

**HORIZON 2020
SPACE INFO DAYS**



CSA

Horizon Europe EGNSS Downstream- An Academic Perspective

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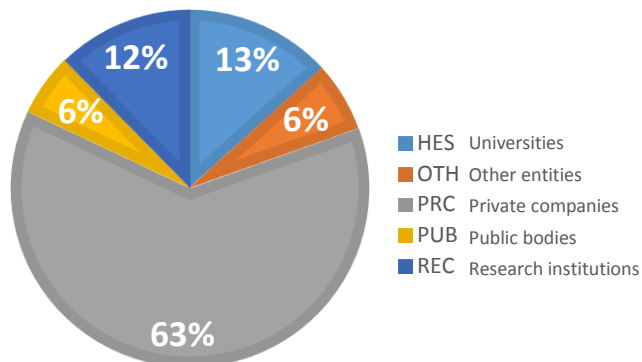
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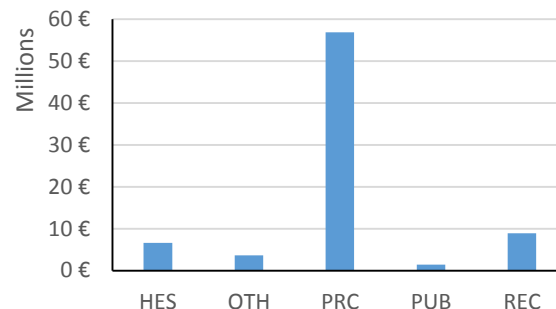


PARTICIPATION OF UNIVERSITIES IN HORIZON 2020 GALILEO CALLS

*Number of beneficiaries
per type of participants*



Funding received



- ✓ Universities receive **~10% of overall H2020 budget** dedicated to GNSS downstream applications
- ✓ **33 different universities** from **23 countries** in Europe, Asia, North America and Africa have received funding
- ✓ **23 projects** (out of 58) involve universities in the consortia

IMPACT OF UNIVERSITIES' PARTICIPATION

- More than 220 papers published from H2020 projects
- 10 patents coming from H2020 projects



START-UP CREATION THANKS TO EUROPEAN GNSS R&D FUNDS

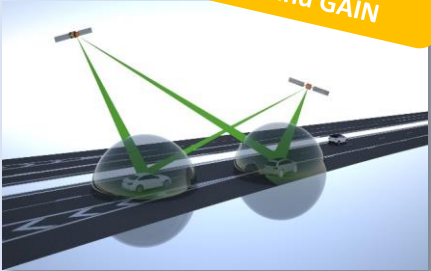
- Creation of spin-offs and start-ups, involving Universities, come from H2020 projects

NAVENTIK ENABLING SATELLITE NAVIGATION
FOR AUTOMATED DRIVING

NAVENTIK – Enabling satellite navigation for automated driving

- **NAVENTIK** is a start-up GNSS technology provider for **highly automated driving** and **advanced drivers assistance**
- Spin-off from **Chemnitz University of Technology** established thanks to **European R&D funding**
- **PATHFINDER** product, a **software-defined GNSS Platform** for **safety critical automotive applications**
- The world's first GNSS receiver that is **in the loop with sensor data fusion** and allows a new perspective on how we use satellite navigation today.

Participation in GSA's
FP7 projects
COVEL and GAIN



UNIVERSITIES' CONTRIBUTION TO H2020 PROJECTS

- Universities actively contribute to both kinds of H2020 Projects

Innovation Action (IA)

Action primarily consisting of activities that produce plans and arrangements or designs for new, altered or improved products, processes or services

- SW/ HW Development
- Data analysis
- Lab analysis and simulation
- Procedures definition
- Methodologies preparation
- Systems design and testing
- Prototype validation
- Business Plan realisation
- ...

