# SIM – Systematic Innovation Methodologies
# Work Packages and Budget Allocation

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## Last Changes

- 2020-02-20: Consistent use of the term *Use Case Collection* through all documents. Focus A and B removed from the application.

## The Full Partners

| Country | name of institution | representative | type |
|---------|--------------------|----------------|------|
| Germany | Uni Leipzig | Hans-Gert Gräbe, Thomas Neumuth | HEI |
| France | INSA Strasbourg | Denis Cavallucci | HEI |
| Germany | HS Offenburg | Pavel Livotov | HEI |
| Romania | UTC Cluj-Napoca | Stelian Brad | HEI |
| Finland | LUT Lappeenranta | Leonid Chechurin | HEI |
| Germany | Schaeffler AG | Armin Lau, Thomas Fuhrmann | Industry |
| Romania | Arxia SRL | Daniel Homorodean | SME |
| Romania | Tehnoprod Plast SRL | Lucian Moraru | SME |
| Austria | Jantschgi C&R | Jürgen Jantschgi | SME |
| Belarus | Target Innovation Minsk | Nikolay Shpakovski | SME, PA |

PA means *Partner Country*, below TE means 1000 Euro.

### State of Partners' registrations within the EU Database

Partners need to have a valid EU PIC Code and HEI partners also a valid ERASMUS Charter EHCE. The last column is about the partner letter that is required by our University administration to sign the application on behalf of the consortium as *applicant*.

| Nr. | Name of institution | type | PIC | Partner letter | Key staff |
|-----|---------------------|------|-----|----------------|-----------|
| P01 | Leipzig University | HEI | 999854564 | – | 4 |
| P02 | INSA Strasbourg | HEI | 998731110 | 13.02.2020 | 5 |
| P03 | HS Offenburg | HEI | 961360405 | 04.02.2020 | 3 |
| P04 | UTC Cluj-Napoca | HEI | 999897244 | 10.02.2020 | 3 |
| P05 | LUT Lappeenranta | HEI | 999591209 | 13.02.2020 | 4 |
| P06 | Schaeffler AG | Industry | 946808562 | | 2 |
| P07 | Arxia SRL | SME | 898474238 | 06.02.2020 | 1 |
| P08 | Tehnoprod Plast SRL | SME | 996553363 | 11.02.2020 | 1 |
| P09 | Jantschgi C&R | SME | 951782043 | 08.02.2020 | 4 |
| P10 | Target Invention Minsk | SME | 895838166 | 06.02.2020 | 4 |

# Budget Planning

The calculation of eligible costs (Programme Guide pp. 138–141) is quite straightforward: There is a special amount per day for four different categories that can be spent. Each person that gets funding has to be employed by one of the full partners and has to deliver a time sheet (signed by the responsible at partner site) about the work done for the project.

It should be noted that the KA grant is designed as a *subsidiary support* based on fixed costs, i.e., it does not cover the entire project costs. Whereas in the past, plausible total cost planning was required in addition to planning the funding amount, the EU has changed this with this type of funding and only requires the submission of the time sheets to prove that the money was spent according to the regulations. E.g., a 0.5 (20 h per week) young researcher position for a year (paying according to tariff as required by a public institution like university) that counts in Germany with about 45 TE is supported with 30 TE by the grant.

Note moreover that the same work in different European regions is funded with different funding rates. This must be considered when the individual shares of the different partners to be calculated in person-days are converted into grant shares.

## Budget per Work Package and Mobility Activities

Part of the grant can be spent for funding mobility activities (i.e., for clear teaching activities at one of the sites). I have designed such a mobility activity as project part in WP 4 generalizing the experience of Denis with his summer schools. WP 4 defines in more detail a mobility program „train the trainers" with 6 teaching units (3 days each) at 6 different locations in order to present the different methodologies of the individual partners in such teaching units. Trainings can be supported only for attendees from project members (275 Euro travel expenses + 300 Euro subsistence cost = 575 Euro per attendee and training).

The initially planned 120 travel grants (20 per training) I had to reduce to 110 grants to fit into the budget. See WP 4 below for a distribution of these travel grants to the partners (this had to be fixed in the application).

# Main Activities – SCRUM Epics

The Work Package structure required for submission is structured along the different *types of activities* to be considered in the project plan. This destroys the content logic of the main activities, because all these activity types (implementation, dissemination, evaluation) must be brought together in *each of these main activities*. However, this means that the main activities must be composed in such a way that they are distributed over several WPs on the one side, and as different shares to the project partners on the other side.

In order to present this consistently in the application logic, I will classify these main activities as *SCRUM Epics* and thus make direct use of the SCRUM terminology[1] as process methodology. Such epics offer the possibility to pre-structure a project, which will then be refined step by step in the *Project Backlog* into stories, which in turn will be prioritized and transferred to the respective *Sprint Backlog*, where they are be broken down into tasks and assigned to individual assignees for processing.

In the following such main activities (resp. activity templates – if there are several activities following the same scheme) are defined as SCRUM Epics.

**Epic E1: SIM-SSN.** Plan, design, implement, run and improve a semantically supported decentralized digital infrastructure. This includes questions of ontology for teaching activities.

This has to be done in several steps – requirements analysis, architectural design, design, implementation, operation – over several project sprints. Adopt SCRUM to realise that, emphasizing on rapid prototyping and evolutionary development. See WP 2 for a more detailed description.

Relates to WP 1 (bootstrap of the infrastructure), WP 2 (main part), WP 7 (use for dissemination)

**Epic E2: Development of courses and teaching materials.** Process Template: Develop, pilot, publish, evaluate, promote.

The steps should be distributed over several sprints using a common principle. There is a partner who plans to contribute such an activity (assignee in the following).

Main activity is „develop, pilot, publish" during a single sprint by the assignee. The deliverable has to be approved on a project meeting. The assignee of the task gets a share from WP 3 for that.

