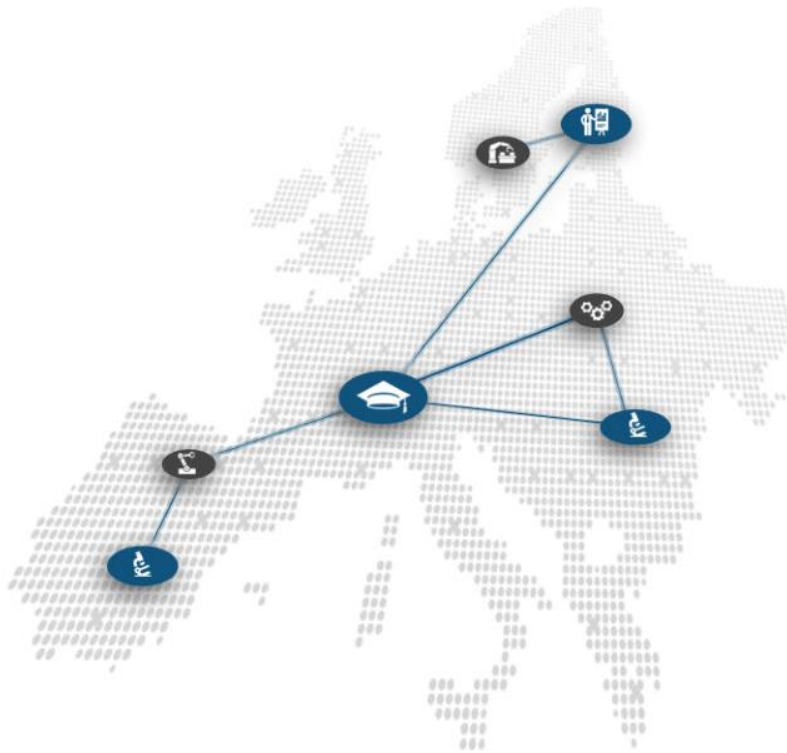




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# Smart HEI-Business collaboration for skills and competitiveness



Anneli Kakko  
Project Manager

# HEIBus project

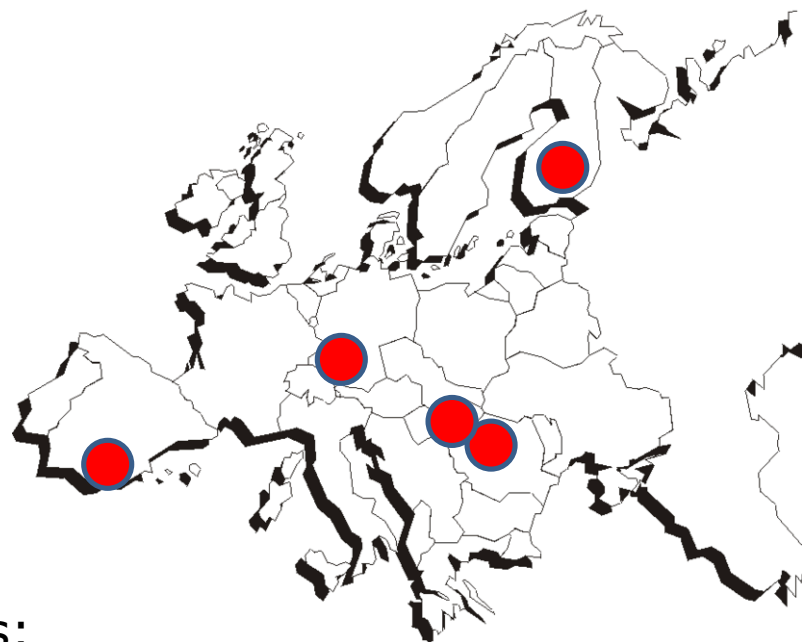
## Smart HEI-Business collaboration for skills and competitiveness

