



Erasmus+

KA2: Cooperation for innovation and the exchange of good practices - Knowledge Alliances

Application Form

Call: EAC/A02/2019

Deadline: 26.02.2020 (17:00 CET, Brussels time)

Knowledge Alliances

DETAILED PROJECT DESCRIPTION

(To be attached to the eForm)

EN Version 2019

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PART 0. Project summary and involvement in previous relevant projects

0.1. Please provide a short summary of the main features and outputs of your project (*Recommended limit 2000 characters*) - *Please bear in mind that your short summary may be published on EC or/and EACEA websites and dissemination tools.*

Systematic Innovation Methodologies (SIM) are the basis of important cross-sectional skills not only in engineering and technical professions, but increasingly also for the middle management. Such skills have a significant influence on the cultural-technical development potential of companies.

The target of SIM are the 20% Pareto-hard innovation challenges arising from strong contradictory requirements. SIM are used successfully in large companies around the world (Samsung, Posco, Siemens, Schaeffler and others). Its anchoring in academic teaching and research as well as its application in SME in the EU area is still weak compared to Asian industrialized nations as South Korea, China, Japan.

This Knowledge Alliance **aims at**

1. **build up** a strong networking structure of already successful teaching and training SIM in HEI at different EU locations and in different forms of HEI (**focus A**),
2. **set up and develop** a consulting and participation structure for this training infrastructure by companies from

within the EU that are aware of the potential of SIM for their strategic development (**focus B**),

3. **organise interoperation** between these two networks, to get practical input for the development of corresponding curricula on the one hand and on the other hand, to offer challenging operational tasks for training and further development of the students,

4. **include experience** in inter-company training of selected Eastern European partners, which are particularly strongly acting in the Asian region,

5. **further expand** these networks with *additional partners*, and

6. **support other HEI's** in setting up appropriate training and further education offers.

The **overall focus of the project** is on strengthening the innovative power of EU companies by establishing and expanding corresponding structures of training and further education in close and sustainable cooperation with entrepreneurial structures and inter-industrial organisations as e.g. the Chambers of Commerce and Industry.

(1983 characters)

0.2. Involvement in previous relevant projects

If your proposal is based on the results of one or more previous projects/networks, please provide precise references to this/these project(s)/network(s) in the table below.

Please add tables as necessary.

| | | | |
|--|---------|-------------------------|--|
| Reference number | | | |
| Project / network dates (year started and completed) | | Programme or initiative | |
| Title of the project / network | | | |
| Coordinating organisation | | | |
| Website | http:// | | |
| Password / login if necessary for website | | | |
| Please summarise the project/network outcomes and describe (a) how the new proposal seeks to build on them and, (b) how ownership / copyright issues are to be dealt with (limit 500 characters) | | | |

PART I. Project relevance

I.1. Why has the consortium decided to undertake this project?

I.1.1 Please outline the purpose behind your project, clearly analysing the specific needs or problems/challenges, which the project intends to address. (Recommended limit 3000 characters)

The imparting of knowledge and skills in the field of Systematic Innovation Methodologies (SIM) has a growing importance as a cross-sectional qualification, not only in engineering and computer science studies, in order to develop the skill for systematic analysis of complex contradictory situations in everyday professional life and to develop innovative solutions. The core of SIM are the 20% Pareto-hard innovation challenges. Growing up from engineering approaches as TRIZ SIM are nowadays applied in different domains (requirements engineering, business planning, sustainability management, change management, technology forecasting, ...) and were further enhanced during the last 30 years in several directions.

The systematic dissemination of such methodologies already plays an important role in training in Asia (China, South Korea, Japan), for example in the framework of the MEOTM program (Tan 2017) of nationwide coordinated training of engineers in these methodologies in China. Such activities are coordinated worldwide by the international TRIZ organization MATRIZ and in Europe by ETRIA.

The preparation of our application has shown once more that European industrial companies do still insufficiently recognise the strategic importance of skills in that area, in particular for engineering and technical staff and in the middle management. Since such "investments in education" are equally difficult to represent in return-on-investment accounts, considerable efforts are required to make structural progress here. The need for corresponding engagements is more recognised at the level of comprehensive industrial organization structures (such as the Chambers of Commerce and Industry – CCI) – see (Heilbronn 2020) – rather than at the level of individual companies. At the corporate level, the need for action is also recognised more in large companies than in SMEs.

The proposed project aims to take the networking of these teaching and research activities at different European locations as well as its recognition and support by industrial companies to a new level. Our project addresses the existing deficits acting in the following directions:

- (1) Coordinate the activities in SIM teaching as cross-sectional skills in different HEI forms and at different HEI locations within Europe.
- (2) Start a concerted action to increase the recognition of both the needs and the potentials of SIM skilled personnel for the strategic development of industrial companies.
- (3) Join the efforts of (1) and (2) within a digitally backed SIM Semantic Social Network (SIM-SSN).
- (4) Boost the development, piloting, publishing and promotion of teaching concepts, offers and OER teaching materials using and enhancing modern digitally backed infrastructures.

References:

- Runhua Tan (2017). TRIZ, the development and dissemination in industries in China. Proceedings TRIZCON 2017.
- IHK Heilbronn (2020). Letter of Intent. <https://wumm-project.github.io/Erasmus/LOI-IHK-Heilbronn.pdf> (3025 characters)

I.1.2 Please explain how the project proposal fits into the objectives of the participating organisations and European policies in the fields of education and training. (Recommended limit 3000 characters)

The **full partners** are both HEI and industrial companies in which the strategic importance of SIM has already been recognised and structurally anchored. They **expect a significant boost** to their own activities through the strengthening of appropriate structures by leveraging synergies and consolidating overarching structures at European level, in particular **attracting additional partners** to the network.

A **special role** is played by the Leipzig University, where corresponding teaching structures are only just beginning to exist. The necessity of establishing appropriate structures results from the requirements of various disciplines – computer science (Gräbe), medical technology (Neumuth), environmental technology (Lautenschläger). The necessities are also seen in other HEIs in the region (Duale Hochschule Gera-Eisenach, Berufsakademie Sachsen), so that in Leipzig a larger goal of establishing a regional training structure involving various institutions is formulated. With the Mitteldeutsches Kompetenzzentrum (Central German Competence Centre) SIM, the structural foundation for these plans does already exist. Leipzig University plays a leading role in this regional development project. At the same time, this will create a best practice example for the development of regional SIM structures that goes beyond the framework of a Knowledge Alliance and can be used as a potential source of experience throughout Europe.

Concerning the **European policies in the fields of education and training** the project strongly relates to the aims

- stimulate entrepreneurship and entrepreneurial skills of higher education teaching staff and company staff;
 - facilitate the exchange, flow and co-creation of knowledge formulated in the Programme Guide (p. 133), and acts towards
 - developing entrepreneurial mind-set and skills in the three dimensions listed in the Programme Guide.
- (1878 characters)

1.1.3 Please explain how the expected results, outputs and outcomes will meet the identified needs. (Recommended limit 1500 characters)

Main output:

- (1) Digital map of European SIM offers with clear semantic RDF-descriptions based on a coordinated ontology of educational offers.
- (2) Establishment of a SIM-SSN with local nodes to accompany the further operational development of the SIM service structures as well as the networking of the SIM actors within and beyond the project partners.
- (3) Development, piloting, publishing and promotion of teaching concepts, offers and OER teaching materials using and enhancing modern digitally backed infrastructures.

Outcome:

An important role for the success of the project plays the category of *additional partners* both from HEI and industry

- (1) to use and disseminate the results of the project,
- (2) to generate additional input and
- (3) to focus on sustainability of the network beyond the end of the project starting from the first day.

This are core areas and key practices to advance the practical dissemination of SIM skills in Europe.

(986 characters)

1.2. Analysis of the subject area (current state of the art) and innovative character

Please explain how the needs analysis has been carried out. Please indicate what the project is offering that is new and different. Please also indicate what the main innovative elements of the method(s), result(s), approach(es), etc. are. (Recommended limit 3000 characters)

The **needs analysis** is based on a number of studies and analyses

- The survey (TFC 2018) where 9 authors (including full partners Livotov and Cavallucci) explain the situation of academic curricula in the area under consideration.
- The survey (TFC 2015) where 3 authors (including full partner Bušov) explain TRIZ teaching needs and experience at several technical universities in the Czech Republic since 1996 (Brno, Prague, Liberec, Pilsen, Ostrava, Zilina, Kosice). See also (Bušov 2019)
- The worldwide attention that SIM also receives in the management area, e.g., (Peace 2012), (WEF 2016).
- Recent talks with experts at the international conferences TRIZ Developer Summit (June 2019, Minsk), TRIZ-Fest (September 2019, Heilbronn), TRIZ Future (October 2019, Marrakesh).

The project focuses on building an infrastructure supported by **new digital and semantic tools** to further increase the visibility of the topic.

At the same time, this is an **essential innovative approach**, which is practically supported by concrete methodical approaches of innovative teaching (MOOCs, training according to the flipped classroom method, training with practical parts in simulation structures) as well as the SIM-SSN.

References:

- (TFC 2018) Sustainable Education in Inventive Problem Solving with TRIZ and Knowledge-Based Innovation at Universities. Proceedings of the 8th International TRIZ Future Conference, TFC 2018, Strasbourg, France.
- (TFC 2015) TRIZ already 35 years in the Czech Republic. Proceedings of the 8th International TRIZ Future Conference, TFC 2015, Strasbourg, France.
- Bohuslav Bušov (2019). Result of interviewing about 2000 students at BUT.
<https://wumm-project.github.io/Erasmus/Busov-20191218-Survey.pdf>
- Natalie Peace (2012). Why Most Brainstorming Sessions Are Useless. forbes.com, 2012-04-09.
- World Economic Forum (2016). The Future of Jobs. Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution. January 2016

(1994 characters)

I.3. Aims and objectives

I.3.1 Please define the specific aims and objectives of the project and how these will address the problems and challenges identified in sections I.1 and I.2. Also indicate how the project will contribute to achieve the objectives of the Knowledge Alliances action. (Recommended limit 3000 characters)

The **aims of the project** formulated in the Summary 0.1 require efforts in two basic directions.

Focus A. A first focus of the project is the establishment of a reliable structural and processual organization of the network of the participating HEI (full and additional partners) on a conceptual, content and organizational level supported by modern semantic technology.

Focus B. A second focus of the project is on raising the awareness of more EU companies of the potential of SIM for their strategic development, particularly those in the manufacturing sector, to win them to join the network of companies as additional partners, and to set up a strong cooperation with the HEI network in focus A.

Thus the project has **two main orientations**, a structural and a content related one.

Structurally, the two networks are to be established or further strengthened and interconnected building up the supporting digital infrastructure. In particular, this relates to aims and work of ETRIA, the European TRIZ organization, in whose foundation and development representatives of project partners (Cavallucci, Livotov, Brad) were and are significantly involved.

In **terms of content**, the main objectives of the project are

- (a) exchange, joint development and further elaboration of relevant teaching materials as Open Educational Resources,
- (b) development and expansion of online-based training structures based on existing case collections in the form of online courses and in transregional platforms,
- (c) close integration of student training with practical challenges in this area by establishing appropriate stable contacts with industrial companies and
- (d) establishment and expansion of academically anchored further education structures, through which this innovation potential can also be effective in the SME area.

The relation to the problems and challenges identified in sections I.1 and I.2 is obvious.

The project **supports the objective**

- Developing entrepreneurial mind-set and skills

of the Knowledge Alliances action in the three dimensions listed in the Programme Guide p. 133-34.

