aware that ASA must support achieving EU-funded projects to satisfy most partners.
- 27. Offer for those 20% partners willing to fund activities opportunities and win-win situations.
- 28. Be aware that ASA must guide the selection of good practices and standards to describe good practices.

**COLLABORATION CHALLENGES and OUTCOMES – Effectiveness Assessment**

- 29. Define with ASA members an agreed set of KPIs (Key Performance Indicators) to measure the success of cooperation models.

**COLLABORATION FRAMEWORK – Challenges**

- 30. ASA has to play a disseminator role to the managers in the automotive industry to understand the benefits of cooperating with other companies.



## 2. WORKSHOPS RESULTS ANALYSIS

Workshops have been performed:

- **in project partners' countries** - Austria (with participation from large German partners organised by EuroSPI, TUG and ISCN), Belgium (organised by EDUCAM), Czech Republic (organised by Olife and VSB-TUO), and Romania (organised by ATIT, APTE, and ITC);
- **with various types of stakeholders** – social partners (organised by ACEA), industry (organised by ASA and ACEA), training and education providers (organised by VSB-TUO), as well as regional representatives (was postponed).

A standard workshop model has been elaborated in task 2.2 and applied to provide a consistent set of workshop reports.

### 2.1. Method to Extract Best Practices from Workshop Reports

The workshops either delivered (1) a standard set of answers from a specific region or target group, or some workshops already (2) delivered a workshop result as a cooperation model.

In the case of (1), a potential cooperation approach is extracted. In the case of (2), the cooperation model is explained and added to the use cases in later chapter 3 of this deliverable.

### 2.2. National Workshop – Extracted Good Practices

This section contains an extraction of good practices from national workshops.

#### 2.2.1. Belgium National Workshop - EDUCAM

The following success criteria for working with EDUCAM can be extracted based on the workshop report.

EDUCAM mainly drove this series of workshops online and onsite. EDUCAM, mandated by social partners, carries out studies, surveys, and workshop visits to write and define job profiles. These profiles should ideally be reviewed every 5 years. Once validated, these will serve as a starting point for writing training profiles, identifying skills by job level or even as a reference for developing sectoral-based tests (assessment/certification). Public Institutions rely on EDUCAM's expertise to guide them in their decisions. Companies rely on EDUCAM to play the role of spokesperson with Institutional Partners.

EDUCAM connects secondary schools, industry and labour and social representatives to develop a coordinated schema of job roles, education in schools aligned with training on the job in industry, and guidance.

**Best practices derived for ASA from the workshop:**

1. ASA shall act as a promoter and ambassador of such integrated education and workplace schemes in cooperation with sectoral and regional policies. Currently, EDUCAM works for Belgium and can be multiplied as a concept to all European regions.

**Results that can be re-used:** After the workshop, the EDUCAM team elaborated a cooperation model included in the report in section 3.

### 2.2.2. Austrian National Workshop - ISCN, TU Graz, EuroSPI

Based on the workshop report, the following success criteria to work with SOQRATES, TU Graz can be extracted.

The leading Automotive industry and the SOQRATES group mainly drove this workshop. Attendees came from Cariad/Volkswagen, BOSCH, Kyburz (a new electric mobile manufacturer from Switzerland), ZF Friedrichshafen AG, Elektrobit AG, etc. participated. SOQRATES is a working party of automotive suppliers (<https://soqrates.eurospi.net>) who have exchanged knowledge about state-of-the-art technology for 20 years.

This includes ZF, BOSCH, MAGNA, Elektrobit, HELLA, Continental Automotive, ISCN, ZKW, AVL, KTM, TU Graz, BOSCH Engineering, TDK/EPCOS, msg Plaut, Grenoble INP & ISCN, Austrian Institute of Technology AIT, Process Fellows, Infineon, Cariad, etc.

SOQRATES elaborates on best practices in quality, safety, security engineering and self-driving vehicle architectures and shares that among the members.

TU Graz is a leading university in automotive embedded engineering and has a Life Long Learning Centre which organises university - industry training partnerships.

EuroSPI is an organisation that runs an automotive academy and certificates in cooperation with TU Graz and SOQRATES.

ISCN is since 2003 the moderator of the SOQRATES working groups. The Bavarian government kicked off the work in 2002 and became a Germany, Austria and Switzerland-wide activity of leading automotive companies.

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#### Best practices derived for ASA from the workshop:

2. ASA shall connect the ASA working groups more closely to the SOQRATES working groups. In the selected areas of cooperation, SOQRATES and ASA can define new skills and certificates and plan new training.
3. ASA shall establish contacts with Life Long Learning departments of universities to build up university-industry training partnerships.

#### Results that can be re-used:

After the workshop, the SOQRATES team elaborated a cooperation model, which has been included in the report in section 3. After the workshop, the TU Graz team elaborated a cooperation model, which has been included in the report in section 3.

### 2.2.3. Czech Republic National Workshop – VSB-TUO, Olife

Based on the workshop report, the following success criteria for working with the automotive sector can be extracted.

This workshop was mainly driven by the Czech Automotive Association - HR, suppliers, universities, and representatives of European strategical projects. The workshop report outlines that close cooperation

between schools, teachers and industry is required and came up with several concepts to bridge the gap and get these stakeholders closer together. Examples of concepts are:

- Cooperation between technological companies and schools where students attend visits at companies and talk directly to the employees.
- Dual education.
- Supporting students by companies offering internships.
- Boot camps.

#### Best practices derived for ASA from the workshop:

4. ASA shall elaborate models to connect teachers, schools, universities and industry in joined activities focussed on specific job roles.
5. ASA needs to promote (support the organisation of) dual education, boot camps, and education – industry cooperation.

#### 2.2.4. Romanian National Workshop – ITC, ATIT, APTE

Based on the workshop report, the following success criteria for working with the automotive sector can be extracted.

The workshop was organised like a study where attendees answered questions and statistics were interpreted. In the analysis, we selected the most significant answers and converted them to a potential practice for ASA.

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#### Analysis:

The workshop showed companies as the biggest group, and the second largest group of attendees was the automotive association of Romania.

- Most of the attendees were managers and consultants, not engineers.
- Collaboration on specific projects showed a high rating.
- Network collaboration of stakeholders showed a high rating.
- Joined definition of skills and trends showed high rating.

#### Best practices derived for ASA from the workshop:

6. ASA shall plan specific projects in regions of Europe (here, the example was Romania) in which automotive associations, companies and decision-makers / managers jointly define skills based on trends and the region's needs.
7. ASA shall nominate and place ambassadors for such coordination in every region of Europe. The Romanian partner can act as an example for others.

#### Results that can be re-used.

After the workshop, the Romanian team elaborated a cooperation model, which has been included in the report in section 3.2.8.

### 2.2.5. Stakeholder Workshop – Social Partners

Based on the workshop report, the following success criteria for working with the automotive sector can be extracted.

The workshop provided recommendations on a political level, e.g. messages like:

- address the skills gap by closing the digital skills gap
- investment in digital skills and promotion of digital education
- Vocational and educational training (VET) can play a vital role in the integration of green and digital skills into the educational system
- more flexible blueprint projects that can quickly adapt to programs and curricula to meet the changing demands
- European Commission must streamline its efforts and ensure that there is coordination among the various programs
- Cross-sectoral collaboration in skills development (both in mobility and beyond – chemicals, energy sector, etc.).

#### Analysis:

The workshop showed that on a political and governmental level, actions must support the continuous change of skills and dramatic change of businesses when transferring to digital, electrified mobility-based green Europe.

#### Best practices derived for ASA from the workshop:

8. ASA should connect on a political and decision-maker level to the European Union Erasmus+ program and give guidance about up- and re-skilling strategies for the automotive sector. This means that ASA will act as a guide/mentor for the EACEA and EU regarding the automotive sector skills agenda.

### 2.2.6. Stakeholder Workshop – ETP

Based on the workshop report, the following success criteria for working with the automotive sector can be extracted.

The workshop mainly included research partners and automotive companies in the area of battery design, electrification of vehicles, and universities. The workshop report did only contain 2 cooperation proposals:

- Better spread of information – getting the information relevant to skills, competences, training
- Work practices in companies or job shadowing in companies

#### Analysis:

The workshop showed that automotive universities and industry expect ASA to act as a disseminator. Also, ASA can help in establishing programs where students do work placements in automotive companies.

#### Best practices derived for ASA from the workshop:

9. ASA needs to elaborate together with university placement programs where students with skills can fill the skills gap. At the same time, universities benefit from offering students practical experiences.

10. ASA needs to act as a disseminator of relevant skills to universities and industry.

### 2.2.7. Stakeholder Workshop – Industry

Based on the workshop report, the following success criteria for working with the automotive sector can be extracted.

The workshop used tools to analyse responses from attendees to identify which response was the highest ranked.

e.g. the reason why cooperation models fail is that there is no support from management to provide effort for this and no motivation of staff to share knowledge.

e.g. for collaboration, the highest ranked topics are to elaborate skills, to develop training materials and to create a training offer,

#### Analysis:

The workshop provided at the end 2 general recommendations:

- A more significant need to spread the information about the collaboration – videos or informing through national authorities in automotive
- Helping guidelines and documents

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#### Best practices derived for ASA from the workshop:

11. ASA needs to use new media and short videos to distribute information to stakeholders.
12. ASA needs to provide guidance about how to create and maintain cooperation models (including downloadable guidelines).

### 2.2.8. Summary of best practices extracted from the workshops

The below list is based on the results described in the previous chapters.

1. ASA shall act as a promoter and ambassador of such integrated education and workplace schemes in cooperation with sectoral and regional policies. Currently, EDUCAM works for Belgium and can be multiplied as a concept to all European regions.
2. ASA shall connect the ASA working groups more closely to the SOQRATES working groups. In the selected areas of cooperation, SOQRATES and ASA can define new skills and certificates and plan new training.
3. ASA shall establish contacts with the Lifelong Learning departments of universities to build up university-industry training partnerships.
4. ASA shall elaborate models to connect teachers, schools, universities and industry in joined activities focussed on specific job roles.
5. ASA needs to promote (support the organisation of) dual education, boot camps, and education – industry cooperation.
6. ASA shall plan specific projects in regions of Europe (here, the example was Romania) in which automotive associations, companies and decision-makers / managers jointly define skills based on trends and the region's needs.
7. ASA shall nominate and place ambassadors for such coordination in every region of Europe; the Romanian partner can act as an example for others.

8. ASA should connect on a political and decision-maker level to the European Union Erasmus+ program and give guidance about up- and re-skilling strategies for the automotive sector. This means that ASA will act as a guide/mentor for the EACEA and EU regarding the automotive sector skills agenda.
9. ASA needs to elaborate together with university placement programs where students with skills can fill the skills gap, and at the same time, universities have the benefit to offer students practical experiences.
10. ASA needs to act as a disseminator of relevant skills to universities and industry.
11. ASA needs to use new media and short videos to distribute information to stakeholders.
12. ASA needs to provide guidance about how to create and maintain cooperation models (including downloadable guidelines).

And also, the workshops developed inputs for the desk research and elaborated cooperation models:

- After the workshop, the EDUCAM team elaborated a cooperation model included in the report in section 3.2.4.
- After the workshop, the Romanian team elaborated a cooperation model included in the report in section 3.2.8.
- After the workshop, the SOQRATES team elaborated a cooperation model included in the report in section 3.2.10.
- After the workshop, the Tu Graz team elaborated a cooperation model included in the report in section 3.2.12.

### 3. Case Studies – Cooperation Models Based on Desk Research

To perform the desk research, each partner has been asked to identify successful best practice models of cooperation and elaborate (1) potential interfaces with ASA and (2) how the approach can be re-used in the ASA.

To cover different countries, associations, and regions, all partners have been asked to elaborate on a best practice use case based on their experience. To provide a standard approach to analysing and defining the use cases, a template model and master example have been discussed with all partners and agreed upon. Therefore, all below desk research results have the same output format.

This standardization of the output format shall facilitate the decisions of ASA about how to transfer these experiences into their own ASA specification strategies. The standard output format is described in the chapter below.

#### 3.1. Standard Procedure and Template for Desk Research and Success Models/Use Cases for Cooperation

The same questions have been analysed for each case study, and the standard output format has been followed.

TABLE 1: DESCRIPTION ELEMENTS OF A CASE STUDY (AGREED AMONG ALL PARTNERS TO BE ANALYSED AND COMPLETED)

Field	Description
Name of the collaboration approach	<name>
Participating organisation/s	<list of organisations collaborating - internal> <list of organisations collaborating – external – e.g., Projects, initiatives and other>
Country – geographical scope	<list of countries/regions>
Number of years of implementation	<for how many years is the collaboration ongoing?>
Target groups, sector	<which types of stakeholders, members are collaborating – industry, education training providers, regions, social partners, other> <with whom do you collaborate externally?>
Summary/Annotation	<briefly describe the collaboration – annotation/summary>
Implementation and activities	<what are the activities currently and in the past?> <how are the activities being implemented?>
Example outcomes	<what was achieved? – skills intelligence, practical outcomes, networking, and other?>



<b>Pros and cons, recommendations</b>	<what are the pros – benefits for externals and internally participating organisations?>  <what are cons – challenges for externals and internally participating organisations?>  <what are the lessons learned and recommendations you would give?>
<b>How it may be replicated / applied?</b>	<how this might be replicated within other organisations and stakeholders?>
<b>Collaboration format</b>	<what is the organisation structure of the collaboration?>  <how do you get together and what is the format? – online/onsite, frequency of collaboration, what are the platforms, tools and venues used?>  <how do you access that the collaboration is effective, and all participants are seeing the value in it? Any quality management or satisfaction management?>
<b>Financial support</b>	<is this collaboration funded? How do you get funding if any?>
<b>Links, references</b>	<any references?>

### Process Model

Using a standard process modelling notation, the partners were asked in their desk research to draw a graphical flow of the cooperation model with tasks, relationships, work products per role and workflow. For the model, the partners got an introduction to the BPMN (Business Process Modelling Notation), and in a joint training meeting, an example model was drawn together. The partners have been empowered to deliver their models with that practical introduction.

The below figure shows the schematic and notation applied. The model shows a layer per role. Per role, the tasks are placed in the layer of the role. Then tasks are connected across the roles to form a workflow. The arrows show the relationship between the tasks. This model was added to the description to explain better the best practice idea proposed for ASA.

An essential feature of the model is that we asked the partners to mark the tasks green if they show a potential interface of ASA involvement. This allows us to identify interacting points of ASA with best practice models in the partner networks.

The process model was not mandatory information in this project stage as the detailed process models will be elaborated during the methodology development.



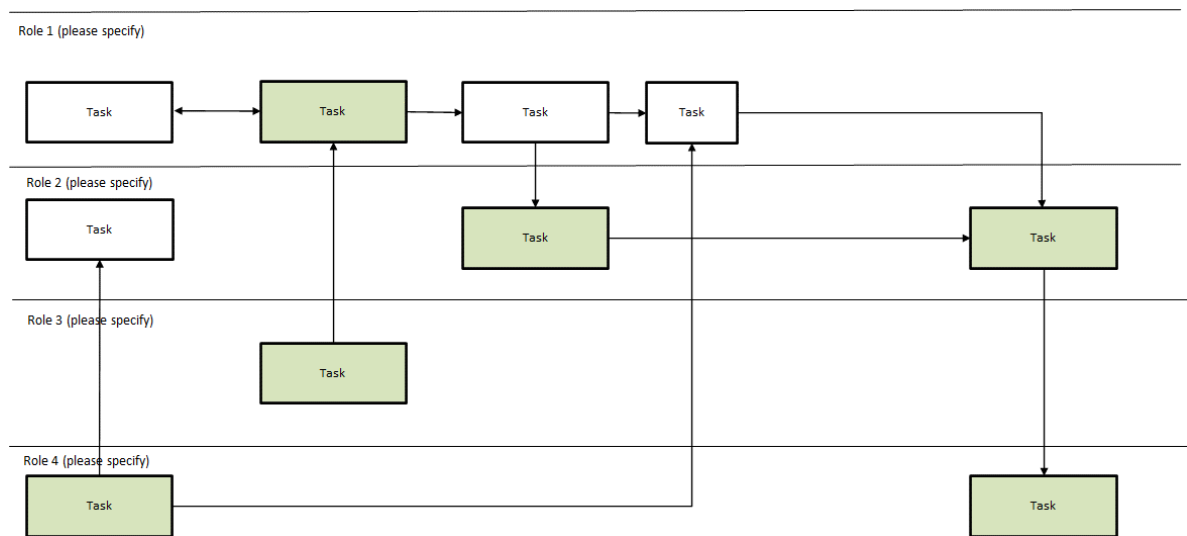


FIGURE 1: TEMPLATE FOR A PROCES MODEL – MODELLING THE COOPERATION WORKFLOW

### 3.2. Desk Research Results Summary and Overview and ASA Take Away

This section summarises all desk research that delivered various cooperation models with interfaces to the ASA.

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#### Europe as a Network of Networks

The desk research delivered per country of Europe completely different successful models with a variety of different interfaces for ASA to connect to. European regions have a lot of freedom to develop their strategies, and they expect to connect existing national and regional strategies to a European agency like ASA. Also, the desk research showed that none of the partners delivering models expected ASA to take over the work. However, ASA has become a Europe-wide moderator connecting interfaces to existing initiatives to build stronger cross-regional partnerships.

Best Practices for ASA:

1. Understand Europe as a network of networks and play a moderator role in automotive networks.
2. Instead of hierarchy, strengthen the innovation in the automotive sector by connecting to existing initiatives and building inter-regional partnerships on core topics for automotive.
3. If an existing regional or cross-regional initiative offers interfaces to cooperate, use the opportunity and build a Europe-wide initiative, become the moderator and multiplier.

#### Understanding and Elaborating the Interfaces is Key

The desk research is based on a method where partners in Europe analyse their existing successful cooperation models and highlight the areas where a connection to an ASA is beneficial and helps to multiply the success in Europe or to strengthen their initiative by having ASA as a partner.

Best Practices for ASA:

4. Apply the method in section 3.2 with more partners in Europe and grow the number of interfaces an ASA can connect to as moderator and multiplier.