- EU funded 3 years (January 2017 – December 2019) and about 1 million euros Erasmus + Knowledge Alliance 2 project
- focuses on **strengthening the collaboration** between HEIs and companies by creating **new smart and innovative cooperation models**
- brings together European universities and companies with strong expertise and experience in their field of work
- important aspects are **internationalization, innovation, multidisciplinary and virtualization**
- all activities facilitate **increase involvement of the companies in the educational process**



# The Project Partners

Full partners:  
5 universities and  
7 companies  
from 5 countries



Associated partners:  
17 companies and  
organisations from  
6 countries



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Smart HEI-Business collaboration for skills and competitiveness



# Full Partners

## Full High Education Institution (HEI) partners

- JAMK University of Applied Sciences (JAMK, main partner), Finland
- Technical University of Cluj-Napoca (TUCLUJ), Romania
- University of Miskolc (ME), Hungary
- Esslingen University of Applied Sciences (HE), Germany
- University of Jaen (UJA), Spain

## Full Companies partners

- ITAB Finland (earlier Pikval), Finland
- SC PRO Tehnic, Romania
- SC Automates ACM SRL, Romania
- Electrolux, Hungary
- Robert Bosch Power Tool, Hungary
- Stoebich, Germany
- Valeo Lighting Systems, Spain



# Associated Partners

- Valtra Inc., Finland
- Moventas Gears Oy, Finland
- Regional Council of Central Finland, Finland
- Vorarlberg University of Applied Sciences, Austria
- Trigon Electrica Kft., Hungary
- Employers & Industrialist's Association of County Pest (MGYOSZ), Hungary
- The Borsod-Abaúj-Zemplén Chamber of Commerce and Industry, Hungary
- The Heves County Chamber of Commerce and Industry, Hungary
- Dorma y Diseño (Manufacturer of Furniture), Spain
- Bandesur (Packaging Solutions ), Spain
- Andaltec (Technological Centre for Plastics), Spain
- Komet, Germany
- Wieland, Germany
- Festool, Germany
- Politehnica University Timisoare, Faculty of Mechanical Engineering, Romania
- Drive Medical s.r.l., Romania
- S.C. Leon Group Tehnic, Romania