(1941 characters)

I.3.2 Please explain the contribution of higher education institutions to the project and how they will benefit from the project in the short and long term. (Recommended limit 1500 characters)

The HEI full partners (the special role of the University of Leipzig has already been explained in point 1.1.2) already bring extensive, but also differing experience in the field of SIM teaching, since different teaching strategies and concepts have to be used in the various HEI forms. The **short-term benefits** result from the intensive theoretical (WP 3) and practical (WP 4) exchange on concepts and teaching methods. The **long-term benefits** result from the gradual development of a common infrastructure of teaching and learning materials (especially good use case examples) as well as the shared use of learning platforms.

While among the full partners the mutual learning from each other is in the foreground, the **additional partners** to be acquired in the course of the project already have access to a partially developed infrastructure in which they can participate not only as users, but also as contributors.

(918 characters)

I.3.3 Please explain the contribution of enterprises to the project and how they will benefit from the project in the short and long term. Please refer to the nature/ field of their economic activity. (Recommended limit 1500 characters)

There are two types of business partners contributing to the project – industrial companies with intra company organized training of engineers in the targeted skills (Schaeffler, Arxia) and consulting companies (Jantschgi C&R, Target Invention) that organize inter company consultancy and trainings in order to cover the broadest possible range of industrial applications of these methodologies and to focus on the most important areas of application both in the practical application of such methodologies and in company training.

The enterprises will

- contribute in shaping the curricula,
- provide useful use cases
- and in the large run also provide practices and support in graduation in their companies.

Their benefits are:

- Premium access to graduates skilled in that area.
- Leading position in an ongoing process of shaping soft skills in human resources important for the future of companies at large.

A special role in this context play experts from partner countries with their extensive experience in the Asian market and profound knowledge of the TRIZ roots of today's more comprehensive SIM approaches, see point 7. Engaging these high-certified TRIZ experts with the project opens an additional perspective to the heterogeneous international developments in the field of SIM, in particular to the processes around the international TRIZ association MATRIZ.

(1367 characters)

I.4. European added value

Please describe the benefits of, and need for, European cooperation. Please also describe why the results cannot be achieved through cooperation at national, regional or local level. (Recommended limit 3000 characters)

The added value for the EU lies in the consolidation of training activities and capacities in the area of cross-sectional skills, which are becoming more and more important in an increasingly technological world. SIM encompasses skills

- in the field of modelling complex issues,
- in the field of analysing contradictory requirements (“the tea should be hot so that it tastes good, and at the same time cold so that you don't burn your fingers”),
- in the field of resolving contradictory requirements (not “lukewarm tea”, but the implementation of a separation principle – the invention of the tea glass with handle),

using established methodological principles and a wealth of experience from inventive activities in a systematic way.

To understand the European dimension, the motto *think globally, act locally* has to be applied. The *practical* establishment of such structures *must* take place at local level, as it is planned for the Leipzig region within the project. However, the analysis, consolidation and use of experience should definitely include the diversity of cultural, linguistic and political contexts in the European Economic Area. An essential principle of the SIM is the identification of unity in diversity in the course of analysis and the reconstruction of diversity from this unity in practical action.

(1289 characters)

PART II. Quality of the project design and implementation

II.1. Methodology

Please explain the strategy that will be adopted by the consortium to address the needs identified; also describe the methodology proposed for implementing the proposed Work Packages/activities and for achieving the expected objectives (including major milestones and contributors, how the different Work Packages and produced outputs will be inter-connected/articulated, measurable indicators, etc.). (Recommended limit 3000 characters)

Priority A of the project is the establishment of a reliable structural and processual organization of the network of the participating HEI (full and additional partners) on a conceptual, content and organizational level.

This is the content of the WP 1–4. WP 1 and 2 are concerned with the analysis of the current situation, that has to be structured and consolidated using RDF based semantic technologies as a first result. This data serves as basis for a decentralised open web infrastructure SIM-SSN that has to be designed as a second outcome of WP 2. This web infrastructure is easy extendible and serves as basis for a permanent vivid update process of the data as a core requirement for a sustainable and inventive digitally backed infrastructure for the project and beyond it.

The work is prepared by WP 1 in the pre-application phase, which will be mainly worked out until 11/2020 and discussed on the planning meeting P1. The deliverable of this WP 1 will be consolidated afterwards until P2. The continuation of this work and the further consolidation of the results from WP 1 is planned in WP 2.

WP 3 and 4 concentrate on curricular development and harmonisation and development, piloting, publishing and promotion of teaching concepts, offers and OER teaching materials. WP 3 is the **core activity for priority A**. Since focus points and methodology seriously differ from location to location, the main part of WP 4 is planned as *mobility activity* “teach the teacher” to train the partners in 6 training units at 6 different HEI locations by one of the partners as trainer according to the teaching methods used on that site.

Note the strong interplay with the dissemination package WP 7 for both setting up the SIM-SSN tools and the curricular development activities.

Priority B. The full partner companies participate with own tasks both in the qualification of teaching activities and materials in WP 3 and 4 (provision of use cases and internship opportunities) and in QA measures in WP 8 (assessment of concepts). WP 5 centers on establishing further contacts in the business world, with particular emphasis on best practice experiences and the design of contractual relationships between HEI and companies thus establishing **a dedicated subnetwork for companies** to address their specific issues.

As explained already in section 1.1.1 it has shown that, unlike in Asia, European industrial companies do still insufficiently recognise the strategic importance of skills in SIM, in particular for engineering and technical staff and in the middle management. The **core activity** of this part of the project is on raising the awareness of other EU companies, particularly those in the manufacturing sector, and to convince them to join the network as *additional partners*.

The project is designed in such a way that the full partners form the core of a network that is to be expanded in the course of the project by *additional partners* from both the HEI area and the area of industrial companies. These partners are both involved in the operational work and invited to the project meetings and milestones. Participation in these measures is to be secured by these additional partners by own resources, which means that the transition from project financing to self-financing of network activities starts already during the project period. This is an essential moment to ensure the sustainability of the network and its work beyond the end of the project.

Both networks meet in the evaluation process of the teaching activities within the Project Meetings that combine every 6 months a WP 4 activity with Sprint Review and Sprint Retrospective. The accompanying QA activities at the PM are prepared within WP 8.

(3717 characters)

II.2. Overall project management

Please explain how the consortium will be coordinated and indicate the overall project management arrangements. You should also describe the division of tasks between the partners and the allocation of resources for each activity. (Recommended limit 5000 characters)

The project organization is based on the **SCRUM methodology** as an agile process model. The work is divided into **6 sprints of about 6 months each**. Sprint Planning, Sprint Review and Sprint Retrospective will take place at multi-day project meetings P1 to P7 according to the SCRUM methodology that are combined with a WP 4 mobility activity.

Project meetings with an even number have the character of a review, where the operational status of the work is analysed in more detail and deliverables in advanced stage are presented and discussed. Project meetings with an odd number are planned as milestones at which essential deliverables are finally confirmed.

The different WP are led by different HEI partners that are also responsible for the project management of that WP.

The WP definitions correspond to SCRUM Epics, which are broken down into Stories and those into Tasks. The **Project Plan** defines an initial tailoring of Tasks, including an associated distribution of funds among the partners. Required project adjustments, which are more likely to be necessary in view of the applied agile methodology, are coordinated at the Project Meetings according to the SCRUM methodology and the Project Plan is updated accordingly.

The Project Plan is the coordinated management instrument, where also the relevant deliverables including responsibilities are fixed. **The leaders of the individual WP form the closer project management.**

(1428 characters)

II.3. Quality assurance, evaluation and monitoring

Please define the specific quality measures to be put in place, as well as indicators foreseen to verify the outcomes of the project. Explain which mechanisms you intend to use to ensure the monitoring and evaluation of the project, its deliverables, results and outcomes. (Recommended limit 3000 characters)

The central management instruments are the Project Plan to be decided at the beginning of the project and the responsibility by the leads of the packages. In the Project Plan also measures are defined to monitor the success of the project.

The QA follows SCRUM principles, the evaluation and alignment of the work status is done on the project meetings, the corresponding analytical preparations are specified as tasks in WP 8.

(427 characters)

II.4. Recognition and validation

If appropriate to the type of project activities, please explain the approaches that are or will be used for the validation and recognition of learning outcomes, in line with the European transparency and recognition tools and principles. (Recommended limit 1500 characters)

In our project learning outcomes play a role at most within the activity “teach the teachers” in WP 4. However, since the concept follows academic principles and rather amounts to an evaluation of the respective teaching concepts, which is already part of other project activities, a direct analysis of learning outcomes in the project is not required.

II.5. Budget and cost-effectiveness

Please describe the measures adopted to ensure that the proposed results and objectives will be achieved in the most cost-effective way and in time. Explain the principles of budget allocation between the partners. Indicate the arrangements adopted for financial management. (Recommended limit 3000 characters)

The allocation of the budgets was initially based on a percentage key according to the importance of the individual work packages as Epics of the project.

In a second step, stories and tasks were determined, the tasks were assigned to individual partners, and the resources of the individual packages were distributed to these tasks. This also resulted in the allocation of project resources to the individual partners.

PART III. Quality of the partnership, the team and the cooperation arrangements

III.1. Knowledge Alliances: composition of the consortium

Please mark the type of organisations which make up the consortium (please make sure that associated partners are also indicated). Please choose the right category for each partner and ensure that the composition fulfils the eligibility criteria. Please use the same numbering both in the eForm and in the Excel budget table. **IMPORTANT:** If your consortium includes any affiliated entities, the total requested grant of the partner and its Affiliated Entity should be reported in the section B.4 (Grant request) of the eForm

NB: Please note that ticking one of the 3 columns under the key category 'Enterprises' means that, in line with the Erasmus+ Programme Guide, the organisation(s) concerned is/are undertakings actually engaged **in an economic activity and contributing as such** to the proposed project.

| Organisations (please use the same numbering both in the eForm and in the Excel budget table) | | | Higher Education Institution (HEI) | Enterprises | | | Other organisation types | | | | | | | | | |
|--|-----------------|---|--|-----------------------------------|------------------|-------------------|--------------------------|---|-----------------------------|---|---|---|---------------------------------------|--|-----------------|---|
| Nr | Partner Acronym | APP (applicant) or PAR (partner) or AE (Affiliated Entity) or AssPAR (associated partner) | HEI (tertiary level - ECHE holder if in a Programme Country) | Small and medium sized enterprise | Large enterprise | Social enterprise | EU-wide network | Social partner or other representative of working life ¹ | Research Institute / Centre | Non-governmental organisation/association | School/Institute/Educational centre – Vocational training | School/Institute/Educational centre – Adult education | National, regional, local public body | Accreditation, certification or qualification body | Counseling body | International organisation under public law |
| 1 | ULEI | APP | HEI | | | | | | | | | | | | | |
| 2 | INSA | PAR | HEI | | | | | | | | | | | | | |
| 3 | HSO | PAR | HEI | | | | | | | | | | | | | |
| 4 | UTC | PAR | HEI | | | | | | | | | | | | | |
| 5 | LUT | PAR | HEI | | | | | | | | | | | | | |
| 6 | Schaeffler | PAR | | | X | | | | | | | | | | | |
| 7 | Arxia | PAR | | X | | | | | | | | | | | | |

¹ E.g. chambers of commerce, trade union, intermediary, sectorial representation, etc.

| Organisations (please use the same numbering both in the eForm and in the Excel budget table) | | | Higher Education Institution (HEI) | Enterprises | | | Other organisation types | | | | | | | | | |
|--|-----------------|---|--|-----------------------------------|------------------|-------------------|--------------------------|--|-----------------------------|---|---|---|---------------------------------------|--|-----------------|---|
| Nr | Partner Acronym | APP (applicant) or PAR (partner) or AE (Affiliated Entity) or AssPAR (associated partner) | HEI (tertiary level - ECHE holder if in a Programme Country) | Small and medium sized enterprise | Large enterprise | Social enterprise | EU-wide network | Social partner or other representative of working life | Research Institute / Centre | Non-governmental organisation/association | School/Institute/Educational centre – Vocational training | School/Institute/Educational centre – Adult education | National, regional, local public body | Accreditation, certification or qualification body | Counseling body | International organisation under public law |
| 8 | TehnoPlast | PAR | | X | | | | | | | | | | | | |
| 9 | Jantschgi | PAR | | X | | | | | | | | | | | | |
| 10 | TI Minsk | PAR | | X | | | | | | | | | | | | |
| 11 | Farmec | PAR | | | X | | | | | | | | | | | |
| 12 | BM-TRIZ | PAR | | X | | | | | | | | | | | | |

Does your consortium include any affiliated entities (please choose YES or NO)? If yes, please fill the information in the Annex of this document.