5. Derive from the cooperation models the cooperation interfaces and focus your efforts in those interface areas,

**Interfaces elaborated in the case studies include:**

6. Interface with existing successful conferences like EuroSPI and jointly cooperate in areas such as: Create Thematic Topic Communities, Publications (SPRINGER etc.), Grow Networks of industry and research, providing workshop committee lead, Sharing best practices and problems, Sharing research results and case studies, publish white papers. See the elaborated model and interfaces in section 3.2.1.
7. Establish strategic relationships and memorandum of understanding with European academies and policy makers to develop common frameworks for upskilling and re-skilling in green economy and mobility. See the elaborated model and interfaces in section 3.2.2.
8. Work with student contest programs to empower the next generation and focus on topics of interest for automotive. They especially outlined that ASA could be the partner in defining the new automotive topics to focus on next time. See the elaborated model and interfaces in section 3.2.3.
9. Cooperate with school and industry training partnerships like EDUCAM. Support that EDUCAM concepts are used in more regions of Europe with a growing number of schools working with industry together. Promote EDUCAM as a success model. See the elaborated model and interfaces in section 3.2.4.
10. Support and promote the skill sets and job roles important for a green economy and mobility in cooperation with organisations like the EuroSPI academy. Help to define new skill sets, promote new skill sets, and promote courses of EuroSPI academy in the ASA framework. Reuse this with several academies in Europe. See the elaborated model and interfaces in section 3.2.5.
11. Establish a service through ASA where needs are collected from the industry. Needs are compared with university programs matching the needs, and universities and students with matching needs are invited to an event with the organisations that have the need. This means that ASA acts as a skills-matching service for the industry. See the elaborated model and interfaces in section 3.2.6.
12. Connect to assessor organisations like INTACS ([www.iscn.info](http://www.iscn.info)) since they define new state-of-the-art models to check processes and products to follow. The desk research describes how ASA could propose and guide new assessment model development in the areas where the ASA WGs are active. See the elaborated model and interfaces in section 3.2.7.
13. Making ASA the representative for the automotive sector promotes and agrees on the qualifications with the European Agency for Qualification and the national agencies. See the elaborated model and interfaces in section 3.2.8.
14. ASA should form specialised boards and groups (also retired experienced people) that act as mentors and coaches on the job. The experts can be retired executives, retired consultants, University teachers, current or retired, and suppliers. Coaching shall use a hybrid and online concept. See the elaborated model and interfaces in section 3.2.9.
15. ASA should connect to working groups of industry like SOQRATES and connect the ASA WGs to the topics of the industry working groups. The SOQRATES group defines new skills and best practices among leading suppliers and wishes to cooperate with ASA to promote the new skills and declare the best practices state of the art. See the elaborated model and interfaces in section 3.2.10.
16. ASA needs to support hackathons based on companies that have identified or will identify the necessity of employee training and hackathons that organisations, public universities, companies, and ASA organize. See the elaborated model and interfaces in section 3.2.11.
17. ASA needs to collaborate with university life-long learning (LLL) programs and promote those university – industry training partnerships and offer the LLL offer to their members. See the elaborated model and interfaces in section 3.2.12.

18. ASA needs to support and find interfaces to electronically recognise study mobility credits. ASA can find a mapping between the job roles required by ASA and university teaching. The skills badges of ASA can be electronically provided for students in CZ and Europe (if lectures cover the skills requested). See the elaborated model and interfaces in section 3.2.13.
19. ASA should work together with certifiers recognised in automotive. EuroSPI certificates are used as an example. Interfaces include the job skills set definition, the joint exam questions design and the promotion and performance of exams in the certifier system. Certificates shall be issued with the ASA logo, and criteria need to be defined. See the elaborated model and interfaces in section 3.2.14.
20. ASA should become an innovation agent for automotive by connecting innovation hubs of different regions to ASA members.
21. ASA should provide knowledge and skills guidance services for all European automotive clusters.

### 3.2.1. EuroSPI Conference Series - Cooperation Model

Contributing partner: EuroSPI GmbH

Contributing Author(s): Laura Aschbacher, Tobias Danmayr/Zehetner (EuroSPI) supported by Dr Richard Messnarz, Damjan Ekert (ISCN)

Type: European Academy for Automotive Skills, Certifier of many thousand automotive engineers and managers in Automotive Functional Safety, Automotive Cybersecurity, Automotive Electric Powertrain, Innovation Management etc.

Type of Cooperation proposed: EuroSPI Conference Series and ASA Model.

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	EuroSPI European System, Software, Services Process and Product Improvement Conference Series
Participating organisation/s	<p>Stakeholders at different levels</p> <p>EuroSPI Program Committee and workshop committees  <a href="https://conference.eurospi.net/index.php/en/community">https://conference.eurospi.net/index.php/en/community</a></p> <p>PC members from 28 countries and industry and research</p> <p>Workshop leaders from leading industry and research BOSCH, Elektrobit, Continental, Volkswagen, ZF Friedrichshafen AG etc.</p> <p>Workshops are connected to existing working groups and thematic key topics of interest for industry (e.g. INTACS, Automotive Clusters, EU projects, SOQRATES etc.)</p>
Country – geographical scope	<p>Europe wide and world wide</p> <p>World wide distribution by SPRINGER book with editorial CCIS committee from USA, India, China, Europe etc.</p> <p>1,2 million downloads so far in book series</p>
Number of years of implementation	Since 1994, 30 years
Target groups, sector	<p>50% industry / 50% research</p> <p><b>Target groups are defined by thematic topics</b> and researchers as well as lead industry are invited to jointly work on the thematic topic. Current thematic topics:</p> <p>Emerging and Multidisciplinary Approaches to Software</p> <p>Engineering (AI, Machine Learning, Gamification)</p> <p>Digitalisation of Industry, Infrastructure, and E-Mobility</p> <p>SPI Manifesto and Good and Bad Practices</p>

	<p>Functional Safety and Cybersecurity</p> <p>Agile and Lean</p> <p>Standards and Assessment Models</p> <p>Accessibility, Team Skills and Diversity</p> <p>Architectural Innovation &amp; New Business Models</p> <p>Virtual Reality / Augmented Reality / Mixed Reality</p> <p>New Ideas for Funding Proposals</p> <p>Medical - Big Data &amp; IT Systems &amp; Standards</p>
<b>Summary/Annotation</b>	<p>See Continuous Innovation Cycle and Knowledge Sharing in the next slides</p> <ul style="list-style-type: none"> <li>• Conference series with 50% industry and 50% research as a strategy to empower cooperation industry – research.</li> <li>• Conference set up around topic committees and topic-based workshop leads</li> <li>• Topics proposed by international program committee which includes topic based workshop committees</li> <li>• Paper submission from industry and research to the topics</li> <li>• Recognised international publishers with a large readership supporting publication of best practices in the selected topics.</li> <li>• Open discussions and networking the workshops.</li> <li>• Social events as a business networking strategy</li> <li>• Growing the the network based on connecting researchers and industry on topics</li> </ul>
<b>Implementation and activities</b>	<p>Set up workshop topics.</p> <p>Set up workshop committees.</p> <p>Manage paper submission.</p> <p>Manage paper reviews and selection in cooperation with international program committee.</p> <p>Edit international book and journal.</p> <p>Organise the conference.</p> <p>Broad marketing of call for papers using media (Linked in marketing, Email blast, industry and research networks)</p> <p>Advanced online and onsite technology to connect experts internal and external</p>
<b>Example outcomes</b>	<p>Publication with a long standing publication partner SPRINGER Publications (<a href="https://link.springer.com/conference/eurospi">https://link.springer.com/conference/eurospi</a>)</p> <p>Annual conference (</p>

	<p>Topics list per workshop and new topics</p> <p>Joint collaborations:</p> <p>to develop new concepts</p> <p>Joint EU projects</p> <p>Joint research</p> <p>Joint new skills and certificate development kick-off</p> <p>Joint formation of new topics and new workshops</p> <p>Joint industry to research or research to industry collaboration (innovation transfer)</p>
<b>Pros and cons, recommendations</b>	<p>Pros:</p> <p>Networking opening new opportunities, e.g.</p> <p>to develop new concepts</p> <p>Joint EU projects</p> <p>Joint research</p> <p>Joint new skills and certificate development kick-off</p> <p>Joint formation of new topics and new workshops</p> <p>Joint industry to research or research to industry collaboration (innovation transfer)</p> <p>AND</p> <p>Sharing knowledge</p> <p>AND</p> <p>Publishing state of the art to position the mind set of an industry (e.g. SOQRATES)</p> <p>AND</p> <p>Open innovation to learn from others – exchange of opinions, ideas, developments, learning about state of the art.</p> <p>Cons:</p> <p>The conference participation costs.</p> <p>Mindset requires to support open innovation and idea sharing.</p> <p>The contribution costs effort – active involvement (probably not paid by the employer)</p>
<b>How it may be replicated?</b>	<p>EuroSPI is a topic driven technical conference. ASA event is a strategic conference, so while the concept of topics can be re-used, the topics and content will differ.</p> <p>We rather propose that ASA starts collaboration with various conferences in Europe where they interface to the existing networks and beneficially cooperate and become visible.</p>

	<p>For that reason, we attach a process model showing the cooperation model of EuroSPI (see slide below) and highlighting in green color the interface which EuroSPI offers to ASA.</p> <p>And EuroSPI suggests to build in these green areas a cooperation and identify similar interfaces in other conferences in Europe.</p>
<b>Collaboration format</b>	<p>See green marked interfaces in the below cooperation process model:</p> <p>Create Thematic Topic Communities</p> <p>Publications (SPRINGER etc.)</p> <p>Grow Networks of industry and research</p> <p>Workshop committee lead</p> <p>Share best practices and problems</p> <p>Share research results and case studies</p>
<b>Financial support</b>	<p>EuroSPI is self-financed, was kick off funded 1994 in the EU Commett program as a network for IT experts, and from 1995 it was self financed.</p> <p>Self financing by conference fees and conference income</p> <p>EuroSPI is known as a dissemination platform for EU projects, so EuroSPI itself uses partly EU funds, if projects were granted.</p> <p>More than 80% is conference income financed, even if EU funding would be available for a specific year</p> <p>Formation of a EuroSPI GmbH as a company to continue with the EuroSPI services.</p>
<b>Links, references</b>	<p><a href="https://conference.eurospi.net/index.php/en/">https://conference.eurospi.net/index.php/en/</a></p> <p><a href="https://link.springer.com/conference/eurospi">https://link.springer.com/conference/eurospi</a></p> <p><a href="https://conference.eurospi.net/index.php/en/workshop">https://conference.eurospi.net/index.php/en/workshop</a></p>

**Process Model**

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.



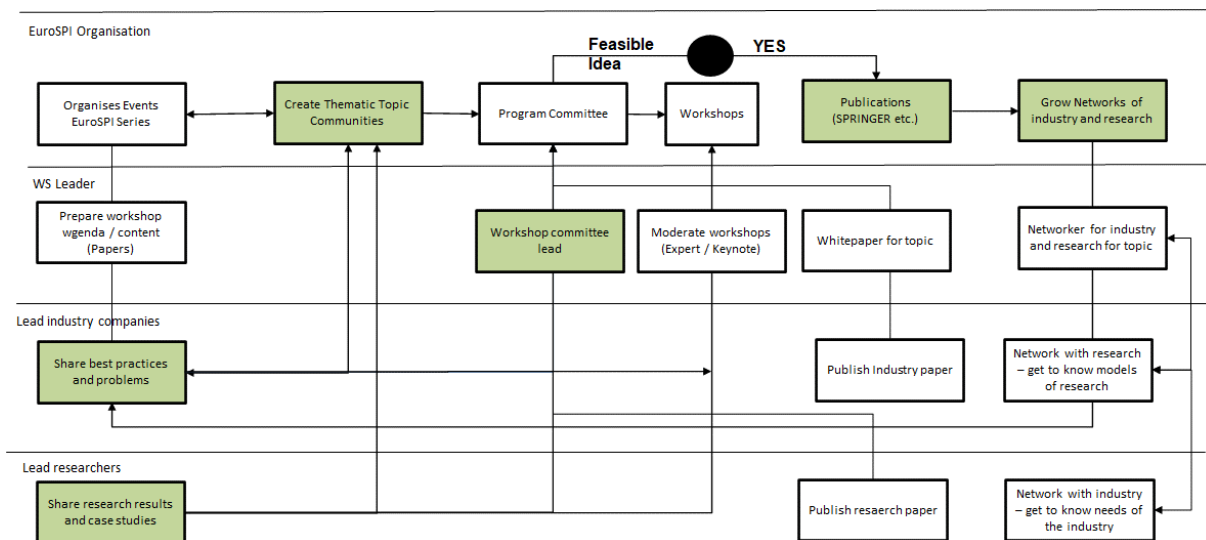


FIGURE 2 EUROSPI'S CONFERENCE COOPERATION MODEL

#### Backgroud:

The EuroSPI<sup>2</sup> conference series has been formed in 1994 as a result of an EU Comett project (1993 - 1994, expert transfer from TU Graz). Comett was a specific EU program that supported the creation of networks for specific domains. The idea was to create a network for SPI (Software Process Improvement). In 1994 a company ISCN has been formed to organise the conference and to build services around the conference. From 1995 - 1997 the conference was called ESI - ISCN conference because it acted as a community builder for the ESI (European Software Institute). In 1997 ESI changed their strategy to not support just one conference but to rather act as exhibitor in various conferences. Therefore in 1998 the industrial partners and universities supporting the former ESI - ISCN series invented the name EuroSPI (European Software Process Improvement) and continued to organise EuroSPI conferences.

In 2005 the EuroSPI conference series widened their context to not only look at improvement experiences but at various innovation methods. At this time the EU funded project ORGANIC (led by ISCN) developed the ECQA certified innovation manager job role (2003 - 2005). This led to the name EuroSPI<sup>2</sup> (I<sup>2</sup> stands for improvement and innovation).

In the years 2008 - 2013 various projects developed the ECQA certified researcher entrepreneur, the ECQA certified integrated design engineer, the ECQA certified functional safety manager / engineer etc. And also the workshop communities have been established to exchange knowledge in these topics. In this phase the meaning of the letter S of SPI has been extended to System, Software, Service, and Safety and the meaning of the letter P has been extended to Process and Product.

From 2013 onwards new communities (cybersecurity, Internet of Things, Agile) joined EuroSPI<sup>2</sup> and the letter S meaning extended to System, Software, Service, Safety, and Security and the letter I meaning extended to Improvement, Innovation, and Infrastructure (Internet of Things).

In 2015 EuroSPI<sup>2</sup> decided to support the cooperation with Asian SPI groups and changed the name to EuroAsiaSPI<sup>2</sup>. We have regular visitors from Turkey, Japan (JASPIC - Japanese Software Process Improvement Consortium), China (Hongkong) and India. Also ECQA signed in 2015 a memorandum of agreement with the Chinese chamber of commerce to promote Chinese contributions.



In 2021 EuroSPI<sup>2</sup> with the support of EG-SPICE (Sys/SW Process Improvement Consortium for Excellence) established a cooperation with Africa, and a joint workshop series with Africa has been established where speakers are selected for EuroSPI and also speakers from EuroSPI community are invited online to participate in the African workshops, and changed the name to EuroAsiaAfricaSPI<sup>2</sup>.

The EuroSPI book series has 1,2 million readers (in proceedings series) and is listed as top 10% downloaded in SPRINGER online. <https://link.springer.com/conference/eurospi>

The main paradigm is a continuous improvement and innovation schema.



FIGURE 3: CONTINUOUS INNOVATION CYCLE AND KNOWLEDGE SHARING

### 3.2.2. A strategic partnership on re- and upskilling actions in the field of the mobility ecosystem through the EBA Academy and the Automotive Skills Alliance

Contributing partner: ASA, and VSB TUO

Type: European Strategic Skills Alliance for Automotive Sector

Type of Cooperation proposed: Strategic upskilling action

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	Memorandum of Understanding between ASA and EBA Academy
Participating organisation/s	<ol style="list-style-type: none"> <li>1. KIC InnoEnergy SE, a European public limited liability company (Societas Europaea) having its registered place of business at Kennispoort, 6th floor, John F. Kennedylaan 2, (5612 AB) Eindhoven, the Netherlands (“EIT InnoEnergy”); and</li> <li>2. Automotive Skills Alliance Asbl, an association under Belgian law, having its registered place of business at Rond point Schuman 6, 1000 – Brussels, Belgium (“ASA”).</li> </ol>
Country – geographical scope	European Union
Number of years of implementation	Since 2022
Target groups, sector	<ul style="list-style-type: none"> <li>• creating a single pan-European framework to enable upskilling and reskilling in automotive sector, mobility sector and battery value chain;</li> <li>• supporting the objectives of Green Deal, transport decarbonisation and Pact for Skills through massive support of reskilling and upskilling agenda in the EU;</li> <li>• providing a platform to facilitate contacts between industry, education providers, regions, policy makers, and other relevant stakeholders to speed-up the green and digital transition of the automotive and mobility sector;</li> <li>• using joint efforts to make the green and digital transition seen as an opportunity for the businesses, industry, regional development, employers and employees; and</li> <li>• using all possible tools and best practices from both alliances to incorporate and include all partners that might support and speed up the transition of the labour force, especially the social partners and regional partners.</li> </ul>

<b>Summary/Annotation</b>	ASA and EIT InnoEnergy have been engaged in exploratory conversations regarding a future collaboration. These conversations have resulted in a wish for both parties to move into joint strategic partnership and to lay down their commitment to collaborate in this MoU. The collaboration takes place under the intentions of the EC Pact for Skills initiative, part of the European Skills Agenda.
<b>Implementation and activities and examples of outcomes</b>	<p>This Partnership can be achieved especially through the following actions:</p> <ul style="list-style-type: none"> <li>▪ creating a joint framework where the upskilling and reskilling opportunities and concepts (training courses, curricula, job roles and skills, etc.) will be available and reachable by any industrial, national, regional or other partners;</li> <li>▪ joining efforts and presenting this framework to the stakeholders, especially policymakers and jointly support the use of these tools across the EU;</li> <li>▪ joining efforts while reaching to relevant stakeholders, especially education and training providers, as well as aligning approach on the long-term mutual collaboration to expand the networks;</li> <li>▪ jointly promoting upskilling and reskilling agenda with policy makers, especially within the Pact for Skills activities and European Battery Alliance;</li> <li>▪ jointly seeking available financial resources both for the growth of the framework as well as for creation and/or delivery of concrete training courses that will be provided on the labour market;</li> <li>▪ jointly approaching Member States to make use of the ESF+ funding for the upskilling and reskilling the labour force in Member States with a strong battery industry footprint; and</li> <li>▪ coordinating and streamlining efforts on creation of dedicated training courses through ASA and EBA Academy members and partners to respond to the industry needs in a focused manner in the relevant topics based on the current trends (e-mobility, digitalisation, green skills, or other).</li> </ul>
<b>Pros and cons, recommendations</b>	presenting this framework to the stakeholders, especially policymakers and jointly support the use of these tools across the EU
<b>How it may be replicated / applied?</b>	Creation of another memorandum with different significant learning provider within the EU on upskilling and reskilling in automotive sector, mobility sector and battery value chain
<b>Collaboration format</b>	Throughout trainings, creations of education platforms, collaboration within a promotion of upskilling and reskilling agenda with policy makers, especially within the Pact for Skills activities and European Battery Alliance
<b>Financial support</b>	
<b>Links, references</b>	<a href="https://automotive-skills-alliance.eu/wp-content/uploads/2022/11/MoU_ASA_EBA.pdf">https://automotive-skills-alliance.eu/wp-content/uploads/2022/11/MoU_ASA_EBA.pdf</a>

### 3.2.3. APTE - Professional Student Contest

Contributing partner: APTE (Association for Promoting Electronics Technology)

Contributing Author(s): Bogdan MIHĂILESCU / Cristina LEPĂDATU, APTE (Association for Promoting Electronics Technology)

Type: International conference with student contest in electronics area

Type of Cooperation proposed: Empowering students and new skills.