Additional activity evaluation: The WP 9 development group develops a template how evaluation of such a course or material has to be done, the assignee initiates that template for his course, runs evaluation and gets a share from WP 9 for that.

Additional activity promotion: The WP 7 story 7.2 group takes that as input and incorporates that into their overall activities (dissemination as an integrated activity).

Relates to WP 3, evaluation to WP 9, promotion to story 7.2 in WP 7.

**Epic E3: Extend existing Digital Tools.** Template: Use, collect requirements, redesign, evaluate, promote.

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[1] https://www.knowledgehut.com/blog/agile/what-is-an-epic-agile

The steps should be distributed over several sprints using a common principle. A small enhancement could be realised within a single sprint, larger developments require more time.

This is a generic template to be applied to INSA-Tools (PICC, FINDER, PhysiSolve and SimplySolve), CEPHEI (LUT), TRIZ-Trainer (TIM), UTC platform.

This needs real cooperation between partners. As far as I understand each of these 4 partners is ready to set up such a cooperation project.

Relates to WP 10 (I renamed it to "Digital Tools"), promotion to WP 7.

Note that many parts of the project are related to digital tools and we need to concentrate and build up expertise (as "cross-cutting skills") in that direction for almost all parts of the project. The improvement of the IT basis is required, firstly for cooperation in the network (SIM-SSN), and secondly as a basis for e-learning, which is also about content and dissemination, and thirdly for the Use Case Collection (next epic). This requires experienced technical experts, who are relatively expensive. This goes beyond the scope of this epic and has to be addressed as cross-cutting challenge in the project (idea: in due time apply for other funding).

**Epic E4: Development of a semantically based use case collection as OER.** Use cases is the core of almost all concepts teaching SIM to give not only theoretical advice but also practical insight. Hence use case collections of different quality exist at all locations where SIM is taught.

Large preliminary work exists here (to my knowledge) in particular at INSA and TI Minsk.

The aim of this epic is to compile a common Use Case Collection as a first class OER to be maintained cooperatively. The problems to be settled are similar to any collection of exercises and solutions – the exercises may be publicly shown, the solutions have to be maintained in a way that keeps them internally to the trainer staff. Here several challenges are yet to be settled. In particular we can start to collect the use case challenges only, keeping the solutions internally. Such distributed knowledge bases are best supported by advanced RDF concepts, see, e.g., the Linked Enterprise Data Services (LEDS) Project[2] at Leipzig University.

To collect these data a commonly accepted ontology is required. Moreover I would suggest to separate questions about the data in that collection from questions about teaching services. This could equally be a *basic* collection of use cases, recommending to follow a certain structure also for the internal collections. Partners can operate larger collections using that structure, add additional confidential information etc. All this is supported by RDF based Semantic Web concepts.

Relates to WP 3, WP 2 and 10 (for the technical part), promotion to WP 7, collecting new use cases also to WP 5.

**Epic E5: Enlarging the Network.** The partners currently involved in the project as full partners are only a small part of the potential that already exists or can be activated to spread SIM skills around Europe. The KA initiative is mainly based on HEI structures and brings together a number of HEI where longer traditions in SIM teaching already exist.

With ETRIA, a Europe-wide forum already exists, which is mainly focused on the coordination of top-class SIM research. Several of the leading heads of our project are also intensively

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[2] https://www.leds-projekt.de/

involved with ETRIA. ETRIA is thus an important platform for expanding the network, especially into the academic field. This is a first component of an expansion strategy.

A second component of an expansion strategy is aimed at companies in the HEI partner environment. All HEI partners have their own industry contacts and also own small companies around.

A third component of an expansion strategy relies on multiplier effects between industrial companies themselves or the inclusion of chamber structures in the dissemination, as offered by the CCI Heilbronn in its LoI.

The focus of the expansion strategy is on contacts in the industrial sector, whereby a further distinction must be made between companies from the manufacturing sector as *users of SIM*, which are more interested in the direct qualification of personnel, and companies from the consulting and training sector as *providers of SIM as a service*, that benefit more from "train the trainers" concepts.

Appropriate concepts for reaching the target groups would first have to be developed within the project and then rolled out.

**Epic E6: Development of industrial-grade tools.** Both for advanced teaching and consultancy: use, collect requirements, redesign, evaluate, promote.

I know such tools as FINDER (INSA) and Solving Mills (TIM), but have no idea if such an epic is well placed within an ERASMUS proposal.

Relates to WP 5, promotion to WP 7, has to be subsumed in E3 (no free share left).

**Epic E7 (a non-epic): The Central German SIM teaching infrastructure.** Within the WUMM Project in Central Germany («Mitteldeutschland», this is a regional context around Leipzig) we started already to develop a regional SIM teaching infrastructure. My activities to set up this proposal is clearly a part of these efforts.

Although a big story for Leipzig, this is only a byproduct of the project and cannot be financed at large from ERASMUS funds, but should be considered for dissemination as best practice. Such a best practice (if successfully implemented in our region) relates to aim 6 "support other HEI's in setting up appropriate training and further education offers".

# WP 1: Project Initialisation (PREP), Lead: ULEI

## Story 1.1: A more detailed analysis of the teaching offers of the partners

At the very beginning of the project we conduct a more detailed analysis of the teaching offers of the individual partners. This analysis already begins in the phase prior to project approval and is in principle completed in the first two months of the project.

In the preproject phase, it will already be agreed how this work is to be structured exactly. The partners provide the lead of the WP with the corresponding work, who then compiles a first document for P1 and prepares a more detailes deliverable for P2 that serves also as input for WP 2.

This relates to epic E1.

