



Mapping of projects in Additive Manufacturing

Project No. 601217-EPP-1-2018-1-BE-EPPKA2-SSA-B



SAM – MAPPING OF PROJECTS IN AM
Project No. 601217-EPP-1-2018-1-BE-EPPKA2-SSA-B

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1. Introduction

The current document addresses the Mapping of projects in Additive Manufacturing running from 2019 to 2022. The outcome of this report will be displayed online within the European AM Observatory platform, AM Project section [1]. The mapping of projects is a continuous activity during the project, although the updated will occur at the begging of every civil year starting in 2020 and lasting until 2022. After the SAM project, the mapping of AM projects will be kept by the Observatory.

The objective of the mapping of AM projects, is to keep an overall perspective about the ongoing research and educational projects and to promote the contact and engagement with each project, especially the ones related to skills for AM which might be technological, digital and/or green skills.

The report includes a list of AM Project funded in the first half of 2020.

2. Methodology

The methodology applied to the mapping of AM projects consisted in the consultation and analysis of the list of new (e.g. funded in 2019, 2020, 2021 and 2022) projects funded by the Erasmus +, Horizon 2020, EIT Raw Materials EIT Manufacturing and National Funds. Moreover, each project partners were consulted in order to identify the projects related to AM that they are involved to.

The main tools used to undertake the project mapping were:

- [CORDIS website for H2020 projects](#) [2]
- [EU Dissemination platform for Erasmus+ projects](#) [3]
- [EIT Raw Materials Innovation Projects](#) [4]
- [EIT Manufacturing Projects](#) [5]

3. AM Projects funded in 2019 and 2020

Project Acronym	Project Name	Period		Link website	Funding Programme
		Start year	End year		
-	Additive Process Technology Integration with Management and Entrepreneurship	2019	2022	https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/2019-1-UK01-KA203-062066	Erasmus +
SEE4.0	Enabling Industry 4.0 in Small European Enterprises	2019	2022	https://see40.erasmus.site/	Erasmus +
-	3D Printer, Technology for the Future	2019	2021	https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/2019-1-DE02-KA202-006346	Erasmus +
PADUAR		2019	2021	https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/2019-1-DE03-KA229-059605	Erasmus +
SAMANTHA	Nobel Training Programme on Additive Manufacturing towards the Digital Transformation of Toolmaking and Habitat related sectors.	2019	2022	https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/2019-1-DE02-KA202-006458	Erasmus +
-	Manufacturing Education for a Sustainable fourth Industrial Revolution	2019	2022	https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/2019-1-SE01-KA203-060572	Erasmus +
4.0 ANDCOM	4.0 didactic approaches in duty of developing ANDragog's COMPETENCES	2019	2021	https://andcom.erasmus.site/results/	Erasmus +
-	3D and Virtual Reality Technologies for VET	2019	2021	https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/2019-1-HR01-KA202-061006	Erasmus +
-	1.- Design, construction and assembling of robot, using a 3D printer and α smartphone as controller 2.- Mechatronics: Research and manufacture of intelligent mechanical systems. Inventiveness and innovation in the vehicle of tomorrow.	2019	2021	N.A	Erasmus +
-	3D Printing and Creation: Towards a New Era in Teaching and Learning	2019	2021	https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/2019-1-PT01-KA101-060612	Erasmus +
3D-ReMath	3D printing technology aims students understanding maths and recycling procedure	2019	2021	https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/2019-1-EL01-KA201-062914	Erasmus +

