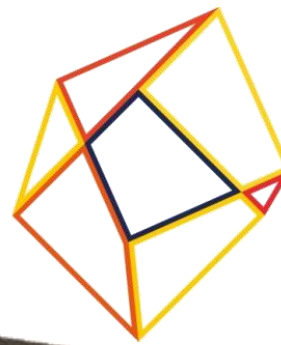


AMaTUC

European project
on Additive Manufacturing



Funding opportunities for your Additive Manufacturing research and innovation



The AMaTUC project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 691787

Increase of European funding for AM

❖ In August 2016, the AMaTUC consortium prepared an in-depth analysis of AM projects funded under the European Framework Programmes.

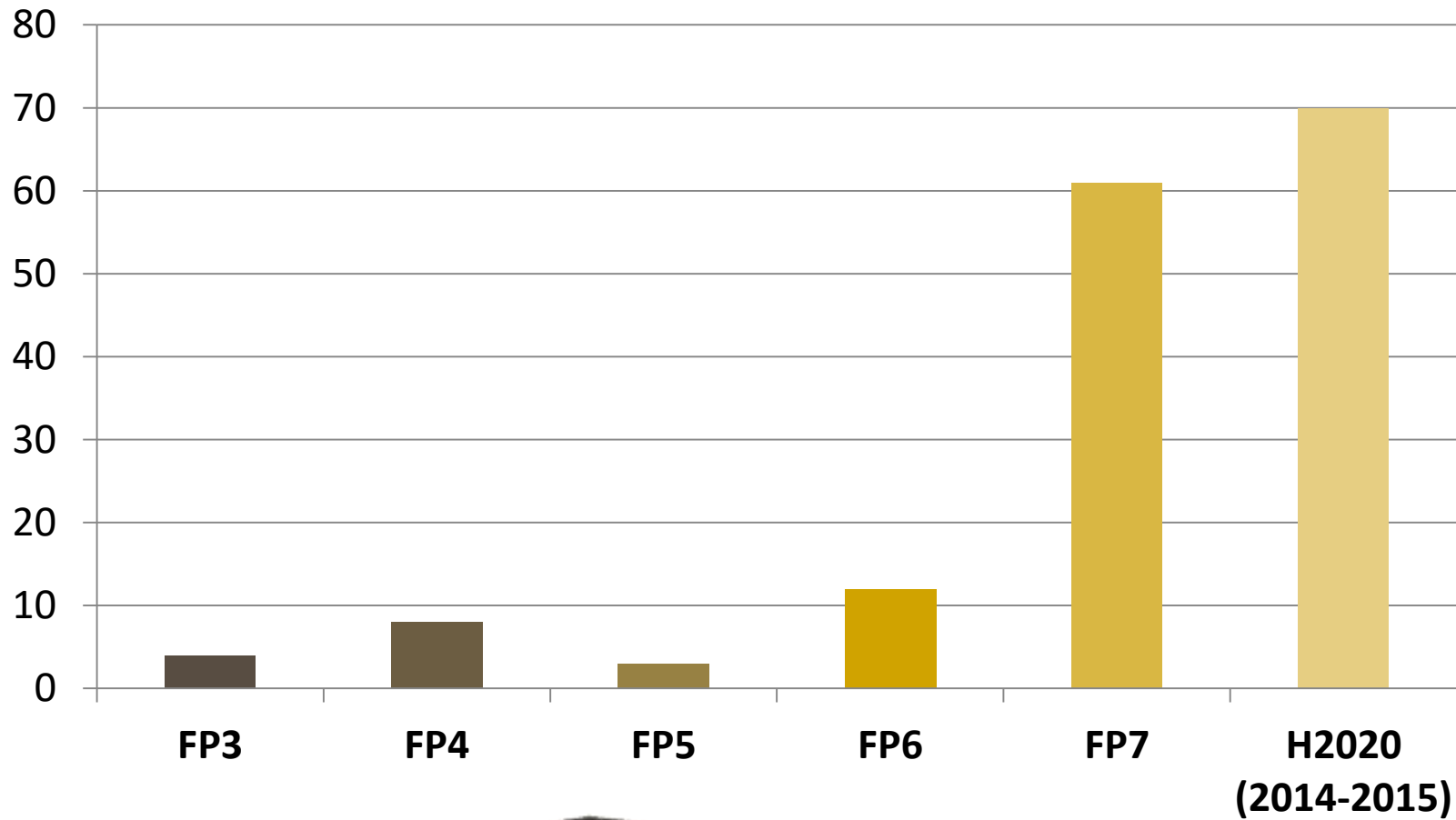
❖ *Presentation available at www.amatuc.com*

❖ The study demonstrated an increasing interest of the European Commission for AM-related projects.