**Output:** a pdf text document. Dissemination: public.

**Outcome:** A better common understanding what the HEI partners really are doing. Input for WP 2 and WP 5, Story 5.2.

Share for contributions 30 TE (A: 4 TE, B: 1.500 TE), additional 6 TE for the compilation of the delivery by ULEI.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| ULEI | 4 | 30 | | 6 | 9996 |
| INSA | 2 | 12 | | | 3756 |
| HSO | 2 | 12 | | | 3756 |
| UTC | 2 | 15 | | | 1532 |
| LUT | 2 | 12 | | | 3756 |
| Schaeffler | 2 | 12 | | | 3756 |
| Arxia | 2 | 15 | | | 1532 |
| TPlast | 2 | 15 | | | 1532 |
| Jantschgi | 2 | 12 | | | 4174 |
| TI Minsk | 2 | 15 | | | 1532 |
| | | | | | 35322 |

## Story 1.2: Bootstrapping the (digital) cooperation structure and infrastructure

This is mainly due to ULEI that hosts the digital infrastructure and focuses on developing the appropriate tools for project-internal cooperation. The HEI partners are the key partners since they operate the core of the digital infrastructure (see WP 2) and have to organise the roll out of the infrastructure in their local area of responsibility. The other partners have to set up access to the infrastructure for their staff.

**Output:** Project share at github, web presentation, web tools to deliver content.

**Outcome:** A smoothly running project infrastructure.

ULEI together 21 TE for the much greater overhead in the bootstrap process as applicant, share for the A-HEI 3 TE, for UTC, Jantschgi, Schaeffler 1 TE, for the others 0.5 TE.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| ULEI | 4 | 20 | 70 | 6 | 21006 |
| INSA | 2 | 9 | | | 2985 |
| HSO | 2 | 9 | | | 2985 |
| UTC | 2 | 9 | | | 1004 |
| LUT | 2 | 9 | | | 2985 |
| Schaeffler | | 4 | | | 1028 |
| Arxia | 3 | 2 | | | 494 |
| TPlast | 3 | 2 | | | 494 |
| Jantschgi | 2 | 1 | | | 995 |
| TI Minsk | 3 | 2 | | | 494 |
| | | | | | 34470 |

**WP 1 Summary.**

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| ULEI | 8 | 50 | 70 | 12 | 31002 |
| INSA | 4 | 21 | | | 6741 |
| HSO | 4 | 21 | | | 6741 |
| UTC | 4 | 24 | | | 2536 |
| LUT | 4 | 21 | | | 6741 |
| Schaeffler | 2 | 16 | | | 4784 |
| Arxia | 5 | 17 | | | 2026 |
| TPlast | 5 | 17 | | | 2026 |
| Jantschgi | 4 | 13 | | | 5169 |
| TI Minsk | 5 | 17 | | | 2026 |
| | | | | | 69792 |

# WP 2: Networking the Knowledge Alliance (IMP), Lead: LUT

This part requires many soft contributions, which cannot be cast in concrete stories, but rather have an atmospheric character. Therefore, the only point in this package, which is to be promoted with a project share, is the development of an appropriate digital support infrastructure.

### Story 2: Develop and set up the SIM-SSN

This relates to Epic E1. Within this story,

(1) the results of WP 1 have to be prepared and structured according to a course ontology to be agreed upon the partners and prepared for machine processing.

(2) Uniform open source tools have to be developed to manage the data locally at the HEI partners in *SIM-SSN Nodes*. The data from different locations can be combined by means of tools to form different overall views – the *SIM-SSN Cloud*.

(3) With this decentralized architecture, which can easily be extended to other partners, a decentralized data updating is combined with the possibilities of centrally available presentation and search structures. The architecture implements advanced Semantic Web technologies based on RDF.

(4) To sustain that development, a *SIM-SSN competence centre* shall be established to develop the node architecture and to support the partners in its operation. This can be based on the structures currently being developed with the *Central German Competence Center on SIM* in Leipzig.

The development of these tools is to be carried out according to an iterative development model in three consecutive sprints, with updated versions of SIM-SSN going live at P3, P4 and P5. The requirements analysis is due for approval at P2.

Initial tasks are

- Requirement analysis (due at P2),

- Architectural design and rapid prototyping,

- Design of the system, development and testing of the tools,

- Release of the development and approval of the release at the milestone (due at P3),

- Roll out the infrastructure at the partners.

The revision phases 2 and 3 have to deal with

- Promotion and support of the partners operating SIM-SSN Nodes,

- Collecting and structuring issues and change requests,

- Further development of the ontology,

- Road mapping of changes in a product plan and a release plan,

- Implementation of the changes and extensions,

- Consolidation as release and approval at the milestone (due at P4 and P5).

The main technical work will be done at ULEI, requirement analysis and ontology design and further development in cooperation with LUT and INSA.

**Output:** Open Sourced Code at github, Software installations at the different nodes, handbooks for the different service levels, skilled operators to run the infrastructure, documentation of the development process.

**Outcome:** A smoothly running SIM-SSN to support the various cooperation requirements in the KA with digital tools also beyond the end of the project.

Main developer ULEI (40 TE), support in design and requirements analysis by INSA, LUT (share 15 TE each), two other HEI partners as operating SIM-SSN nodes provided by the development team (share HSO 10 TE, UTC 4 TE).

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---------|------|------|------|------|-------------|
| ULEI    | 10   | 30   | 150  |      | 40170       |
| INSA    | 4    | 30   | 30   |      | 14874       |
| HSO     | 3    | 20   | 20   |      | 10028       |
| UTC     | 2    | 20   | 30   |      | 3952        |
| LUT     | 4    | 30   | 30   |      | 14874       |
|         |      |      |      |      | 83898       |

# WP 3: Development of courses and teaching material (IMP), Lead: HSO

### Story 3.1.x: Development of new courses.

There were proposed several stories[3] from LUT, HSO, UTC, INSA, ULEI.

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[3]Using this term in the sense of the SCRUM methodology.