# Full and Associated Partners

## Full partners:

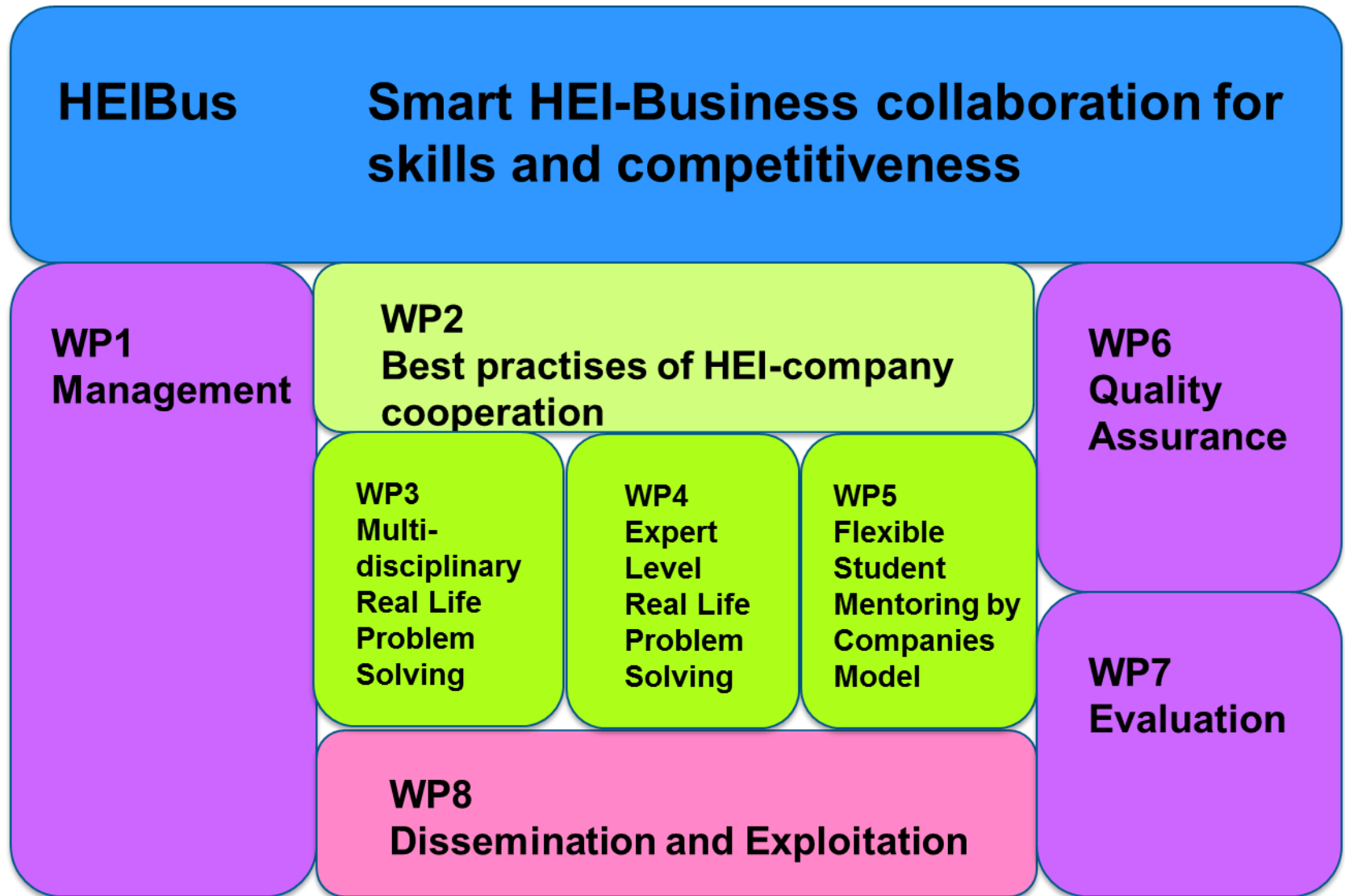
- the group of company partners consists of **SMEs as well as some large well-know companies**
  - Group of HEI partners consists of **three academic universities as well as two are universities of applied sciences**
  - the partnership comprises **a perfect variety of different types of organisations and professionals**
- ⇒ this has provided **very interesting and fruitful cooperation with different perspectives** on each aspect of the project.

## Other partners:

- they have not got EU grant
- **17 associated partner companies and institutions** from 6 European countries and **several external partners** around the world who have **followed the progress, utilised the results or taken part in some of the project activities.**