Project Acronym	Project Name	Period		Link website	Funding Programme
		Start year	End year		
-	Adapting Museums for educational Inclusive Goals	2019	2021	https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2019-1-ES01-KA201-063923	Erasmus +
ICARUS	An Innovative Higher Education Institution Training Toolbox to Effectively Address the European Industry 4.0 Skills Gap and Mismatches	2019	2022	https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2019-1-MT01-KA203-051265	Erasmus +
LINGUA FRANCA		2019	2020	https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2019-2-PT02-KA105-006042	Erasmus +
MULTI-FUN	Enabling Multifunctional Performance through Multi-Material Additive Manufacturing	2020	2023	http://www.multi-fun.eu/	Horizon 2020
CEFAM	Strategic program for the Excellence skilling up on metal Additive Manufacturing	2020	2022	N.A	Spanish Government – Excelencia Cervera 2019
LILIAM	Long Life Learning In AM	2019	2021	www.liliam-project.polimi.it/	EIT Raw Materials
FORMPLANET	Sheet metal forming testing hub	2019	2021	https://cordis.europa.eu/project/id/814517	Horizon 2020
ADDIMOT	ADDitively manufactured limited angle torque MOTor for Smart Active Inceptors	2019	2021	https://cordis.europa.eu/project/id/865206/fr	Horizon 2020
STREAM	Simulation of Turbulence and Roughness in Additive Manufactured parts	2019	2022	https://cordis.europa.eu/project/id/865378	Horizon 2020
MADAM	Material design for additive manufacturing	2019	2022	https://cordis.europa.eu/project/id/833092	Horizon 2020
AManECO	Assessment of additive manufacturing limits for eco-design optimization in heat exchangers	2019	2022	https://cordis.europa.eu/project/id/864733	Horizon 2020
MONACO	Manufacturing of a large-scale AM component	2019	2022	https://cordis.europa.eu/project/id/831872	Horizon 2020
Print2fly	Can we print an aircraft at room temperature?	2019	2021	https://cordis.europa.eu/project/id/842319	Horizon 2020
ADAM^2	Analysis, Design, And Manufacturing using Microstructures	2020	2023	https://cordis.europa.eu/project/id/862025	Horizon 2020
MOAMMM	Multi-scale Optimisation for Additive Manufacturing of fatigue resistant shock-absorbing Metal Materials	2020	2023	https://cordis.europa.eu/project/id/862015	Horizon 2020
Hot Lithography	The disruptive 3D printing technology Hot Lithography with highperformance polymers for the Additive Manufacturing of spare parts and small series of functional parts	2019	2021	https://cordis.europa.eu/project/id/872914	Horizon 2020
COMBO3D	Composite mould tool based on 3D printing	2019	2021	https://cordis.europa.eu/project/id/831851	Horizon 2020

Project Acronym	Project Name	Period		Link website	Funding Programme
		Start year	End year		
4DPRINTEN	4D printed flexible and stretchable energy harvestig devices based on innovative electrically tunable elastomers.	2019	2021	https://www.idonial.com/en/component/sppage-builder?view=page&id=137	Manunet

4. AM Projects funded before 2019

Project Acronym	Project Name	Period		Link website	Funding Programme
		Start year	End year		
FabricAr3v	Towards metallic additive manufacturing for all	2014	2020	https://www.keep.eu/project/23482/fabricar3v-towards-metallic-additive-manufacturing-for-all	Interreg France- Wallonie - Vlaanderen
SOFIA	SOLutions pour la Fabrication Industrielle Additive métallique -Solutions for Industrial Metal Additive Manufacturing	2016	2022	https://www.sofia-3d.fr/	Auvergne-Rhône-Alpes region & Bpifrance.
Modulase	Development and Pilot Line Validation of a Modular Re-Configurable Laser Process Head	2016	2020	www.modulase.eu	Horizon 2020
ENCOMPASS	ENgineering COMPASS	2016	2020	www.encompass-am.eu	Horizon 2020
BrainIT	Brain Revealed: Innovative Technologies in Neurosurgery Study	2018	2021	https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/2018-1-RO01-KA203-049317	Erasmus +
CLLAIM	Creating Knowledge and Skills In Additive Manufacturing	2018	2020	http://claimprojectam.eu/	Erasmus + SSA
Admire	European Master Degree in METAL ADDITIVE MANUFACTURING	2017	2020	https://admireproject.eu/	Erasmus + KA
Alforama	Innovative Al alloy For aircraft structural parts using Additive MANufacturing technology	2017	2020	http://www.alforama.eu/	Horizon 2020 (Clean sky)
Flowcaash	FLOW Control Actuators at Aircraft scale manufacturing by SLM with high aerodynamic performance for using in Harsh environment	2018	2020	https://cordis.europa.eu/project/id/785408	Horizon 2020
Ecotech	Development of airframe technologies aiming at improving aircraft life cycle environmental footprint (Clean Sky)	2016	2024	https://www.cleansky.eu/material-gain-clean-skys-ecotech-innovative-eco-friendly-airframe	Horizon 2020
IAWAS	Innovative Aluminium filler Wires for Aircraft Structures	2018	2021	https://cordis.europa.eu/project/id/821371	Horizon 2020
AMable	AdditiveManufacturABLE	2017	2021	https://www.able.eu/	Horizon 2020
4D Hybrid	4D Hybrid	2017	2020	http://4dhybrid.eu/	Horizon 2020