In accordance with Art. 122 of the Financial Regulation. The following can be considered affiliated entities:

- legal entities having a legal or capital link with beneficiaries; this link is neither limited to the action nor established for the sole purpose of its implementation.*
- several entities which satisfy the criteria for being awarded a grant and together form one entity which may be treated as the sole beneficiary, including where the entity is specifically established for the purpose of implementing the action.*

The affiliated entities must comply with the eligibility and non-exclusion criteria, and where applicable also with the selection criteria applying to applicants.

☐ **YES**
☒ **NO**

III.2. Rationale for setting-up the partnership

Please explain why the partners are best suited to participate in this European project. Describe skills, expertise and competences within the partnership directly relating to the planned project activities. (Recommended limit 3000 characters)

The project proposal has three priorities

- (A) Establishment of networking structures among the HEI partners,
- (B) Establishment of networking structures among the industrial company partners,
- (C) Crosslinking the networking structures (A) and (B).

(A) Partners are HEIs of different orientations and with different experiences in the field of SIM teaching.

Leipzig University as applicant plays a special role – it plans to strengthen its curricular structures and yet little experience in teaching in this area. Moreover a *Competence Center SIM* is being set up in order to establish appropriate training structures in the region “Mitteldeutschland”, not only at Leipzig University.

In addition to the coordination and systematization of corresponding teaching experiences of the HEI partners, these experiences are basic for the *practical* development of corresponding regional structures and should be developed as a *best practice example* for other HEI locations (additional partners), which also plan to develop corresponding teaching capacities.

(B) In the project preparation the perception of the importance of corresponding skills for the strategic development of companies showed a clear east-west divide in Europe. The East European HEI partners in Brno and Cluj have significantly better relationships with companies with a corresponding focus. We also see potential in the legacy of the GDR inventor schools as a research focus at Leipzig University. With Schaeffler AG, a large European industrial partner joined the project, who has already recognized the importance of SIM skills for its strategic development.

The industrial structures in that area consist of companies that use SIM skills, as well as consulting and training companies that offer consultancy services and teach SIM skills. The partners from Belarus and Russia are representatives of this second group. In core Europe, these services are partly provided by the HEI partners (Brno, Strasbourg, Offenburg, Cluj) and partly by SMEs in the consulting area. In the latter area, greater efforts are required to convince such companies as additional partners, at least in the course of the project.

(C) More precise forms of such crosslinking can only be developed in the course of the project implementation. With our agile approach based on SCRUM methodology, the necessary organizational requirements using proven principles are set up.

(2604 characters)

III.3. Description of the consortium members

This section III.3 must be completed for each organisation participating in the project (applicant, partners and affiliated entities). Please use the same numbering as in the application e Form. Please note that the applicant should be P1.

III.3.1. Partner number – P1 – (Leipzig University – ULEI)

| Organisation name | Country |
|--------------------|---------|
| Leipzig University | Germany |

III.3.1.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

Leipzig University's role stands to reason for a number of reasons ranging from its easily accessible location, through available language capacities, to the long-time experience in the coordination of similar projects. The dialogic transfer of knowledge beyond disciplines, beyond country's frontiers and beyond academia is one of its vital concerns besides research and education based both in the university's tradition and its endeavour to meet society's expectations.

III.3.1.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

III.3.1.3. Operational/Technical capacity: Skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

NB: Please note that the first key staff to be listed under **P1** should be the Project coordinator (also called 'Project manager' and 'Contact person' in section A.2 of the eForm). The coordinator will have the responsibility to ensure that the project is implemented in accordance with the selected application. Its coordination will include the following duties:

- be the single point of contact of the Agency for all communications on the project;
- coordinate the work of the consortium in line with the work plan;
- monitor that the action is implemented in accordance with the EU grant agreement.

Therefore, this person must have all the necessary professional experience and competencies to carry out the coordination of the project. Please provide detailed information for this person.

| Names of the staff members | Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project. |
|----------------------------|---|
| Thomas Neumuth (male) | |
| Hans-Gert Gräbe (male) | <p>He studied mathematics at the Minsk State University from 1974 to 1979, was assistant and senior assistant at the University of Halle/S. and at the Pedagogical University in Erfurt from 1979 to 1990, obtained his doctorate (1983) and habilitated (1988) with work on algebra and combinatorics. Since 1990 he has been working at the Institute of Computer Science at the University of Leipzig, since 2003 as an adjunct professor of mathematics, with design and application of complex software systems and software engineering. Beyond these professional interests his interests lie in the area of social consequences of modern technologies as well as work and knowledge in modern society. He has worked in the Oekonux project and the Rohrbacher Kreis and is a member of the board of the Leibniz Institute for Interdisciplinary Studies (LIFIS).</p> <p>Publications (selection):</p> <p>Du, Y.; Gräbe, H.-G.; Kleemann K.P. Interdisziplinartät. Die Mühsal der Verständigung. (Interdisciplinarity. The difficulty of understanding) To appear in Proceedings DFG-Symposium „Digitalität in den Geisteswissenschaften“ 13.-15.02.2019 in Bayreuth.</p> <p>Gräbe, H.-G. 20 years SymbolicData. ACM Commun. Comput. Algebra 52, No. 3, 45-54 (2019).</p> <p>Gräbe, H.-G. The Contribution to TRIZ by the Inventor Schools in the GDR. Proceedings TRIZFest 2019 Heilbronn.</p> <p>Gräbe, H.-G. Наследие Движения Школ Изобретателей в ГДР и Развитие ТРИЗ.</p> |

| Names of the staff members | <i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i> |
|--------------------------------|--|
| | <p>(Heritage of the Inventor School Movement in the GDR and TRIZ Development) Published in the Online Proceedings of the TRIZ Summit 2019 in Minsk.</p> <p>Gräbe, H.-G. Semantic-aware fingerprints of symbolic research data. In: Greuel, Gert-Martin (ed.) et al., Mathematical software – ICMS 2016. Proceedings. Lecture Notes in Computer Science 9725, 411-418 (2016).</p> <p>See also https://orcid.org/0000-0002-3934-413X</p> |
| Sabine Lautenschläger (female) | <p>Participation in scientific research projects (selection):</p> <p>Awaregio – Modular wastewater treatment processes for the reuse of wastewater, nutrients and energy as an opportunity for small and medium-sized enterprises (SME) – subproject: sustainability and economic efficiency 10/2016-09/2019, (Federal Ministry of Education and Research)</p> <p>Watermanagement 4.0 – Opportunities and challenges of the links between systems in water management (Wasser 4.0), 08/2017-03/2019, Federal Environment Agency</p> <p>E-Klär – Towards the energy-optimized wastewater treatment plant of the future – Development and model-based integration of innovative treatment technologies for transformation processes; sub-project 9. May 2015-Oct. 2017 (Federal Ministry of Education and Research)</p> <p>Analysis and Assessment of sustainability and Eco-Efficiency of Small Treatment Plants and derived Improvement profiles and control instruments, 09/2013-03/2015, German Federal Environmental Foundation</p> <p>Publications (selection):</p> <p>Geyler, Stefan, Lautenschläger, Sabine, Seiler, Romy, Holländer, Robert (2018): Im Stufenkonzept integrierte Ansätze zur Berücksichtigung von Robustheit bei der Entscheidung (Integration of robustness criteria into the multi-stage-decision concept for transforming sewage treatment). In: Palmowski, L., Pinnekamp, J. (Ed.): Entwicklung und Integration innovativer Kläranlagentechnologien für den Transformationsprozess in Richtung Technikwende – E-Klär (Development and model-based integration of innovative treatment technologies for transformation processes). Abschlussbericht (final report).</p> <p>Lautenschläger, S., Laforet, L., Schimpke, J., Holländer, R., Töws, I., Böttger, S., Stich, G., Lange, A. (2016): Analyse und Bewertung der Nachhaltigkeit und Ökoeffizienz von Kleinkläranlagen mit Ableitung von Produktverbesserungen. Abschlussbericht über ein Forschungsprojekt, gefördert unter dem Az: 30289 von der Deutschen Bundesstiftung Umwelt. In: Studien zu Infrastruktur und Ressourcenmanagement, Band 7, Logos Verlag, Berlin. https://www.zenodo.org/record/228162.</p> <p>Geyler, S./Lautenschläger, S. (2015): Technische Konzepte und Optionen für die Wasserver- und Abwasserentsorgung, in: Gawel, E. (Hrsg.): Die Governance der Wasserinfrastruktur – Rahmenbedingungen, Herausforderungen und Optionen, Berlin: Duncker & Humblot (im Erscheinen).</p> <p>Holländer, R; Lautenschläger, S.; Rüger, J.; Fälsch, M. (2013): Abwasserentgelte in Deutschland – Wie beeinflussen unterschiedliche Rahmenbedingungen die Kosten- und Entgeltstruktur der Abwasserbeseitigung?. Gutachten im Auftrag des Verbands kommunaler Unternehmen e.V. (VKU) (Hg.). Berlin: 2013.</p> <p>Fälsch, M.; Geyler, S.; Lautenschläger, S.; Holländer, R. (2010): Abbildung regionaler Unterschiede bei der Trinkwasserbereitstellung. In: InfrastrukturRecht. Energie-Verkehr-Abfall-Wasser. Nr. 11/12; November 2010. München und Frankfurt am Main: Verlag C.H.Beck. S. 284-287.</p> <p>Hillenbrand, T. et al. (2010): Demografischer Wandel als Herausforderung für die Sicherung und Entwicklung einer kosten- und ressourceneffizienten Abwasserinfrastruktur. Abschlussbericht zum Forschungsvorhaben im Auftrag des Umweltbundesamtes, UBA-Texte 36/2010.</p> |
| Ken Pierre Kleemann (male) | |

III.3.2. Partner number – P2 – (INSA Strasbourg – INSA)

| Organisation name | Country |
|-------------------|---------|
| INSA Strasbourg | France |

III.3.2.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

INSA Strasbourg has nearly a quarter of a century of experience in the development of tools for engineers within the framework of inventive activities. After initiating research, obtaining scientific results and transforming these into innovative approaches tested in companies, INSA has embarked on the computer development of collaborative platforms for inventive activity practices, both in terms of learning and expert practices for industry. The result today is an ecosystem of several complementary tools adapted to various inventive situations and various levels of mastery. Four tools are now put forward in this ecosystem: PICC (now owned by ExelOp); FINDER, PhysiSolve and SimplySolve.