# Workpackages



# WP2 Best practices of HEI-company cooperation

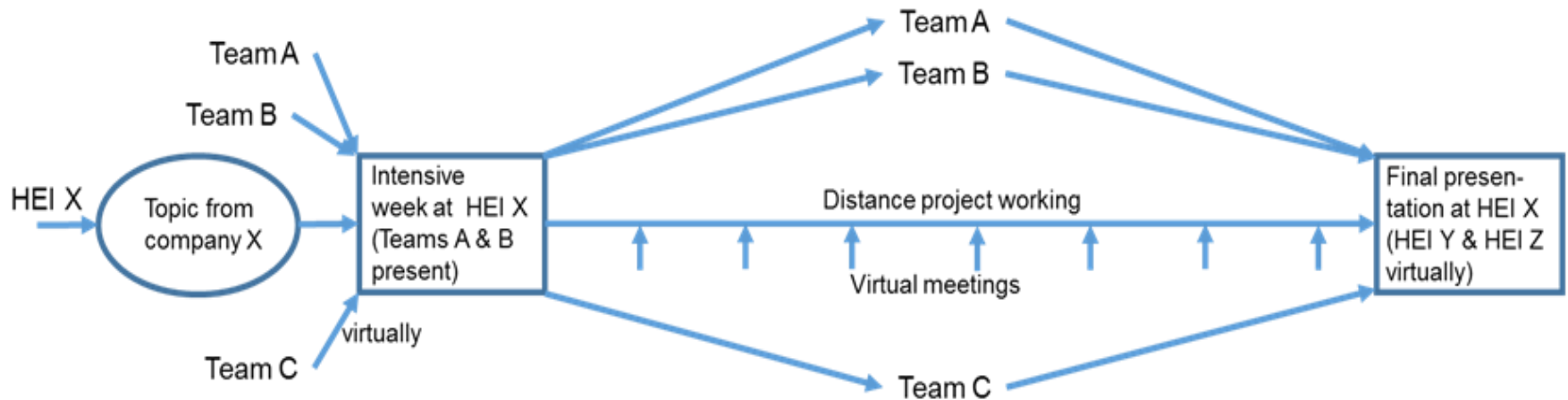
- the aim was to **search and analyse the existing cooperation models between universities and companies around the world** providing real life experiences in the following issues:
  - **the state-of-the-art HEI student-company cooperation model**
  - **the state-of-the-art HEI expert-company cooperation models**
  - **different platforms and forums used in HEI-company communication**
  - **the best practices on company involvement in HEI education.**
- WP2 produced detailed information to **support the implementations** of WP3, WP4 and WP5 and to **compare the performance** of HEIBus models with other existing models
- **coaching on virtual methods and use of social media** was arranged by the experts for project partners in the beginning of the project to ensure that all partners are able to efficiently take part in virtual activities of the HEIBus project
- **the analysed models can be utilized** in company-student and company-expert cooperation **in the future**





# WP3 Multidisciplinary real life problem solving

- the aim was to carry out **multidisciplinary** and **international student level cooperation projects**
- students were from **different study programmes**, e.g. Mechanical Engineering, Engineering Management, Mechatronics, Logistics, ICT, etc. and from **different study levels** (Bachelor's and Master's)
- topics for all implementations came from companies



Team A: 2 students from HEI X + 2 from HEI Y and 2 from HEI Z

Team B: 2 students from HEI X + 2 from HEI Y and 2 from HEI Z

Team C: 2 students from HEI X + 2 from HEI Y and 2 from HEI Z



# WP3 Multidisciplinary real life problem solving...

- in every implementation **3 multidisciplinary and international groups of 6 students, solved the same topic and competed towards each other**
- two student groups had a face-to-face intensive week including a kick-off meeting in a company, when the 3<sup>rd</sup> student group took part virtually in everything
- the content of the intensive week:
  - visit and kick-off meeting in the project company
  - tailored lectures given by company representatives (= tutors) and HEI supervisors
  - a lot of group work – separately in three groups
  - oral presentations for company tutors and HEI supervisors: group organisation, project objectives, project plan, next steps after the intensive week – separately in three groups
  - daily meetings with HEI supervisors – separately in three groups
  - laboratory tours
  - technical visit, city tour, cultural programme, etc.



# WP3 Multidisciplinary real life problem solving...

- after the intensive week all groups worked and met each other only virtually
- **weekly group meetings** where also HEI supervisors and sometimes also company tutors were present
- implementations lasted 3-4 months and in the end all groups created their **written reports** and had **oral presentations** virtually
- **company tutors chose the winning group** and **university supervisors gave grades**
- all student groups **worked hard** and **motivation** of students **was high** in every project
- not only **professional**, but also **international**, **cultural** and **language skills** of every student **improved**
- **companies** got at least a lot of new good and fresh ideas
- **HEI supervisors** got valuable knowledge of the company and found new cooperation possibilities



# WP3 Multidisciplinary real life problem solving...

## 1<sup>st</sup> round projects in autumn 2017

Chosen company	Country	Real life problem	Host HEI	Other HEI partners
ITAB Finland	Finland	New concept for self service station in order to enhance customer experience	JAMK	HE and UJA
SC AutoMates ACM SRL	Romania	Design a fully pneumatic slicing machine for use in food industry to portion hard and semi-hard cheese	TUCLUJ	ME and HE
Centro Tecnológico del Plastico, Andaltec	Spain	Reducing the environmental footprint through the development of new and biodegradable plastic products	UJA	JAMK and ME

