



Innovation Eco-system to Accelerate the Industrial Uptake of Advanced Surface Nano-Technologies

Key Enabling Technologies (KET's) deployment will be the driving force for a significant part of the goods and services that will be available in the market in the next decade. Amongst KET's, nano-enabled surfaces and membranes must be highlighted due to their huge potential to offer material solutions to address Sustainable Development Goals resulting in positive and sound impacts for the society and key industrial sectors. The NewSkin project aims to create an Open Innovation Test Bed (OITB), a new legal entity which will provide the European Innovation Ecosystem with the necessary technologies, resources and services to uptake a set of game changing, efficient and cost-effective innovative processes to manufacture nano-enabled industrial and consumer products as well as the necessary testing capabilities to demonstrate nano-enhanced goods features.

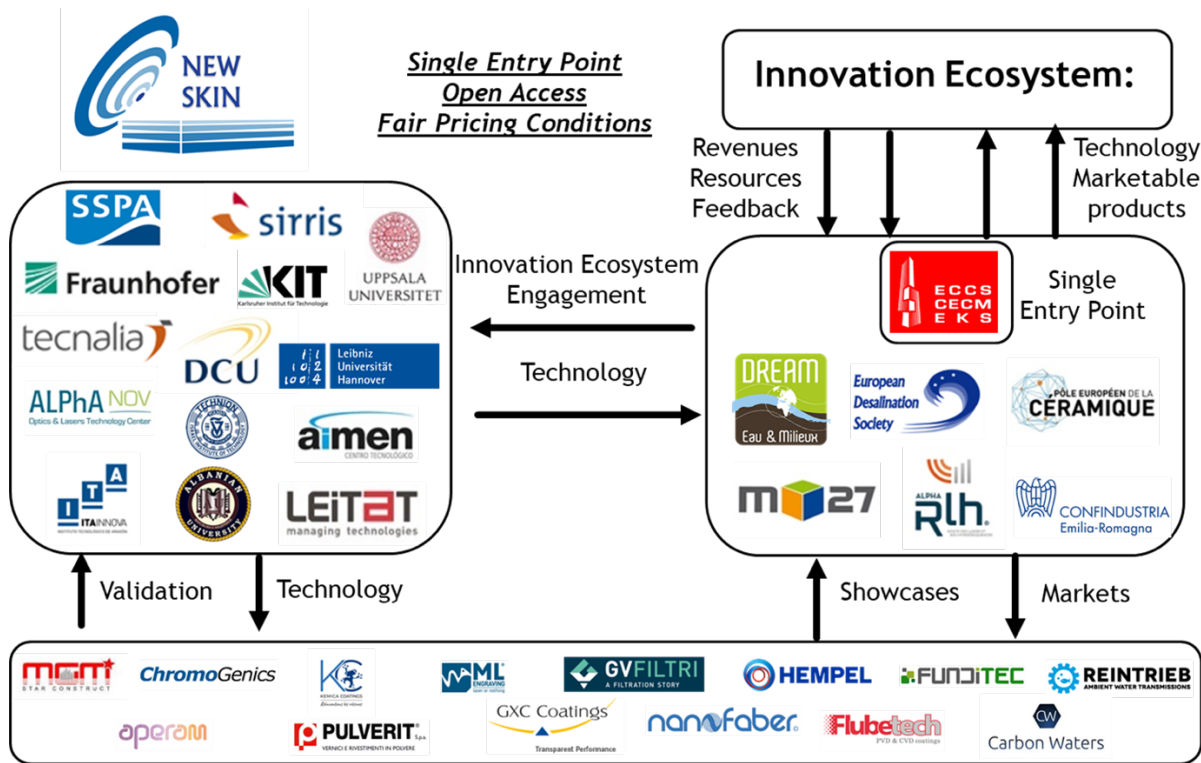


Fig 1. NewSkin OITB Partners and Innovation Ecosystem Interaction.

The Consortium is coordinated by ECCS.