III.3.2.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

INSA's role will be focused primarily on
1) Make INSA's ecosystem of SIM tools (PICC, FINDER, PhysiSolve, SimplySolve) operational throughout Europe.
2) Develop online course (tuto-like) for learning and using PICC, FINDER, PhysiSolve and SimplySolve.
Within the framework of this project, we will develop, for each tool, an associated e-learning material allowing anyone to learn in autonomy how to use our tools. These elements of self-training should help us to integrate the courses developed within the framework of this project and thus allow to share their use in our network in Europe.

III.3.2.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project. |
|----------------------------|---|
| Denis Cavallucci (male) | |
| | |

III.3.3. Partner number – P3 – (HS Offenburg – HSO)

| Organisation name | Country |
|-------------------|---------|
| HS Offenburg | Germany |

III.3.3.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

HOCHSCHULE OFFENBURG is an educational and research institution with a strong practical orientation. Today, the University forms a thriving community with over 4,500 students and 415 staff members (heads) on two campuses and offers Bachelor's and Master's degrees in four departments in the fields of Technology, Engineering, Business and Media. Close collaboration with the industrial companies, especially with the medium-size enterprises in the region, an international focus and contacts with numerous partner universities worldwide allowing application-oriented research, technology transfer, up-to-date laboratories and interdisciplinary expertise in various technological fields. Since 2013 the Faculty of Mechanical and Process Engineering as one of the largest departments of HSO offers courses in Innovative Design, New Product Development, and Systematic Inventive Problem Solving with the theory of inventive problem solving TRIZ in nine undergraduate Bachelor programs and six Master programs. Within the European Project IbD 'Intensified by Design' (2015-2018) within international consortium of 22 universities, research institutes and industrial companies, the HSO researchers of the Lab for Product and Process Innovation have developed the Advanced Innovation Design Approach (AIDA) for process engineering.

Design Approach (AIDA) is a holistic approach for enhancing innovative and competitive capability of industrial companies. In the research project "Innovation Process 4.0" run at the HSO Offenburg in co-operation with 10 German industrial companies in 2015-2019 a holistic approach for enhancing innovative and competitive capability of companies and the AIDA best practice innovation toolbox have been developed and applied in numerous industrial case studies. Additionally, HSO is an active member of the international academic fellowship "Educating the Edisons of the 21st Century - Embedding tools of the Theory of Inventive Problem Solving (TRIZ) into the engineering curriculum".

Website: www.hs-offenburg.de

III.3.3.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

HSO's role will be focused primarily on

1) Further development and implementation of agile (rapid and efficient) systematic innovation tools for eco-innovation and eco-design especially in process engineering, combining the advantages of Knowledge-Based Engineering (KBE) methodology (e.g. Process Intensification), inventive tools of Knowledge-Based Innovation (KBI) and TRIZ theory, and main principles and best-practices of Eco-Design and Sustainable Manufacturing. The work will be focused on a) Definition of the eco-innovation process in the domain of process engineering, b) Adaptation of the Process Intensification databases for eco-innovation, c) Further development, optimization and computerization of the toolbox for the eco-innovation process, d) Application of the Eco-innovative tools for their validation through the industrial case studies.

2) Development of learning resources in systematic eco-innovation for dissemination of major outcomes to the current and next generation of engineers. Using its new developed method for enhancing innovative and competitive capability of companies, HSO will perform an industrial survey to identify and prioritize industry requirements and specifications on innovations competences and tools, especially in the early phase

III.3.3.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project. |
|----------------------------|---|
| Pavel Livotov (male) | Professor at the Faculty of Mechanical and Process Engineering at Hochschule |

| Names of the staff members | <i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i> |
|----------------------------|--|
| | <p>Offenburg (HSO), a seasoned inventor, scientist and innovation consultant. He is the Head of the Laboratory for Product and Process Innovation, author of more than 80 patented inventions and more than 90 articles. He has worked with inventive TRIZ methodology since 1980, received his PhD in 1988 in St. Petersburg, Russia on the field of aerospace robotics. From 1989 to 1993 he continued his research work at the University of Hanover, Germany as a senior scientist of Institute for Production Engineering and Machine Tools. From 1993 till 1999 he was the head of R&D department robotics at Focke & Co, Germany. In 1999 he founded the TriSolver Consulting and later the TriSolver Innovation Software GmbH in Germany. He is founder and head of the TriS Europe Innovation Academy. Since 2010 he is a professor for design in process engineering at the Beuth University Berlin, and since 2013 a professor for product development at HSO.</p> <p>Relevant Publications in the field of Systematic Innovation Methodologies and their Education</p> <p>Belski, I., Livotov, P., Vaneker, T. (2016), Structured Innovation with TRIZ in Science and Industry - Creating Value for Customers and Society, Procedia CIRP, Volume 39, 2016, Pages 1-2.</p> <p>Livotov, P., Mas'udah, Chandra Sekaran, A.P. (2018), On the Efficiency of TRIZ Application for Process Intensification in Process Engineering. in: Cavallucci D., De Guio R., Koziolek S. (eds) Automated Invention for Smart Industries, TFC 2018, IFIP Advances in Information and Communication Technology, Vol 541., pp.126-140, available at: dx.doi.org/10.1007/978-3-030-02456-7_11</p> <p>Livotov P., Mas'udah, Sarsenova A., Chandra Sekaran A.P. (2019), Identification of Secondary Problems of New Technologies in Process Engineering by Patent Analysis, In: Chechurin L., Collan M. (eds) Advances in Systematic Creativity, Palgrave Macmillan, Cham. available at: doi.org/10.1007/978-3-319-78075-7_10</p> <p>Livotov, P., Chandra Sekaran, A.P., Mas'udah, Law, R., Reay, D., Sarsenova, A. and Sayyareh, S. (2019), Eco-innovation in Process Engineering: Contradictions, Inventive Principles and Methods, Thermal Science and Engineering Progress, Vol. 9, pp. 52-65, doi.org/10.1016/j.tsep.2018.10.012.</p> <p>Livotov P., Chandra Sekaran A.P., Law R., Mas'udah, Reay D. (2019), Systematic Innovation in Process Engineering: Linking TRIZ and Process Intensification. In: Chechurin L., Collan M. (eds) Advances in Systematic Creativity. Palgrave Macmillan, Cham, doi.org/10.1007/978-3-319-78075-7_3</p> <p>Livotov, P. (2018), Competitive capability assessment of industrial companies within the framework of advanced innovation design approach. In: Marjanović D., Štorga M., Škec S., Bojčetić N., Pavković N. (Eds) DS 92: Proceedings of the DESIGN 2018 15th International Design Conference, Section: Design Innovation, pp 1903-1914, DOI: doi.org/10.21278/idc.2018.0267.</p> <p>Livotov, P., Mas'udah, M., Chandra Sekaran, A.P., Law, R., & Reay, D. (2019), Ecological Advanced Innovation Design Approach for Efficient Integrated Upstream and Downstream Processes. Proceedings of the Design Society: International Conference on Engineering Design, 1(1), 3291-3300. doi:10.1017/dsi.2019.336</p> <p>Chandra Sekaran, A.P., Livotov, P., Mas'udah. (2019), Classification of TRIZ Inventive Principles and Sub-Principles for Process Engineering Problems. TFC 2019, IFIP Advances in Information and Communication Technology, Vol. 572, Springer, Cham, pp. 314-327. doi:10.1007/978-3-030-32497-1_26</p> <p>Livotov, P., Petrov, V. (2013), TRIZ Innovation Technology. Product Development and Inventive Problem Solving. Handbook, 288 p., TriS Europe, Berlin.</p> <p>Livotov, P. (2015), Web-Based Asynchronous Distance Education in New Product Development and Inventive Problem Solving for Industrial Companies, Procedia Engineering, Volume 131, 2015, Pages 123-139</p> <p>Livotov, P. (2015), Measuring Motivation and Innovation Skills in Advanced Course in New Product Development and Inventive Problem Solving with TRIZ for Mechanical Engineering Students. Procedia Engineering, Volume 131, pp 767-775.</p> <p>Belski, I., Livotov, P. and Mayer, O. (2016), Eight Fields of MATCEMIB Help Students</p> |

| Names of the staff members | <i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i> |
|------------------------------------|--|
| | <p>to Generate More Ideas. Procedia CIRP, 39, 85-90., DOI:10.1016/j.procir.2016.01.170.</p> <p>Livotov, P. (2017), Modelling Innovation Process in Multidisciplinary Course in New Product Development and Inventive Problem Solving. In: Huda, N., Inglis, D., Tse, N, Town, G. (eds.) Proceedings of the 28th Annual Conference of the Australasian Association for Engineering Education AAEE 2017. pp. 287-294. Sydney, NSW, Australia: School of Engineering, Macquarie University .</p> <p>Livotov, P. (2018), Enhancing Innovation and Entrepreneurial Competences of Engineering Students through a Systematic Cross-Industry Innovation Learning Course. Paper presented at the 29th Annual Conf. of the Australasian Association for Engineering Education, Hamilton, New Zealand.</p> <p>Belski, I., Cavallucci, D., Livotov, P. et al. (2018), Sustainable Education in Inventive Problem Solving with TRIZ and Knowledge-Based Innovation at Universities. Paper presented at the 18th Int. TRIZ Future Conference TFC 2018, Automated Invention for Smart Industries, pp. 51-73, Strasbourg, France.</p> <p>Livotov, P., Chandra Sekaran, A.P., Mas'udah. (2019), Lower Abstraction Level of TRIZ Inventive Principles Improves Ideation Productivity of Engineering Students. TFC 2019, IFIP Advances in Information and Communication Technology, Vol. 572, Springer, Cham, pp. 526-538. https://doi.org/10.1007/978-3-030-32497-1_41</p> <p>Livotov, P., Mas'udah, Chandra Sekaran, A.P., Law, R., & Reay, D. (2019), Education in Systematic Eco-Innovation in Environmental and Process Engineering. In S. Goh (Ed.), Proceedings of the 30th Annual Conference of the Australasian Association for Engineering Education - AAEE2019 (pp. 1-7). Brisbane, Australia: AAEE.</p> |
| Mas'udah (female) | <p>Academic Researcher at the Laboratory for Product and Process Innovation (PPI), at the Department of Mechanical and Process Engineering HSO. She holds an MSc degree in Process Engineering from HSO, and a degree in Environmental Protection and Biotechnology from University of Warmia and Mazury in Olsztyn (UWM), Poland. She is a specialist in process innovation, process intensification, inventive problem solving and secondary impact analysis of product innovation. Between 2015 – 2019, she worked as a research assistant in the European Project, IbD Intensified by Design®, and has been the moderator for several workshops of TRIZ application for process intensification in different industrial domains such as chemical, pharmaceutical and ceramic industries. She also has acted as co-author and principal author of several scientific and practitioner publications.</p> |
| Arun Prasad Chandra Sekaran (male) | <p>Academic Researcher at HSO in the field of systematic innovation in manufacturing industries. He holds a BTech degree in Chemical Engineering from Anna University, India and a MSc degree in Process Engineering from HSO. From 2011-2014, he worked in the field of quality control of automotive adhesives & sealers and industrial environmental impact assessment studies in India. Since 2016, he is a researcher at HSO. He was also involved in the European research project IbD “Intensified by Design” where he assisted European Industrial partners and University researchers for Process Intensification using TRIZ methodology. His activities include process & environmental analysis of industrial operations, systematic problem solving, development of TRIZ tools for Process Engineering. He is a co-author and principal author of scientific publications.</p> |

III.3.4. Partner number – P4 – (UTC Cluj-Napoca – UTC)

| Organisation name | Country |
|-------------------|---------|
| UTC Cluj-Napoca | Romania |

III.3.4.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

The Technical University of Cluj-Napoca, an “Advanced Research and Education University” as awarded with the Order of the Ministry of National Education no 5262/September 5th 2011, is today a tertiary educational institution having both tradition and national and international recognition.