Coordination and Support Actions (CSA)

Actions consisting primarily of accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking,

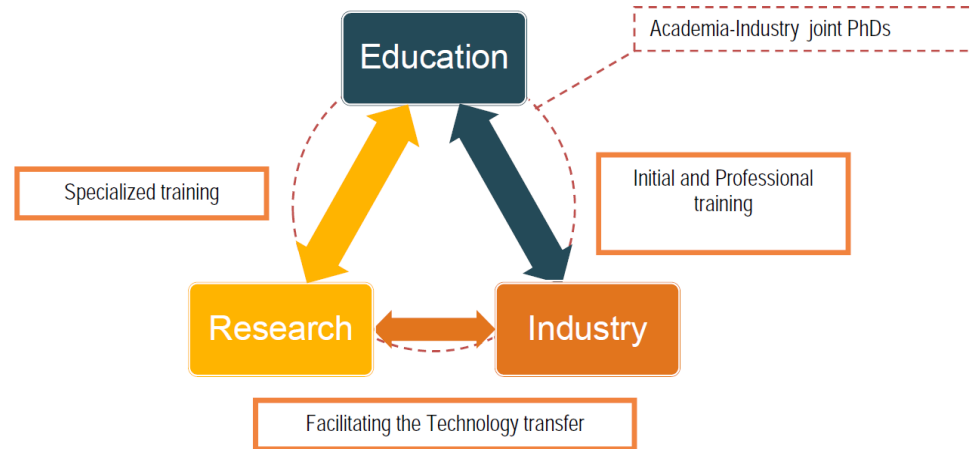
- Specialising Masters on GNSS
- Workshops promoting downstream applications
- GNSS Excellence week
- Professional and PHD Trainings
- Internships in companies
- Organisation of pilots trainings on EGNSS
- ...
- ...

FEW EXAMPLES OF UNIVERSITIES PARTICIPATING IN EGNSS RESEARCH ACTIVITIES

Project	Type	University Name	Contribution
AUDITOR	IA	Advanced Multi-Constellation EGNSS Augmentation and Monitoring Network and its Application in Precision Agriculture Universitat Politecnica De Catalunya	implementation of novel precise-positioning techniques based on augmentation data in custom GNSS receivers improving the performance of current augmentation services
FLAMINGO	IA	To develop and deliver high accuracy, high reliability positioning and navigation services and applications for mass market The University Of Nottingham	System Design and Testing, Hackathon organisation, Market analysis, Testbed operations, Prototype validation
CaBiAvi	CSA	To increase the awareness of EGNSS in the aviation user community within the EU Ceske Vysoke Ucení Technické V Praze Zilinska Univerzita V Ziline	Simulator and practical part of the training for VFR pilots New guidelines for IFR pilot training, theoretical part of the training for IFR pilots
E-KnoT	CSA	To strengthen the interaction between the areas of education-research-industry in Europe Politecnico Di Torino Ecole Nationale De L'Aviation Civile Universitaet Der Bundeswehr Muenchen. Universitat Politecnica De Catalunya	Specialising Masters, Workshops promoting downstream applications, GNSS Excellence week organisation GNSS Master of Science, Professional Training - review and design - implementation, Support to Internships in the companies, Co-funded PhDs PHD Training - review and design - implementation, SUN dissemination Professional Training - review and design – implementation, GNSS Excellence week
BELS	CSA	To facilitate the breakthrough of EGNSS technology on South East Asia (SEA), through awareness raising and capacity building Politecnico Di Torino Universitat Politecnica De Catalunya Ecole Nationale De L Aviation Civile Truong Dai Hoc Bach Khoa Hanoi - Hanoi University Of Science And Technology Hust University Of New South Wales	Capacity Building, Training for professionals, Young generation of SEA researchers/technicians trained on EGNSS and ready to foster EGNSS use in the region Workshop with Industry European Asian Space Solutions, Organization of SEA event

WHY IS THE ROLE OF UNIVERSITIES KEY? THE KNOWLEDGE TRIANGLE

- Among the drivers of industrial development there are:
 - Availability of highly skilled human resources
 - Presence of Research Centres where high level research can be developed
 - Network of related companies and technological cooperation
- University can consequently play an important role boosting:
 - Education
 - Research
 - Technology transfer
- This is what is called the Knowledge Triangle
 - Theoretically embedded within the Lisbon agenda
 - Operationally implemented with the initiation of the European Institute of Innovation and Technology (EIT) in 2008.