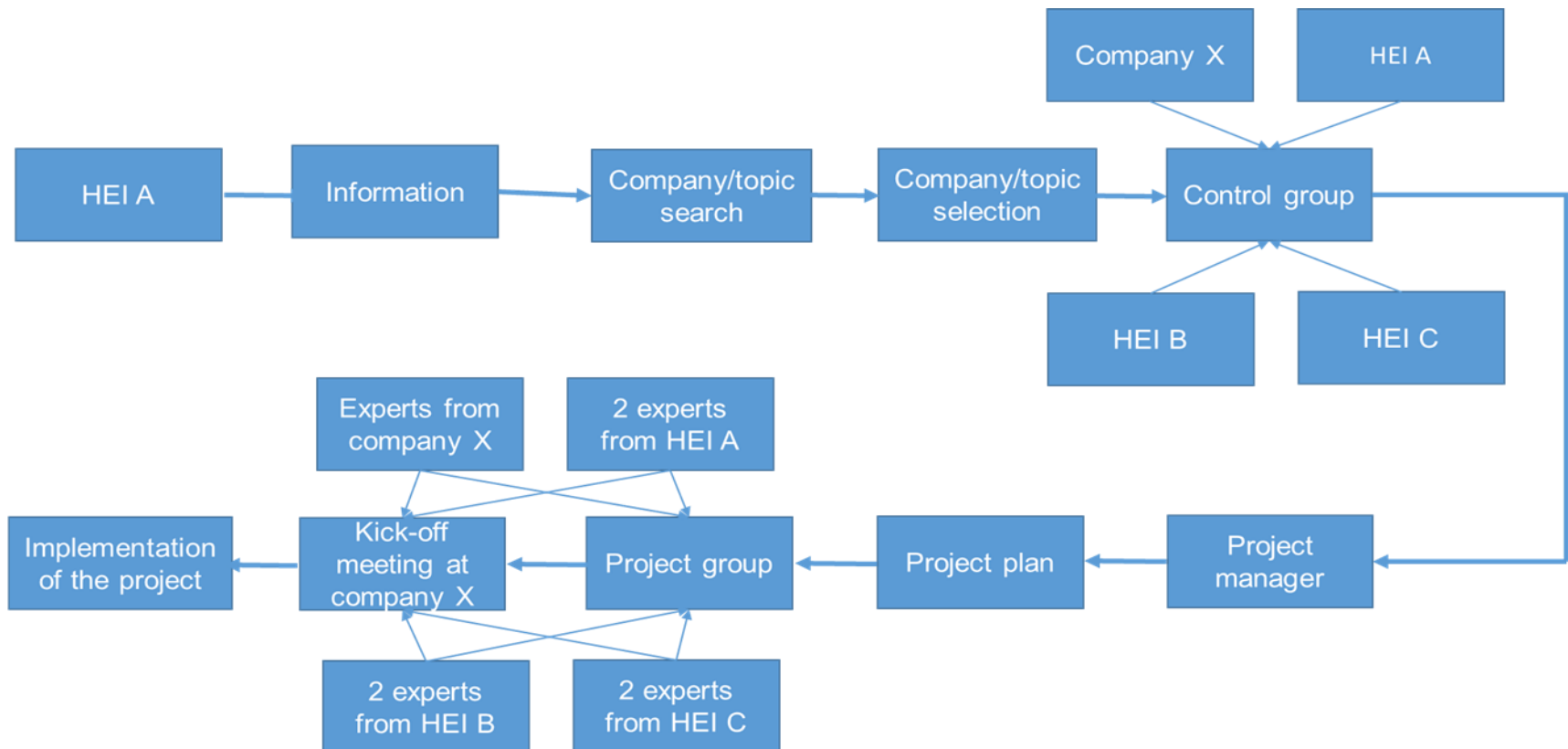
## 2<sup>nd</sup> round projects in autumn 2018

