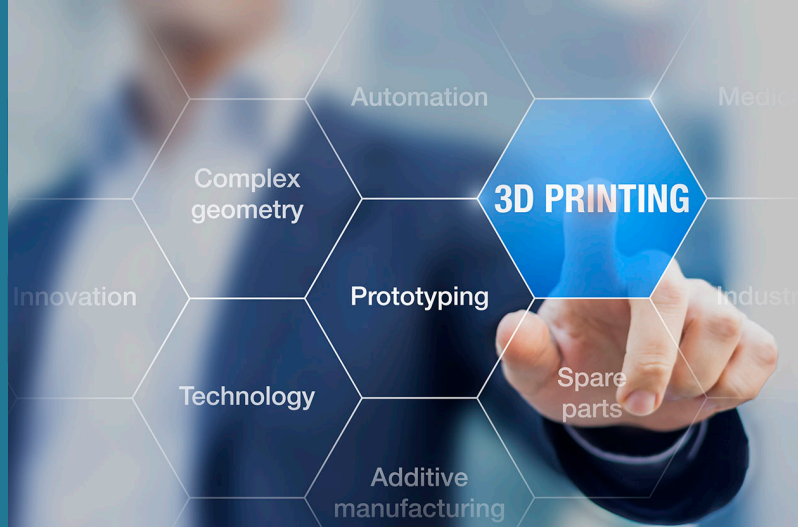


## SAMIA-3D

Towards an industrial application of 3D-printed structural composite materials



### Inspiration

Carbon Fibre Reinforced Polymer (CFRP) are attracting industrial materials that exhibit a combination of excellent mechanical and chemical performance, recycling and potential lightweight structures capabilities. They are already used in industrial applications, for load-bearing (i.e. primary and secondary structures) structural parts, but the type of structures is so far limited to shell-type structures due to the inability of current CFRP manufacturing to produce complex 3D structures.

Anisoprint, a Russian start-up recently incorporated in Luxembourg, proposes its own patented continuous-fibre 3D printing technology: the Composite Filament Co-extrusion technology is a deep modification of the Fused Deposition Modelling (FDM) technology. A first range of machines for consumer goods application will be soon available on the market. The next target is to further improve this technology concept in terms of materials, so that the associated technology could be able to fulfil requirements for structural parts.

### Innovation

The SAMIA-3D project idea is to develop and validate tailored CFRP filament in order to reach structural part specifications for electric cars, transportation or drones applications by developing Anisoprint technology. This will be carried out from the lab scale to the demonstration stage, by a close cooperation between Anisoprint and LIST.

With the project, partners aim at developing and validating an innovative solution to produce a filament with unique combination of properties dedicated to Anisoprint's 3D printing technology. This objective is achievable due to the simultaneous research work on the composite filament tailoring and on the CFRP filament/ co-extruded thermoplastic interface, the associated multi scale characterisation and the continuous validation loops on the real scale technology driven by the end-user.

### Impact

Through LIST inputs, the industrial partner Anisoprint will be able to modify its machines accordingly to the knowledge derived in order to print an efficient demonstrator, which will fulfil the industrial specifications.

SAMIA-3D will enable to considerably improve the quality and performance of 3D-printed structural composite materials, but will also open a new path to a wide panel of industrial and structural applications, ranging from aviation and unmanned aerial vehicle to sport sectors.

### Partners

Anisoprint (RU)

### Financial Support

Fonds National de la Recherche

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