We should concentrate on three stories, staff each with 20 TE. My proposal is to take stories proposed by LUT (3.1.1), HSO (3.1.2) and INSA (3.1.3) and another project (5 TE) for building a MOOC (UTC, 3.1.4).

This also relates to epic E2. For each story there is another share from Story 9.2 in WP 9 to support the evaluation.

**Output:** For each story a piloted and evaluated course ready for dissemination.

**Outcome:** Enlarging the base of courses that are available in the KA network for student training and can be rolled out at partners. At the same time, this will improve the training opportunities for the target group of students at European level.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---------|------|------|------|------|-------------|
| INSA    | 14   | 50   |      | 15   | 19909       |
| HSO     | 14   | 50   |      | 15   | 19909       |
| UTC     | 8    | 45   |      | 4    | 4996        |
| LUT     | 14   | 50   |      | 15   | 19909       |
|         |      |      |      |      | 64723       |

## Story 3.2: Compile a common Use Case Collection.

This relates to epic E4, which aim is explained above in more detail.

The target of this story is the creation of a common semantically driven OER Use Case Collection extending existing ones of the partners. One core point here is to develop an appropriate ontology and use semantic technologies to support the operation.

Should be mainly driven by INSA (technical realisation, 30 TE) and supported by TI Minsk (advice 5 TE). For TI Minsk providing material see Story 5.4.

There is another share in Story 5.4 of WP 5 to involve industry.

This should be strongly promoted within Story 7.2 in WP 7.

**Output:** The collection.

**Outcome:** With this collection, the quality of all courses in which use cases play a central role can be improved. This will improve the training quality for the target group of students at European level. A further effect is the strengthening of cooperation between the trainers themselves induced by such a common collection. A third effect is the interface with industry, which can have a direct influence on the focus of SIM skills training by providing suitable use cases.

| Partner  | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|----------|------|------|------|------|-------------|
| INSA     | 10   | 40   | 80   | 5    | 29945       |
| TI Minsk | 5    | 50   |      | 2    | 5024        |
|          |      |      |      |      | 34969       |

**WP 3 Summary.**

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| INSA | 24 | 90 | 80 | 20 | 49854 |
| HSO | 14 | 50 | | 15 | 19909 |
| UTC | 8 | 45 | | 4 | 4996 |
| LUT | 14 | 50 | | 15 | 19909 |
| TI Minsk | 5 | 50 | | 2 | 5024 |
| | | | | | 99692 |

# WP 4: Train the Trainers (IMP), Lead: INSA

### Story 4.1: Train the Trainers.

There are 6 three-day trainings (workshops) "train the trainers" each conducted by one of the partners with teaching experience (HSO, INSA, Jantschgi, LUT, UTC, ULEI/Minsk) at their home place, for attendees from the other partners and also for additional partners. The local trainer will be supported and supervised by a trainer from Target Invention to incorporate their large experience in SIM applications and trainings around the world.

The teaching concept for the workshop is extracted from the real students' training at the location, including usage of learning tools. For each workshop an accompanying material is produced, that is afterwards published as OER at github. The workshops are evaluated as a WP 9 activity, prepared by the lead of WP 9 (using a standardized approach, see over there), see Story 9.3.

These workshops are equally open to project partners and additional partners. Since the KA grant is designed as a subsidiary that does not cover the full cost of a training a workshop fee has to be collected from the participants – equal fee for full and additional partners.

For each trainer team in an A country (INSA, HSO, Jantschgi, LUT) there is a project share of 7 TE (supposed to be distributed as 5 TE for the local coach and 2 TE for the supporter). At ULEI the training will be given by TI Minsk, taking a share of 2 TE to ULEI for local organisation. Hence the trainings at ULEI and UTC get shares [2:2] TE each.

There is a mobility share in the project of 69 TE (see above), that can (due to ERASMUS regulations) be spent on supporting attendees of project partners coming from countries different from the home country of the workshop location. See the table below how the travel grants are distributed.

**Output:** 6 workshops with satisfied attendees, workshop material as OER in the github repository, evaluation report.

**Outcome:** Better understanding of teaching concepts and approaches at central locations teaching SIM, in particular for industry. Dissemination of best practice experiences in the KA network at large beyond the circle of full partners, as the workshops are open also for additional partners.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| ULEI | 4 | 2 | | | 1858 |
| INSA | 3 | 16 | | | 5120 |
| HSO | 3 | 16 | | | 5120 |
| UTC | 3 | 16 | | | 1726 |
| LUT | 3 | 16 | | | 5120 |
| Jantschgi | 3 | 16 | | | 5683 |
| TI Minsk | 30 | 100 | | | 11980 |
| | | | | | 36607 |

## Distribution of the Travel Grants

Each row contains the number of travel grants of the partner (575 Euro) to attend the 3-day training at the column location. The distribution takes into account the restrictions on travel grants.

| Partner | INSA | HSO | LUT | ULEI | UTC | Jantschgi |
|---|---|---|---|---|---|---|
| ULEI | 3 | | 3 | | 3 | 3 |
| INSA | | | 3 | 3 | 3 | 3 |
| HSO | | | 4 | | 4 | 4 |
| UTC | 3 | 3 | 3 | 3 | | 3 |
| LUT | 3 | 3 | | 3 | 2 | 2 |
| Schaeffler | 1 | | 1 | | 1 | 1 |
| Arxia | 1 | 1 | 1 | 1 | | 1 |
| TPlast | 1 | 1 | 1 | 1 | | 1 |
| Jantschgi | 3 | 3 | 3 | 3 | 3 | |
| TI Minsk | 3 | 3 | 3 | 3 | 3 | 3 |

## Story 4.2: Prepare for students' mobility.

An additional share (4 TE) is devoted to compile best practice documents how to organise a students' (and graduates') exchange within the network using ERASMUS Key Action 1 measures (this requires to have agreements of cooperation between the different HEI). The best practice should be applicable for both the full partners and the additional partners.