The Technical University of Cluj-Napoca comprises twelve faculties in the two academic centres, Cluj-Napoca and Baia Mare, as well as in locations, such as Alba-Iulia, Bistrita, Satu Mare and Zalau. The educational offer, aligned to the Bologna system, includes bachelor's, master's and doctoral programs, as well as continuous training programs.

The fields of study have a wide range, from engineering to architecture, fundamental sciences, socio-human sciences and arts. Also, within the Technical University, the Department for Continuing Education, Distance Learning and with Reduced Frequency organizes and conducts continuous education activities and programs, postgraduate courses, continuous professional development programs or courses or based on occupational standards.

The Technical University of Cluj-Napoca is concerned with the international exchange of scientific values, and this trend is found in the over 400 inter-university collaboration agreements or in the large number of student mobilities. Opening up towards the European and world space of education and research through a steady process of internationalization is one of the major objectives of the university.

Research is, along with education, the main priority of the Technical University of Cluj-Napoca. In all faculties of the university there are research structures, from collectives, groups and laboratories, to research centers and platforms. The performance anchored in the socio-economic environment, the international visibility and cooperation as well as the scientific novelty and interdisciplinarity are some of the characteristics of the research environment of the Technical University of Cluj-Napoca.

Open research directions are oriented towards global priorities and perspectives: from the Information and communications technology to Renewable Energy and Ecology; from superconductivity, spintronics and nanomaterials, to management and robotics; from mechatronics and electrical engineering, to the automobile and the home of the future, or to urbanism and society.

III.3.4.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

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III.3.4.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project. |
|----------------------------|---|
| Stelian Brad (male) | |

| Names of the staff members | <i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i> |
|-----------------------------------|--|
| | |

III.3.5. Partner number – P5– (LUT Lappenranta – LUT)

| Organisation name | Country |
|--------------------------|----------------|
| LUT Lappenranta | Finland |

III.3.5.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

III.3.5.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

III.3.5.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | <i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i> |
|-----------------------------------|--|
| Leonid Chechurin (male) | |
| | |

III.3.6. Partner number – P6 – (Schaeffler AG – Schaeffler)

| | |
|--------------------------|----------------|
| Organisation name | Country |
| Schaeffler AG | Germany |

III.3.6.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

III.3.6.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

III.3.6.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | <i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i> |
|-----------------------------------|--|
| Armin Lau | |
| Thomas Fuhrmann | |

III.3.7. Partner number – P7 – (Arxia SRL – Arxia)

| Organisation name | Country |
|-------------------|---------|
| Arxia SRL | Romania |

III.3.7.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

III.3.7.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

III.3.7.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project. |
|----------------------------|---|
| Daniel Homorodean | |
| | |

III.3.8. Partner number – P8 – (Tehnoprod Plast SRL – TechnoPlast)

| Organisation name | Country |
|---------------------|---------|
| Tehnoprod Plast SRL | Romania |

III.3.8.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

S.C. Tehnoprod Plast SRL (<https://www.tehnoprodplast.ro>) is a private company, set up in 1994 with romanian-german capital. Its main object of activity is the production and marketing of low tension equipment (sockets, lengtheners, adaptors, power cords, injected plug etc.). Also the German company GB Gebro Steckvorrichtungen GmbH (www.gb-gebro.de) is with Romanian-German capital.

The company carries on its activity in two production halls having a number of 92 employees. The company's policy is insuring each time and with no exception a high value for its clients which means a high quality performance, in time delivery of orders and competitive price. In this respect, since 2004, S.C. Tehnoprod Plast SRL has implemented by the certification organism DQS – Romania the quality management system in accordance with the DIN EN ISO 9001:2015 Standard.

The products made by our company are exported under the GB GEBRO sign, in countries like Germany, Netherlands, Sweden, Greece, Spain, Saudi Arabia, Indonesia and are certified by the specific low tension equipment quality norms, of these countries (VDE, ÖVE).

The main compartments within the company are:

Injection compartment: the injecting is made on 40 – 150 ToF automatic injecting machines and the raw material used during the manufacturing process is:

- Injected plugs (PVC)
- thermoplastic materials (PP, PA6, PA 6.6, PS, PE, with fibreglass)
- hard plastic materials

Pressing compartment: the pressing is made on automatic pressing machines of 60–150 tons force and the raw material used is ureaformaldehydesin.

Punching compartment: over 50 details for all the brass and steel components used in the manufacturing process, on the Raster 30 ToF made in Germany pressing machines with a frequency of 500 punchings/minute

Lathing compartment: different specific brass details on EUBAMA made in Germany autolathes.

Assembly compartment: it is made automatically and semi-automatically for the whole range of products.

III.3.8.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

III.3.8.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | <i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i> |
|-----------------------------------|--|
| Lucian Moraru | |
| | |

III.3.9. Partner number – P9 – (Jantschgi C&R – Jantschgi)

| Organisation name | Country |
|-------------------|---------|
| Jantschgi C&R | Austria |

III.3.9.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

III.3.9.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

III.3.9.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project. |
|----------------------------|---|
| Jürgen Jantschgi | |
| | |

III.3.10. Partner number – P10 – (Target Invention LLC Minsk – TI)

| Organisation name | Country |
|----------------------------|---------|
| Target Invention LLC Minsk | Belarus |

III.3.10.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

Target Invention renders innovation consulting services. Goal-oriented invention technologies are designated to address production issues at the invention level. Efficient techniques developed on the basis of the theory of inventive problem-solving (TRIZ) and proven by practical work of many years at the leading companies (Samsung, POSCO, Skoda etc.) are used for work.

The company was founded by Mikalai Shpakouski, a Candidate of Engineering Sciences and TRIZ Master.

The company's key competences are:

- inventive problem-solving;
- generation of alternative solutions to create patent-package and invention-idea protection;
- prediction of engineering-system development;
- training in inventive problem-solving and prediction;
- preparation of training and practical problem-solving software.

The company has eight employees: consultants, teaching staff, and software developers.

Website: <http://target-invention.com>

III.3.10.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

The company offers training and practical application of the OTSM-TRIZ* method for inventive problem-solving. The key feature of the training is the practice-oriented method. Emphasis is laid on inventive problem-solving from the start.

The company has created the TRIZ Trainer distance-learning course. The programmatic and theoretical parts of the course as well as support of the teaching staff enable to teach practical inventive problem-solving in large numbers and effectively.

The key features of the course are:

- the student's problem-solving is guided with the situation addressing algorithm. Upon solving several dozens of problems, the student masters an efficient tool in practice and is prepared to solve inventing production problems;
- each step of solving is supported with information prompts and theory;
- the teacher controls accuracy of students' chain of thought, corrects it, and answers their questions.

As part of the SIM project, the company will:

- teach teaching staff the OTSM-TRIZ method as applied in practical addressing of companies' issues;
- provide the TRIZ Trainer course for training sessions in practical inventive problem-solving;
- provide industrial partners with the Solving Mill software to support the invention process.

* OTSM-TRIZ is a method combining the approaches of the general theory of powerful thinking (N. N. Khomenko) and of the theory of inventive problem-solving (G. S. Altshuller).

III.3.10.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project. |
|----------------------------|---|
| Mikalai Shpakouski | TRIZ consultant; Candidate of Engineering Sciences; TRIZ Master qualification A consultant and teacher of inventive problem-solving, particularly <ul style="list-style-type: none">• prevention of process disruptions; |

| Names of the staff members | Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project. |
|----------------------------|---|
| | <ul style="list-style-type: none"> • increase in equipment operation quality and reliability; • product production cost efficiency; • circumvention of competing companies' patents; • predicting development of technical systems. <p>2011 – present: Target Invention, expert. 2014 – present: independent TRIZ consultant and trainer. 2008 – 2014: POSCO, Republic of Korea. TRIZ consultant. 2005 – 2008: TRIZ Profi Autonomous Non-Profit Organisation, Moscow, senior expert. 2003 – 2004: SAMSUNG SDI, Republic of Korea. TRIZ consultant. 2000 – 2003: Samsung Advanced Institute of Technology (SAIT), Republic of Korea. TRIZ consultant. 1995 – 2000: Invention Machine project. Prediction group manager.</p> <p>Trainer's practice: 25 years of teaching TRIZ based on a uniquely-designed approach resulting from generalisation of experience of work with actual projects. He has to his credit studies at Samsung, POSCO, and Skoda JS, at the following universities: KTA, Adjou University, KUTE, at a number of Chinese companies etc. He was awarded a SAMSUNG Group's prize for organising TRIZ at the company and the economic benefit of 92 million US dollars.</p> <p>Publications (selection):</p> <ol style="list-style-type: none"> 1. Processing of the technical and patent information with use of Evolution Trees, e-book, published together with Mitsubishi Research Institute in Japanese, 2. Шпаковский Н. А. Деревья эволюции. Анализ технической информации и генерация новых идей. М.: Пульс, 2006. 240 с. (M. A. Shpakouski. Evolution Trees. Analysis of Technical Information and General of New Ideas. Moscow: Puls, 2006. 240 p.). 3. Evolution Trees. Analysis of the technical information and generation of new ideas, IWINT, (in Chinese). 4. Шпаковский Н. А. ТРИЗ. Анализ технической информации и генерация новых идей. М.: Форум, 2010. 264 с. (M. A. Shpakouski. TRIZ. Analysis of Technical Information and Generation of New Ideas. Moscow: Forum, 2010. 264 p.). 5. Шпаковский Н. А., Новицкая Е. Л. ТРИЗ. Практика целевого изобретательства. М.: Форум, 2011. 336 с (M. A. Shpakouski, Y. L. Novitskaya. TRIZ. Practice of Goal-Oriented Invention. Moscow: Forum, 2011. 336 p.). 6. M. A. Shpakouski, Y. L. Novitskaya. TRIZ. Practice of Goal-Oriented Invention. Republic of Korea, 2011 (in Korean). 7. Tree of technological evolution. Ways to new business opportunities. Amazon, 2015. 8. Шпаковский Н. А. ОТСМ-ТРИЗ. Подходы и практика применения. М. ИНФРА. 2018 (M. A. Shpakouski. OTSM-TRIZ. Approaches and Practical Use. Moscow: Infra, 2018). 9. Карлов А. Г., Шпаковский Н. А. Идеи, изобретения, инновации в сфере автоматизации технологий и технических систем. Серия «Вузовский учебник». М.: Центркаталог.2019 (A. G. Karlov, M. A. Shpakouski. Ideas, Inventions. Innovation in Automation of Technologies and Technical Systems. University Textbook series. Moscow: Tsentrkatalog, 2019). <p>He is the owner and author of the Generator inventors' website at http://www.gnrtr.com, http://www.gnrtr.ru</p> |
| Peter Chuksin | <p>Candidate of Technical Sciences, 4th-level TRIZ consultant.</p> <p>Expert in inventive problem-solving, implementing sophisticated projects, and training in systemic invention with the following methods applied: OTSM-TRIZ, prediction of technical-systems development, cost-benefit analysis (CBA), development of patent-package protection and circumvention of competing patents.</p> <p>He has many years of experience in consulting and training. He cooperated with LG Group's companies (LG Electronics, LG Electronics Institute of Technology, LG Cable, LG Industrial Systems, LG Innotek, LG-Philips), POSCO, Hyundai, Rotem (Republic of Korea) for a long time. He completed a number of consulting projects in cooperation with Belarusian, EU, and Russian companies.</p> |

| Names of the staff members | <i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i> |
|-----------------------------------|--|
| | He is an active participant of the Invention Machine project (IMLab, IMCorp), a senior researcher of Minsk branch of IMCorp (USA). For his publication list please refer to https://www.trizland.ru/authors/159 |
| Anton Ivanou | Design engineering, head of the cost-benefit analysis bureau TRIZ consultant, TRIZ trainer, seven years of experience Participant of the developing team of the TRIZ Trainer and Solving Mill projects |