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	INTERCONNECTION TECHNIQUES IN ELECTRONICS (TIE) contest is a student professional contest whose objective is to promote technological computer aided design (CAE-CAD-CAM) of electronic modules.
Participating organisation/s	Stakeholders at different levels: Companies in the field of automotive electronics, Technical Universities (Automation, Electronics, Mechatronics domains), Training providers and certification providers (APTE, LG Advice, etc.)  Industry and educational partners in organizing this TIE contest Continental, Miele, Polytechnic University of Bucharest, EPS-IEEE, Imaps Romania, etc.  Technical sponsors: Continental, Yazaki, Tensor, Bosch, Miele, Microchip, CaelynX, Celestica, etc.
Country – geographical scope	Romania, Europe  The competitors are from Romania, but the sponsors, partners and exhibitors are from Europe wide.
Number of years of implementation	Since 1992, 31 years
Target groups, sector	60% industry, 40% educational providers and students  The target groups are defined by thematic topics as students, educational providers and industry are invited to join to participate at the contest and exhibition.  Current thematic topics: <ol style="list-style-type: none"> <li>1. Electronics packaging</li> <li>2. CAD design of electronic circuits (SCM, SCH);</li> <li>3. Creation of virtual components (parts);</li> <li>4. SCM post-processing (generation of netlists, reports, export/import files, post-processing files for technical documentation);</li> <li>5. CAD design of on-board interconnection structures (PCB);</li> </ol>

	<p>6. Creation of PCB footprints;</p> <p>7. Professional inter-tool communication techniques between SCM and PCB environments;</p> <p>8. PCB post-processing (generation of netlists, reports, export/import files, post-processing files for technical documentation and manufacturing);</p> <p>9. Standardization elements for PCB design;</p> <p>10. Elements of analogue, digital and mixed design;</p> <p>11. Elements of signal integrity, power integrity and electromagnetic compatibility at the PCB level.</p>
<b>Summary/Annotation</b>	<p>The INTERCONNECTION TECHNIQUES IN ELECTRONICS (TIE) contest is a student professional contest whose objective is to promote technological computer aided design (CAE-CAD-CAM) of electronic modules. This contest brings together students from different Universities since 1992. Students have a great opportunity by taking part in this contest.</p> <p>A good organization and a total transparency during the contest are the main coordinates proving professionalism and fair-play among students keen on electronic packaging. Every year TIE gathers the greatest student PCB designers from around the country in the ultimate showdown in which not only pride and glory are at stake, but also important prizes to be won. At the end of the contest, there can be only one winner, however, all contestants meeting a score margin established by the Industrial Advisor Committee receive a “Certificate of Competence”, recognizing their professional abilities as PCB designers. Being in close relations with the industry, TIE contestants are widely sought by highly appraised companies for internships and hiring after graduating their studies. As a result, many examples of past TIE contestant can be found in high ranking functions at important companies around the country and around the world, often returning to TIE as part of the “Industrial Advisor Committee”.</p>
<b>Implementation and activities</b>	<p>Set up the contest committees (Industrial Advisor Committee)</p> <p>Set up the contest subjects – by the industry representatives.</p> <p>Attracting sponsors and exhibitors for TIE - Set up the exhibition and final event location/logistics</p> <p>Organise the contest (local stage + final stage as main event)</p> <p>Manage the evaluation of the contestants (by an Industry and Academic representative)</p> <p>Manage the diplomas (Certification of “PCB Designer”)</p> <p>Manage the awarding ceremony for final stage (prizes for top 3 contestants)</p>
<b>Example outcomes</b>	<ul style="list-style-type: none"> <li>- Contestants meeting a score margin established by the Industrial Advisor Committee receive a “Certificate of Competence”, recognizing their professional abilities as PCB designers.</li> </ul>

	<ul style="list-style-type: none"> <li>- Companies can identify top talents from among the students participating in the contest               <ul style="list-style-type: none"> <li>- Students gain experience about the design process performed as professional PCB Designer</li> </ul> </li> </ul>
<b>Pros and cons, recommendations</b>	<p>Pros:</p> <ul style="list-style-type: none"> <li>- Networking opening new opportunities between Academia and Industry</li> <li>- all contestants meeting a score margin established by the Industrial Advisor Committee receive a “Certificate of Competence”, recognizing their professional abilities as PCB designers.</li> <li>- Companies can identify top talents from among the students participating in the contest</li> <li>- Students gain experience about the design process performed as professional PCB Designer</li> <li>- Companies participating in the exhibition gain higher visibility.</li> <li>- Students and academic representatives have access to technical presentations from companies</li> </ul> <p>Cons:</p> <ul style="list-style-type: none"> <li>- The conference participation costs</li> </ul>
<b>How it may be replicated / applied?</b>	Companies from ASA with a common field of interest (mechanical, electronics, automation, AI, etc.) where is a lack of highly trained human resources may come together to propose topics which may be approached by students (bachelor and master studies) from technical universities in Europe.
<b>Collaboration format</b>	<p>Focused on signal and power integrity EM simulations</p> <ul style="list-style-type: none"> <li>- In the context of the rising importance of virtual prototyping disciplines that support the design of PCBs, the extension towards a contest stage focused on simulation is more versatile and convenient</li> <li>- Organized based on an online platform where all the information exchange between contestants and technical committees is managed</li> </ul> <p>Objectives:</p> <ul style="list-style-type: none"> <li>- Initiate development of future specialist in the field of EM simulation in accordance to best-in-class industry demands</li> <li>- Increase awareness of virtual prototyping topics through webinars from industry experts and simulation tool providers</li> </ul>
<b>Financial support</b>	<p>TIE is financed by sponsorships from industry and participation fees</p> <p>Student teams expenses are also sponsored by the companies based on the proximity (usually the company finances the students from the regional technical university where they have a headquarters)</p>



Links, references	TIE program, Sponsors and Committee ( <a href="http://www.tie.ro">www.tie.ro</a> , <a href="http://www.eecamp.eu">www.eecamp.eu</a> )
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TIE Process Model

APTE has fully elaborated the roles, tasks and workflows. The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.

Define Roles	
Training and certification providers Trainers/Experts	<b>Description:</b> The representatives from the Training providers and from the certification providers are members of the Technical Committee, they organize the contest, technical workshops , the Professional Development Courses and the PCB certificates.
Students Bachelor/Master students	<b>Description:</b> Bachelor and Master students from technical universities that follow a specialisation curricula related to electronic technology, telecommunications, mechatronics and information technology.
Technical Universities Professors/Lecturers	<b>Description:</b> Every Technical University prepare the students and organize the local stage of the contest and come with the winners at the national stage of the contest. Representatives from the Technical Universities are members of the Technical Committee and a part of them are in the Steering Committee. They evaluate together with the members of the Industrial Advisor Committee the participants of the TIE contest.
Companies in the field of automotive electronics Middle management/Experts	<b>Description:</b> The representatives from the industry are members of the Industrial Advisor Committee, and a part of them are in the Steering Committee. They make the subjects for the contest and evaluate them together with the professors from the Technical University. The companies are also sponsors of the contest, Technical Sponsors, Platinum Sponsors or Gold Sponsors and they can have a stand at the contest exhibition.

FIGURE 4 ROLES - TIE COOPERATION MODEL

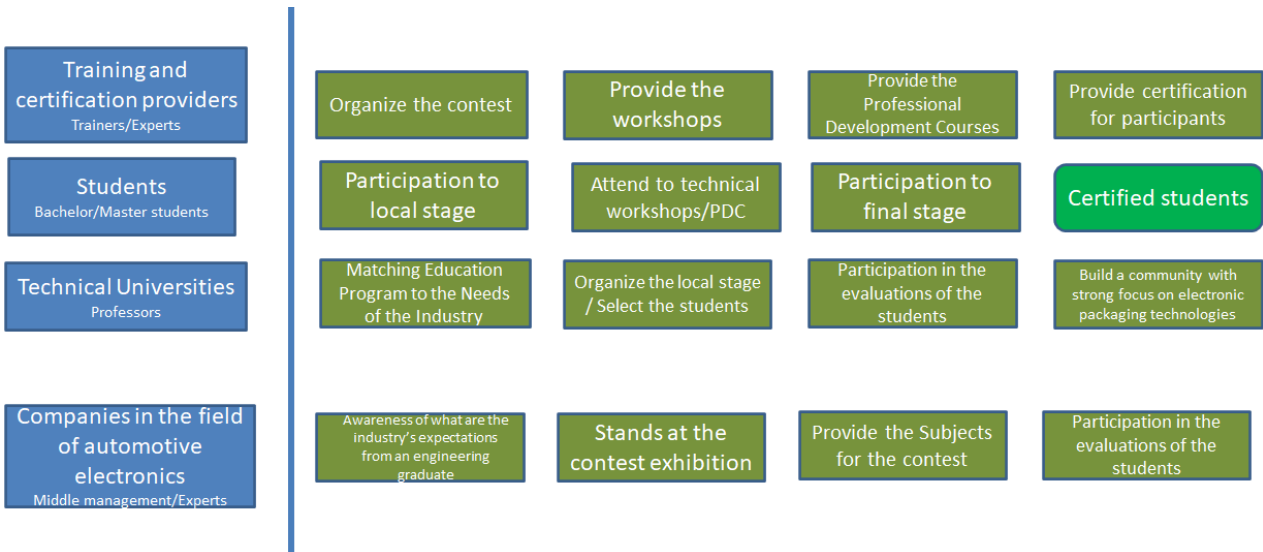


FIGURE 5 TASKS - TIE COOPERATION MODEL

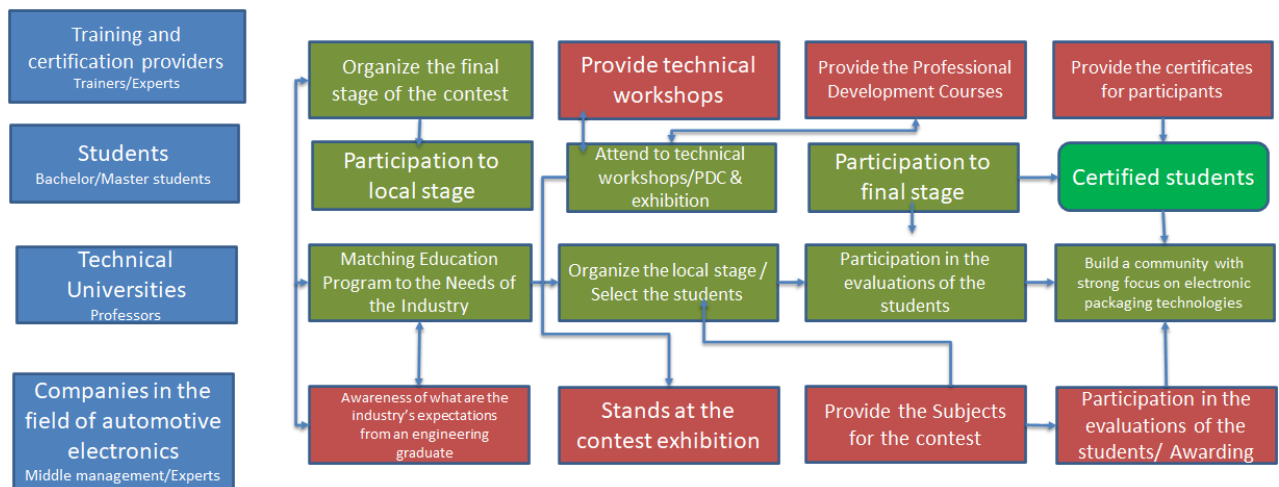


FIGURE 6 TASKS – MARKING GREEN THE ASA COOPERATION POTENTIAL IN THE TIE COOPERATION MODEL

### Background Provided for the TIE Process Model

#### History:

The TIE contest was initiated 1992 as a local student competition at the Polytechnical University of Bucharest

Later, contestants from other universities joined the contest

In 2003 the event became itinerant, moving each year to a different University Centre, becoming a national competition

The event is held annually, having ~30-40 contestants coming from 10-13 Universities

#### Concept:

Student professional contest with the objective to promote technological computer aided design

Build a community with strong focus on electronic packaging technologies

Incorporates workshops and presentations held by both foreign universities as well as companies

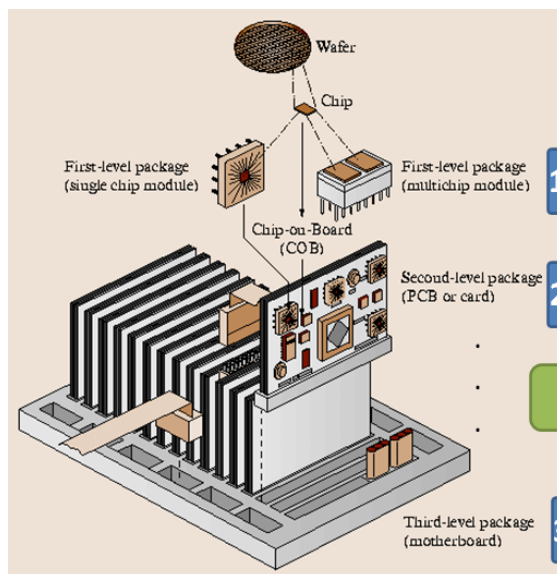
#### Mission

Bring industry and university together, in a tighter, more constant collaboration

Challenge students to think outside-the-box by exposing them to real-life design challenges

Awareness of what are the industry's expectations from an engineering graduate



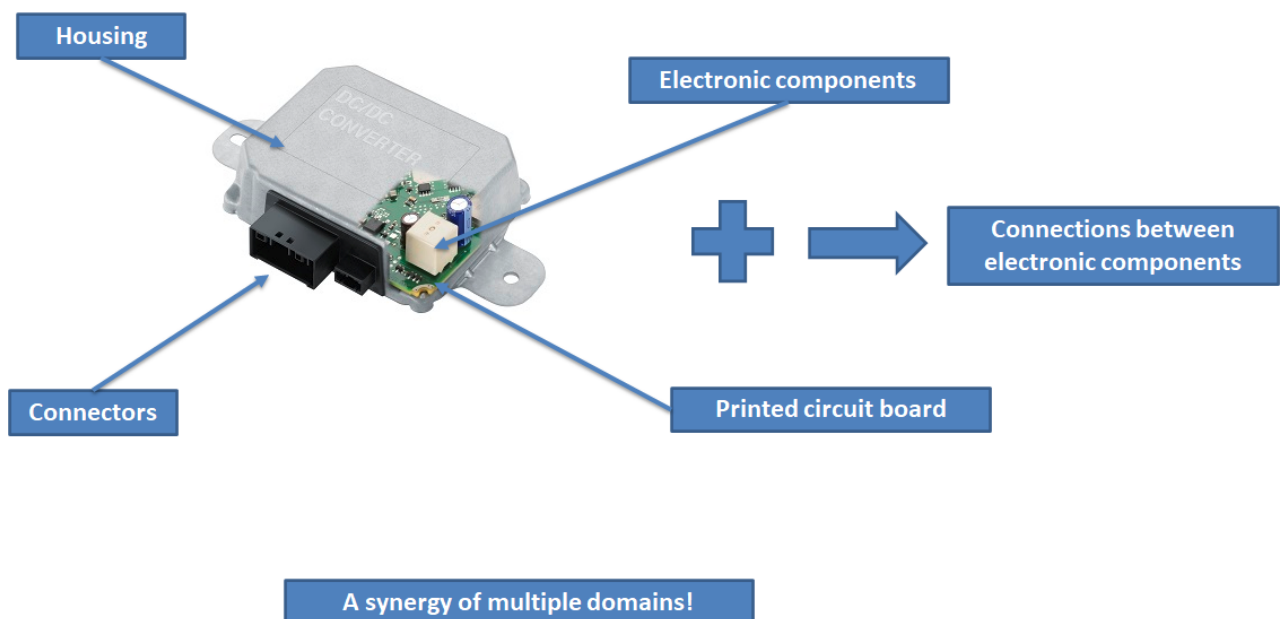


- TIE is focused primarily on the second packaging hierarchical level but the design constraints are considering also criteria for system level integration

PCB = dedicated passive component that is designed and manufactured in accordance with the specificity of the application

Source: Suhling J.C., Lall P. (2008) Electronic Packaging Applications. In: Sharpe W. (eds) Springer Handbook of Experimental Solid Mechanics. Springer Handbooks. Springer, Boston, MA. [https://doi.org/10.1007/978-0-387-30877-7\\_36](https://doi.org/10.1007/978-0-387-30877-7_36)

**FIGURE 7 ELECTRONIC PACKAGING HIERARCHY LEVELS**



**FIGURE 8 ELECTRONIC PACKAGING – MULTIPLE DOMAINS INVOLVED**

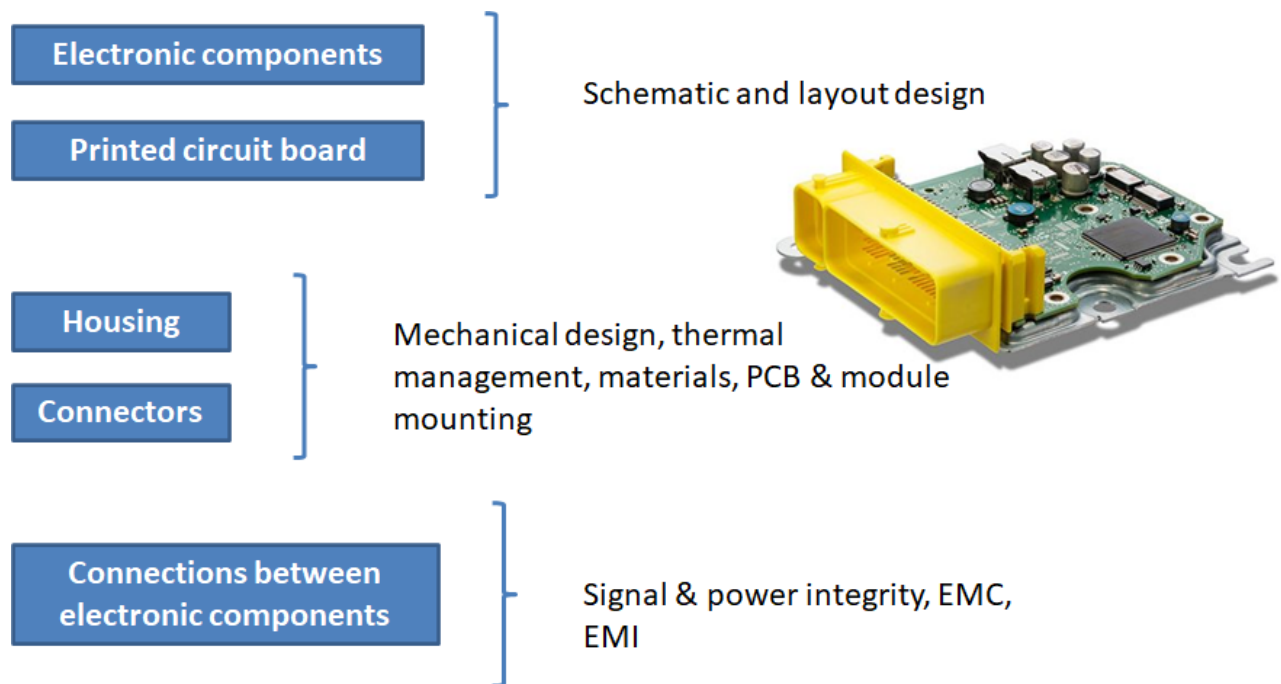


FIGURE 9 ELECTRONIC PACKAGING – MULTIPLE SKILLS INVOLVED

In order to address up-skilling and re-skilling these matters, a new concept was proposed: TIE

#### INTERCONNECTION TECHNIQUES IN ELECTRONICS

TIE is a rich history contest, with 30+ years of activity.

