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IK4 IDEKO
Research Alliance

LA APUESTA DE LAS EMPRESAS VASCAS POR LOS CLUSTERS:

EXPERIENCIA "SMART" Y LECCIONES APRENDIDAS

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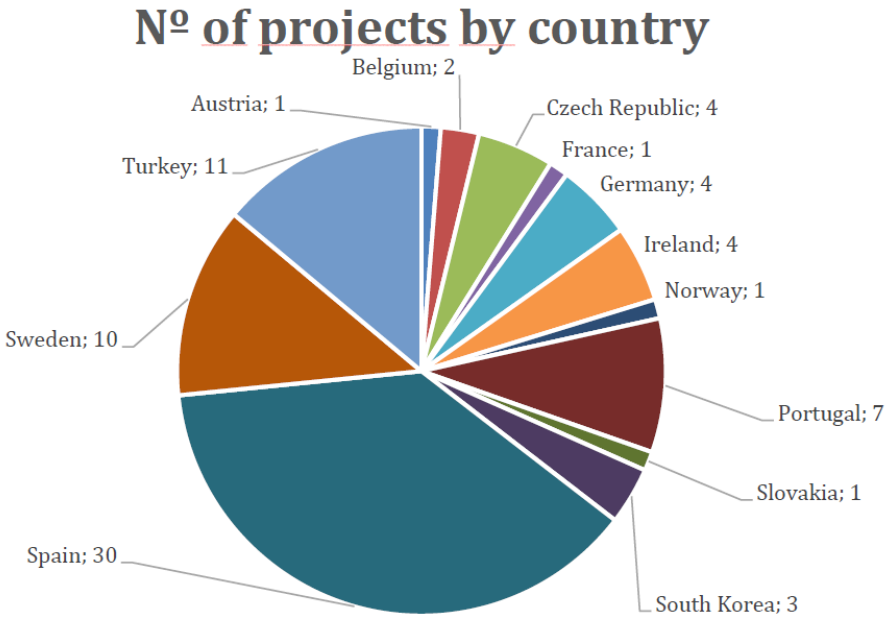
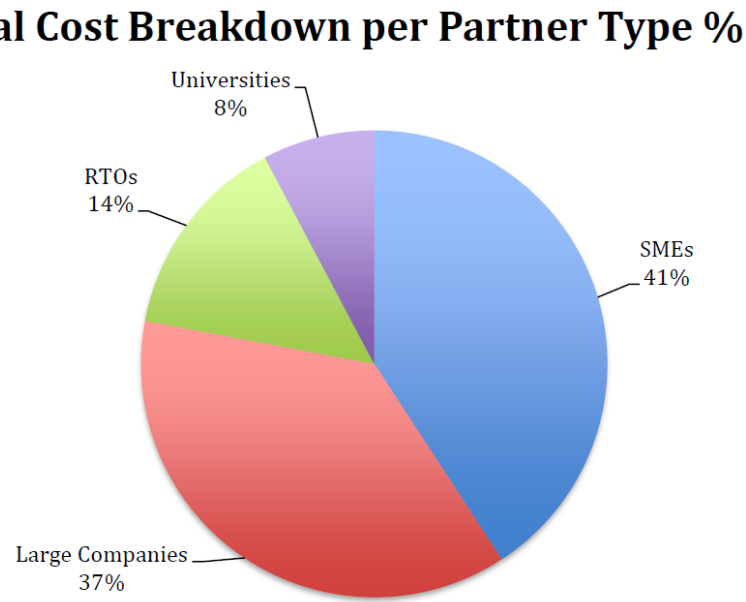
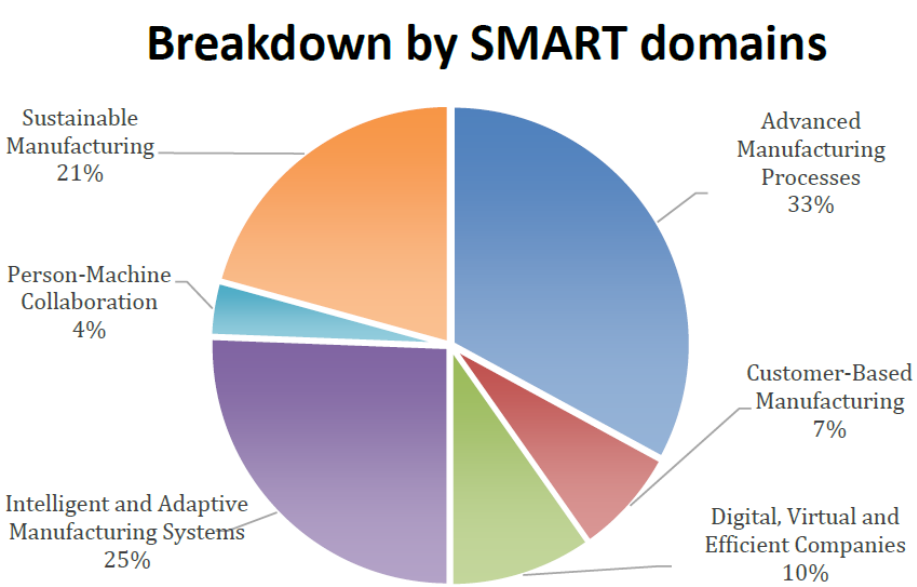
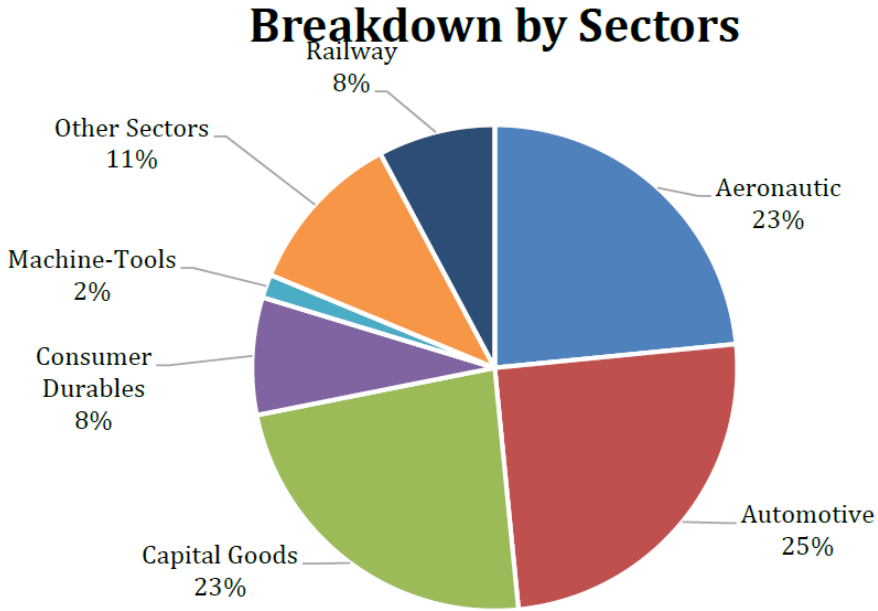
Statistics 1st SMART Call (i)