Project Acronym	Project Name	Period		Link website	Funding Programme
		Start year	End year		
Supreme	Sustainable and flexible powder metallurgy processes optimization by a holistic reduction of raw material resources and energy consumption	2017	2020	https://www.supreme-project.com/	Horizon 2020
PM-Life	Lifelong Learning in Powder Metallurgy	2018	2021	https://www.pmlifetraining.com/	EIT Raw Materials
SIADD	SOLuzioni Tecnologiche Innovative per la Qualità e la Sostenibilità dei processi di Additive Manufacturing	2018	2021	https://www.mecc.polimi.it/us/research/funded-projects/national-projects/	Ministry of Education (Univerista e della Ricerca)
INEX-ADAM	INCREASING EXCELLENCE ON ADVANCED ADDITIVE MANUFACTURING	2018	2021	www.inex-adam.eu	Horizon 2020
AMITIE	Additive Manufacturing Initiative for Transnational Innovation in Europe	2017	2021	http://www.rise-amicie.eu/	Horizon 2020
MANUELA	Additive Manufacturing using Metal Pilot Line	2018	2022	https://manuela-project.eu/	Horizon 2020
AMICE	Advanced Manufacturing in Central Europe	2017	2020	https://www.interreg-central.eu/Content.Node/AMiCE.html	Interreg Central Europe
M3DLoC	Additive Manufacturing of 3D Microfluidic MEMS for Lab-on a Chip application	2018	2021	http://www.m3dloc.eu/	Horizon 2020
AMATHO	A.dditive MA.nufacturing for T.iltrotor HO.using	2016	2021	https://www.amatho.org/	Horizon 2020
INTEGRADDE	Intelligent data-driven pipeline for the manufacturing of certified metal parts through Direct Energy Deposition processes	2018	2022	http://www.integraddeproject.eu/project	Horizon 2020
NATHENA	New Additive manufacTuring Heat ExchaNger for Aeronautic	2018	2022	https://cordis.europa.eu/project/id/785520	Horizon 2020
PLEIADES	Enabling an integrated approach to the eco design of aerospace products Integrating sustainability and business considerations	2016	2020	http://www.pleiades-cleansky.eu/	Horizon 2020 (Clean sky)
DRAMA	Digital Reconfigurable Additive Manufacturing Facilities for Aerospace	2017	2021	http://ncam.the-mtc.org/drama/overview	UK National (InnovateUK)

5. Completed AM Projects

Project Acronym	Project Name	Period		Link website	Funding Programme
		Start year	End year		
Metals	Machine Tool Alliance Skills	2015	2018	www.metalsalliance.eu	Erasmus+
3D PRISM	3D printing Skills for Manufacturing	2015	2018	www.3dprism.eu	Erasmus+
Kraken	Hybrid automated machine integrating concurrent manufacturing processes, increasing the production volume of functional on-demand using high multi-material deposition rates	2016	2019	https://cordis.europa.eu/project/id/723759	Horizon 2020
LASIMM	Large Additive Subtractive Integrated Modular Machine	2016	2019	http://www.lasimm.eu/	Horizon 2020
OPENHYBRID	Developing a novel hybrid AM approach which will offer unrivalled flexibility, part quality and productivity	2016	2019	www.openhybrid.eu	Horizon 2020
MADE4LO	Metal Additive Lombardy	2017	2019	https://www.openinnovation.regione.lombardia.it/it/b/1539/progetto-made4lo	European Regional Development Fund
NiedersachsenADDITIV"	NiedersachsenAdditiv - Zentrum für Additive Fertigung	2017	2019	https://www.niedersachsen-additiv.de/	Supported by the Lower Saxony Ministry of Economics, Labour, Transport and Digitisation
Addispace	Implementation of Additive Manufacturing technologies in the Aerospace sector	2016	2019	www.addispace.eu/en/project	Interreg SUDOE
Hyprocell	Development and validation of integrated multiprocess HYbrid PROduction CELLS for rapid individualized laser-based production	2016	2019	http://www.hyprocell-project.eu/	Horizon 2020
Distraction	Design against DISTortion of metallic aerospace parts based on combination of numeRical modelling ACTivities and topology optimisation	2016	2019	https://cordis.europa.eu/project/id/686808	Horizon 2020 (Clean sky)