Currently, the TIE contest has two sections - TIE and TIE Plus

TIE PCB design taking into account:

- Assembling and manufacturing technology
- Electrical, mechanical, thermal requirements, etc.

TIE Plus PCB qualification designed in accordance with:

- Electrical, mechanical & thermal requirements (system stability)

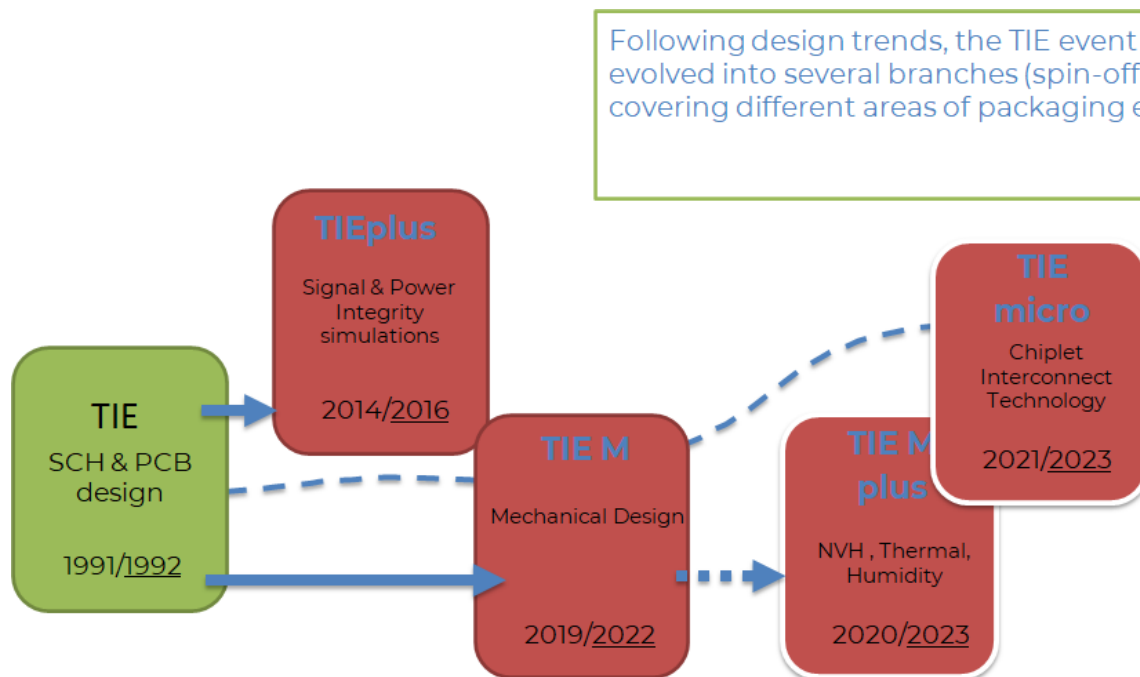


FIGURE 10 ELECTRONIC PACKAGING – MULTIPLE TIE EVENTS

### 3.2.4. EDUCAM Trial Training Program

Contributing partner: EDUCAM

Author(s): David Decerf, EDUCAM

Type: Automotive Training Program connecting education and work place

Type of Cooperation proposed: Industry – education – joined education

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	Trial training- apprenticeship program
Participating organisation/s	EDUCAM Car manufacturer (Importer + dealer network) – Currently Mercedes Belux/ PSA (Schyns) / Scania / VW (D'leteren) Learning centre (Apprentice centre / Technical secondary school)
Country – geographical scope	Belgium / 3 regions
Number of years of implementation	5 y
Target groups, sector	Trainees/students of the Technical secondary school between the age 16-21 (future workers) Automotive sector – Repair and Maintenance
Summary/Annotation	Collaboration at the beginning of the course program between learner/ dealer linked to a brand/Educam. Collaboration based on a 3 years where each party commits to specific points: Dealer/Brand Importer: give a internship to trainee in a modern workplace: audit to control facilities, equipment, coaching by a certified colleague Access to manufacturer trainings Learner: under contract with the dealer and the training centre (part-time on the field / part-time at school) – 3 years program – starts at age of 16 Educam: Coordination – Coaching – Technical certifications to complete initial training
Implementation and activities	Apprenticeship program at the training centre Internship at the dealer

	Trainings by the brand importer Certifications by Educam
<b>Example outcomes</b>	Future learner is graduated from the school Get certifications from Educam fostering employability Reach a higher level in the program internal of the manufacturer Familiar with brand/dealer policy
<b>Pros and cons, recommendations</b>	<p><b>Pros</b></p> Learner benefits from a modern working environment Continuous coaching by a certified professional Access to latest trainings/certifications during the course program No obligation to stay at the dealer after graduation In case of continuation with the dealer after graduation, more interesting salary conditions because the future work has reached a “pre-advanced” level This model can be extended to other target groups (certain conditions) Added-value for company/learner/school Find and retain the good profiles (company) Boosting employability (learner) Co-funding <p><b>Cons</b></p> The organisation costs (learners to convey because too young to get a driving licence) The dealer must release the apprentice when there are training sessions scheduled No guarantee not to give up course program (highly risked investment for the dealer) No obligation to stay at the dealer after graduation (highly risked investment for the dealer)
<b>How it may be replicated / applied?</b>	
<b>Collaboration format</b>	
<b>Financial support</b>	EDUCAM funding: Educam trainings/certifications Company accreditation (workplace audit)

	<p>Sectoral assessment (final practical examination under sectoral conditions)</p> <p>Project coordination</p> <p>Brand-Importer funding</p> <p>Brand oriented trainings</p> <p>Brand certification (internal program)</p> <p>Coordination dealers network</p> <p>Transport of learners</p>
Links, references	<p><a href="https://www.educam.be/fr/soutien-sectoriel/apprendre-et-travailler/formation-triale">https://www.educam.be/fr/soutien-sectoriel/apprendre-et-travailler/formation-triale</a></p>

### Process Model

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.

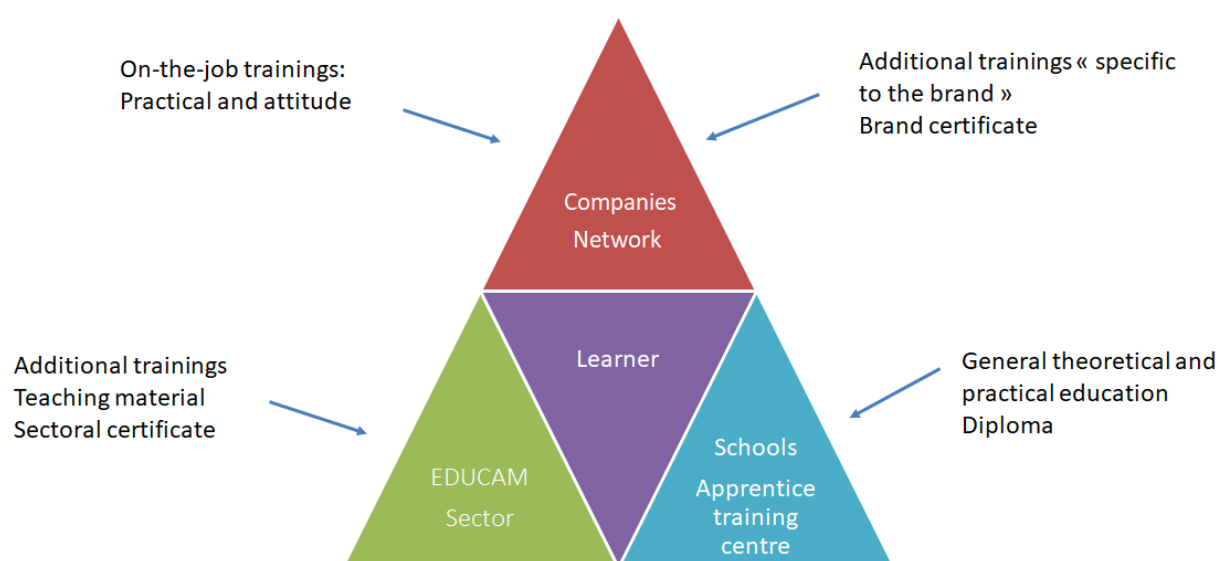


FIGURE 11 EDUCAM - CONCEPT / ADDED-VALUE

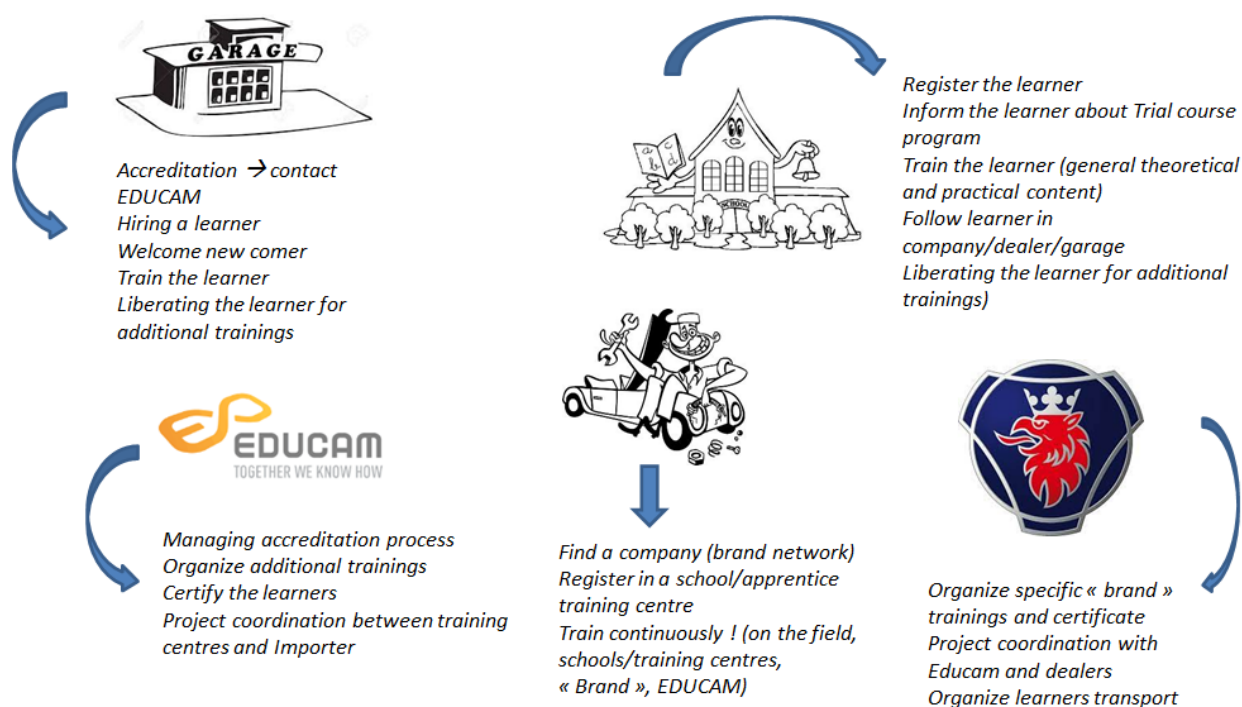


FIGURE 12 EDUCAM – WHOIS DOING WHAT?

#### Define Roles

46

Vehicle's brand Importer	<b>Description:</b> National representative of a brand/vehicle manufacturer – Big dealer
Dealers Network / Garages	<b>Description:</b> medium/big official dealer
EDUCAM	<b>Description:</b> Automotive sector representative – key element between stakeholders
Apprentice learning centre / School	<b>Description:</b> Official Apprentice learning centre
Learner	<b>Description:</b> Candidate willing to follow the program

FIGURE 13 EDUCAM – ROLES

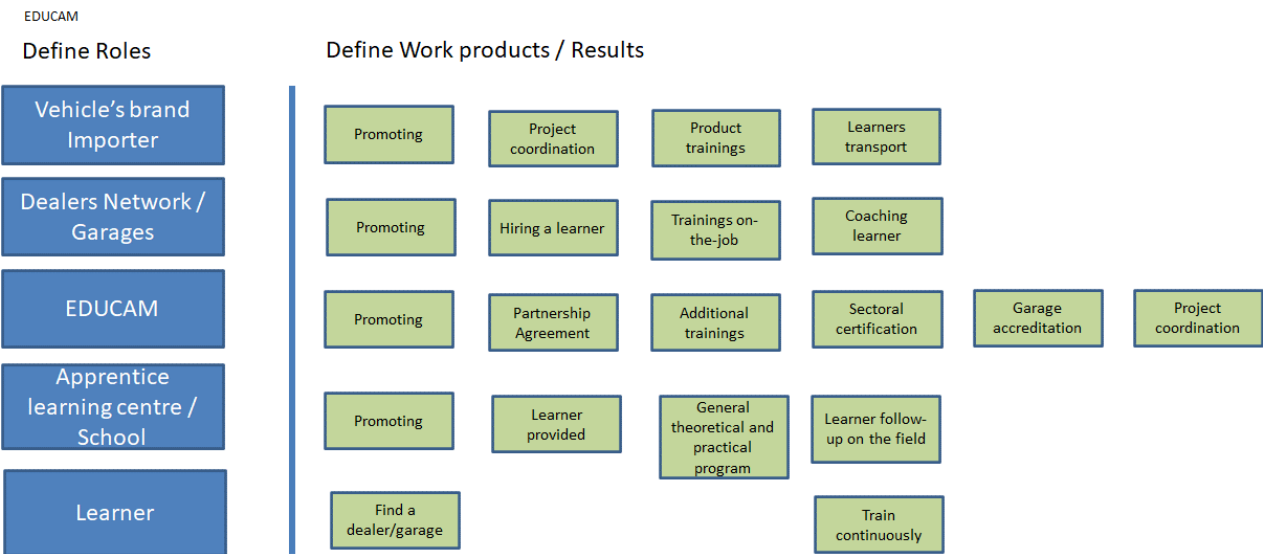


FIGURE 14 EDUCAM – WORK PRODUCZS PER ROLE

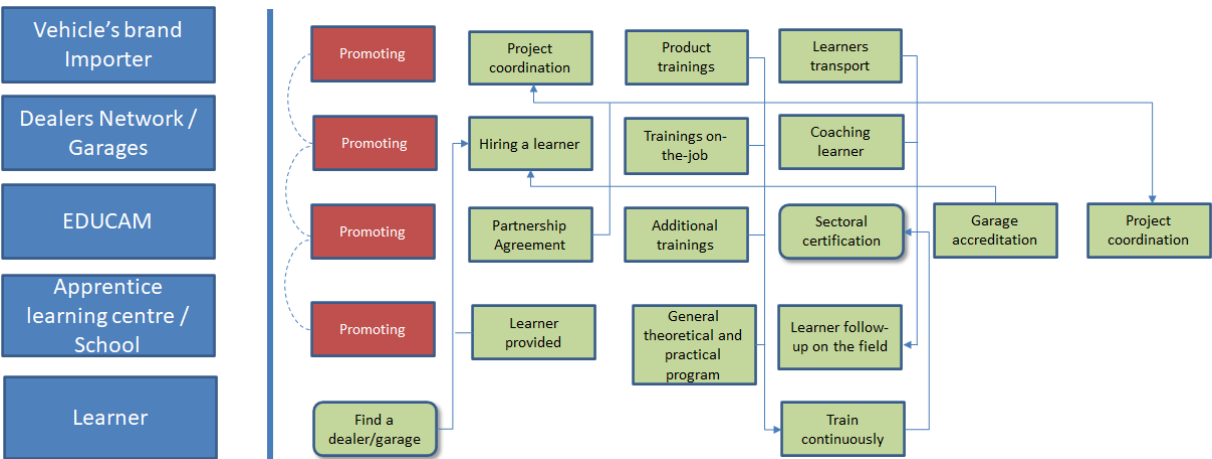


FIGURE 15 EDUCAM – WORK FLOWS



### 3.2.5. EuroSPI Models of Skills Set and Training Development

Contributing partner: EuroSPI

Contributing Author(s): Laura Aschbacher, Tobias Danmayr/Zehetner (EuroSPI) supported by Dr Richard Messnarz, Damjan Ekert (ISCN)

Type: Automotive Academy, European Automotive Certificates for Job Roles

Type of Cooperation proposed: Joint Skills Development and Certification with ASA

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	EuroSPI Models of Skills Set and Training Development
Participating organisation/s	<p><b>Job Role Teams/Committees</b> developing skills sets and training materials</p> <p><b>EuroSPI workshop teams/committees</b> are usually build around such job role committees</p> <p>EuroSPI lists certified training bodies</p> <p>Those groups <b>are topic driven</b> and per topic e.g. functional safety different courses are developed e.g. functional safety engineer</p>
Country – geographical scope	<p><b>Europe and world wide – training in Europe, USA, China, India, Japan, Africa</b></p> <p>Most of the training development teams are supported by industry groups related to EuroSPI</p> <p>SOQRATES – <a href="https://soqrates.eurospi.net">soqrates.eurospi.net</a></p> <p>EuroSPI Workshop Committees - <a href="https://conference.eurospi.net/index.php/en/community">https://conference.eurospi.net/index.php/en/community</a></p> <p>Many of the job role/training teams asked for EU funding, resulting in EU projects</p> <p>EuroSPI Academy attendees.</p>
Number of years of implementation	<p>EuroSPI since 1994</p> <p>The <b>workshop and topic driven and skill/job role based training approach</b> since 2012</p> <p>Current workshops at <a href="https://conference.eurospi.net/index.php/en/workshop">https://conference.eurospi.net/index.php/en/workshop</a></p> <p><b>EuroSPI models applied in DRIVES Learning Compass ca. 30 job roles</b> at: <a href="https://www.project-drives.eu/en/driveslearningplatform">https://www.project-drives.eu/en/driveslearningplatform</a> (2018 -2022)</p> <p><b>EuroSPI Academy with job role training</b> at: <a href="https://academy.eurospi.net/">https://academy.eurospi.net/</a> , established based on the work shop communities in 2021.</p>
Target groups, sector	50% industry / 50% research