III.3.11. Partner number – P11 – (Farmec SA – Farmec)

| Organisation name | Country |
|--------------------------|----------------|
| Farmec SA | Romania |

III.3.11.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

III.3.11.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

III.3.11.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | <i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i> |
|-----------------------------------|--|
| Tudor David | |
| Claudia Palacian | |

III.3.12. Partner number – P12 – (BM TRIZ Chelyabinsk – BM-TRIZ)

Systematic Innovation Methodologies / SIM

| | |
|--------------------------|----------------|
| Organisation name | Country |
| BM TRIZ Chelyabinsk | Russia |

III.3.12.1. Aims and activities of the organisation

Please provide a short presentation of the organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project. Please provide also a link to the website of the organisation, if available. (Recommended limit 1500 characters)

| |
|--|
| BM TRIZ Chelyabinsk is one of the leading consulting firms in the area of business and management using contradiction oriented systematic innovation methodologies. In Sept. 2019 Anton Kozhemyako was appointed as Director of Developing TRIZ Applications for Business and Management by MA TRIZ, the International TRIZ Association. |
|--|

III.3.12.2. Role of the organisation in the project

Please describe the role of the organisation in the project and how the organisation will actually contribute to the project success. (Recommended limit 1500 characters)

| |
|--|
| The partner will be involved to support the collection of recent business cases and methodological development in the area of business and management to continuously improve the teaching concepts and materials within our Knowledge Alliance. |
|--|

III.3.12.3. Operational/Technical capacity: skills and expertise of key staff involved in the project

Please fill in the table below for each key staff member and add lines as necessary.

| Names of the staff members | <i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i> |
|-----------------------------------|--|
| Anton Kozhemyako | In Sept. 2019 he was appointed as Director of Developing TRIZ Applications for Business and Management by MA TRIZ, the International TRIZ Association. |
| | |

III.4. Cooperation arrangements across the partnership

Please describe arrangements and responsibilities for decision-making, conflict resolution, reporting, monitoring, communication and other relevant issues. (Recommended limit 2500 characters)

III.5. Partner Country participation² (where applicable)

This section should be completed, if the application involves organisations from Erasmus+ Partner Countries.

Please explain how Partner Country organisation(s) participating in the project are giving an essential added value to the project. (Recommended limit 1500 characters)

***NB:** please note that the involvement of a participating organisation from a Partner Country must bring **an essential added value** to the project. As a result, organisations from Partner Countries must bring specific skills, experiences or expertise that organisations from Programme Countries cannot bring and that prove to be essential for the achievement of the project's objectives and/or to ensure a significantly higher quality of the project outputs.*

PART IV. Impact, dissemination, exploitation, and sustainability

IV.1. Target groups

IV.1.1 Please explain which target groups (e.g. participating organisations as well as other stakeholders such as higher education institutions, companies/SMEs/businesses, students, professionals, the wider public) will benefit from the project results/outcomes. Indicate how the project outputs will be used by these target groups and will lead to expected outcomes and change. (Recommended limit 3000 characters)

1. Actors for the exemplary establishment of a corresponding training structure in Mitteldeutschland (Leipzig region).
2. HEI who want to develop and implement similar programs to build up appropriate training capacities in these cross cutting skills.
3. Industrial companies that want to build up an appropriate base of skilled people in their own company.
4. Consulting companies, in whose profile consulting, application and training of SIM are core competencies.

IV.1.2 Please describe how the target groups will be reached and involved during the project lifetime and how the project will be beneficial for these target groups at local, regional, national and or European level. What is the change your project will make? (Recommended limit 3000 characters)

*IV.1.3 Please describe how the target groups will be reached **after the project is finished**. (Recommended limit 3000 characters).*

IV.2. Sustainability and impact

IV.2.1 How will the activities and the partnership be sustained beyond the project lifetime? Please explain which results of your project will be maintained after EU funding, and how you intend to maintain them, including the necessary financial and human resources. (Recommended limit 3000 characters)

IV.2.2 Please indicate what is the expected short term and long term impact on the target groups (including participating institutions and stakeholders); what is the desired impact of the project at local, regional, national, European and/or international level? What activities do you envisage to ensure that the expected and desired impact is achieved? (Recommended limit 3000 characters)

IV.2.3 Please specify whether/how existing undertakings, schemes, projects, platforms, ventures etc. will be linked to/integrated into the project. Also demonstrate that the project outputs and results will be transferable and accessible to a broader audience. (Recommended limit 3000 characters)

IV.2.4 Describe the dissemination and promotion measures that will ensure the best project visibility, including project advocacy and pro-active public relations activities. In this context, indicate the main project website features that will ensure that the produced outputs/deliverables are accessible to end users and properly promoted. Also explain your strategy on social media. (Recommended limit 3000 characters)

IV.2.5 Overview of short term results and long term outcome indicators

Please highlight the main results (outputs and outcomes) for stakeholders (individuals, organisations, etc.....) sectors or systems that your project intends to generate;

Please add lines as necessary according to the number of indicators

| Short term results | Target groups/potential beneficiaries | Quantitative indicators | Qualitative indicators |
|--------------------|---------------------------------------|-------------------------|------------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Long term outcomes | Target groups/potential beneficiaries | Quantitative indicators | Qualitative indicators |
|--------------------|---------------------------------------|-------------------------|------------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

IV.3. Dissemination and exploitation strategy

How will the dissemination activities be structured so as to ensure that the results will reach the relevant target groups? How will the exploitation activities be structured so as to use the results both within the project's lifetime and after? How will the results be mainstreamed and multiplied? (cfr: Annex II of the Programme Guide - sections 1 & 2 pages 312-317)

If appropriate, to which existing initiative(s) you intend to link? (Recommended limit 3000 characters)

IV.4. Open access to the educational resources

Please describe how the materials, documents and media produced will be made available to the wider public through new technologies. Please explain also if you consider that this part is not applicable to your project. (Recommended limit 3000 characters)

In this direction the project follows the principles of Open Culture and in particular presents the experience gathered on a public platform for subsequent use. We build on the experience and structures of the Leipzig WUMM Project³, in which a corresponding open infrastructure has been built around a github organizational account⁴ since the beginning of 2019. In this context, the multilingual potential of RDF-based technologies for the presentation of methodological concepts has already been prototypically demonstrated. This approach of making relevant materials available under the Apache 2.0 License is to be pursued and expanded further in the project.

PART V. Specific arrangements regarding learning mobility (if applicable)

Knowledge Alliances may organise learning mobility activities of students, researchers and staff in so far as they support/complement the main activities of the Alliance and bring added value in the realisation of the project's objectives. Kick-off and project meetings are not considered as learning mobility activities. Mobility days for which travel and subsistence unit costs are charged to the project, cannot be charged as working days for implementation support to the main activities. **Mobility activities / Learning mobility do not constitute the main activities of a Knowledge Alliance**; extending and scaling-up these activities would need to be supported via the Key Action 1 of this Programme or other funding instruments.

V.1. Added value

Please describe how the mobility activities of students, researchers and staff support/complement the other activities of the Alliance and bring added value in the realisation of the project's objectives. (Recommended limit 3000 characters).

V.2. Implementation of the learning mobility

Please describe the selection of participants, the quality measures set up in the sending and receiving organisations for monitoring the mobility activity, how the project intends to recognise and validate the learning outcomes of the

3

<http://www.leipzig-netz.de/index.php/WUMM>

4

<https://github.com/wumm-project>

participants (ECTS-DS ...), and follow up of the mobility activities. **Please refer to the information provided in Section C.1 of the eForm.** (Recommended limit 3000 characters)

*NB: If learning mobility activities are planned, they should be embedded in the project activities. Please also note that the budget for learning mobility **cannot** be used to finance costs for travels & subsistence of staff that are not directly related to the learning mobility activities (e.g. attendance costs to events, costs linked to partnership meetings, etc). Only learning mobility costs can be put in the sheet 'Learning mobility' of the budget annex.*

PART VI. Additional project information (if applicable)

This section allows you to provide any additional project specific information, which is not covered in other parts of the application form. Please refrain from any repetition of previous statements and earlier mentioned aspects. (Recommended limit 1500 characters).

In line with the call requirements, higher education institutions (HEIs) established in a Programme Country must hold a valid Erasmus Charter for Higher Education (ECHE). Should the charter code not display automatically or be incorrect in the eForm (Part A section A1 – field 'accreditation number'), please use this section to indicate it and explain how it applies to your HEI.

The charter code is composed of the country code (letters) – city acronym – number (2 digits). You can consult the Erasmus Charter holders' list published on the following link:

https://eacea.ec.europa.eu/erasmus-plus/actions/erasmus-charter_en.

PART VII. Work Plan and Work Packages

VII.0. Work Plan and Work Packages (WPs) list

Please enter the different project activities you intend to carry out in your project.

| WP number | WP title |
|-----------|--|
| WP1 | Project Initialisation |
| WP2 | Networking the Knowledge Alliance |
| WP3 | Development of Curricula and Teaching Material |
| WP4 | Teach the Teachers |
| WP5 | Involving Industry |
| WP6 | Project Management |
| WP 7 | Dissemination and Transfer |
| WP 8 | Quality Control |
| WP 9 | Evaluation |
| WP 10 | Digital Tools |

For each WP, please fill in the following WP description, WP results and WP explanation of expenditures (add more WPs if necessary)

VII.1. Work Package 1 – *(Project Initialisation)*

WP1 description

| | |
|--|--|
| WP No.1 | |
| Work Package/Activity type | <input checked="" type="checkbox"/> Preparation <input type="checkbox"/> Management <input type="checkbox"/> Implementation (the substance of the work planned including production, testing, etc.) <input type="checkbox"/> Quality Assurance (quality plan) <input type="checkbox"/> Evaluation <input type="checkbox"/> Dissemination and Exploitation of results |
| Title | Project Initialisation |
| Description <i>(Recommended limit 1500 characters)</i> | <p>This WP aims to collect more precise information about courses at various HEI locations – both at the full partners as well as potential <i>additional partners</i> – in the EU area. The collection is planned to be updated during the whole project and to be transformed into a structured meta data description based on semantic technologies within WP 2. The tasks will be mainly done in the preproject phase, discussed at P1 and consolidated afterwards. The outcome is due for P2.</p> <p>A second goal of this WP is the initial bootstrap of the project's digital infrastructure.</p> |
| Tasks <i>(Recommended limit 3000 characters)</i> | |
| Estimated start date | 11/2020 |
| Estimated end date | 06/2021 |
| Lead organisation | ULEI |
| Participating organisations | <p>All HEI partners (analysis of teaching offers)</p> <p>All partners (bootstrapping the infrastructure)</p> |