THE E-KNOT SUCCESS STORY

- Initiative aiming at consolidating links between Research and Industry by supporting innovative E-GNSS ideas, in particular SMEs.
- The objective was to provide specialised knowledge, advice and guidance to EU companies from qualified experts.
- The consortium organized numerous knowledge-sharing events:
 - 5 Workshops on downstream applications
 - 12 Professional trainings
 - 3 GNSS excellence weeks
 - 2 High Level dialogue Events
 - 2 PhD Trainings
 - 4 Technology Road Show Events
 - Seminar on the Patenting Process



UNIVERSITIES ARE PART OF THE INNOVATION PROCESS

'innovation' means the process, including its outcome, by which new ideas respond to societal or economic needs and demand and generate new products, services or business and organisational models that are successfully introduced into an existing market or that are able to create new markets and that provide value to society (EIT Regulation)

Innovation: a useful novel idea successfully implemented (F.T. Rothaermel)

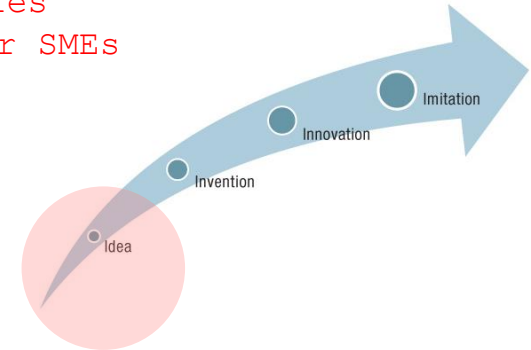
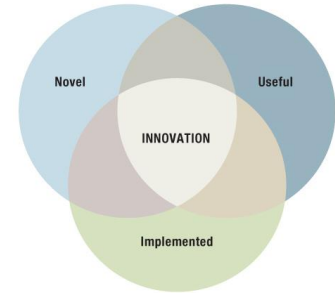
- Idea
 - Abstract concepts or research findings
- Invention
 - Transformation of an idea into a product
 - The modification and recombination of products
- Innovation
 - Commercialization of an invention
- Imitation
 - Copying a successful innovation making it