The NewSkin innovative manufacturing up-scaling and testing facilities will provide the Innovation Ecosystem the necessary tools to create and validate to TRL7 and higher (system prototype demonstration in operational environment) new technologies to meet the challenges of key European Industries such as Steel, Ceramics, Transport, Water Treatment and the General industry.

During the first two years of project, the NewSkin Consortium will work in the creation of the OITB structure, the Innovation Ecosystem engagement, the upgrade of the testing and pilot plant facilities and the generation



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of value proposition for the target industries. Once the OITB structure is created and the value proposition validated by the implementation of 4 Show cases by month 24, the OITB will start the services provision according to the defined value proposition. For two years NewSkin services will be available under payment scheme and on free basis in 4 competitive calls that will be evaluated on six months basis. After the conclusion of the forth call, the OITB will act as a self-sustainable entity that generates revenues open access services and fair pricing conditions.

NewSkin will impact the Steel Construction Industry in four different areas:

- Newskin will transfer the Steel Industry novel nano-technologies that will allow to reach and demonstrate new levels of performance and durability (ice, fouling, corrosion, wear and fire resistance) under combined stresses in harsh environments and extreme industrial conditions.
- Advanced continuous processes will be also transferred to the Steel Industry for the production of functional surfaces on steel cladding, envelopes, structures and components.
- NewSkin will transfer the Innovation Ecosystem high performance nano-coatings and structures for steel drilling, machining and cutting machine tooling and components increasing processes efficiency, reducing costs and environmental impacts as well as avoiding the lines shutdowns and major equipment failures.
- Highly efficient water treatment technologies to recycle and reuse of cutting fluids and other steelwork related effluents.

NewSkin nano-enabled surfaces and membranes technological portfolio includes:

- The complete set of processes for the large-scale manufacturing of graphene nano-enabled membranes (from continuous graphene production to nano-pore creation and functionalization as well as testing facilities).
- Continuous laser texturing, roll to roll (R2R) and Texturing During Molding (TDM) nano-textures mass production processes
- Pilot plant semi-industrial facilities for the definition of efficient automated controlled and nano-safe nano-coating processes for large components.
- Continuous PVD and CVD processes.

Moreover, the validation and testing facilities to demonstrate the outstanding performance of the manufactured components in real environments and applications. In addition, NewSkin Consortium will also provide the route to market services during the final commercialization stage including corporate funding, supply chain management and access to market support.

Services to be provided and key target industries:

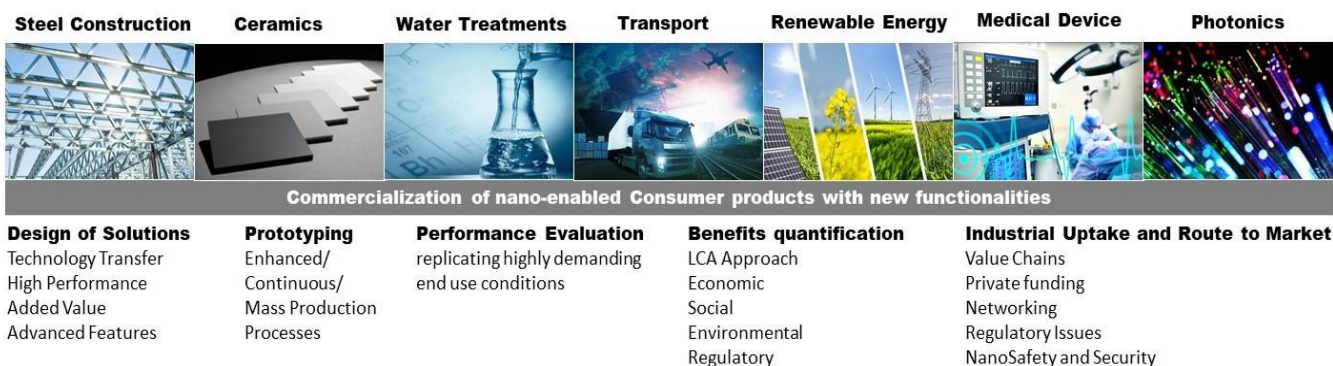


Fig 2. NewSkin validation product cycle including services provided.