**Output:** A sample students' mobility agreement document, a handbook on students' mobility agreements and several such agreements between full HEI partners as best practice.

**Outcome:** Boost the students' mobility to obtain SIM skills.

Assigned to ULEI.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| ULEI | 9 | | | 5 | 3809 |
| | | | | | 3809 |

**WP 4 Summary.**

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| ULEI | 13 | 2 | | 5 | 5667 |
| INSA | 3 | 16 | | | 5120 |
| HSO | 3 | 16 | | | 5120 |
| UTC | 3 | 16 | | | 1726 |
| LUT | 3 | 16 | | | 5120 |
| Jantschgi | 3 | 16 | | | 5683 |
| TI Minsk | 30 | 100 | | | 11980 |
| | | | | | 34733 |

# WP 5: Involving Industry (IMP), Lead: Jantschgi

## Contribution from Schaeffler, 13.02.2020

Systematic innovation methodologies are applied in industrial practice to support and drive innovation both in problem understanding and analysis as well as creative development of innovative solutions. As such these methods are crucial for the innovativeness and long-term competitiveness of European companies. The employees and their knowledge are the most significant resource of a company and systematic innovation methodologies can help to make most effective and efficient use of these resources for innovation, in particular in times, when technology lifecycles become shorter and shorter.

Objective of this work package is to provide an industrial perspective for the other work packages of the knowledge alliance in terms of industry needs and in terms of industry validation.

With regards to the networking in WP2, the work package will in particular evaluate and implement possibilities for interaction from an industry point of view, e.g. in the form of student internships or student theses which will help the knowledge transfer from research to practice and vice versa.

Regarding current and future curricula (WP3) the goal is to understand industry requirements towards systematic innovation methodologies and their respective trainings, match the available offers with those needs, identify potential gaps and consider these gaps as inputs for further development of training programs. For this not only the input of human resource management and training departments but also the knowledge and the expertise of the innovation management department, often acting as an internal consultant, can be considered.

Also for WP4 the work package will provide an analysis of industrial needs towards train-the-trainer concepts and to validate the results from an industrial perspective.

5.1 Requirements analysis towards networking, current and future curriculae and train-the-trainer concept from an industry point of view.

5.2 Evaluation of networking, current and future curriculae and train-the-trainer concepts from an industry point of view.

### Story 5.1: Development of a comprehensive brokerage structure for student internships and theses

This would have to be technically supported by the SIM-SSN, the industrial partners have to set up a practical structure to keep the necessary database up-to-date.

**Output:** The web based search infrastructure.

**Outcome:** Boost the students' mobility to obtain SIM skills.

### Story 5.2: Requirements analysis towards networking, current and future curriculae and train-the-trainer concept from an industry point of view.

**Output:** Requirements document(s).

**Outcome:** Better understanding the need of industry within the KA network.

### Story 5.3: Evaluation of networking, current and future curriculae and train-the-trainer concepts from an industry point of view.

**Output:** Evaluation document(s).

**Outcome:** Better understanding the need of industry within the KA network.

### Story 5.4: Support the Use Case Collection.

This relates to epic E4 and story 3.2. Industry is requested to contribute appropriate useful use cases in a format that has to be specified in the epic E4.

This is a contribution to story 3.2 that is assigned to INSA so INSA will organize the cooperation.

**Output:** A number of use cases from each industry partner to be defined.

### Distribution of shares

The bracket expressions is used to indicate the distribution among the industry partners [P6,P7,P8,P9,P10]. A special arrangement concerns Schaeffler to manage the upper bound share which was formulated as a condition for their participation in the project.

The most tedious tasks are stories 5.1 due to its technical requirements and story 5.4. Hence I propose to give 40% of the overall share to each of these stories, and 10% of the share to each of the remaining stories.

**Story 5.1:** Distribute the share half for the organisation of the brokerage structure (assigned to Jantschgi, 24 TE) and half for developing the technical support within the SIM-SSN (assigned to ULEI, 24 TE).

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---------|------|------|------|------|-------------|
| ULEI | 8 | 15 | 90 | | 24003 |
| Jantschgi | 8 | 70 | | 5 | 23999 |
| | | | | | 48002 |

**Stories 5.2 and 5.3:** 50% for organisation of the report (Jantschgi), 10% to each of the industry partners for contributing to the report, i.e., together $[2, 2, 2, 12 + 5 = 17, 2]$. The following table cumulates the shares for both stories.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| Schaeffler | | 8 | | | 2056 |
| Arxia | 3 | 20 | | | 2078 |
| TPlast | 3 | 20 | | | 2078 |
| Jantschgi | 10 | 40 | | 10 | 16980 |
| TI Minsk | 3 | 20 | | | 2078 |
| | | | | | 25270 |

**Story 5.4:** Equally distribute the share among the industry partners, i.e., $[4, 6, 6, 20, 10]$. Special share with Schaeffler.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| Schaeffler | | 15 | | | 3855 |
| Arxia | 8 | 60 | | | 6128 |
| TPlast | 8 | 60 | | | 6128 |
| Jantschgi | 12 | 50 | | 7 | 20009 |
| TI Minsk | 12 | 100 | | | 10072 |
| | | | | | 46192 |

**WP 5 Summary.**

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| ULEI | 8 | 15 | 90 | | 24003 |
| Schaeffler | | 23 | | | 5911 |
| Arxia | 11 | 80 | | | 8206 |
| TPlast | 11 | 80 | | | 8206 |
| Jantschgi | 30 | 160 | | 22 | 60988 |
| TI Minsk | 15 | 120 | | | 12150 |
| | | | | | 119464 |

# WP 6: Project Management (MGNT), Lead: ULEI

The share is for the management overhead, having administrative staff to maintain all the reporting and the finance. This requires mainly a per day calculation, giving Leipzig University a triple share for the expenses required for the overall coordination as applicant.