	<p><b>Automotive, electronics, aviation, defense. IT software</b></p> <p><b>Target groups are defined by job roles offered with skills sets based training.</b></p> <p><b>Job roles are based on thematic topics</b> and researchers as well as lead industry are invited to jointly work on the thematic topic. Current thematic topics:</p> <p>Functional Safety Engineer</p> <p>Functional safety Manager</p> <p>Cybersecurity Engineer</p> <p>Cybersecurity Manager</p> <p>Requirements Engineer</p> <p>SW Design Patterns</p> <p>Automotive Quality</p> <p>....</p>
<b>Summary/Annotation</b>	<p>See Continuous Skill Development and Knowledge Sharing Cycle in the next slides:</p> <p>Forming a Job Role / Training Development Team</p> <p>Develop Skill Set and Courses Materials in Working Groups</p> <p>Collecting information from research &amp; industry</p> <p>Regular events / actions / Update courses</p> <p>Improve courses and workshops based on needed skillset</p> <p>Linking to a Workshop in EuroSPI Conference</p> <p>Etc.</p>
<b>Implementation and activities</b>	<p>Activities:</p> <ul style="list-style-type: none"> <li>• EuroSPI Management           <ul style="list-style-type: none"> <li>• Forming a Job Role / Training Development Team</li> <li>• Linking to a Workshop in EuroSPI Conference</li> <li>• Course and Exam Infrastructure</li> <li>• Certification for job roles and skills / topics</li> <li>• Regular events / actions / Update courses</li> </ul> </li> <li>• Trainer Committees           <ul style="list-style-type: none"> <li>• Collecting information from research &amp; industry</li> <li>• Develop Skill Set and Courses Materials in Working Groups</li> <li>• Improve courses and workshops based on needed skillset</li> </ul> </li> <li>• Industry Partners           <ul style="list-style-type: none"> <li>• Network with research – get to know models of research</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Share best practices and problems</li> <li>• Adequately trained staff / Upskilled &amp; Reskilled Workers</li> <li>• University Partners                             <ul style="list-style-type: none"> <li>• Network with industry – get to know needs of the industry</li> <li>• Share Research Results/ Papers</li> <li>• Applied science and teaching of new skills in science</li> <li>• New study programmes / University courses</li> </ul> </li> </ul>
<b>Example outcomes</b>	<p>Courses</p> <p>Joint new skills and certificate development</p> <p>Workshops</p> <p>Skills Sets</p> <p>Training Materials</p> <ul style="list-style-type: none"> <li>• E-learning videos, Slides, Student Notes, Exercises, Templates and Tools, State of the Art Papers</li> </ul>
<b>Pros and cons, recommendations</b>	<p>Pros:</p> <ul style="list-style-type: none"> <li>• Many different topics/courses to choose from</li> <li>• New ways of learning state-of-the-art learning materials</li> <li>• Always up-to-date course content</li> <li>• Perspectives of Industry and Research: Many different perspectives involved, which lead to higher quality training material</li> <li>• New and updated courses for new skills needed</li> <li>• This model can accelerate skill development and training for lead industry while also working closely with lead researchers on state-of-the-art skillset needed for the future</li> <li>• The outcomes of this model help to upskill and reskill workforce in lead industry companies and areas of lead research.</li> </ul> <p>Cons:</p> <ul style="list-style-type: none"> <li>• For lead industry: This model only works if lead industry is willing to reskill and upskill workers.</li> <li>• For researchers: Skillset are always connected to lead industry needs, which researchers will have to find out in order to work adequately in this model.</li> </ul>
<b>How it may be replicated?</b>	<p>We propose that ASA acts together with us in certain areas, which are marked green on slide 6. This means that ASA empowers skills set and training material development and connects ASA WG members to training developments but does not develop training themselves. ASA also can promote a list of certified training bodies and training courses to</p>

	attend. Also a joint commercial model can be developed if registrations for courses came through ASA.
<b>Collaboration format</b>	<p>See green marked interfaces in the cooperation process model on slide 6 (in the green areas joined teams and business cooperation with ASA can be established). Below all activities with an interface are listed.</p> <p>Forming a Job Role / Training Development Team</p> <p>Regular events / actions / Update courses</p> <p>Collecting information from research &amp; industry</p> <p>Develop Skill Set and Courses Materials in Working Groups</p> <p>Network with research – get to know models of research</p> <p>Share best practices and problems</p> <p>Adequately trained staff / Upskilled &amp; Reskilled Workers</p> <p>Network with industry – get to know needs of the industry</p> <p>Share Research Results/ Papers</p>
<b>Financial support</b>	<p>EuroSPI is self financed, was kick off funded 1994 in the EU Commett program as a network for IT experts, and from 1995 it was self financed.</p> <p>Self financing by conference fees and conference income</p> <p>EuroSPI academy is a recognised training platforms to which automotive suppliers and OEMs attended courses. Courses are sold as inhouse or open online courses.</p> <p>Currently 82% of the course development is income financed, even if EU funding would be available for a specific year (EU funding in balance sheet shows 18%).</p>
<b>Links, references</b>	<p><a href="https://conference.eurospi.net/index.php/en/">https://conference.eurospi.net/index.php/en/</a></p> <p><a href="https://academy.eurospi.net/">https://academy.eurospi.net/</a></p> <p><a href="https://www.eurospi.net/opencourses">https://www.eurospi.net/opencourses</a></p> <p><a href="https://www.iscn.com/projects/exam_portal/">https://www.iscn.com/projects/exam_portal/</a></p>

**Process Model**

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.

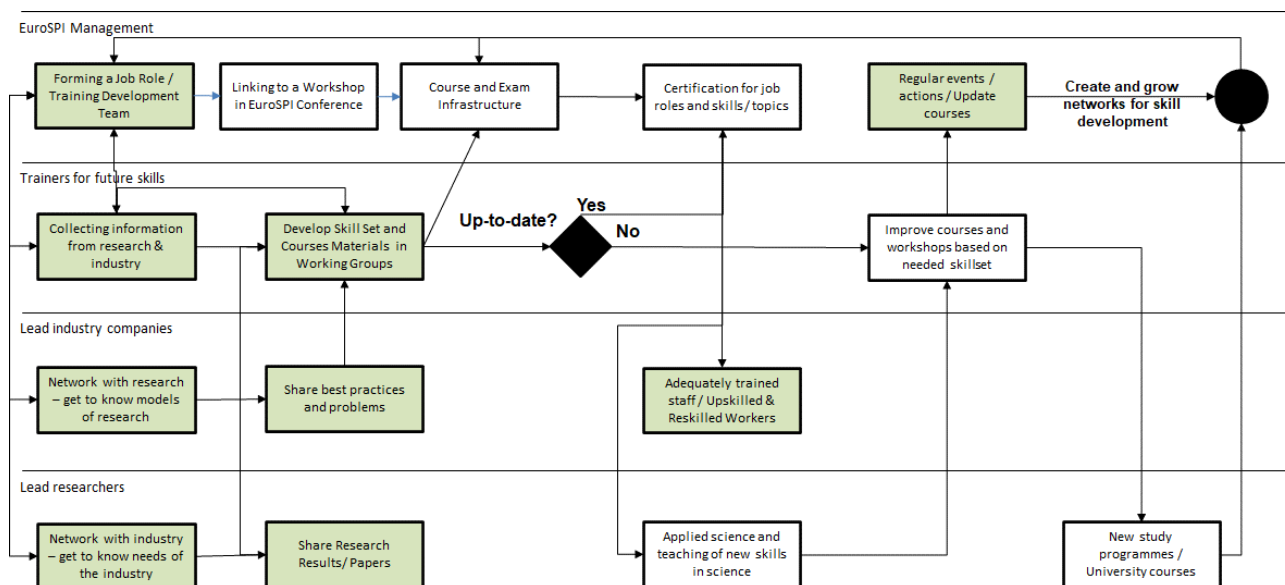


FIGURE 16 EUROSPI MODEL- – JOINT SKILL SET, TRAINING, AND CERTIFICATE DEVELOPMENT

**3.2.6. ACEA Model of Cooperation**

Contributing partner: ACEA – European Automotive Manufacturer Association

Author(s): Didier Stevens, DST EU Consulting (for ACEA)

Type: Automotive Association

Type of Cooperation proposed: Program for skill matching needs between university and industry

**Description Elements of a Case Study (agreed among all partners to be analysed and completed)**

Field	Description
Name of the collaboration approach	JOB EVENTS for Automotive Skills
Participating organisation/s	Stakeholders at different levels under the ASA umbrella
Country – geographical scope	Regional, nation and European
Number of years of implementation	New
Target groups, sector	<b>All stakeholders</b> : OEMs, suppliers, universities, education centres, regions, employment agencies
Summary/Annotation	<ul style="list-style-type: none"> <li>OEMs, suppliers visiting universities, regional authorities, employment agencies, etc. to explain new technologies</li> <li>Universities, regions, employment agencies visiting OEMs and/or suppliers on “open company days”.</li> <li>Such could be formalised into job events under the umbrella of ASA</li> </ul>
Implementation and activities	Set up job events at regional, national and eventually European level Connect stakeholders
Example outcomes	Job matching between students and companies Profile matching between industry and universities, employment agencies
Pros and cons, recommendations	Pros: Networking opening new opportunities for established and new stakeholders Exchange of opinions, ideas, developments, learning about state of the art Cons:

	The conference participation costs Activate stakeholders to share info
<b>How it may be replicated / applied?</b>	To give job event recognition, event to take place under ASA umbrella. Some speeches/conference could be organised in parallel. EU officials, education ministers could be invited to speak. Concept can be tried out in 1 regions and easily copied into other regions or countries
<b>Collaboration format</b>	Exchange between job events focusing on automotive skills.
<b>Financial support</b>	ASA and stakeholders to share cost. Cost is always lower than doing it on individual basis.
<b>Links, references</b>	Examples of Toyota Academy

**Process Model**

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.

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ASA Facilitator / Guidelines Provider	Description: facilitator matching needs from all stakeholders and organise relevant connections
University Professor / Expert	Description: provider of relevant education skills matching industry needs
Industry Department Head / Manager	Description: OEMs, Suppliers and other companies active in automotive sector
Employment Agency	Description: matching unemployed and industry; arrange relevant profiles/skills
Regional Agency	Description: investment agency promoting region to industry

**FIGURE 17 ACEA MODEL - ROLES**

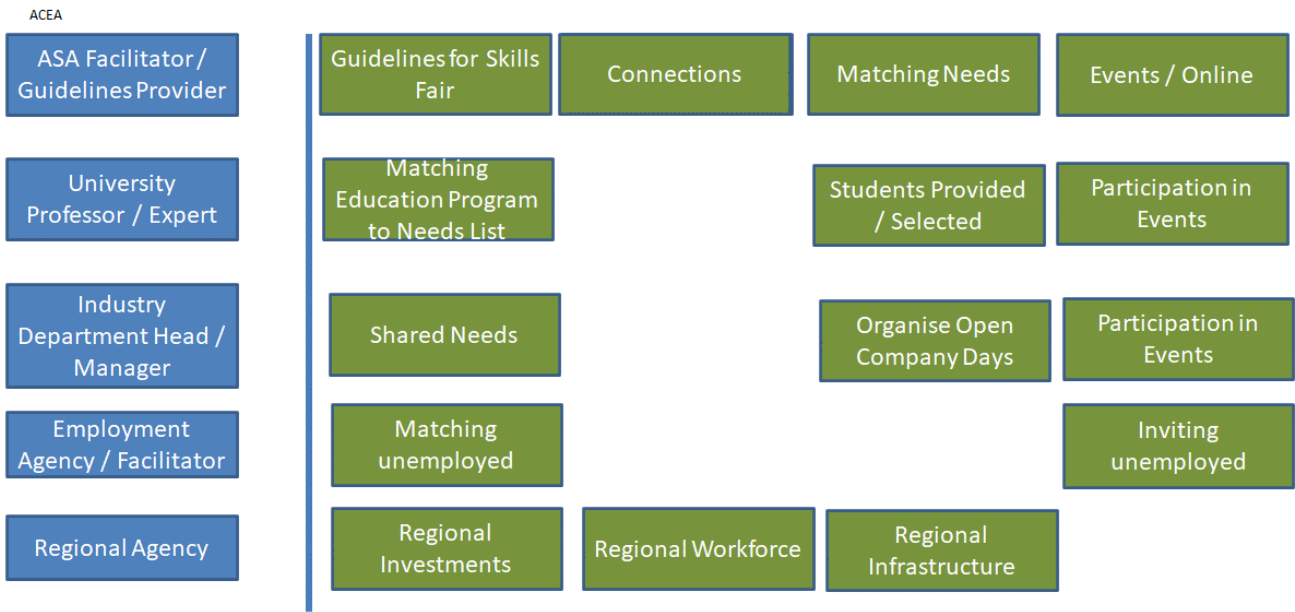


FIGURE 18 ACEA MODEL - WORK PRODUCTS PER ROLE

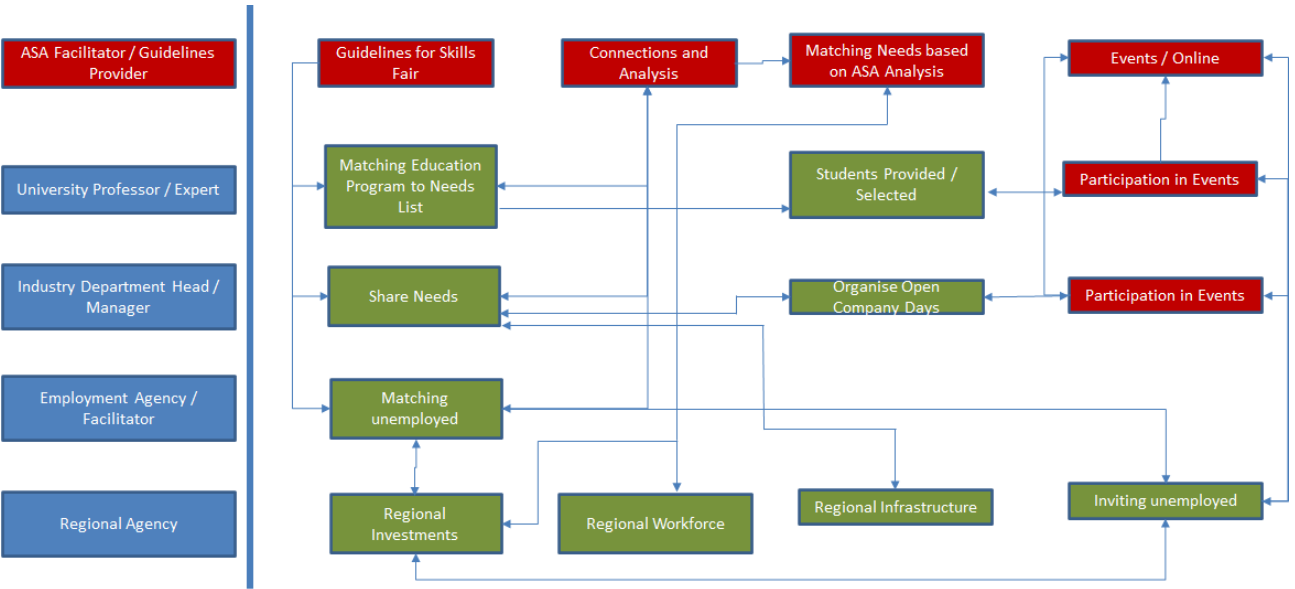


FIGURE 19 ACEA MODEL - WORK FLOW – RED (ASA COOPERATION INTERFACE)



### 3.2.7. ISCN Assessor Association INTACS Cooperation Model

Contributing partner: ISCN GmbH

Author(s): Dr Richard Messnarz, Damjan Ekert (ISCN), supported by Laura Aschbacher, Tobias Danmayr/Zehetner (EuroSPI)

Type: Assessor Association – Automotive Quality, Automotive Cybersecurity, Automotive Safety

Type of Cooperation proposed: Joined cooperation in assessment models design and training

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	Intacs Working Groups
Participating organisation/s	<ul style="list-style-type: none"> <li>Major Suppliers in the Automotive Industry (e.g. BOSCH, Continental)</li> <li>OEMs (e.g. VW, Porsche)</li> <li>Training/Consulting companies (e.g. ISCN)</li> </ul>
Country – geographical scope	International Community
Number of years of implementation	Several years, different Working Groups have been established through the last years
Target groups, sector	<p>Industry – based on the working group the target group can differ e.g. automotive, SW development etc.</p> <p>The working group is preparing/maintaining training materials for INTACS certified training providers or preparing/updating a new Process Assessment Model.</p>
Summary/Annotation	<p>The intacs working group consists of several members (experts in their field). The main objective is to jointly prepare, elaborate and maintain a new Process Assessment Model or Training Materials for an existing Process Assessment Model. Each working group has a lead who is organising the activities and communicating directly with the stakeholders (e.g. INTACS Board, VDA).</p> <p>A list of active intacs working group including their members is available at: <a href="https://intacs.info/index.php/list-of-working-groups">https://intacs.info/index.php/list-of-working-groups</a></p>
Implementation and activities	The working group members
Example outcomes	Working Group Working Group "Cybersecurity SPICE:

	<ul style="list-style-type: none"> <li>• Extension to Automotive SPICE® 3.1 – to be able to measure the compliance of the development processes versus ISO/ SAE 21434</li> <li>• Mapping of the extension elements to elements of ISO/ SAE 21434</li> <li>• Extension to Automotive SPICE® Competent Assessor Qualification (Procedure, Syllabus, Training material, accreditation of TPs, certification)</li> <li>• Managed Best Practice collection (mapped to elements of ISO/SAE 21434)</li> <li>• Reports how to apply the ISO/SAE 21434 and how to assess</li> </ul> <p><b>Working Group AGILE SPICE:</b></p> <ul style="list-style-type: none"> <li>• Development of an Agile SPICE™ PAM (applicable with Automotive SPICE® 3.1) including usage guidance and mapping to Automotive SPICE® practices</li> <li>• Piloting the Agile SPICE™ PAM in assessments</li> <li>• Creation of standard training material and exams</li> </ul>
<b>Pros and cons, recommendations</b>	<p><b>Pro:</b></p> <ul style="list-style-type: none"> <li>• Experts work jointly on a topic</li> <li>• Sharing of experiences and knowledge</li> <li>• Work is published to a broad community</li> <li>• It is rather a privilege than a duty to work in a working group, therefore all work is free</li> </ul> <p><b>Cons:</b></p> <ul style="list-style-type: none"> <li>• Participation is on invitation only</li> <li>• Additional effort and meetings out of office hours</li> </ul> <p><b>Recommendation:</b></p> <ul style="list-style-type: none"> <li>• The working group approach can be reused by ASA</li> <li>• The reputation and acknowledgement of ASA needs to grow</li> </ul>
<b>How it may be replicated?</b>	The working group approach can be easily reused by ASA or any other organisation. It is important that the members of the working group are recognised experts in the community.
<b>Collaboration format</b>	The collaboration is performed mainly online by using Teams and Sharepoint. Regular meetings are scheduled where topics are discussed or reviews jointly performed. The meetings are not only to align but also performed as working sessions.
<b>Financial support</b>	Collaboration is not funded

<b>Links, references</b>	<a href="https://intacs.info/index.php/list-of-working-groups">https://intacs.info/index.php/list-of-working-groups</a>
<b>Roles observed as actors</b>	Working Group Leader, Working Group Members
<b>Work Steps observed as activities</b>	<p>A topic is identified by the intacs community or a proposal by an intacs members is sent to the board</p> <p>The board approves/rejects the working group proposal</p> <p>A working group leader is selected and members invited</p> <p>Joint work in the working group</p> <p>Publishing of working group outcomes, reviews, trainings</p> <p>Updates of the working group outcomes</p>
<b>Work Product / Service Outcomes Observed</b>	See Example outcomes section
<b>How would this work for ASA?</b>	The working group approach can be easily reused by ASA or any other organisation. It is important that the members of the working group are recognised experts in the community.