❖ *Number of calls for proposals*

❖ *Number of projects funded*

Increase of European funding for AM



Concrete examples



Reinforcing Additive Manufacturing Research cooperation between Egypt and the European Research Area

Programme & Dates

7th Framework Programme; Oct. 2011 – Sept. 2013

Budget

500 k€

Partners



Loughborough
University



Scientific topics

- ❖ Additive manufacturing of Ti alloys based prostheses;
- ❖ Additive manufacturing of CoCr alloys based prostheses;
- ❖ Additive manufacturing of biocompatible ceramic materials: HA, PEEK and TCP.

Concrete examples



Boosting the scientific excellence and innovation capacity in AM of the Technical University of Cluj-Napoca

Programme & Dates

Horizon 2020; January 2016 – December 2018

Budget

1 m€

Partners



Loughborough University



FH AACHEN
UNIVERSITY OF APPLIED SCIENCES



Scientific topics

- ❖ Improve existing AM technologies
- ❖ Integrate AM with suitable Rapid Tooling methods
- ❖ Design for competitive manufacturing of personalised products and CAE-FEM analysis and simulation

Concrete examples

DiCoMI

Directional Composites through Manufacturing Innovation

Programme & Dates

Horizon 2020; March 2018 – February 2022

Budget

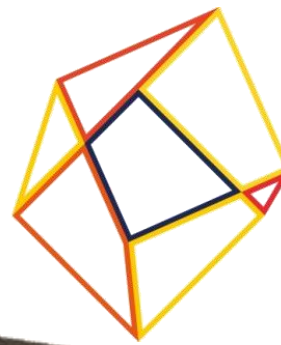
1.4 m€

Partners



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What about you?

*Will you try to win the next H2020
project on AM technology??*



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New opportunities

- ❖ The European Commission will issue soon the new H2020 Work Programme 2018-2020.
- ❖ This Work Programme will cover a 3-year period and will have a budget of around €30 billion to be spend on various thematic and schemes.
 - ❖ *Industrial leadership*
 - ❖ *Societal challenges*
 - ❖ *Research infrastructures*
 - ❖ *Widening programme, etc.*
- ❖ Nevertheless, it is possible to find some of the 'Draft' Work Programmes on the internet.

Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing

- ❖ DT-NMBP-19-2019: Advanced materials for additive manufacturing
- ❖ NMBP-22-2018: Osteoarticular tissues regeneration
- ❖ DT-FOF-01-2018: Skills needed for new Manufacturing jobs
- ❖ DT-FOF-04-2018: Pilot lines for metal Additive Manufacturing
- ❖ DT-FOF-08-2019: Pilot lines for modular factories

DT-NMBP-19-2019: Advanced materials for additive manufacturing

- ✦ By **combining several materials**, proposals should advance the state of the art through the development of ready assembled multifunctional devices:
 - ✦ Quantification of **improved functionalities**, properties, quality and lifespan of fabricated pieces;
 - ✦ Evaluation of **matching materials** properties to the production process to enable the joining of dissimilar materials for AM tools;
 - ✦ Demonstration of a better understanding of the **nanotechnology integrated** materials properties and manufactures;
 - ✦ Integration and validation at early stage of the qualification and **certification** considerations of the materials;
 - ✦ Joint development with **material suppliers and end-users**;
 - ✦ **Modelling, standardisation and regulatory** aspects and the process and materials qualification.

DT-NMBP-19-2019: Advanced materials for additive manufacturing

- ❖ Funding Scheme: Innovation Action
- ❖ TRL: start at TRL 4 and achieve TRL 6
- ❖ Project budget: €6-8 m
- ❖ Deadline for submission:
 - ❖ Stage 1: 22 January 2019
 - ❖ Stage 2: 03 September 2019
- ❖ Call budget: €20.4 m
- ❖ Expected project funded: 3 projects

NMBP-22-2018: Osteoarticular tissues regeneration

- ✦ To design and develop **user-centred innovative and smart nanobiomaterials** that will lead to a personalised regeneration of osteoarticular tissues (bones, cartilages, tendons, joints). Proposals should cover at least one of the following technologies, leading to a convergence of processes:
 - ✦ (i) **3D-bioprinting**; (ii) stem cells seeding, recruiting, activation, functionalisation, and cell printing; (iii) nano functionalisation; (iv) **3D-printable biophoto-polymerisation**; (v) use of light to expose/mask tethered signalling molecules, incorporating immune-modulatory materials such as complement regulators; (vi) **additive manufacturing by laser sintering, rapid prototyping technologies, stereolithography, inkjet techniques**; (vii) relevant cross-cutting KETs; (viii) electrospinning.