The calculation takes 300 person-days (PD) for Leipzig and 100 PD for each partner, that is multiplied with the amount for administrative staff (B2.4 at p. 140 of the Programme Guide) to get the share for each partner.

Since the KA grant does not cover the full amount of expenses to run the project, in particular the project management, the partners have to provide additional resources also for this work package, which requires different efforts in the different on-site constellations. Schaeffler covers

the management expenses completely from such additional resources (HGG: not yet finally agreed).

Addendum 15.02.2020: I recalculated that share using a 1 : 3 mix between B2.1 and B2.4 rates since reporting is also a duty for the managers.

**Outcome:** Smoothly running project.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---------|------|------|------|------|-------------|
| ULEI | 100 | | | 200 | 65000 |
| INSA | 30 | | | 70 | 21070 |
| HSO | 30 | | | 70 | 21070 |
| UTC | 30 | | | 70 | 6470 |
| LUT | 30 | | | 70 | 21070 |
| Schaeffler | | | | | 0 |
| Arxia | 30 | | | 70 | 6470 |
| TPlast | 30 | | | 70 | 6470 |
| Jantschgi | 30 | | | 70 | 23820 |
| TI Minsk | 30 | | | 70 | 6470 |
| | | | | | 177910 |

# WP 7: Dissemination and Transfer (DISS/EXP), Lead: UTC

We understand dissemination as consisting of two parts

(1) build up an infrastructure with a special interface to get ready for cooperation with the "outer world".

(2) use that infrastructure to operate real dissemination activities.

Addendum 15.02.2020: I redesigned the stories in larger chunks to get the budget distributed more smoothly and to release the not assigned reserves still present in the last planning.

### Story 7.1.: Enlarging the Network.

This is explained above as epic E5 in more detail. Within the project we have first to develop a more detailed expansion strategy (concepts for addressing target groups, preparation of appropriate materials) and then roll it out in several steps. A point to be considered in more detail is in particular

(C) Organize dissemination specific for the target groups. A strong question in the tender is "how do you reach your target groups".

**Output:** 20 more *additional partners* during project time, 5 of them already in the first year.

Use a share of 50 TE[4] for that lasting activity, distributing it equally between the partners, giving UTC as lead a double (reduced) share for additionally preparing the concepts, i.e., A: 7 TE, B: 2 TE, UTC: 5 TE.

A special arrangement concerns Schaeffler to manage the upper bound share which was formulated as a condition for participation in the project.

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[4]Reduced compared to earlier plans to have Story 7.3 as the story that gets all remaining funding.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| ULEI | 5 | 20 | | | 6820 |
| INSA | 5 | 20 | | | 6820 |
| HSO | 5 | 20 | | | 6820 |
| UTC | 10 | 40 | | | 4580 |
| LUT | 5 | 20 | | | 6820 |
| Schaeffler | 5 | 10 | | | 4250 |
| Arxia | 5 | 20 | | | 2290 |
| TPlast | 5 | 20 | | | 2290 |
| Jantschgi | 5 | 20 | | | 7545 |
| TI Minsk | 5 | 20 | | | 2290 |
| | | | | | 50525 |

## Story 7.2.: Promoting special results

This is about promoting the results produced within the project in WP 3, 5 and 10. This should be done across the individual special activities and according to a common strategy.

The following kinds of results have to be covered:

- Promotion of existing courses and materials.

- Promotion of the use cases data base (epic E4).

- Promotion of newly designed courses (WP 3).

- Best practice of HEI-Industry cooperation.

- Promotion of new and extended Digital Tools (WP 10).

For *Best practice of HEI-Industry cooperation* a template FAQ how to organize the cooperation between HEI and companies or even a more solid report about success stories and failures in that area could be worked out. BUT reported plenty of experience in that direction.

This promotion has to be organised and done by the partners who offer such courses, materials and tools (HSO, INSA, LUT, UTC, TI).

Use a share of 45 TE for that lasting activity, distributing it equally between these partners, i.e., A: 12 TE, B: 4 TE.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| INSA | 10 | 35 | | | 12355 |
| HSO | 10 | 35 | | | 12355 |
| UTC | 10 | 35 | | | 4140 |
| LUT | 10 | 35 | | | 12355 |
| TI Minsk | 10 | 35 | | | 4140 |
| | | | | | 45345 |

## Story 7.3.: External presentation of our activities and other dissemination activities

Organise external presentation of internal activities of the KA, use various digital channels etc.

"Along the way Knowledge Alliances should deliver publications such as reports, handbooks, guidelines, etc. As a general rule, results should be made available as open educational resources (OER) as well as on relevant professional, sectorial or competent authorities' platforms" (from the PG)

Maintaining OER: With the github infrastructure we have a natural way to Open Source such material and publications and use that store to redistribute material to different "relevant professional, sectorial or competent authorities' platforms".

(B) "Additionally, Knowledge Alliances should budget for the presentation of their project and the results at the University-Business Forum and/or other relevant events (up to five during the project duration)."

`https://ec.europa.eu/education/events/8th-university-business-forum_en`

**Output:** 20 distribution activities

This has yet to be made a little more specific within the polishing of the proposal.

An important point in this story could play the special role of ULEI – we are "SIM beginners" but strongly plan to set up a regional SIM infrastructure using all best practice experience and avoid all known pitfalls. This also could be coined into a measurable success story including a "dissemination report" useful for other European locations that plan similar development activities.

Use a share of 80 TE for that lasting activity, distributing it equally between the partners, giving UTC as lead a double (reduced) share for additionally preparing the concepts.