Tifan	Manufacturing by SLM of Titanium FAN wheel. Comparison with a conventional manufacturing process	2013	2015	https://cordis.europa.eu/project/id/620093	Horizon 2020 (Clean sky)
Merlin	DEVELOPMENT OF AERO ENGINE COMPONENT DESIGN AND MANUFACTURE USING LASER ADDITIVE MANUFACTURING	2011	2014	http://www.merlin-project.eu/home/index.jsp	Horizon 2020
ADITARC	Arc welding based additive manufacturing processes	2018	2019	https://cordis.europa.eu/project/id/821371/e5	Basque Government funding program – Diputación Foral Gipuzkoa I+D 2018
HARITIVE	Development of a new value chain for the manufacturing of high added value components by WAAM	2017	2019	https://www.addimat.es/en/news/haritive-the-project-for-the-development-of-waam-technology-ends-successfully	Basque Government funding program – HAZITEK 2017
HINDCON	Hybrid INDUSTRIAL CONSTRUCTION	2016	2019	http://www.hindcon3d.com/	Horizon 2020
AM-motion	A strategic approach to increasing Europe's value proposition for Additive Manufacturing technologies and capabilities	2016	2019	www.am-motion.com	Horizon 2020
3D&FPP	Integrating Metal 3D Printing & Flexible Post Processing	2016	2019	http://www.3dfpp.eu/	Interreg 2SEAS
AMSCA	Accelerated Manufacturing with Chrome Free Sacrificial Cermet Coatings in Aerospace	2014	2017	N/A	UK National (InnovateUK)
AMAZE	Additive Manufacturing Aiming Towards Zero Waste & Efficient Production of High-Tech Metals Products	2013	2017	https://cordis.europa.eu/project/id/313781	FP7
DREAM	Distortion Reduction and Elimination for Additive Manufacturing	2018	2019	N/A	UK National (InnovateUK)
NIFTY	A Net-Shape, High-Productivity Fabrication Route that Utilises Low-Cost Tools to Produce High-Complexity Parts	2017	2019	N/A	UK National (InnovateUK)
PASSPORT	Part Specific Process Optimization in SLM	2018	2019	https://cordis.europa.eu/project/id/785562	H2020 - CleanSky

6. Synergies between SAM and other AM projects

The synergies among AM project identified in this section refer to the cooperation established in order to exchange of information, common promotion and fostering of visibility and impact of the concerned projects. There are 4 main outcomes coming from the synergies established, namely:

- to conduct joint events (for example use the context of another project conference or meeting to present SAM results and vice-versa) ;
- to disseminate/ promote SAM results (e.g. Surveys);
- to give the AM project European visibility through the AM Observatory;
- to deliver training in AM (the idea is not to repeat contents and to have complementary training; for us it would be interesting if other projects addressing training in AM (ERAMUS+) could use and test the Qualifications and learning units developed in SAM;
- To use the outcomes of prior projects (Training modules /materials) in SAM
- to validate projects findings and participate in working sessions based on their expertise

The table below summarizes the outcomes of the synergies.

AM projects	Context of the synergy between projects (what and when?)	Outcome (what was the result)
LASIMM	LASIMM & Kraken OPENDAY - 25th September 2020	Dissemination (presentation and flyers)
OPENHYRID	OPENHYBRID OPENDAY – 18 th September 2020	Dissemination (presentation and flyers)
AM-motion	AM Motion meetings – March, October 2019 and June 2020	Dissemination (presentation and flyers) Implementation of Surveys to identify Skills Needs
CLLAIM	Industry Survey on Skills Needs – June to November 2019	Validation of the CLLAIM Professional Profiles
ADMIRE	Industry Survey on Skills Needs – June to November 2019	Validation of the ADMIRE Professional Profile
AMABLE	Industry Survey on Skills Needs – June to November 2019 1 st Workshop to Validate Skills Needs – 27 February 20	Question to SMES on the challenges to deal with AM technology; AMABLE Services Survey;

Identification of possible outcomes resulting for synergies (Add project name and a cross(x) in the correspondent activities)

Possible Synergies between projects	AM PROJECTS									
	CLLAIM	Amaze	Openhybrid	AMable	REDAMP	MULTI-FUN	ADDISPACE (finished)	CEFAM	Hyprocell (finished)	LILIAM
Organisation of Joint Events (Conference, meetings)	M2,			X		X		X		X
Common Promotion/dissemination (e.g Observatory)	x			X		X		X	X	X
Validation of SAM skills needs /results (e.g answering to surveys and/interviews, participation in external Validation workshop)	?			X	X	X	X		X	X
To test CUs /Qualification created /revised in SAM					X new training contents about monitoring and control of WAAM			X training activities planned		X LILIAM training
To use AM projects inputs in terms of technological findings to design CUs /Qualifications		X (case studies; presentations) All processes	X (DED)		X	X		X	X	X
To use AM projects Training contents/materials in SAM	x			X	X		X	X		X
Technological trends				M1, M3 PR3, PR11	ICT1, ICT3 Q2, Q3	M2, M5, M8 PR5, PR8, PR9	M1	M1, M2 PP4	PP4 ICT1	