widely available

CUOA BUSINESS SCHOOL

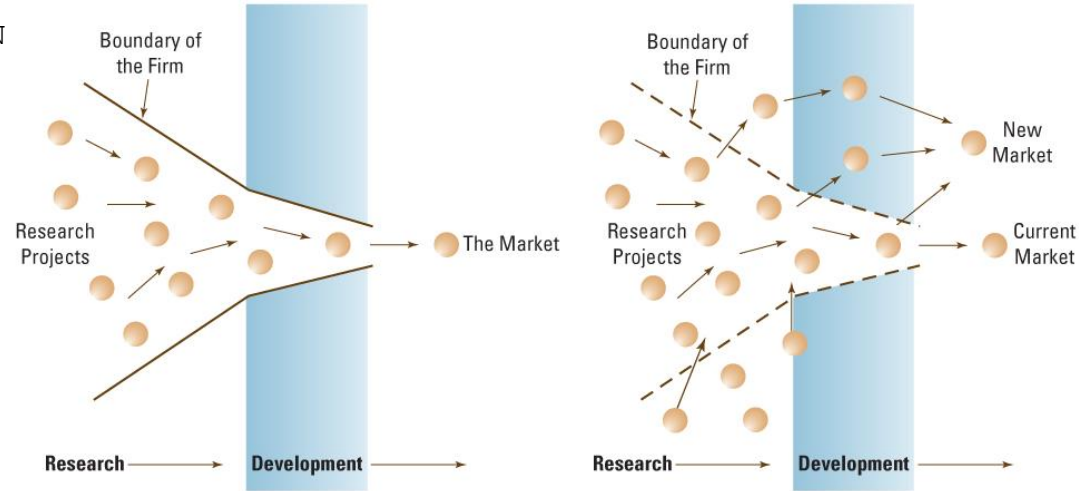


Main Role of
Universities
especially for SMEs



UNIVERSITIES ARE ALSO A KEY DRIVER FOR OPEN INNOVATION THROUGH EUROPE

- 20th century mostly ...closed innovation - internal
- SHIFT FROM CLOSED TO OPEN INNOVATION
- Open innovation - leverages both internal ideas and inventions, and external ones: 2-way sharing
- Mobility of skilled workers
- Cooperation with external Universities and Research Centres
- Better capabilities in external suppliers



RECOMMENDATION FOR THE FUTURE PROGRAMMES

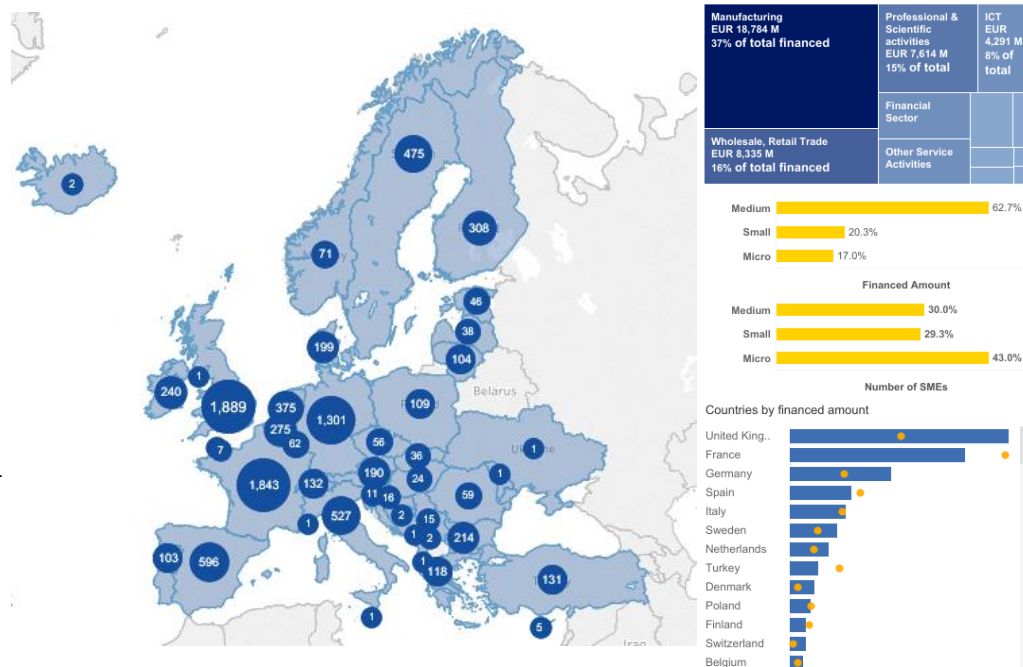
- Universities should take the opportunity from EC Programmes in order to generate more Start-ups, NewCo, University Spinoffs
- More patents should be generated by the projects
- Industry and University should better act together in order to implement the achieved results after the end of the projects



- Programmes should be used by participants as a catalyst for the generation of Innovation

VC SHOULD BE MORE ACTIVE IN INVESTING INTO EGNSS H2020 COMPANIES OR INITIATIVES

- The European Investment Fund has participated in 102 VC to sustain private investments into European SMEs
- More than 10,000 SMEs have received investments from VCs backed by EIF
- More than €51 Bill invested
- There are no EGNSS H2020 funded initiatives
- What should we do in order to boost private investments?



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