**3.2.8. Occupational standards Cooperation Model**

Contributing partner: InterTradeCard, Romania

Author(s): Marius Tudor (InterTradeCard)

Type: National qualification standards alignment

Type of Cooperation proposed: occupational standards stakeholders dialogue framework

**Description Elements of a Case Study (agreed among all partners to be analysed and completed)**

Field	Description
<b>Name of the collaboration approach</b>	Stakeholders dialogue framework
<b>Participating organisation/s</b>	Companies, professional associations & clusters, education providers, national agencies for qualifications
<b>Country – geographical scope</b>	Romania and EU countries, with the potential to be implemented by each EU country
<b>Number of years of implementation</b>	A timeframe of around 24 months is expected to be necessary to achieve implementation at EU level.  For EU countries, depending on the needs and outcomes expected.
<b>Target groups, sector</b>	Automotive sector, for all the economic operators involved in the activities on the value chain ( assembly & components, repair & maintenance, recycling)
<b>Summary/Annotation</b>	The main objective is to set up a dialogue framework (EU and national level) that would enable the centralization of the economic operator`s necessities and requirements in terms of competences and job roles that need to become occupational standards and recognized as such in order for the educational institutions to roll out training programs adapted to the market needs.
<b>Implementation and activities</b>	The implementation faces 2 major challenges:  First, it`s to create the European Agency for Qualification. The Agency should work similar as the European Committee for Standardization (technical working groups, with the input from the business environment)  The second one is to coagulate involve the representatives of the economic operators to get involved in an active manner.  The third challenge, but only in terms of chronology, is getting the authorities to pay attention and work in a sustained manner to implement the proposals issued by the business representatives.

<b>Example outcomes</b>	The envisaged outcomes concern the establishment of an effective communication platform / mechanism between economic operators, Upon meeting this objective, a quick and effective cooperation tool with the authorities would have to be put in place
<b>Pros and cons, recommendations</b>	<p>Pros:</p> <ol style="list-style-type: none"> <li>1. The operators` voice may be heard easily by authorities when they issue their position.</li> <li>2. The force of the action will have better odds to succeed.</li> </ol> <p>Cons.</p> <p>1 Fear of competition related issues may impair the will of certain operators to congregate is such formula..</p>
<b>How it may be replicated / applied?</b>	<p>ASA connected (or better, to be transformed in) with the European Agency for Qualifications.</p> <p>National Agencies for qualification, connected to ASA.</p> <p>Establishing Working groups at European and National level connecting the stakeholders with national agencies through joint agreements on list of skills in automotive.</p>
<b>Collaboration format</b>	
<b>Financial support</b>	
<b>Links, references</b>	

**Process Model**

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.

General Platform of cooperation

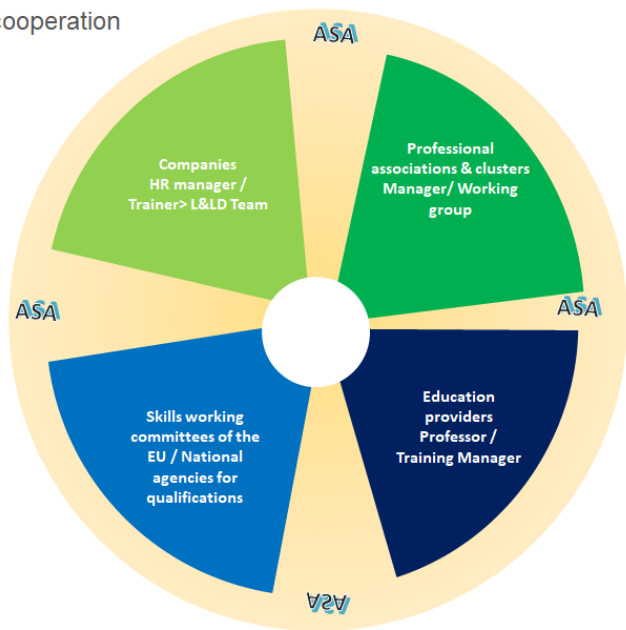


FIGURE 20 ITC IDEA FOR AN EU COOPERATION MODEL

ASA Facilitator / Guidelines Provider	<u>Description:</u> guides ASA WGs that play a crucial role in ensuring effective communication, collaboration, and problem-solving within the group. ASA creates a supportive environment that maximizes the WGs' collective intelligence, enabling them to achieve their goals effectively.
Companies HR manager / Trainer > L&LD Team	<u>Description:</u> plays a pivotal role in managing the organization's human resources functions, ensuring compliance with regulations, promoting a positive work environment, and supporting the growth and development of employees.
Professional associations & clusters Manager/ Working group	<u>Description:</u> plays a vital role in ensuring the success and impact of the group's activities. They provide leadership, facilitate collaboration, manage resources, and communicate effectively to advance the objectives of the group and contribute to the overall goals of the organization
Education providers Professor / Training Manager	<u>Description:</u> Both Education Provider Professors and Training Managers facilitate learning and development, but their specific responsibilities differ based on their respective environments—academic institutions for professors and organizational settings for training managers.
Working committees of the EU / National agencies for qualifications	<u>Description:</u> Their role involves managing and coordinating the activities related to the development, implementation, and quality assurance of qualifications within the national framework.

FIGURE 21 ITC IDEA FOR AN EU COOPERATION MODEL - ROLES

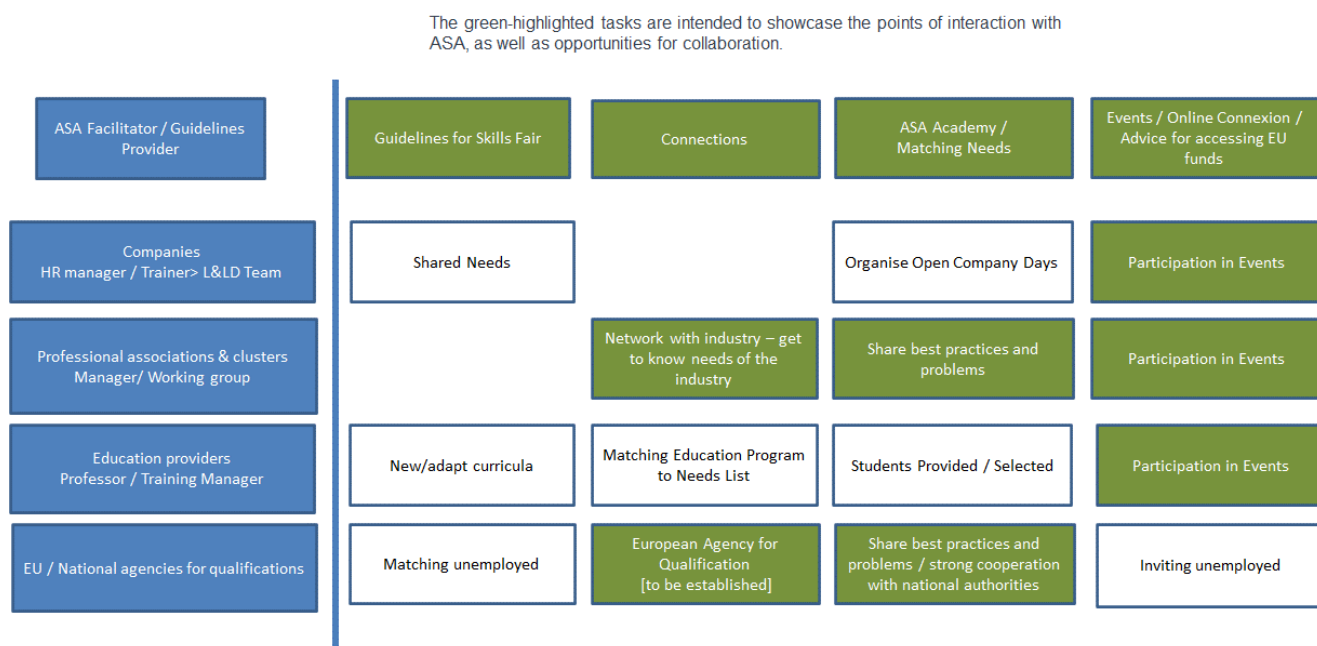


FIGURE 22 ITC IDEA FOR AN EU COOPERATION MODEL – WORK PRODUCTS PER ROLES

The green-highlighted tasks are intended to showcase the points of interaction with ASA, as well as opportunities for collaboration.

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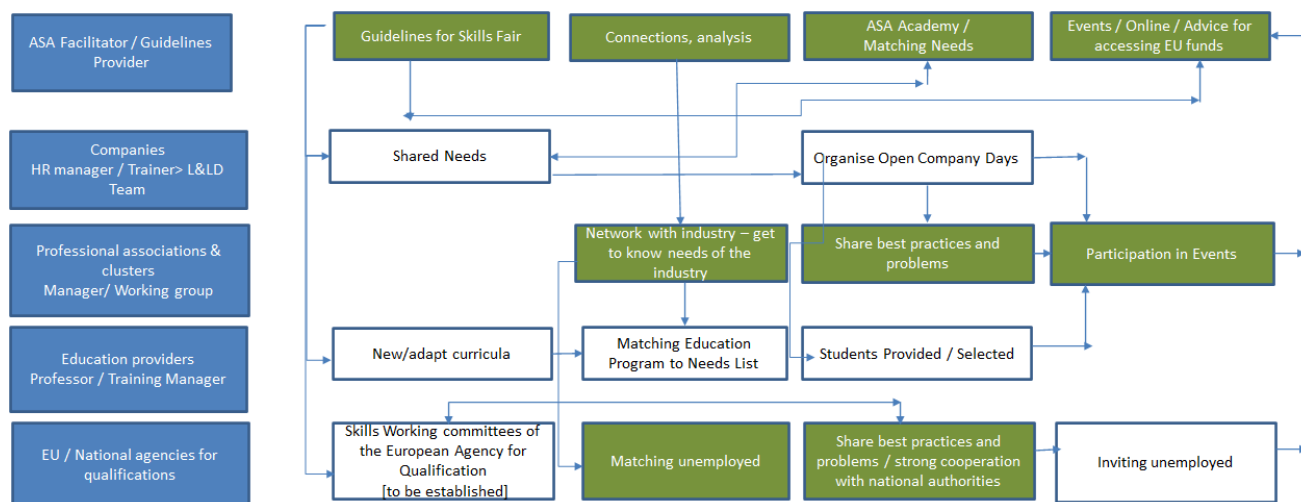


FIGURE 23 ITC IDEA FOR AN EU COOPERATION MODEL – WORK FLOWS



### 3.2.9. On-the-job reskilling using third parties

Contributing partner: Olife

Author(s): Josef Tichanek (Olife Corporation)

Type: On the job reskilling/training

Type of Cooperation proposed: On-the-job reskilling using third parties Hybrid approach (online and in-person workshops, real project based learning).

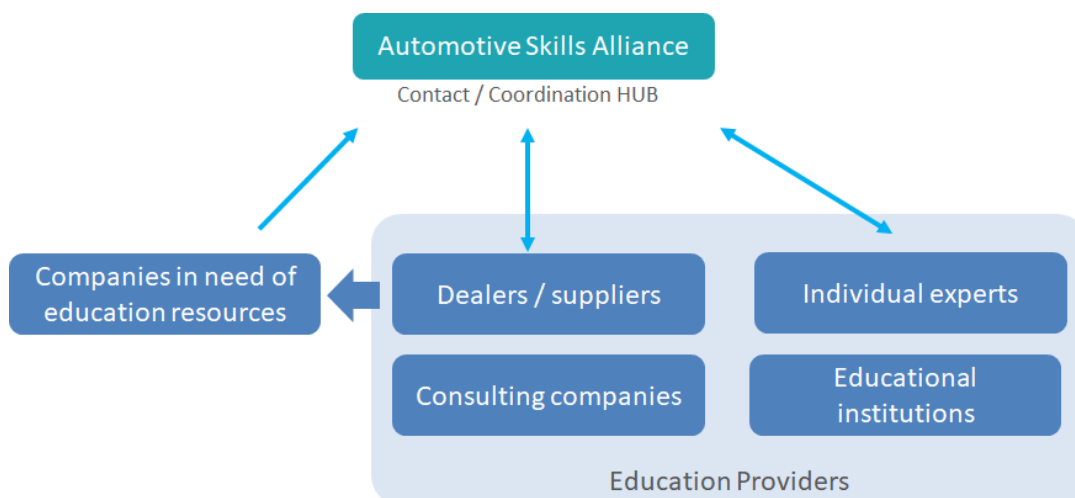
#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	On-the-job reskilling using third parties Hybrid approach (online and in-person workshops, real project based learning)
Participating organisation/s	Olife, ISCN, Scoveco, Altertek, Bertrandt, AkuEnergy
Country – geographical scope	Czech Republic
Number of years of implementation	2 y
Target groups, sector	<ul style="list-style-type: none"> <li>Employees of Olife, Lithium batteries development and Functional safety.</li> <li>Automotive sector – Repair and Maintenance</li> </ul>
Summary/Annotation	<ul style="list-style-type: none"> <li>Olife used external experts and suppliers to gain necessary knowledge about construction of lithium batteries and used their supervision during the development.</li> <li>Olife was facing lack of expertise in the field of Lithium battery development in several areas. It was almost impossible to attract full time experts because during the research and development different expertise was needed only for certain stage of development (several months)</li> </ul>
Implementation and activities	<ul style="list-style-type: none"> <li>Project Workshops</li> <li>Online learning</li> <li>Practical workshop at the supplier - battery assembly</li> </ul>
Example outcomes	<ul style="list-style-type: none"> <li>Olife successfully completed the battery and gained necessary knowledge and work experience in very reasonable time</li> <li>Completed lithium battery based on Olife's requirements stemming from Functional safety risk analysis</li> </ul>

	<ul style="list-style-type: none"> <li>Created relevant work products related to Functional safety</li> </ul>
<b>Pros and cons, recommendations</b>	<p>Pros</p> <ul style="list-style-type: none"> <li>Very flexible solution – availability only for the necessary time</li> <li>Scope flexibility</li> <li>Financially achievable / modular / scalable</li> <li>Time saving</li> <li>Personalised approach on real-life project</li> <li>Gained knowledge for the employees</li> <li>Network creation</li> <li>This model is expandable and easily adoptable by other entities</li> </ul> <p>Cons</p> <ul style="list-style-type: none"> <li>Difficulty to find the right partner</li> <li>Uncertainty whether selected partner will be the right choice</li> <li>Even though this was the most economic solution some parts still may get quite expensive.</li> </ul>
<b>How it may be replicated / applied?</b>	<ul style="list-style-type: none"> <li>Many companies large and small are facing lack of educational resources.</li> <li>Olife faced the same situation and had to look for third party education</li> <li>Such situation can be solved by European level Pact for skills entity e.g. ASA, to keep track of experts in given industry and form a specialist boards or groups, which could connect the companies that need an teaching expert in specific area</li> <li>The experts can be retired executives, retired experts, consultants, University teachers current or retired, suppliers</li> <li>The Pact for skills may actively seek specific experts using its network and match them with the companies who turn to the Pact for skills for help.</li> <li>Geographic distances can be mitigated by online learning. In case practical part is necessary workshops or internships can be arranged as necessary.</li> <li>Some educational resources can be shared to facilitate cost reduction</li> </ul>
<b>Collaboration format</b>	<ul style="list-style-type: none"> <li>Online learning, consultations – contractors and suppliers.</li> <li>In person consultations and workshops,</li> <li>practical workshops at suppliers and dealers</li> </ul>
<b>Financial support</b>	Olife / Horizon 2020
<b>Links, references</b>	<a href="http://olifebattery.com/batteries/">http://olifebattery.com/batteries/</a>

### Process Model

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.



**FIGURE 24 ON-THE-JOB RESKILLING USING THIRD PARTIES – CONCEPT / ADDED-VALUE**

### Roles Definition

ASA – facilitator / guidelines provider	Function as a coordination point, facilitates connection, collects data and requirements, matches it the needs of the industry, also matches trainings and students, through panel of experts helps to assess the curriculum, provides micro credentials and certifications. Organises events. Disseminates information.
Industry	Provides employment opportunities, experts, training facilities, data/information on skills requirements, curriculum requirements, participates in the events.
Entrepreneurs	Provide employment opportunities
Educational institutions	Provide education and curriculum, experts, facilities, participates in the events
Consulting companies / education providers	Provide experts, trainings, participate in the events.
Dealers / suppliers	Provide specialised training, experts, facilities and devices
Individual experts	Provide additional training capacity if necessary, they can be retired employees of the company or they may provide expertise for evaluation of curriculum, certification or educational strategy (former executives), they can be members of panel of experts.
Recruitment agencies	Provide open job positions, job requirements, information on the demand trends.
Employment agencies	Provide open job positions, data of the unemployment trends or other employment related issues. Identification of hard-to-employ groups and hard to fill positions, the provide matching of individuals to those vacancies.
Regions / municipalities	Provide financing, strategy and priority information, regional infrastructure and relevant stakeholders.

**FIGURE 25 ON-THE-JOB RESKILLING USING THIRD PARTIES – ROLES**

### Analysis and Study on the Common Collaboration Goals, Needs, and Requirements / D2.3

ASA – facilitator / guidelines provider	Connections	Organizing exchange of information	Data evaluation / guidelines	Events / online	Matching needs and offer
Industry	Job vacancies / training	Experts availability	Job skills and qualification requirements	Open days, job fairs	provision of Internship, facilities and jobs
Entrepreneurs	Job vacancies				
Educational institutions	Provision of training	Experts availability	Curriculum, education capacity,	Participation in the events	Students, teachers, facilities, curriculum
Consulting companies / education providers	Provision of training		Study course curriculum	Participation in the events	Study course curriculum
Dealers / suppliers	Provision of highly specialized training	Experts availability - training and evaluation	Program curriculum	Participation in the events	Experts, facilities, devices
individual experts	Provision of training				Matching needs and expertise
Recruitment agencies	Available positions	Job requirements			Matching positions with employees
Employment agency	Available positions	Unemployment data			Matching unemployed
Regions / municipalities	Relevant stakeholders	Financing, regional employment priorities information, workforce	Meeting infrastructure needs		

**FIGURE 26 ON-THE-JOB RESKILLING USING THIRD PARTIES – WORK PRODUCTS PER ROLE**

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**FIGURE 27 ON-THE-JOB RESKILLING USING THIRD PARTIES – WORK FLOWS**

### 3.2.10. SOQRATES – State of the Art Exchange for Dissemination of Key Knowledge

Contributing partner: ISCN, TUG, and EuroSPI

Author(s): Dr Richard Messnarz (ISCN), MA Laura Aschbacher (EuroSPI), Dr Geotrg Macher, Dr Omar Veledar (TU Graz)

Type: Connecting ASA with task Forces on Key Skills in SOQRATES (Innovation Task Force group of leading Tier 1 and OEMs)

Type of Cooperation proposed: Exchange of state of the art and key knowledge in job roles

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

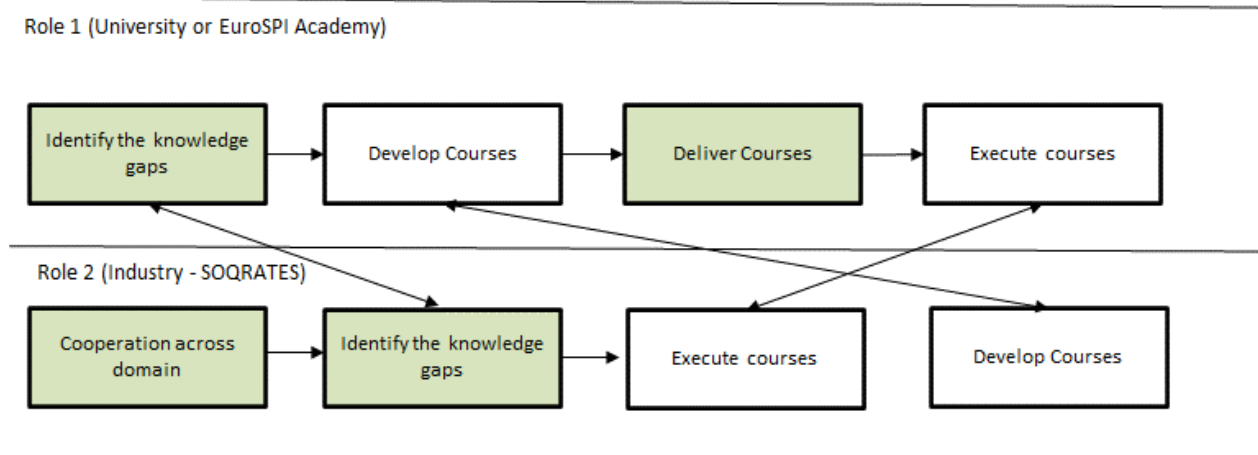
Field	Description
Name of the collaboration approach	Platform for dissemination of state of the art, key skills, courses to bridge knowledge gaps and enhance cooperation in the supply chain
Participating organisation/s	SOQRATES Partners University Industrial companies (OEMs, consulting, TierX) standardization organisation Regulators Think tanks Non profit organisations
Country – geographical scope	EU
Number of years of implementation	20
Target groups, sector	Automotive (OEMs, consulting, TierX) Experts from other fields SOQRATES is a working party of Automotive suppliers ( <a href="https://soqrates.eurospi.net">https://soqrates.eurospi.net</a> ) who exchanges knowledge about state of the art since 20 years. This includes: ZF, BOSCH, MAGNA, Elektrobit, HELLA, Continental Automotive, ISCN, ZKW, AVL, KTM, TU Graz, BOSCH Engineering, TDK/EPCOS, msg Plaut, Grenoble INP & ISCN, Austrian Institute of Technology AIT, Process Fellows, Infineon, Cariad/Volkswagen, Electric Mobile Car Makers, etc.