NMBP-22-2018: Osteoarticular tissues regeneration

- ❖ Funding Scheme: Research and Innovation Action
- ❖ TRL: start at TRL 3 and achieve TRL 5
- ❖ Project budget: €4-6 m
- ❖ Deadline for submission:
 - ❖ Stage 1: 23 January 2018
 - ❖ Stage 2: 28 June 2018
- ❖ Call budget: €24 m
- ❖ Expected project funded: 4-6 projects

DT-FOF-01-2018: Skills needed for new Manufacturing jobs

- ✦ Identify **shortages and mismatches** in technical and non-technical skills, knowledge and competences in Advanced Manufacturing;
- ✦ Map the most relevant **existing national initiatives** upskilling the existing workforce in order to develop an EU wide strategy;
- ✦ Activities related to **lifelong learning** and granting of qualification for personnel in industrial settings. Develop **real case scenarios** providing efficient methodologies to be applied in a variety of industrial areas;
- ✦ Innovative and **hands-on approaches** in upskilling of the existing workforce and attracting **more women**, through training activities and knowledge management with involvement of senior employees.
- ✦ **On-site, modular and e-learning education** should be offered free of charge for re-use;
- ✦ **Exchange of information** between industry, trade unions, educational centres, national employment agencies at European scale.

DT-FOF-01-2018: Skills needed for new Manufacturing jobs

- ❖ Funding Scheme: Coordination and Support Action
- ❖ TRL: N/A
- ❖ Project budget: €1-2 m
- ❖ Deadline for submission: 22 February 2018
- ❖ Call budget: €2 m
- ❖ Expected project funded: 1 project

DT-FOF-04-2018: Pilot lines for metal Additive Manufacturing

- ✦ Multi-scale and multi-physics **simulations of the process** and of the whole system from the early design phase, to avoid costly trial and error runs.
- ✦ Prediction and **minimisation of distortion** and **their effect** on durability and expected lifetime for post processing steps to avoid propagation of defects to downstream stages;
- ✦ In-line **non-destructive testing** and in-situ analysis of product, including metrology aspects;
- ✦ Integration and inter-operability of **AM processes into multi-stage production systems**, with in-process monitoring, feedback and control;
- ✦ **Hybridisation** of Additive Manufacturing with other manufacturing/assembling processes;
- ✦ **Certification, regulatory and standardisation** activities related to the proposed solutions and AM produced parts;
- ✦ Occupational exposure in terms of **health, safety and environment** should be carefully observed together with the **recycling of unused materials**.

DT-FOF-04-2018: Pilot lines for metal Additive Manufacturing

- ❖ Funding Scheme: Innovation Action
- ❖ TRL: start at TRL 5 and achieve TRL 7
- ❖ Project budget: €12-15 m
- ❖ Deadline for submission: 22 February 2018

- ❖ Call budget: ??
- ❖ Expected project funded: ??

DT-FOF-08-2019: Pilot lines for modular factories

- ✦ The development of a range of production modules covering several disciplines such as mechanical cutting tools, thermal processes, laser treatments and **AM technologies**, taking into account safety aspects;
- ✦ The integration of **comprehensive production management systems**, including real-time process control in a reconfigurable line, which includes considerations for data interoperability between modules and process line (including legacy hardware and software);
- ✦ **Pilot production** of different products covering processing technologies and features such as **multi-functionality** (mechanical, electrical, thermal, optical, etc.), **multi materials**, and **complex shapes**.
- ✦ The production modules could be considered as demonstrators on their own. However, their integration in the pilot line as well as an actual production demonstration with a **variety of components or product prototypes** should be achieved before the end of the project.

DT-FOF-08-2019: Pilot lines for modular factories

- ❖ Funding Scheme: Innovation Action
- ❖ TRL: start at TRL 5 and achieve TRL 7
- ❖ Project budget: €12-15 m
- ❖ Deadline for submission: 21 February 2019

- ❖ Call budget: ??
- ❖ Expected project funded: ??

Other opportunities

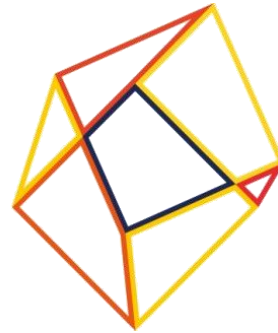
- ❖ The forthcoming calls presented before are considered as “Top-Down”. The EC defined specific AM-related calls for proposals.
- ❖ Nevertheless, the AMaTUC study (August 2016) showed that the main sources of funding for AM projects are “Bottom-up” calls.
 - ❖ *“Bottom-up” calls are calls with specific activities, consortium requirements, funding schemes, etc.*
 - ❖ *These calls for proposals remained open to a large variety of scientific and technical domains.*

Bottom-up calls

- ❖ The Horizon 2020 Programme provides a large range of funding opportunities in the following funding schemes and sub-programmes:
 - ❖ *Spreading excellence and widening participation*
 - ❖ *European Research Council (ERC)*
 - ❖ *Future and Emerging Technologies (FET)*
 - ❖ *Marie-Sklodowska-Curie Actions*
 - ❖ *Research Infrastructures*
- ❖ Check these Work Programmes and you might find interesting opportunities for your RDI activities.

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***Thank you for your
attention***



Flavien Massi - Intelligentsia Consultants Sàrl