A special arrangement concerns Schaeffler to manage the upper bound share which was formulated as a condition for participation in the project.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---------|------|------|------|------|-------------|
| ULEI | 10 | 30 | | | 11070 |
| INSA | 10 | 30 | | | 11070 |
| HSO | 10 | 30 | | | 11070 |
| UTC | 20 | 60 | | | 7400 |
| LUT | 10 | 30 | | | 11070 |
| Schaeffler | 5 | 10 | | | 4250 |
| Arxia | 10 | 30 | | | 3700 |
| TPlast | 10 | 30 | | | 3700 |
| Jantschgi | 10 | 30 | | | 12200 |
| TI Minsk | 10 | 30 | | | 3700 |
| | | | | | 79230 |

**WP 7 Summary.**

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| ULEI | 15 | 50 | | | 17890 |
| INSA | 25 | 85 | | | 30245 |
| HSO | 25 | 85 | | | 30245 |
| UTC | 40 | 135 | | | 16120 |
| LUT | 25 | 85 | | | 30245 |
| Schaeffler | 10 | 20 | | | 8500 |
| Arxia | 15 | 50 | | | 5990 |
| TPlast | 15 | 50 | | | 5990 |
| Jantschgi | 15 | 50 | | | 19745 |
| TI Minsk | 25 | 85 | | | 10130 |
| | | | | | 175100 |

# WP 8: Quality Control (QA), Lead: ULEI

## Story 8: Internal Quality Control

This is the organisation of QA of the project itself. Main duties:

- monitor the fulfillment of the different tasks,

- for each of the project meetings prepare a QA report,

- prepare and distribute the other documents for the project meetings,

- conduct the sprint retrospective.

**Output:** QA reports. Dissemination: Project internal

Budget distribution: ULEI as lead 40% share (18 TE), others 5% share each (i.e., A: 3 TE, B: 1 TE).

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|
| ULEI | 15 | 20 | | 50 | 18030 |
| INSA | 3 | 4 | | 6 | 2978 |
| HSO | 3 | 4 | | 6 | 2978 |
| UTC | 3 | 4 | | 6 | 952 |
| LUT | 3 | 4 | | 6 | 2978 |
| Schaeffler | 3 | 4 | | 6 | 2978 |
| Arxia | 3 | 4 | | 6 | 952 |
| TPlast | 3 | 4 | | 6 | 952 |
| Jantschgi | 3 | 4 | | 6 | 3349 |
| TI Minsk | 3 | 4 | | 6 | 952 |
| | | | | | 37099 |

# WP 9: Evaluation (EV), Lead: HSO

Note that quality assurance aspects play an important role in the call for tender and (since the reviewers in most cases are far from the domain) also *practically* in the reviewing process.

### Story 9.1: Develop evaluation templates for epic E2 and E3 activities

Use a share of 10 TE, assigned to HSO.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---------|------|------|------|------|-------------|
| HSO     | 4    | 30   |      | 5    | 9839        |
|         |      |      |      |      | 9839        |

**Output:** evaluation templates.

### Story 9.2: Do evaluation of the E2 activities

Use a share of 11 TE, equally distributed between the assignees of the different activities. (LUT 3 TE, HSO 3 TE, INSA 3 TE, UTC 2 TE)
**Output:** evaluation results.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---------|------|------|------|------|-------------|
| INSA    | 1    | 4    |      | 10   | 2934        |
| HSO     | 1    | 4    |      | 10   | 2934        |
| UTC     | 1    | 4    |      | 10   | 928         |
| LUT     | 1    | 4    |      | 10   | 2934        |
|         |      |      |      |      | 93672       |

### Story 9.3: Do evaluation of WP 4

Plan (once) and do the evaluations (for 6 workshops).
**Output:** evaluation results.
Use a share of 10 TE, assigned to HSO.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---------|------|------|------|------|-------------|
| HSO     | 4    | 30   |      | 5    | 9839        |
|         |      |      |      |      | 9839        |

### Story 9.4: Do overall evaluation of the project

Invoke external partners, plan and do the evaluation.
**Output:** evaluation result.
Use a share of 13 TE, assigned to HSO.

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---------|------|------|------|------|-------------|
| HSO     | 4    | 30   |      | 5    | 9839        |
|         |      |      |      |      | 9839        |

**WP 9 Summary.**

| Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---------|------|------|------|------|-------------|
| INSA    | 1    | 4    |      | 10   | 2934        |
| HSO     | 13   | 94   |      | 25   | 32451       |
| UTC     | 1    | 4    |      | 10   | 928         |
| LUT     | 1    | 4    |      | 10   | 2934        |
|         |      |      |      |      | 39247       |

# WP 10: Digital Tools (IMP), Lead: INSA

## Story 10.1.x: Cooperative Use of Digital Tools

There are four partners that strongly develop tools. I propose to set up four cooperation projects as Stories 10.1.x along the lines of epic E3 and distribute the share of the WP equally between the four "shareholders" of the systems as the "senior partners" of the cooperation project (i.e., 10.1.1 INSA 35 TE, 10.1.2 LUT 35 TE each, 10.1.3 UTC 13 TE, 10.1.4 TIM 13 TE). Of course the share should be redistributed with the junior partners if they are found.

| Partner  | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|----------|------|------|------|------|-------------|
| INSA     | 8    | 20   | 140  |      | 34998       |
| UTC      | 8    | 20   | 140  |      | 11848       |
| LUT      | 8    | 20   | 140  |      | 34998       |
| TI Minsk | 8    | 20   | 140  |      | 11848       |
|          |      |      |      |      | 93672       |