Statistics 1st SMART Call (ii)





Motivation to be active on SMART

- Bottom-up (no topics)
- Size matters! Affordable size to start collaborations
- Close-to-market (real applications)
- Attractive success ratios (till label)
- National funding (in Spain) on loan-basis (PID) or grant-basis (Innoglobal, 30-40-50%)

Barriers & obstacles

- Not all countries are in (but community is growing)
- Non-homogeneous funding conditions (% of funding, budgetarial limitations, RTO subcontracted or direct funding)
- 4 sequential phases in Spain (PO-FPP-International adaptation-PID/Innoglobal)… too much!!
- What if external partners fall after label?
- What if there are relevant changes in other NFAs or funding conditions?
- SMART fee (1,5% of budget) is not very popular
- Uncertainties regarding Innoglobal-2019

Our activity: 1st and 2nd SMART Calls

- **5 proposals at SMART 1st Call**: they got SMART label, have gone through "international adaptation" and have been submitted to Innoglobal-2018
  - Waiting for evaluation in 4 proposals
  - 1 proposal could not apply to Innoglobal: leader left it (changes in funding conditions)! We aim at going directly to 2nd SMART Call at FPP stage to renew SMART label.
  - E.g. COMACH: robotics with chip extraction for composite manufacturing; 3 countries (ES-TK-SE); 12 partners; 3 years; 5,6M€ budget
- **2 new proposals at SMART 2nd Call**:
  - E.g. ZEROFORM: Zero defects manufacturing in metal parts forming with flexible processes (sheet metal and tubes forming); 3 countries ES-SE-PT (balanced mix of Univ/RTO, SMEs, large IND, technology providers); 6 partners; 3 years; 2,5M€ budget

Example of SMART proposal (i)

afMAC

Complete characterization, modelling, prediction, measurement, compensation and predictive control of machining distortions.

FINLAND 2017/18 EUREKA CHAIR

SMART advanced manufacturing

SMART

AFMAC

afMAC

Complete characterization, modelling, prediction, measurement, compensation and predictive control of machining distortions.

www.smarteureka.com

PROJECT SUMMARY

AFMAC project sets out to avoid machining distortions after unclamping high added-value aerospace components in advanced metallic materials. Three main working lines will be accomplished:

a) Generation of knowledge concerning the final stress state of the part,

b) Development of agile industrial methodologies for the characterization of the stress state of the machining stocks,

c) Development of advanced modelling and simulation tools for the prediction of the final state of the part after machining and

d) Creation of adaptive machining processes capable to take into account material and process variabilities.

OBJECTIVES

Main outcome of AFMAC project will be:

- A robust and reliable manufacturing framework (Right Part at First Time and Every Time), able to reduce the distortions due to the machining process.
- The stress state of the raw material and the residual stresses generated after machining are the main sources of non-conformities in aerospace machined components.
- This adaptive framework will be able to reactively modify the machining process based on the material and process variabilities thanks to the use of on-line monitoring capabilities, avoiding part rejections due to distortions and undesired residual stresses while providing a stable optimized productivity.

BUSINESS IMPACT

- Quality of produced parts, with minimum waste in time, resources, labour, energy.
- Maximum productivity, due to high productive and reliable processes.
- Flexibility, adaptability of processes and production equipment, to easily fit to varying references and give a response to unexpected changes and/or disturbances.
- Efficiency in the global manufacturing chain: from design to production. Rational use of modelling and simulation tools to design processes and act against eventual deviations.
- On-machine use of monitoring, measurement techniques for a direct, 100% reliable, real time information about process, machines and production lines.

CONSORTIUM

FACTS & FIGURES

MAIN CONTACT

TAI TURKISH AEROSPACE INDUSTRIES INC.
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PROJECT BUDGET € 3.72 Million

Conclusions: pros/cons

- Very interesting approach (bottom-up, project size, success ratios)
- Alternative to H2020 manufacturing fields (e.g. Factories-of-the-Future)
- Suitable instrument to start external collaborations
- Increasing list of supporting countries

- Non-homogeneous funding conditions -> very different degrees of interest
- Not all countries are supporting it, and it's critical to choice the most suitable partner
- It's not all under control: if any external partner leaves (by any reason), it may jeopardize the whole project.
- Uncertainties in Spanish national funding landscape

Closure

- Thanks for your attention!!
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