WP1 Results (outputs and outcomes)

Please add tables as necessary.

| | | |
|--|-------|--|
| Expected result (output or outcome) | WP1 | |
| | Title | |

| | | |
|----------------------------|---|--|
| | Type | |
| | Description <i>(Recommended limit 1500 characters)</i> | |
| | Due date | |
| | Language(s) | |
| | Media(s) | |
| Dissemination level | <input type="checkbox"/> Public <input type="checkbox"/> Restricted to other programme participants (including Commission services and project reviewers) <input type="checkbox"/> Confidential, only for members of the consortium (including EACEA and Commission services and project reviewers) | |

WP1 Explanation of Work Package expenditures

Please explain what costs will be associated to each Work Package and covered by scale of unit costs. If learning mobilities are to be organised, please explain what is covered under the heading for "travel and subsistence costs". (Recommended limit 3000 characters)

VII.2. Work Package 2 – (Networking the Knowledge Alliance)

WP2 description

| | |
|---|---|
| WP No.2 | |
| Work Package/Activity type | <input type="checkbox"/> Preparation <input type="checkbox"/> Management <input checked="" type="checkbox"/> Implementation (the substance of the work planned including production, testing, etc.) <input type="checkbox"/> Quality Assurance (quality plan) <input type="checkbox"/> Evaluation <input type="checkbox"/> Dissemination and Exploitation of results |
| Title | Networking the Knowledge Alliance |
| Description (Recommended limit 1500 characters) | |
| Tasks (Recommended limit 3000 characters) | |
| Estimated start date | 12/2020 |
| Estimated end date | 06/2022 |
| Lead organisation | LUT |
| Participating organisations | All partners |

WP2 Results (outputs and outcomes)

Please add tables as necessary.

| | | |
|--|--|--|
| Expected result (output or outcome) | WP2 | |
| | Title | |
| | Type | |
| | Description (Recommended limit 1500 characters) | |

| | | |
|----------------------------|---|--|
| | Due date | |
| | Language(s) | |
| | Media(s) | |
| Dissemination level | <input type="checkbox"/> Public <input type="checkbox"/> Restricted to other programme participants (including Commission services and project reviewers) <input type="checkbox"/> Confidential, only for members of the consortium (including EACEA and Commission services and project reviewers) | |

WP2 Explanation of Work Package expenditures

Please explain what costs will be associated to each Work Package and covered by scale of unit costs. If learning mobilities are to be organised, please explain what is covered under the heading for "travel and subsistence costs". (Recommended limit 3000 characters)

VII.3. Work Package 3 – (Development of Curricula and Teaching Material)

WP3 description

| | |
|---|---|
| WP No.3 | |
| Work Package/Activity type | <input type="checkbox"/> Preparation <input type="checkbox"/> Management <input checked="" type="checkbox"/> Implementation (the substance of the work planned including production, testing, etc.) <input type="checkbox"/> Quality Assurance (quality plan) <input type="checkbox"/> Evaluation <input type="checkbox"/> Dissemination and Exploitation of results |
| Title | Curricula Analysis and Development of Teaching Materials |
| Description (Recommended limit 1500 characters) | |
| Tasks (Recommended limit 3000 characters) | |
| Estimated start date | 11/2020 |
| Estimated end date | 10/2023 |
| Lead organisation | HSO |
| Participating organisations | All HEI partners |

WP3 Results (outputs and outcomes)

Please add tables as necessary.

| | | |
|--|--|--|
| Expected result (output or outcome) | WP3 | |
| | Title | |
| | Type | |
| | Description (Recommended limit 1500 characters) | |

| | | |
|----------------------------|---|--|
| | Due date | |
| | Language(s) | |
| | Media(s) | |
| Dissemination level | <input type="checkbox"/> Public <input type="checkbox"/> Restricted to other programme participants (including Commission services and project reviewers) <input type="checkbox"/> Confidential, only for members of the consortium (including EACEA and Commission services and project reviewers) | |

WP3 Explanation of Work Package expenditures

Please explain what costs will be associated to each Work Package and covered by scale of unit costs. If learning mobilities are to be organised, please explain what is covered under the heading for "travel and subsistence costs" (Recommended limit 3000 characters).

VII.4. Work Package 4 – (*Teach the Teachers*)

WP4 description

| | |
|---|---|
| WP No.4 | |
| Work Package/Activity type | <input type="checkbox"/> Preparation <input type="checkbox"/> Management <input checked="" type="checkbox"/> Implementation (the substance of the work planned including production, testing, etc.) <input type="checkbox"/> Quality Assurance (quality plan) <input type="checkbox"/> Evaluation <input type="checkbox"/> Dissemination and Exploitation of results |
| Title | Teach the Teachers |
| Description (Recommended limit 1500 characters) | <p>In this WP a <i>mobility part “teach the teachers”</i> is provided. Since the methods for teaching SIM used at the different locations are different, the partners should be trained in 6 training units at 6 different HEI locations by one of the partners as trainer according to the teaching methods used on that site. The trainer partner is coached by one of the Eastern European partners so that their extensive experience is incorporated here. With a view to costs, these training courses are only carried out in the EU. The participation of <i>\emph{additional partners}</i> is explicitly provided, however, they have to finance the additional expenses themselves.</p> <p>In the last part of the project measures are to be taken to promote the establishment of appropriate structures for student mobility according to Key Action 1 at the individual HEI locations for our Knowledge Alliance.</p> |
| Tasks (Recommended limit 3000 characters) | |
| Estimated start date | 11/2020 |
| Estimated end date | 10/2023 |
| Lead organisation | INSA |
| Participating organisations | All partners |

WP4 Results (outputs and outcomes)

Please add tables as necessary.

| | | |
|--|-------|--|
| Expected result (output or outcome) | WP4 | |
| | Title | |

| | | |
|----------------------------|---|--|
| | Type | |
| | Description (Recommended limit 1500 characters) | |
| | Due date | |
| | Language(s) | |
| | Media(s) | |
| Dissemination level | <input type="checkbox"/> Public <input type="checkbox"/> Restricted to other programme participants (including Commission services and project reviewers) <input type="checkbox"/> Confidential, only for members of the consortium (including EACEA and Commission services and project reviewers) | |

WP4 Explanation of Work Package expenditures

Please explain what costs will be associated to each Work Package and covered by scale of unit costs. If learning mobilities are to be organised, please explain what is covered under the heading for "travel and subsistence costs" (Recommended limit 3000 characters).

VII.5. Work Package 5 – *(Involving Industry)*

WP5 description

| | |
|--|---|
| WP No.5 | |
| Work Package/Activity type | <input type="checkbox"/> Preparation <input type="checkbox"/> Management <input checked="" type="checkbox"/> Implementation (the substance of the work planned including production, testing, etc.) <input type="checkbox"/> Quality Assurance (quality plan) <input type="checkbox"/> Evaluation <input type="checkbox"/> Dissemination and Exploitation of results |
| Title | Involving Industry |
| Description <i>(Recommended limit 1500 characters)</i> | <p>The focus of this WP is on raising the awareness of other EU companies, particularly those in the manufacturing sector, and on winning them to join the network as additional partners. The WP is divided into three parts, in which project funds are initially used to achieve a boost effect, the self-organizing potential of which should have an effect in the intermediate phase.</p> <p>In the first phase, potential candidates should be addressed intensively with the aim of establishing a (sub)network of interested industrial companies that is able to enter into a fruitful exchange with the network of the HEI and thus to synchronize the curricular developments with the needs of the industry.</p> <p>In a second phase these efforts should be consolidated, in a third phase the focus is primarily on quality assurance and forward orientation in order to ensure the further consolidation of self-supporting structures, which also have a lasting effect beyond the end of the project.</p> |
| Tasks <i>(Recommended limit 3000 characters)</i> | |
| Estimated start date | 11/2020 |
| Estimated end date | 10/2023 |
| Lead organisation | Jantschgi |
| Participating organisations | All industrial partners |

WP5 Results (outputs and outcomes)

Please add tables as necessary.

| | | |
|------------------------|-----|--|
| Expected result | WP5 | |
|------------------------|-----|--|

| | | |
|----------------------------|---|--|
| (output or outcome) | Title | |
| | Type | |
| | Description <i>(Recommended limit 1500 characters)</i> | |
| | Due date | |
| | Language(s) | |
| | Media(s) | |
| Dissemination level | <input type="checkbox"/> Public <input type="checkbox"/> Restricted to other programme participants (including Commission services and project reviewers) <input type="checkbox"/> Confidential, only for members of the consortium (including EACEA and Commission services and project reviewers) | |

WP5 Explanation of Work Package expenditures

Please explain what costs will be associated to each Work Package and covered by scale of unit costs. If learning mobilities are to be organised, please explain what is covered under the heading for "travel and subsistence costs" (Recommended limit 3000 characters).

VII.6. Work Package 6 – (Project Management)

WP6 description

| | |
|---|---|
| WP No.6 | |
| Work Package/Activity type | <input type="checkbox"/> Preparation <input checked="" type="checkbox"/> Management <input type="checkbox"/> Implementation (the substance of the work planned including production, testing, etc.) <input type="checkbox"/> Quality Assurance (quality plan) <input type="checkbox"/> Evaluation <input type="checkbox"/> Dissemination and Exploitation of results |
| Title | Project Management |
| Description (Recommended limit 1500 characters) | |
| Tasks (Recommended limit 3000 characters) | |
| Estimated start date | 11/2020 |
| Estimated end date | 10/2023 |
| Lead organisation | ULEI |
| Participating organisations | All partners |

WP6 Explanation of Work Package expenditures

Please explain what costs will be associated to each Work Package and covered by scale of unit costs. If learning mobilities are to be organised, please explain what is covered under the heading for "travel and subsistence costs" (Recommended limit 3000 characters).

| |
|--|
| |
|--|

VII.7. Work Package 7 – (Dissemination and Transfer)

WP7 description

| | |
|---|---|
| WP No.7 | |
| Work Package/Activity type | <input type="checkbox"/> Preparation <input type="checkbox"/> Management <input type="checkbox"/> Implementation (the substance of the work planned including production, testing, etc.) <input type="checkbox"/> Quality Assurance (quality plan) <input type="checkbox"/> Evaluation <input checked="" type="checkbox"/> Dissemination and Exploitation of results |
| Title | Dissemination and Transfer |
| Description (Recommended limit 1500 characters) | |
| Tasks (Recommended limit 3000 characters) | |
| Estimated start date | 11/2020 |
| Estimated end date | 10/2023 |
| Lead organisation | UTC |
| Participating organisations | All partners |

WP7 Results (outputs and outcomes)

Please add tables as necessary.

| | | |
|--|--|--|
| Expected result (output or outcome) | WP7 | |
| | Title | |
| | Type | |
| | Description (Recommended limit 1500 characters) | |

| | | |
|----------------------------|---|--|
| | Due date | |
| | Language(s) | |
| | Media(s) | |
| Dissemination level | <input type="checkbox"/> Public <input type="checkbox"/> Restricted to other programme participants (including Commission services and project reviewers) <input type="checkbox"/> Confidential, only for members of the consortium (including EACEA and Commission services and project reviewers) | |

WP7 Explanation of Work Package expenditures

Please explain what costs will be associated to each Work Package and covered by scale of unit costs. If learning mobilities are to be organised, please explain what is covered under the heading for "travel and subsistence costs" (Recommended limit 3000 characters).