<b>Summary/Annotation</b>	Brain storming R&D Cooperation between industry and universities (e.g, trying / investigating new technologies) Collection of state of art and state of science Training courses as outcome Consulting services from universities to industry Assessing needs; supporting by understanding the needs Stakeholder identification and engagement Exchange program similar to ERASMUS – already existing Standardization Benchmarking / cross domain exchange and cooperation Cross country market approach and entry Acceleration and incubation Thinking on impact on society Bridging the gap between application and new upcoming technologies
<b>Implementation and activities</b>	Providing areas of information exchange -> platform for basic and advanced courses Facilitate cooperation of competitors Setting rules for cooperation Give everyone the same voice Develop the courses Cooperate to identify the gaps Develop the courses together with ASA Execute the courses together with ASA
<b>Example outcomes</b>	Courses offered to all through a platform Identified knowledge gaps Building trust Damage limitation across industries Minimum standard adhered by all Identification of new skill
<b>Pros and cons, recommendations</b>	Cons IP Compliance Pros

	Cooperate across the board Nobody is left alone
How it may be replicated / applied?	Workshops Course delivery (platform, face to face) Joined skills definitions between SOQRATES and ASA
Collaboration format	Virtual platform using eurospi.net
Financial support	Public funded projects Joined projects Membership fees
Links, references	DIRVES, Flamenco, ASA

### Process Model

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.



**FIGURE 28 SOQRATES – STATE OF THE ART EXCHANGE FOR DISSEMINATION OF KEY KNOWLEDGE – WORK FLOWS**



**3.2.11. Trainings and Innovation Labs - Hackathon**

Contributing partner: Transylvania IT Cluster

Author(s): Anisie Lorena (Transylvania IT Cluster)

Type: Hackathons 'Innovation Labs'

Type of Cooperation proposed: Exchange of state of the art and key knowledge in job roles

**Description Elements of a Case Study (agreed among all partners to be analysed and completed)**

Field	Description
Name of the collaboration approach	Online or onsite trainings on the identified subjects needed Hackathons 'Innovation Labs'
Participating organisation/s	Transylvania IT Cluster, professional trainers Tech companies Business Angels
Country – geographical scope	Romania
Number of years of implementation	1 y
Target groups, sector	<ul style="list-style-type: none"> <li>Employees of Transylvania IT Cluster, trainers on contract base</li> <li>Students, Startup owners</li> <li>Automotive sector, tech sector</li> </ul>
Summary/Annotation	<ul style="list-style-type: none"> <li>Transylvania IT Cluster used external expert trainers to provide training tech courses for companies employees in the non tech sector</li> <li>Transylvania IT Cluster organized idea based hackathons named Innovation Labs</li> </ul>
Implementation and activities	<ul style="list-style-type: none"> <li>Online learning</li> <li>Practical workshops</li> </ul>
Example outcomes	<ul style="list-style-type: none"> <li>Over 100 employees trained</li> <li>Over 100 participants at the hackathons in Innovation Labs</li> </ul>

Pros and cons, recommendations	<p>Pros</p> <ul style="list-style-type: none"> <li>• Trained employees</li> <li>• Network creation</li> <li>• New solutions emerged</li> </ul> <p>Cons</p> <ul style="list-style-type: none"> <li>• Finding the appropriate trainer</li> <li>• Manage all the people involved</li> </ul>
How it may be replicated / applied?	<ul style="list-style-type: none"> <li>• The companies have identified or will identify the necessity of trainings from their employees</li> <li>• The hackathons are organized by organisations and public universities and companies</li> </ul>
Collaboration format	<ul style="list-style-type: none"> <li>• Online or onsite trainings</li> <li>• Practical idea testing / pitching/</li> </ul>
Financial support	Operational Programme/ Erasmus / Norwegian Fundings
Links, references	<a href="https://www.innovationlabs.ro/">https://www.innovationlabs.ro/</a>
Concept / Added-value	<p>These projects will bring added value to multiple stakeholders:</p> <p>Employees</p> <p>Employers</p> <p>Trainers</p> <p>Startups</p> <p>Universities</p>
Who is doing what?	Description
Companies	Identify the needs of training
Transilvania IT Cluster	<p>Provide the trainings</p> <p>Organize Hackathons</p>

### Process Model

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.

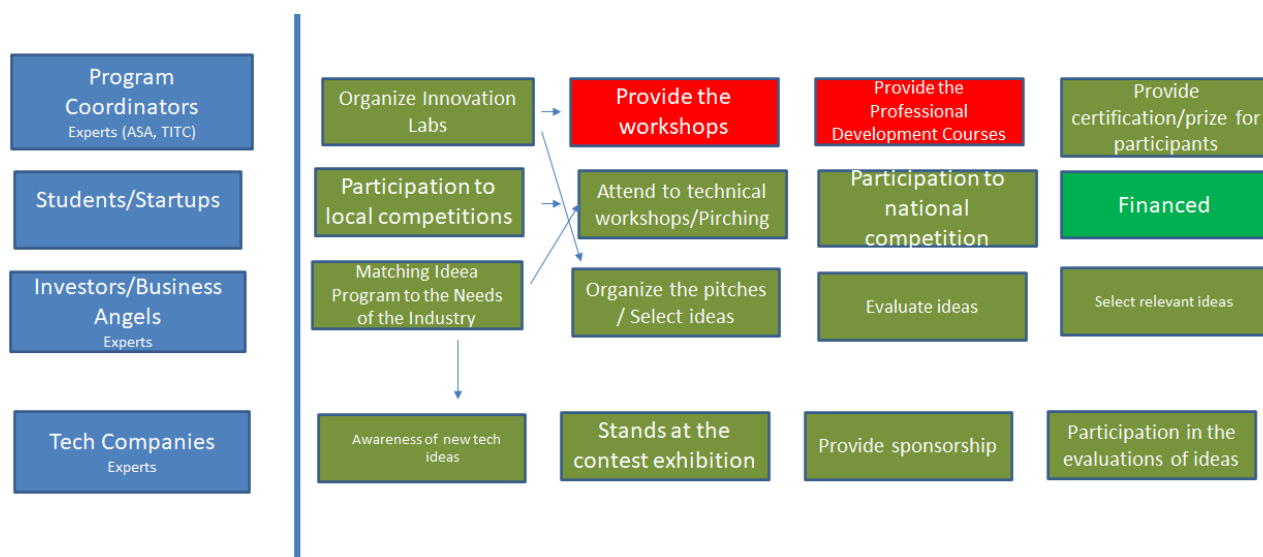


FIGURE 29 TRAININGS AND INNOVATION LABS - HACKATHON – ROLES / WORK PRODUCTS / FLOWS

CLUJ WORKSHOPS						
Week	Day	Date	Hour	Subject	Speaker	Location
W0	weekend	25-26 Mar	Hackathon	<i>The Innovation Labs Hackathon in Cluj</i>	-	
	Tuesday	28 Mar	19:00 - 21:00	Creating Value	Andrei Pitis	Online <a href="https://us02web.zoom.us/j/82375578803?pwd=dWx5M3FCaVNyWFFEQmZBVHZsQIM5QT09">https://us02web.zoom.us/j/82375578803?pwd=dWx5M3FCaVNyWFFEQmZBVHZsQIM5QT09</a>
	Thursday	30 Mar	17:00 - 22:00	Networking & Social Night by Transilvania IT Cluster & ABC Incubator	-	ABC Incubator, etaj 5
W1	Saturday	1 Apr	15:00 - 16:30	On-boarding & program structure	Oana Durcau	Online
			19:00 - 20:00	Innovation in brick&mortar	Nicolae Drimbu, Director of Innovation at Carrefour România	
	Tuesday	4 Apr	20:00 - 21:00	Lean Start-up	Vladimir Oane, Co-Founder at Deepstash	Online
	Wednesday	5 Apr	18:00 - 20:00	In depth market research	Catalin Briciu	sediul Linnify
W2						
			19:00 - 20:00	Early days of UiPath - as a Product company	Invited Speaker from UiPath	
	Tuesday	11 Apr	20:00 - 21:00	TBD (maybe Building Global Startups ?)	Diana Olar	Online
W3						

FIGURE 30 TRAININGS AND INNOVATION LABS - HACKATHON – EXAMPLE WORKSHOP SCHEDULE

**3.2.12. University LifeLongLearning Concepts – example: TUGraz LifeLongLearning**

Contributing partner: Graz University of Technology

Author(s): Georg MACHER &amp; Omar VELEDAR (TU Graz)

Type: LifeLongLearning (LLL) Concepts

Type of Cooperation proposed: University – Industry Training Partnerships

**Description Elements of a Case Study (agreed among all partners to be analysed and completed)**

Field	Description
Name of the collaboration approach	University Life Long Learning Collaboration
Participating organisation/s	University and their Continuous Learning or Life Long Learning offers for industrial training/VET/
Country – geographical scope	European Universities with local outreach Example: TU Graz Life Long Learning
Number of years of implementation	Since 2005
Target groups, sector	<ul style="list-style-type: none"> <li>Industry experts and alumni of student programs</li> </ul>
Summary/Annotation	Opening & extending the training portfolio for other domains, wider outreach, and mutual exchange of certification concepts, micro skills and MooCs
Implementation and activities	<ul style="list-style-type: none"> <li>Mutual acknowledgement and exchange of information</li> <li>Promotion and dissemination of training courses and collaborations</li> </ul>
Example outcomes	<ul style="list-style-type: none"> <li>Mutual dissemination and acknowledgement in partner networks</li> <li>Establishment of skill certificates &amp; credit transfers</li> <li>Mutual inclusion and access to MooC and micro skills</li> </ul>
Pros and cons, recommendations	Pro: <ul style="list-style-type: none"> <li>Extension towards wider customer outreach</li> <li>Better coverage of industrial needs</li> <li>Better outreach to expert symposium/ conferences</li> <li>Better focusing on specific of the automotive domain</li> </ul>

	<ul style="list-style-type: none"> <li>Common funding project activities</li> </ul> Con: <ul style="list-style-type: none"> <li>Increased Cooperation complexity with alignment of different systems</li> </ul>
How it may be replicated / applied?	Interfaces highlighted in the process model
Collaboration format	<ul style="list-style-type: none"> <li>University training offers &amp; promotion via ASA</li> <li>EU level support for mutual cooperation projects on ASA domain</li> <li>Acceptance of established micro-skill certificates -&gt; better platform effect</li> </ul>
Financial support	University institute, funded by university
Links, references	<a href="https://lifelonglearning.tugraz.at/">https://lifelonglearning.tugraz.at/</a>

### Process Model

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.

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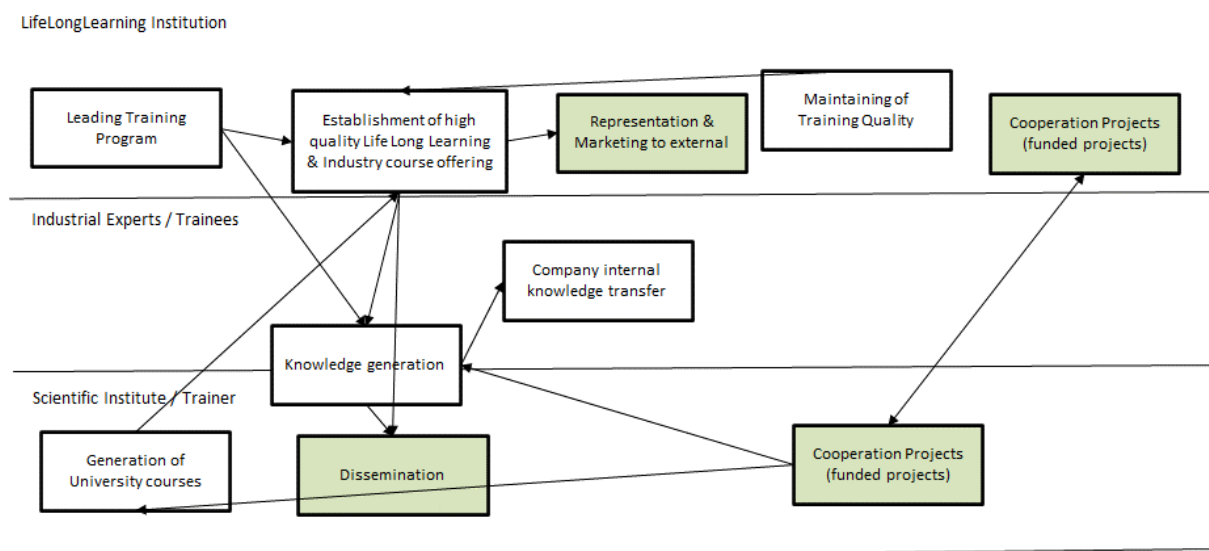


FIGURE 31 LIFElongLEARNING – ROLES – TASKS - WORKFLOW

### 3.2.13. VSB TUO - Measures for the full application of an electronic recognition of study mobility credits

Contributing partner: VSB TUO

Author(s): Jakub Stolf, Marek Spanyol (TU Ostrava)

Type: Mobility of students

Type of Cooperation proposed: University – University partnerships

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	Measures for the full application of tools for the electronic exchange of study information, electronic identification and the electronic recognition of study mobility credit
Participating organisation/s	VŠB – Technická univerzita Ostrava
Country – geographical scope	Czech Universities in the whole country
Number of years of implementation	2022
Target groups, sector	Centralized Development Program for Public Universities for 2022
Summary/Annotation	<ol style="list-style-type: none"> <li>1. Continued implementation of the EWP according to the EC timetable through the cooperation of the schools involved.</li> <li>2. Promote and support the use of the implemented EWP.</li> <li>3. To present an ideally unified position and approach with regard to the issues of the connection to EduGAIN (and related procedural solutions), the introduction of the European Student Card and the Erasmus App+ of the House of International Cooperation, respectively.</li> </ol>
Implementation and activities	<ol style="list-style-type: none"> <li>1. Adherence to the EC timetable for further implementation of individual EWP functionalities into the EDISON information system by sharing examples of good and bad practice, mutual support during implementation.</li> </ol>

	<p>2. Active participation in the communication platform of IT staff of the participating HEIs.</p> <p>3. Active participation in the communication platform of the Vice-Chancellors of the participating HEIs.</p> <p>4. Active participation in the communication platform of the staff of the foreign offices of the participating HEIs.</p> <p>5. Training of new EWP functionalities in IS EDISON - intensive training of faculty coordinators, staff of the International Relations Department and possibly study officers.</p> <p>6. Documents describing the position and status of the connection to EduGAIN and follow-up platforms, the implementation of Erasmus App+ and the possibilities of deploying the European Student Card.</p> <p>7. Participation in joint workshops for all platforms involved.</p>
<b>Example outcomes</b>	<p>Thanks to joint efforts, communication and sharing of good practice, the schools involved managed to progress in line with the timeframe set by the European Commission for the implementation of the EWP. Based on the European Commission's timetable, it has been decided that by the end of 2022 the EWP network connection must be ready within the Learning Agreement (LA), Inter-Institutional Agreements (IIA) and Factsheet interfaces. All these connections have been successfully completed. The implementation of new modules varies across the systems of the schools involved and their capabilities and is always detailed specified in the sub-sections of the schools involved.</p>
<b>Pros and cons, recommendations</b>	<p>The cooperation of universities to solve the issue of EWP implementation was evaluated by the participants as very beneficial, and for the year 2022 a request was submitted to the Ministry of Education and Culture for a follow-up project, which will be expanded to include activities in the context of the European Student Card Initiative.</p> <p>The project solution is linked to one of the main priorities of the new Erasmus+ program for the years 2021-27, which is digitization. Part of this priority is also the Erasmus Without Paper (EWP) initiative, within the framework of which mobilities are to be realized without paper, i.e. digitally.</p> <p>In order to ensure the fulfilment of this priority, the settings of the internal information systems that serve to transmit information about incoming and outgoing students must be adjusted at universities in the Czech Republic and abroad.</p> <p>The project had two main goals, namely to identify and characterize the state of preparation for the implementation of the EWP and the implementation of the EWP itself in accordance with the time frame set by the European Commission. Both stated goals were achieved by fulfilling the outputs.</p>
<b>How it may be replicated / applied?</b>	<p>Another set of cooperation models and agreements with similar goals to fulfil the needs in digitalization of documentation within the Learning Agreement (LA), Inter-Institutional Agreements (IIA) and Factsheet interfaces.</p>
<b>Collaboration format</b>	<p>Collaboration format between universities, students and European Commission.</p>

<b>Financial support</b>	500.000 CZK for Y2022
<b>Links, references</b>	<a href="https://www.vsb.cz/cs/detail-novinky/?reportId=42881&amp;linkBack=%2Fcs%2Fo-univerzite%2Fnovinky%2Faktuality%2Findex.html">https://www.vsb.cz/cs/detail-novinky/?reportId=42881&amp;linkBack=%2Fcs%2Fo-univerzite%2Fnovinky%2Faktuality%2Findex.html</a>  <a href="https://webeditor.vsb.cz/share/uploadedfiles/projekty/2021/centralizovane/ZZ_C32-2021_CRP_VSB-TUO_Implementace%20iniciativy%20Evropsk%C3%A9%20komise%20Erasmus%20without%20Paper%20na%20VV%C5%A0.pdf">https://webeditor.vsb.cz/share/uploadedfiles/projekty/2021/centralizovane/ZZ_C32-2021_CRP_VSB-TUO_Implementace%20iniciativy%20Evropsk%C3%A9%20komise%20Erasmus%20without%20Paper%20na%20VV%C5%A0.pdf</a>



### 3.2.14. EuroSPI – Certification Model

Contributing partner: EuroSPI

Author(s): Laura Aschbacher, Tobias Danmayr/Zehetner (EuroSPI), supported by Dr Richard Messnarz, Damjan Ekert (ISCN)