# Overall Summary

| WP    | Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|-------|---------|------|------|------|------|-------------|
| WP 1  | ULEI    | 8    | 50   | 70   | 12   | 31002       |
| WP 2  | ULEI    | 10   | 30   | 150  |      | 40170       |
| WP 4  | ULEI    | 13   | 2    |      | 5    | 5667        |
| WP 5  | ULEI    | 8    | 15   | 90   |      | 24003       |
| WP 6  | ULEI    | 100  |      |      | 200  | 65000       |
| WP 7  | ULEI    | 15   | 50   |      |      | 17890       |
| WP 8  | ULEI    | 15   | 20   |      | 50   | 18030       |
| Summe |         | 169  | 167  | 310  | 267  |             |

| WP | Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|---|
| WP 1 | INSA | 4 | 21 | | | 6741 |
| WP 2 | INSA | 4 | 30 | 30 | | 14874 |
| WP 3 | INSA | 24 | 90 | 80 | 20 | 49854 |
| WP 4 | INSA | 3 | 16 | | | 5120 |
| WP 6 | INSA | 30 | | | 70 | 21070 |
| WP 7 | INSA | 25 | 85 | | | 30245 |
| WP 8 | INSA | 3 | 4 | | 6 | 2978 |
| WP 9 | INSA | 1 | 4 | | 10 | 2934 |
| WP 10 | INSA | 8 | 20 | 140 | | 34998 |
| Summe | | 102 | 270 | 250 | 106 | |

| WP | Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|---|
| WP 1 | HSO | 4 | 21 | | | 6741 |
| WP 2 | HSO | 3 | 20 | 20 | | 10028 |
| WP 3 | HSO | 14 | 50 | | 15 | 19909 |
| WP 4 | HSO | 3 | 16 | | | 5120 |
| WP 6 | HSO | 30 | | | 70 | 21070 |
| WP 7 | HSO | 25 | 85 | | | 30245 |
| WP 8 | HSO | 3 | 4 | | 6 | 2978 |
| WP 9 | HSO | 13 | 94 | | 25 | 32451 |
| Summe | | 95 | 290 | 20 | 116 | |

| WP | Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|---|
| WP 1 | UTC | 4 | 24 | | | 2536 |
| WP 2 | UTC | 2 | 20 | 30 | | 3952 |
| WP 3 | UTC | 8 | 45 | | 4 | 4996 |
| WP 4 | UTC | 3 | 16 | | | 1726 |
| WP 6 | UTC | 30 | | | 70 | 6470 |
| WP 7 | UTC | 40 | 135 | | | 16120 |
| WP 8 | UTC | 3 | 4 | | 6 | 952 |
| WP 9 | UTC | 1 | 4 | | 10 | 928 |
| WP 10 | UTC | 8 | 20 | 140 | | 11848 |
| Summe | | 99 | 268 | 170 | 90 | |

| WP | Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|---|
| WP 1 | LUT | 4 | 21 | | | 6741 |
| WP 2 | LUT | 4 | 30 | 30 | | 14874 |
| WP 3 | LUT | 14 | 50 | | 15 | 19909 |
| WP 4 | LUT | 3 | 16 | | | 5120 |
| WP 6 | LUT | 30 | | | 70 | 21070 |
| WP 7 | LUT | 25 | 85 | | | 30245 |
| WP 8 | LUT | 3 | 4 | | 6 | 2978 |
| WP 9 | LUT | 1 | 4 | | 10 | 2934 |
| WP 10 | LUT | 8 | 20 | 140 | | 34998 |
| Summe | | 92 | 230 | 170 | 101 | |

| WP | Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|---|
| WP 1 | Schaeffler | 2 | 16 | | | 4784 |
| WP 5 | Schaeffler | | 23 | | | 5911 |
| WP 7 | Schaeffler | 10 | 20 | | | 8500 |
| WP 8 | Schaeffler | 3 | 4 | | 6 | 2978 |
| Summe | | 15 | 63 | | 6 | |

| WP | Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|---|
| WP 1 | Arxia | 5 | 17 | | | 2026 |
| WP 5 | Arxia | 11 | 80 | | | 8206 |
| WP 6 | Arxia | 30 | | | 70 | 6470 |
| WP 7 | Arxia | 15 | 50 | | | 5990 |
| WP 8 | Arxia | 3 | 4 | | 6 | 952 |
| Summe | | 64 | 151 | | 76 | |

| WP | Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|---|
| WP 1 | TPlast | 5 | 17 | | | 2026 |
| WP 5 | TPlast | 11 | 80 | | | 8206 |
| WP 6 | TPlast | 30 | | | 70 | 6470 |
| WP 7 | TPlast | 15 | 50 | | | 5990 |
| WP 8 | TPlast | 3 | 4 | | 6 | 952 |
| Summe | | 64 | 151 | | 76 | |

| WP | Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|---|
| WP 1 | Jantschgi | 4 | 13 | | | 5169 |
| WP 4 | Jantschgi | 3 | 16 | | | 5683 |
| WP 5 | Jantschgi | 30 | 160 | | 22 | 60988 |
| WP 6 | Jantschgi | 30 | | | 70 | 23820 |
| WP 7 | Jantschgi | 15 | 50 | | | 19745 |
| WP 8 | Jantschgi | 3 | 4 | | 6 | 3349 |
| Summe | | 85 | 243 | | 98 | |

| WP | Partner | B2.1 | B2.2 | B2.3 | B2.4 | Sum in Euro |
|---|---|---|---|---|---|---|
| WP 1 | TI Minsk | 5 | 17 | | | 2026 |
| WP 3 | TI Minsk | 5 | 50 | | 2 | 5024 |
| WP 4 | TI Minsk | 30 | 100 | | | 11980 |
| WP 5 | TI Minsk | 15 | 120 | | | 12150 |
| WP 6 | TI Minsk | 30 | | | 70 | 6470 |
| WP 7 | TI Minsk | 25 | 85 | | | 10130 |
| WP 8 | TI Minsk | 3 | 4 | | 6 | 952 |
| WP 10 | TI Minsk | 8 | 20 | 140 | | 11848 |
| Summe | | 121 | 396 | 140 | 78 | |