VII.8. Work Package 8 – (Quality Control)

WP8 description

| | |
|---|---|
| WP No.8 | |
| Work Package/Activity type | <input type="checkbox"/> Preparation <input type="checkbox"/> Management <input type="checkbox"/> Implementation (the substance of the work planned including production, testing, etc.) <input checked="" type="checkbox"/> Quality Assurance (quality plan) <input type="checkbox"/> Evaluation <input type="checkbox"/> Dissemination and Exploitation of results |
| Title | Quality Control |
| Description (Recommended limit 1500 characters) | Quality Control is part of the Sprint Review process within the PM P2...P7. The corresponding phases are prepared together with external partners (CCI) in the last third of each sprint, the results of this QA are discussed on the final PM and adopted as deliverable. |
| Tasks (Recommended limit 3000 characters) | |
| Estimated start date | 11/2020 |
| Estimated end date | 10/2023 |
| Lead organisation | BUT |
| Participating organisations | All partners |

WP8 Results (outputs and outcomes)

Please add tables as necessary.

| | | |
|--|--|--|
| Expected result (output or outcome) | WP8 | |
| | Title | |
| | Type | |
| | Description (Recommended limit 1500 characters) | |
| | Due date | |

| | | |
|----------------------------|---|--|
| | Language(s) | |
| | Media(s) | |
| Dissemination level | <input type="checkbox"/> Public <input type="checkbox"/> Restricted to other programme participants (including Commission services and project reviewers) <input type="checkbox"/> Confidential, only for members of the consortium (including EACEA and Commission services and project reviewers) | |

WP8 Explanation of Work Package expenditures

Please explain what costs will be associated to each Work Package and covered by scale of unit costs. If learning mobilities are to be organised, please explain what is covered under the heading for "travel and subsistence costs" (Recommended limit 3000 characters).

VII.9. Work Package 9 – (Evaluation)

WP9 description

| | |
|---|--|
| WP No.9 | |
| Work Package/Activity type | <input type="checkbox"/> Preparation <input type="checkbox"/> Management <input type="checkbox"/> Implementation (the substance of the work planned including production, testing, etc.) <input type="checkbox"/> Quality Assurance (quality plan) <input checked="" type="checkbox"/> Evaluation <input type="checkbox"/> Dissemination and Exploitation of results |
| Title | Evaluation |
| Description (Recommended limit 1500 characters) | <p>In the last phase of the project, a more intensive evaluation of the successful implementation of the two project priorities</p> <ul style="list-style-type: none"> • HEI network • Network of industrial partners <p>has to be done based on the structures built up with the other WP and using the expertise of various CCI.</p> <p>The exact methodology is to be determined in the course of the project implementation.</p> |
| Tasks (Recommended limit 3000 characters) | |
| Estimated start date | 11/2020 |
| Estimated end date | 10/2023 |
| Lead organisation | BUT |
| Participating organisations | All partners |

WP9 Results (outputs and outcomes)

Please add tables as necessary.

| | | |
|--|-------|--|
| Expected result (output or outcome) | WP8 | |
| | Title | |

| | | |
|----------------------------|---|--|
| | Type | |
| | Description <i>(Recommended limit 1500 characters)</i> | |
| | Due date | |
| | Language(s) | |
| | Media(s) | |
| Dissemination level | <input type="checkbox"/> Public <input type="checkbox"/> Restricted to other programme participants (including Commission services and project reviewers) <input type="checkbox"/> Confidential, only for members of the consortium (including EACEA and Commission services and project reviewers) | |

WP9 Explanation of Work Package expenditures

Please explain what costs will be associated to each Work Package and covered by scale of unit costs. If learning mobilities are to be organised, please explain what is covered under the heading for "travel and subsistence costs" (Recommended limit 3000 characters).

VII.10. Work Package 10 – *(Digital Tools)*

WP10 description

| | |
|--|---|
| WP No.10 | |
| Work Package/Activity type | <input type="checkbox"/> Preparation <input type="checkbox"/> Management <input checked="" type="checkbox"/> Implementation (the substance of the work planned including production, testing, etc.) <input type="checkbox"/> Quality Assurance (quality plan) <input type="checkbox"/> Evaluation <input type="checkbox"/> Dissemination and Exploitation of results |
| Title | Digital Tools |
| Description <i>(Recommended limit 1500 characters)</i> | |
| Tasks <i>(Recommended limit 3000 characters)</i> | |
| Estimated start date | 11/2020 |
| Estimated end date | 10/2023 |
| Lead organisation | BUT |
| Participating organisations | All partners |

WP10 Results (outputs and outcomes)

Please add tables as necessary.

| | | |
|--|---|--|
| Expected result (output or outcome) | WP8 | |
| | Title | |
| | Type | |
| | Description <i>(Recommended limit 1500 characters)</i> | |

| | | |
|----------------------------|---|--|
| | | |
| | Due date | |
| | Language(s) | |
| | Media(s) | |
| Dissemination level | <input type="checkbox"/> Public <input type="checkbox"/> Restricted to other programme participants (including Commission services and project reviewers) <input type="checkbox"/> Confidential, only for members of the consortium (including EACEA and Commission services and project reviewers) | |

WP10 Explanation of Work Package expenditures

Please explain what costs will be associated to each Work Package and covered by scale of unit costs. If learning mobilities are to be organised, please explain what is covered under the heading for "travel and subsistence costs" (Recommended limit 3000 characters).

VII.7. Overview of consortium partners involved and resources required

Please add lines as necessary according to number of Work Packages and partners involved.

Indicative input of consortium staff - The total number of days per staff category should correspond with the information provided in the budget tables.

| N° of Work Package | Lead partner | Partners involved | Country | Number of staff days | | | | |
|--------------------|--------------|-------------------|---------|----------------------|----------|----------|----------|-------|
| | | | | Category | Category | Category | Category | Total |
| | | | | 1 | 2 | 3 | 4 | |
| 1 | Lead partner | P(n) | | | | | | |
| | | P(n) | | | | | | |
| | | P(n) | | | | | | |
| | | P(n) | | | | | | |
| Subtotal | | | | | | | | |
| 2 | Lead partner | P(n) | | | | | | |
| | | P(n) | | | | | | |
| | | P(n) | | | | | | |
| Subtotal | | | | | | | | |
| 3 | Lead partner | P(n) | | | | | | |
| | | P(n) | | | | | | |
| | | P(n) | | | | | | |
| Subtotal | | | | | | | | |
| 4 | Lead partner | P(n) | | | | | | |
| | | P(n) | | | | | | |
| | | P(n) | | | | | | |
| Subtotal | | | | | | | | |
| 5 | Lead partner | P(n) | | | | | | |
| | | P(n) | | | | | | |
| | | P(n) | | | | | | |
| Subtotal | | | | | | | | |
| 6 | Lead partner | P(n) | | | | | | |
| | | P(n) | | | | | | |
| | | P(n) | | | | | | |
| | | | | | | | | |
| Subtotal | | | | | | | | |
| 7 | Lead partner | P(n) | | | | | | |
| | | | | | | | | |
| Subtotal | | | | | | | | |
| 8 | Lead partner | P(n) | | | | | | |
| | | | | | | | | |

| N° of Work Package | Lead partner | Partners involved | Country | Number of staff days | | | | |
|--------------------------|-----------------|----------------------|---------|----------------------|----------|----------|----------|-------|
| | | | | Category | Category | Category | Category | Total |
| | | | | 1 | 2 | 3 | 4 | |
| | | | | | | | | |
| Subtotal | | | | | | | | |
| TOTAL | | | | | | | | |

VII.8. Overview of expected results (outputs and outcomes)

Please add lines as necessary according to number of Work Packages (WP) and results (outputs or outcomes).

| N° of WP | Lead organisation (Pn) | Deliverable nr | Start date | End date | Title of the deliverable | Medium that will be used (publication, electronic, online, other (specify)) | Language |
|----------|------------------------|----------------|------------|----------|--------------------------|---|----------|
| | | | | | | | |
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PART VIII. Specific arrangements regarding Associated Partners (if applicable)

In addition to full partners, Knowledge Alliances can also involve Associated Partners who contribute to the implementation of specific project tasks/activities or support the dissemination and sustainability of the Alliance. From a contractual point of view, they are not considered as project partners and do not receive funding, however it is important to make clear in the application how they will contribute to the project

Please list hereafter the associated partners

| Names of the Associated Partner organisations | Types of organisations |
|--|-------------------------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Explain their involvement and role in the project and different activities (Recommended limit 1500 characters)

Annex – Affiliated Entities (if applicable)

Please fill in this Annex in case your Consortium involves Affiliated Entities.

I. List of Affiliated Entities that are members of the beneficiaries' organisation(s) involved in the application

Please fill in the table indicating the beneficiaries' and their affiliated entities who will participate in the project activities.

| Beneficiary N° <i>(please use the same numbering both in the eForm and in the Excel budget table)</i> | Name of the beneficiary (partner) organisation | Country | Affiliated Entity N° AE (AE1 – AEn) | Name of the Affiliated Entity of the beneficiary organisation | Country of the Affiliated Entity |
|--|--|---------|--|---|----------------------------------|
| P 1 | | | AE | Affiliated Entity 1 | |
| | | | | Affiliated Entity 2 | |
| | | | | Affiliated Entity 3 | |
| | | | | | |

II. Description of the Affiliated Entities

This section must be completed separately by each Affiliated Entity participating in the project. Please use the same numbering as in the table above, corresponding to the one on the eForm and the Excel budget table (e.g. AE1 refers to Affiliated Entity 1 of the beneficiary organisation who is Px in the eForm).

Partner number - P x [P1 – Pn] (beneficiary organisation)

Affiliated Entity number AE x (AE1 – AEn) (member of the beneficiary organisation)

| | |
|--------------------------|--|
| Organisation name | |
| Country | |

Please provide information on the legal or capital link between the Partner organisation and the Affiliated Entity. Please briefly describe the profile (with regard to the required types of organisations) and the role of your organisation in the project.

Please indicate the names of the staff that will be involved and provide a brief description of their expertise.



III. Overview of consortium partners and their Affiliated Entities and resources required

Please add lines as necessary according to number of Work Packages, partners and Affiliated Entities involved.

Indicative input of consortium staff - The total number of days per staff category must correspond to the information provided in the budget tables.

For each Work Package concerned, please fill in the table for each partner organisation whose Affiliated Entities will be involved in the project activities. Please list the number of days and tasks allocated to each Affiliated Entity in additional rows. The number of days dedicated to a beneficiary organisation has to be splitted between the partner organisation and its Affiliated Entity. For example, the partner organisation has 10 days for category 1, but after including the Affiliated Entities, it will have 5 days, Affiliated Entity 1 - 3 days and Affiliated Entity 2 – 2 days (total will be 10). Information regarding the other partners should not be modified.

| N° of Work Package | Partner organisations involved | Country | Number of staff days | | | | | Role and tasks in the Work Package |
|--------------------|---|---------|----------------------|----------|----------|----------|-------|------------------------------------|
| | | | Category | Category | Category | Category | Total | |
| | | | 1 | 2 | 3 | 4 | | |
| 1 | P(x) Partner organisation | | | | | | | |
| | Affiliated Entity 1 (name of the organisation) | | | | | | | |
| | Affiliated Entity 2 (name of the organisation)* | | | | | | | |
| | Affiliated Entity 3 (name of the organisation)* | | | | | | | |
| 2 | P(x) Partner organisation | | | | | | | |
| | Affiliated Entity 1 (name of the organisation) | | | | | | | |
| | Affiliated Entity 2 (name of the organisation)* | | | | | | | |

*Please add rows as necessary.