									Q2, Q3	
Skills needs				X skill-up of SMEs	X Training	X	X	X Awareness	X	X
Gaps				Mismatch, infrastructures, fast evolving	Shortage of training	Mismatch, infrastructures, fast evolving	Mismatch, shortage of training	Mismatch, infrastructures, fast evolving, shortage of training	Mismatch, fast evolving	

7. Synergies between SAM and other Sector Skills Alliances Blueprint projects

Identification of possible outcomes resulting from synergies *with other Sector Skills Alliances Blueprints Projects*

Project Acronym	Name	Description	Possible Outcomes	Website
DRIVES	Development of Research and Innovation Vocational Education Skills	The aim of the project is to implement the Blueprint objectives for the automotive sector, namely the delivery of human capital solutions to value chain (vehicle production, automotive suppliers and automotive sales and aftermarket services) through the establishment of an Automotive Sector Skills Alliance.	<ul style="list-style-type: none"> link to Project website in AM Observatory focused on the project outcomes related to Additive Manufacturing / 3D printing sharing of reports/executive report related with skills needs identification/demand in automotive sector 	www.project-drives.eu
ESSA	European Steel Skills Agenda	The main objective of the project is to develop a Blueprint for a sustainable steel industry driven and coordinated European steel skills agenda and strategy for an ongoing and short-termed implementation of new skills demands.	<ul style="list-style-type: none"> link to Project website in AM Observatory focused on the project outcomes related to Additive Manufacturing / 3D printing sharing of reports/executive report related with skills needs identification/demand in the sector 	www.estep.eu/essa/essa-project/

Project Acronym	Name	Description	Possible Outcomes	Website
ALBATTS	European Battery Alliance	The Alliance for Batteries Technology, Training and Skills (ALBATTS) is a European funded project with the objective of contributing to the electrification of transport and green energy in Europe, by designing a blueprint for competences and training schemes of the future, in the battery and electromobility sector.	<ul style="list-style-type: none"> link to Project website in AM Observatory focused on the project outcomes related to Additive Manufacturing / 3D printing sharing of reports/executive report related with skills needs identification/demand in the sector 	www.skills4automotive.eu/
ASSETS+	Alliance for Strategic Skills Addressing Emerging Defence Technologies	The project that aims to develop skills in robotics, C4ISTAR and cybersecurity. One of the project core objectives is to ensure that the educational programmes designed for the Defence sector comply with pedagogical requirements and match industrial needs.	<ul style="list-style-type: none"> link to Project website in AM Observatory focused on the project outcomes related to Additive Manufacturing / 3D printing sharing of reports/executive report related with skills needs identification/demand in the sector 	www.assets-plus.eu/
SPIRE-SAIS	Skills Intelligence for Industrial Symbiosis	The project aims to develop an industry-driven and proactive skills strategy that will assist the wider implementation and exploitation of industrial symbiosis and energy efficiency across the energy intensive industrial sectors represented in SPIRE: chemicals, steel, engineering, non-ferrous metals, minerals, water, cement, and ceramics.	<ul style="list-style-type: none"> link to Project website in AM Observatory focused on the project outcomes related to Additive Manufacturing / 3D printing sharing of reports/executive report related with skills needs identification/demand in the sector 	https://www.spire2030.eu/sais
EDDIE	Education for the Digitalisation of Energy	The project aims to develop a long-driven Blueprint for the digitalization of the European Energy sector to enable the matching between the current and future demand of skills necessary for the digitalization of the Energy sector and the supply of improved Vocational Education and Training (VET) systems and beyond.	<ul style="list-style-type: none"> link to Project website in AM Observatory focused on the project outcomes related to Additive Manufacturing / 3D printing sharing of reports/executive report related with skills needs identification/demand in the sector 	www.eddie-erasmus.eu/

Project Acronym	Name	Description	Possible Outcomes	Website
METIS	MicroElectronics Training, Industry and Skills	The project aims to implement a new strategic approach to sectoral cooperation on skills for microelectronics by involving the key players across industry, education & training and regulatory/certification bodies.	<ul style="list-style-type: none"> • link to Project website in AM Observatory focused on the project outcomes related to Additive Manufacturing / 3D printing • sharing of reports/executive report related with skills needs identification/demand in the sector 	www.metis4skills.eu/