Horizon 2020- Directorate-General for Research&Innovation
Directorate D- Key Enabling Technologies

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Advanced materials and innovative design for improved functionality and aesthetics in high added value consumer goods

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Specific Challenge (1):

- **Creative industries** have been defined as one of the most active, significant and relevant new emerging industrial sectors in the European economy (*Report on Emergency Industries, PwC, 2012*).

- The creative industries **linked to manufacturing** (e.g. architecture, automotive, art, crafts, supports for cultural items, decoration, fashion, furniture, lighting, interior design materials and products, jewels, luxury, media supports, publishing, **sport** and toys) are generators of competitive advantages that cannot be reproduced elsewhere, promoters of local development and drivers of industrial change (*COM(2012)537 'Promoting cultural and creative sectors for growth and jobs in the EU'*).

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Specific Challenge (2):

- **Creative SMEs** in particular can **make use of design as a strategic tool** to create innovative products and services addressing new consumers' standards and societal challenges while assuring competitive and sustainable development.

- However, the future European exploitation of this rich sector depend on the EU ability to support high-growth creative SMEs and start-ups in exploiting **highly innovative technological advances in materials for commercial, cultural and societal applications**.

- To **promote design-driven innovation**, a number of action lines have been endorsed by the Commission, including **integrating design into research and development and promoting new collaborative innovation strategies** (*'Implementing an Action Plan for Design-Driven Innovation', SWD(2013)380*).

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Scope (1):

- Proposals **should address the development of innovative advanced material solutions** (e.g.superhydrophobic/superoleophobic nanomaterials and nanoscale systems, self-cleaning and self-healing systems, smart textile fabrics and papers, biomimetic, shape change/memory materials, self-assembling systems, energy harvesters) for use in the **creative industry sectors** defined above to make **urban living** significantly easier, more sustainable, more comfortable, more secure and more functional.

- **Creativity, cultural and societal values**, alongside **specialist knowledge**, **should be** driving the **material innovation** (e.g. increased performance, lightness, safety, sustainability, improved lifetime) to add value to products through the use of **new intangible material functionalities** (e.g. creative design, artistic expression, trend translation, enhanced sensations, cultural values).

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Scope (2):

- **Proof of concept** in terms of product and/or process **must be delivered within the project**, excluding commercially usable prototypes (in compliance with European Commission Communication 2006/C323/01), but convincingly demonstrating scalability towards industrial needs.

- In order to ensure the **industrial relevance** and **impact of the research** efforts, the **key properties improvement and commercial potential of the innovative technologies compared to state-of-the-art solutions currently available on the market should be** convincingly assessed in the proposal.

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Scope (3):

- **Sustainability aspects in the whole life cycle of the final products should be** taken into account.

- The **active participation of designers, artists, societal stakeholders, material scientists, materials suppliers, researchers, manufacturers and end users of the resulting products** represents an added value and **this will be reflected in the second stage of the evaluation**.

- As relevant, the proposed activities **should** address **sex** and **gender** specific aspects.

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Scope (4):

- **Activities are expected to focus on Technology Readiness Levels 4 to 6, and target Technology Readiness Level 7.**
- *A significant participation of SMEs with R&D capacities **is encouraged**.*
- The Commission considers that proposals requesting a contribution from the EU between **EUR 5 and 7 million** would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

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Expected Impact (1):

- Novel, higher added-value, better performing, sustainable, versatile, appealing **designs** and **creative solutions** for **consumer goods** based on innovative advanced materials or structures;
- Good **integrability** of the proposed innovative materials in final products (e.g. using a modular approach) and **quickly reconfigurable to new custom requirements**;
- Promoting new **collaborative innovation strategies** and **practices along the value chain** to develop commercial, cultural and societal applications with a strong user orientation, creating new business opportunities for the European industry and contributing to the circular economy in terms of one or more of the following: increased competiveness, faster recovery of investment, access to new markets, access to new customer segments, increased business effectiveness, increased costumer engagement, increased environmental sustainability;

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Expected Impact (2):

- **Enhancing innovation capability and competiveness of European SMEs** by effectively combining and transferring new and existing knowledge with 'intangible' factors (e.g. creative design, artistic expression, trend translation, enhanced sensations, cultural values);
- **Increasing awareness of designers about new materials**;
- Contribute to achieving the relevant EU policy objectives in **COM(2012)537, 'Promoting cultural and creative sectors for growth and jobs in the EU'.**
- Proposals **should include** a business case and exploitation strategy, as outlined in the Introduction to the LEIT part of this Work Programme.