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Developing New 2D Materials and Heterostructures for Printed Digital Devices



2D-PRINTABLE - Deliverable report

D7.4 – Final Exploitation Plan



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Public summary

Over the past two decades, two-dimensional materials (2DMs) have revolutionised materials science and nanotechnology due to their remarkable physical and chemical properties. These materials have enabled significant advances across a wide range of applications, including optoelectronics, energy technologies, sensing systems, and advanced composites. Despite their outstanding potential, translating the unique properties of individual 2DMs into scalable, real-world technologies remains a major challenge. The 2D-PRINTABLE project addresses this gap by developing sustainable liquid-phase exfoliation processes to produce high-quality 2DM-based inks suitable for printing large-area functional networks while preserving their nanoscale characteristics. By combining advanced materials engineering with machine learning and artificial intelligence, the project seeks to integrate electronically active 2DMs into printable heterostructures for next-generation digital technologies. This approach enables the fabrication of key electronic components, including transistors, capacitors, and diodes, which can be incorporated into high-performance printed devices such as photodetectors, solar cells, light-emitting diodes (LEDs), inverters, and non-volatile memory systems.

Deliverable D7.4, *Final Exploitation Plan*, provides a comprehensive assessment of the Key Exploitable Results (KERs) generated throughout the 2D-PRINTABLE project, building upon the foundations established in Deliverable D7.3, *Updated Plan for Exploitation* (M16). For each KER, ownership rights and intellectual property (IP) arrangements are clearly defined, ensuring transparency and equitable recognition of contributions among project partners. The document further identifies potential end users, target markets, value propositions, and competitive advantages associated with each KER. In addition, it examines relevant market barriers and challenges, highlights emerging opportunities, and proposes practical strategies to facilitate successful market uptake. A detailed exploitation roadmap is also presented, including potential industrial stakeholders, commercialization pathways, alternative implementation approaches, and an analysis of the competitive landscape. Through this structured framework, D7.4 aims to maximize the impact, market relevance, and long-term sustainability of the project's innovations, thereby supporting their effective exploitation and deployment in industrial and commercial settings.

Deviations from Annex 1

There are no deviations from the description of this deliverable, as given in Annex I of the Grant Agreement.

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Project partners:

#	Partner short name	Partner Full Name	Country
1	TCD	Trinity College Dublin	Ireland
2	UNISTRA	University of Strasbourg	France
3	Uka	University of Kassel	Germany
4	BeD	BeDimensional	Italy
5	TUD	Technical University Dresden	Germany
6	VSCHT	Vysoká škola chemicko-technologická v Praze	Czechia
7	UNR	UNIRESEARCH	Netherlands
8	UniBwM	University of the Bundeswehr Munich	Germany
9	EPFL	École Polytechnique Fédérale de Lausanne	Switzerland

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