Chosen company	Country	Real life problem	Host HEI	Other HEI partners
FESTOOL GmbH	Germany	Create New Product Ideas for the FESTOOL Product Range by using a very agile Innovation Process	HE	ME and UJA
Robert Bosch Power Tool	Hungary	Connected power tool development for hobby and home decoration	ME	JAMK and TUCLUJ
Sensor Integration & Robotics (ISR)	Spain	Construction of a Prototype for the automatic control of a horizontal centrifuge machine	TUCLUJ	JAMK and TUCLUJ



# WP4 Expert level real life problem solving

- the aim was to widen the international university-company cooperation from the student level to **the expert level**
- the main rationale was that **local companies could utilize multidisciplinary services of universities more efficiently if this is internationally available**



# WP4 Expert level real life problem solving...

- topics for all implementations came from companies
- in every implementation HEI experts (teachers, professors, etc.) from 3 universities and countries solved one topic together with company experts
- in the beginning of every implementation there was **a kick-off meeting at the project company and also 1-2 work days at the host university** where all HEI and company experts were present
- **the feedback of HEI and company experts was very positive** and it seemed that there were not many issues which need to be changed for the next similar projects
- **the biggest challenge was to find suitable experts** and to have an equal workload for the experts
- **a virtual Expert Support Service (ESS)** with easy and quick access for all companies looking for expert services by HEIs will be built and it will offer **direct expert contacts and a possibility to ask quick support for smaller problems.**



# WP4 Expert level real life problem solving...

## The 1<sup>st</sup> round projects in spring 2018

Host HEI	Company	Topic	HEI experts	Expertise areas
JAMK, Finland	ITAB Finland	Inventory management by smart fittings	2 from JAMK 2 from ME 2 from UJA	Machine vision, Mechanical engineering, Electronics, Data collection
ME, Hungary	Electrolux Lehel	Developing a pipe air flow resistance measuring device for vacuum cleaner pipes	2 from JAMK 2 from ME 2 from TUCLUJ	Mechanical engineering, Electronics, Aerodynamics (fluid dynamics), Data collection
TUCLUJ, Romania	SC ProTehnic	Implementing IoT and lifecycle management in photovoltaic area	2 from JAMK 2 from ME 2 from TUCLUJ	Electronics, Sensors, Data acquisition/ Measurement systems, Microcontrollers, Actuators/control systems, Programming for embedded systems

## The 2<sup>nd</sup> round projects in spring 2019

Host HEI	Company	Topic	HEI experts	Expertise areas
JAMK, Finland	Valtra	Benefits of audio feedback enhancing user experience in an agricultural tractor	2 from JAMK 2 from TUCLUJ 2 from UJA	Usability and ergonomics, Product development, Automation, Electronics
ME, Hungary	Bosch Power Tool	Perceivable noise reduction of power tools	2 from ME 2 from TUCLUJ 2 from UJA	Mechanical engineering, Vibration technology, Ergonomics
TUCLUJ, Romania	Bosch Jucu plant	Elimination of the air bubbles during the conformal coating process of PCB's	2 from JAMK 2 from TUCLUJ 2 from UJA	Conformal coating of PCBs, Fluid mechanics, Material science (fluid coating materials), Mechatronics (automated machines/robots)



# WP5 Flexible Student Mentoring by Companies

- the aim of WP5 was to **involve companies/enterprises in the education process from the beginning until the end of studies** of certain student groups
- all 5 HEI partners chose **at least 2 companies** with whom they are carrying out student group mentoring
- different kind and level activities are carrying out:
  - general and specific topic company visits
  - internship, practical training and final thesis
  - tailored lectures in normal study courses by company experts
  - project course supervision by company experts
  - laboratory work supervision by company experts
- the main outcomes of this work package have been **increased motivation and study success** for students, **easy recruitment way** and **a good labour force** for companies and **good knowledge transfer between HEIs and companies.**





# Photo of HEIBus full partners



## Thank you for your attention!

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