Type: Europe wide certification based on job role certificates

Type of Cooperation proposed: Exam and certification

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	EuroSPI Certification Model
Participating organisations	EuroSPI runs an academy (academy.eurospi.net) and a certification system ( <a href="https://www.iscn.com/projects/exam_portal/index_asa.php">https://www.iscn.com/projects/exam_portal/index_asa.php</a> ) in cooperation with SOQRATES (soqrates.eurospi.net)
Country – geographical scope	Certificates issued in Europe USA Japan South America Canada India
Number of years of implementation	EuroSPI Conference Series since 1994 EuroSPI Certificates since 2021 EuroSPI academy since 2020
Target groups, sector	Leading automotive industry Leading electronics industry Aerospace and Defence Universities who teach at master level integrating EuroSPI certificates into the master program (TU Graz, Grenoble INP, FH Düsseldorf, TU Ostrava etc.)
Summary/Annotation	SOQRATES is a working party of Automotive suppliers ( <a href="https://soqrates.eurospi.net">https://soqrates.eurospi.net</a> ) who exchanges knowledge about state of the art since 20 years. This includes: ZF, OSCH, MAGNA, Elektrobit, HELLA, Continental Automotive, ISCN, ZKW, AVL, KTM, TU Graz, BOSCH

	<p>Engineering, TDK/EPCOS, msg Plaut, Grenoble INP &amp; ISCN, Austrian Institute of Technology AIT, Process Fellows, Infineon, Cariad, etc.</p> <p>SOQRATES elaborates best practices in quality, safety, security engineering and self driving vehicle architectures and shares that among the members.</p> <p>EuroSPI is an organisation that runs an automotive academy and certificates in cooperation with SOQRATES and as a member of ASA.</p> <p>ISCN is since 2003 the moderator of the SOQRATES working groups. The work was kicked off by the Bavarian government in 2002 and became a Germany, Austria and Switzerland wide activity of leading automotive companies.</p>
<b>Implementation and activities</b>	<p>See the steps in the below workflow model. Green marked are the tasks which offer a cooperation interface with ASA.</p> <p>Role EuroSPI Management:</p> <p>Exams Organised</p> <p>Certificates Generated</p> <p>Role Training Company / Working Group:</p> <p>Develop exam questions and mandatory exercises</p> <p>Create Exam Import and Exercises for Skills Assessment</p> <p>Certificates Received and Distribution</p> <p>Role Lead industry companies:</p> <p>Industry supporting skills set certificate</p> <p>Share exam questions and mandatory exercises</p> <p>Industry Exams</p> <p>Certificates Received</p> <p>Role Lead researchers:</p> <p>Universities supporting skills set certificate</p> <p>Share exam questions and mandatory exercises</p> <p>Exams integrated to university</p> <p>Certificates Received</p>
<b>Example outcomes</b>	<p>Jointly defined test questions</p> <p>Jointly defined certification for recognising skills</p>
<b>Pros and cons, recommendations</b>	<p>Pro:</p> <p>EuroSPI certificates are recognised and already on the market for lead automotive industry. A joined approach is increasing visibility.</p> <p>Contra:</p> <p>ASA needs to assure that EuroSPI is only one of the certifiers and keeps a neutral position</p>

	ed EuroSPI – ASA certificates
<b>How it may be replicated?</b>	<p>ASA can use EuroSPI as a demo certifier and offer all certifiers Europe wide to work with ASA.</p> <p>The model is based on a greed skills sets to be certified.</p> <p>ASA can ask for a fee per certificate if ASA is used, commercial model to be elaborated. E.g. 5 Euro per certificate issued. And this across all certifiers in Europe.</p>
<b>Collaboration format</b>	<p>Using the defined skills sets templates elaborated in the previous project DRIVES.</p> <p>Using the defined exam questions templates elaborated in the previous project DRIVES.</p> <p>Linking ASA working groups to exam and skills development for the certificates.</p>
<b>Financial support</b>	<p>Use existing EU funds of FLAMENCO to establish such services.</p> <p>Use existing working groups to elaborate such services.</p> <p>Connect to certifiers like EuroSPI exam systems.</p>
<b>Links, references</b>	<p><a href="https://www.iscn.com/projects/exam_portal/index_asa.php">https://www.iscn.com/projects/exam_portal/index_asa.php</a></p> <p><a href="https://www.eurospi.net">https://www.eurospi.net</a></p>

## Process Model

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.

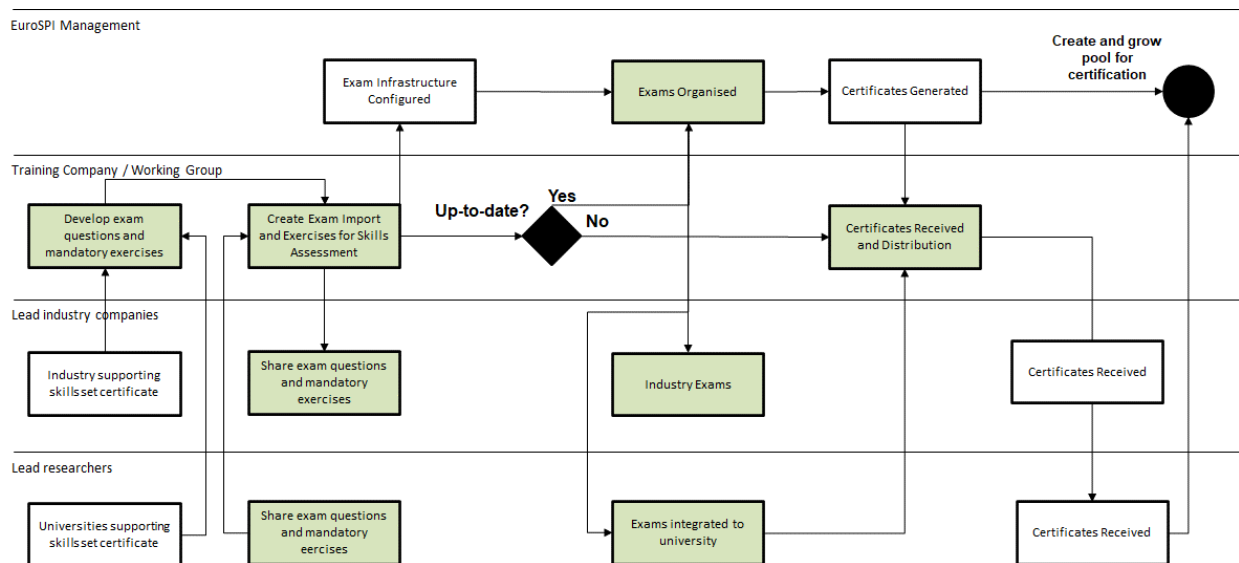


FIGURE 32 EUROSPI CERTIFICATION MODEL – ROLES – TASKS - WORKFLOW

### 3.2.15. MIH Mobility Innovation Hub Cooperation Model

Contributing partner: VSB TUO

Author(s): Adam Priečovský, VSB TUO

Type: Innovation Hub for E-Mobility

Type of Cooperation proposed: Innovation transfer and networking for e-mobility

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	MIH Mobility Innovation Hub
Participating organisations	CzechInvest, Automotive Industry Association, Skoda Digilab (now Skoda X), Valeo, Ministry of trade and industry, Autoklastr and others stakeholders.
Country – geographical scope	Czech Republic
Number of years of implementation	<p>First draft has been on the table 2019, official start November 2022 in grand opening with Czech ministr of transport .</p> <p><b>The Mobility Innovation Hub (MIH)</b> was foormarly established by CzechInvest in 2021 in accordance with the objectives of the Innovation Strategy of the Czech Republic: The Country for the Future, with support from the government and the Automotive Industry Association. The Mobility Innovation Hub focuses on connecting key sectors and building the mobility innovation ecosystem.</p> <p>In addition to supporting startups, the purpose of the MIH is also to bring together established companies, scientific and research institutes, innovation centers, secondary schools and universities, sectoral associations and clusters, investors and Czech state and local authorities, as well as international organizations.</p> <p>Another part of the project is a <b>business incubator</b> that provides a broad range of services for startups, including financial support. The Mobility Innovation Hub is part of CzechInvest's Technology Incubation project. The project is planned to run for five years.</p>
Target groups, sector	Car transport Rail transport Shipping and river transport Agricultural technology Air transport Space technologies

<b>Summary/Annotation</b>	We are on the threshold of the mobility of the future. The automotive industry, drone delivery, rail and air transport, and logistics are promising sectors that are expected to undergo dynamic change in the coming years. At the same time, these sectors represent an opportunity for the Czech economy to stand alongside the most advanced countries that care about safe transport, emission-free cars, congestion-free cities and, primarily, healthier lives for their citizens.
<b>Implementation and activities</b>	<p>Active scouting of mobility projects</p> <ul style="list-style-type: none"> <li>• Innovation challenges</li> <li>• Social Networks</li> <li>• WO</li> <li>• Road show – secondary schools and universities</li> <li>• Ideathons, hackathons – see support for entrepreneurship (contribution, prizes, mentors)</li> <li>• Scholarships for selected universities and teams (from the MIH budget)</li> <li>• Bachelor's and Master's theses</li> <li>• Active transfer support (see example from ECO hub)</li> <li>• Cooperation with regional innovation ecosystems</li> <li>• Cooperation within the SME segment – AMSP, HK</li> <li>• For other activities, see system priorities</li> <li>• For other activities, see promoting entrepreneurship</li> </ul>
<b>Example outcomes</b>	<p>List of services: Analyses, studies</p> <ul style="list-style-type: none"> <li>• Active participation in building and managing the innovation ecosystem</li> <li>• Presentation of the partner in materials and at events</li> <li>• Participation in events</li> <li>• Consulting, mentoring</li> <li>• Innovation and incubation services</li> <li>• Scouting of innovative projects</li> <li>• Innovative products and services from the hub's portfolio</li> <li>• Training</li> <li>• Talent sourcing</li> <li>• Subsidy consultancy</li> <li>• Investment consultancy</li> </ul>
<b>Pros and cons, recommendations</b>	<p>Pros:</p> <p>The Mobility Innovation Hub is part of CzechInvest's Technology Incubation project which is planned to run for five years.</p> <p>The Mobility Innovation Hub and the incubation programme are focused especially, but not exclusively, on the following areas: automotive industry, aerospace industry, rail transport, intelligent transport systems (ITS), smart cities.</p>

	<p>The Mobility Innovation Hub helps governments develop innovative policies for better transport in the face of uncertainty and rapid change.</p> <p>Cons: lack of people in management, lot of work and low dedicated money, ministry wants that this hub have to survive on commercial service based model, which is very complicated from the beginning</p>
<b>How it may be replicated / applied?</b>	<p>Innovation hubs are designed to discover and support innovative startups and to help them in a variety of ways, such as competing in a new market, acquiring customers at lower costs, and improving internal processes etc.</p> <p>In czechinvest were identified 6 hubs: Mobility, Ecotech, AI, Space, Creative</p>
<b>Collaboration format</b>	See the process model below
<b>Field</b>	Description
<b>Financial support</b>	<p>MIH was established for five years with budget for supporting startups from the gov. money, for a sustainability of this hub MIH is creating member based fee for a OEM and major Tier1 companies which defining challenges and cooperates with a incubated startups. Right now every partnership on commercial way is complicated because hub is financed by government. We have to find a model how to combine private and government money in one table with a fair conditions.</p> <p>Now the hub is secured for five years, but as described MIH want to become sustainable and work with a private sector independently on government money.</p>
<b>Links, references</b>	<a href="https://www.mobility-hub.cz/?lang=en#/aboutus">https://www.mobility-hub.cz/?lang=en#/aboutus</a>

**Process Model**

The tasks are marked green if they show a potential interface of ASA involvement. The tasks in the model relate to the tasks described in the above table.

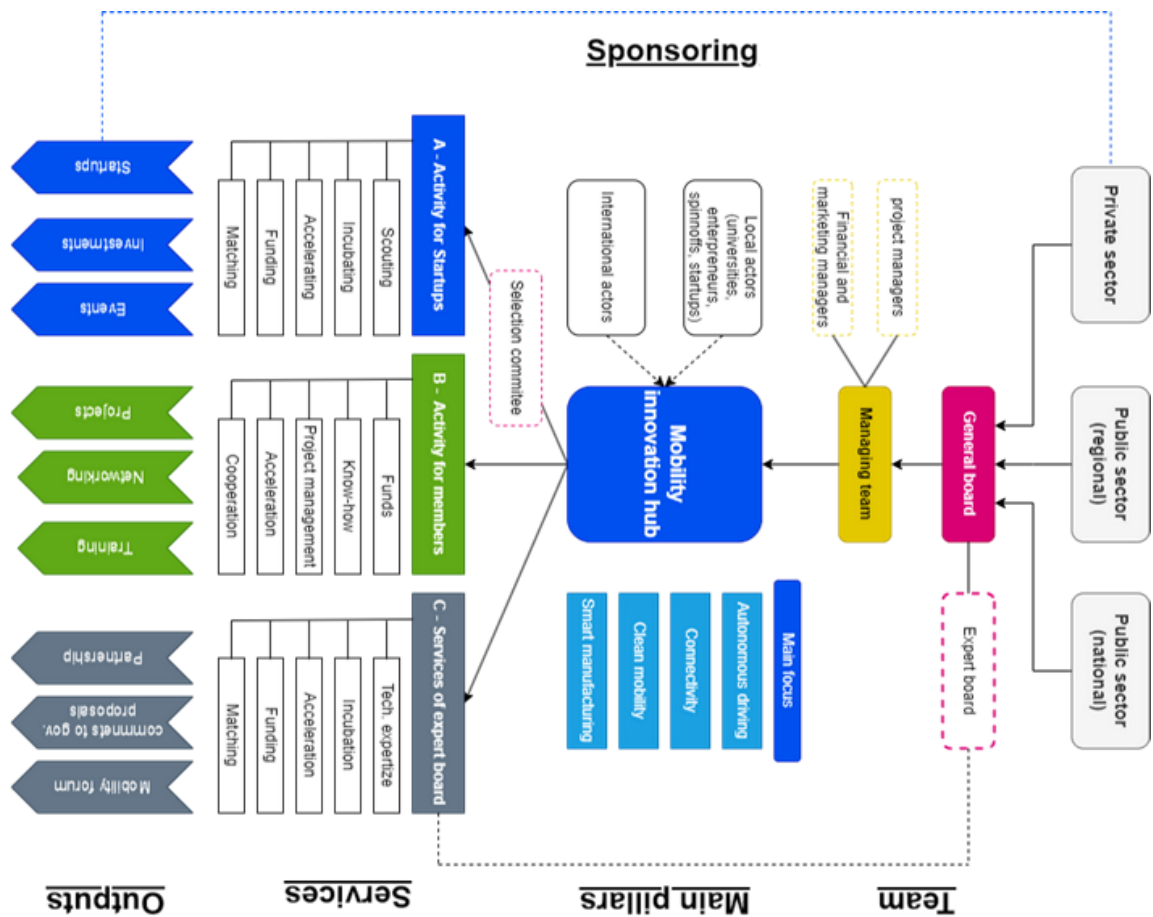


FIGURE 33 MOBILITY INNOVATION HUB MODEL – ROLES – TASKS - WORKFLOW

### 3.2.16. EACN (European Automotive Cluster Alliance) Cooperation Model

Contributing partner: VSB TUO

Author(s): Adam Priechodský, VSB TUO


Type: Innovation Hub for E-Mobility

Type of Cooperation proposed: Innovation transfer and networking for e-mobility

#### Description Elements of a Case Study (agreed among all partners to be analysed and completed)

Field	Description
Name of the collaboration approach	EACN (European Automotive Cluster Alliance)
Participating organisation/s	06/2023 Currently 26 <a href="https://www.eacn-initiative.eu/cluster-members/">https://www.eacn-initiative.eu/cluster-members/</a>
Country – geographical scope	EU + associated countries
Number of years of implementation	Started 2017 as a Cosme project, now is open to any relevant cluster
Target groups, sector	MTA ecosystem (Automotive, mobility, transport) clusters
Summary/Annotation	EACN represents more than 3.000 companies covering the whole value chain, R&D institutions, public authorities, and other institutions. All OEMs and main Tier-1 suppliers with plants in Europe are members in at least one of EACN's clusters.
Implementation and activities	<p>EACN collaborates in five working groups: Industry 4.0/Industrial modernisation; Supply Chain, Mobility, Skills &amp; Competences, and Clean, connected, and autonomous vehicles (CCAV).</p> <p>EACN Coffee breaks example of invitation to coffee break and agenda format:</p> <p>Please find here the invitation to this month's EACN Coffee Break on the topic:</p> <p>Green transition:</p> <p>How do you support your companies to become more sustainable?</p> <p>As usual, there is no formal registration necessary, if you want to participate, please use the following link: <a href="#">Click here to join the Coffee Break</a></p> <p>The agenda will be the following:</p>



	<p>Exchange of important information from clusters (for those who have some) (5 – 10 minutes)</p> <p>Brief introduction to the topic (&lt;5 minutes)</p> <p>Free exchange and discussion between participants (45')</p> <p>I hope to see many of you.</p> <p>Kind regards</p>
<b>Example outcomes</b>	<p>During the COVID EACN was mapping OEM shutdown across whole EU and bringing to all EACN members up to date informations.</p> <p>Every 2 months each EACN member contribute to a internal EACN Newsletetr.</p> <p>EACN bringing Press releases which can support decesion of policy makers.</p>
<b>Pros and cons, recommendations</b>	<p>At the begining the frequency of meeting was much higher then is today, but there is significat improvement that was established a elected board which has separated meetings.</p> <p>EACN strategy is under development and has discused as an outcome of face to face board meeting in Katowice.</p>
<b>How it may be replicated / applied?</b>	<p>In EU has been identified 14 industrial ecosystems, followed by pilot SMP call for Euroclusters. By supporting of ECCP each ecosystem could have an alliance like EACN which deepening cooperation across EU and associated countries like Ukraine. It is very welcomed by EU commision to integrate UA clusters and companies into EU funded projects and networks.</p> 
<b>Collaboration format</b>	<p>At least one per year face to face general assembly. Every partner sharing their top event, so each EACN member could attend a meet EACN partner across EU. Especialy on ECCP matchmaking events, like clusters meet regions or cluster conference. Every month is meeting called EACN coffee break, where major issues are discussed. Each WG has a leader and this leader is responsible to plan meetings. Each EACN partner could assign to any WG. The goal of each WG</p>

	and whole EACN network is to find projects partners and contribute to developing of EU policy which affected MTA ecosystem.
<b>Financial support</b>	<p>Currently each EACN member is paying 500€ yearly fee, which supports running of website and preparation of newsletter and moderating Working groups and Coffee breaks.</p> <p>This is important topic, each EU alliance or network has to consider that fee must be reasonable to every EU country. ( like 1000€ for Belgium entity and 1000€ for eastern EU entities has to be taken into account that sum of money invested in collaboration platform must bring some added value and could not be overpriced)</p> <p>Means that coordinating network is not primarily business, it is actually a lot of work and fee is not covering all expenses, but the mutual projects could bring money which could help to operate a network which covers whole EU.</p>
<b>Links, references</b>	<a href="https://www.eacn-initiative.eu/">https://www.eacn-initiative.eu/</a>