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## New OE-A Roadmap unveils exciting Printed Electronics Industry prospects

**The highly anticipated OE-A Roadmap offers valuable insights into the present state and prospects of flexible, organic, and printed electronics. The Whitepaper delves into key markets such as Automotive, Consumer Electronics, Healthcare, Printing and Packaging, Smart Building, and Internet of Things, providing comprehensive analyses and forecasts for each sector. The Whitepaper is now ready for download.**

Frankfurt, Germany, June 13th, 2023 – “In the last couple of years we have seen the accelerating adoption of printed, flexible, and hybrid electronics in a wide range of products and markets.” states Dr. Klaus Hecker, Managing Director of OE-A. This proves the latest Roadmap Whitepaper published by OE-A (Organic and Printed Electronics Association), a working group within VDMA. The new edition of the “OE-A Roadmap for Flexible, Organic and Printed Electronics” offers an in-depth exploration of the industry's advancing maturity. In addition to updates on key technologies and capabilities, the roadmap incorporates the insights of over 100 industry experts, who provide detailed short, medium, and long-term forecasts for various markets. “These are exciting times for our industry. We will see more flexible and even stretchable displays, building facades that harvest energy with transparent OPVs. Car interiors will change completely with the widespread integration of sensors, light sources and heating in the interior trim. Printed electronics will also play a major role in improving healthcare, for example with sensors that make it easier to monitor vital signs. And these are just a few examples for what is afoot.” adds Klaus Hecker.

## Market trend Sustainability

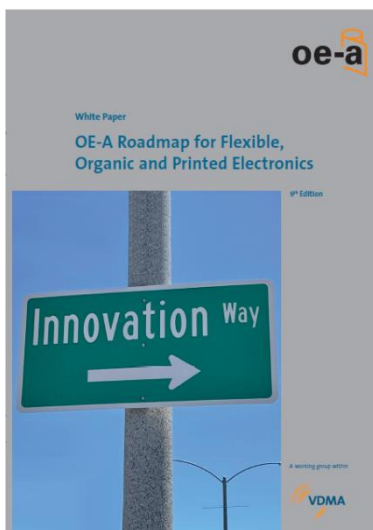
The market for flexible and printed electronics continues to show strong growth. New technological approaches in both production and products are the basis for significantly increasing energy and resource efficiency along the value chain. It is clear that the technology is opening up new possibilities when it comes to sustainable production processes and sustainable materials. Printing, as an additive process, consumes less material and energy, and reduces the amount of waste. Printing plus related advanced processing enables broader use of recycled or eco-friendly materials to support product lifecycle circularity.

## OE-A Roadmap Whitepaper for download

„The OE-A Roadmap Whitepaper highlights the wide-ranging opportunities made available by printed electronics technologies. We invite all interested parties to check out our OE-A homepage to have a closer look at the findings of the latest Whitepaper.” adds Klaus Hecker. The full 180-page OE-A Roadmap Whitepaper and an executive summary are available for download at [oe-a.org/roadmap](http://oe-a.org/roadmap).

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If you have any questions, please do not hesitate to contact Dr. Klaus Hecker, OE-A Managing Director, phone: +49 69 66 03-13 36, e-mail: [klaus.hecker@oe-a.org](mailto:klaus.hecker@oe-a.org)



**9th OE-A Roadmap: Flexible, Organic and Printed Electronics**  
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Figure 1: Flexible, Organic and Printed Electronics solutions in important industry sectors.

**Printed Electronics solutions in important industry sectors**  
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OE-A Roadmap for Flexible, Organic and Printed Electronics Applications 2023				
Market entry in large volume				
	Existing 2023	Short Term 2024-2025	Medium Term 2027-2029	Long Term 2030+
<b>Flexible &amp; OLED Displays</b>	Flexible OLED displays, TV, Light/OLED displays, Low PPI MicroLED TV, Printed OLED Displays, LTPO backplanes	Organic COE/OLED MicroLED displays, AR/VR displays, Improved reflective color, Transparent OLEDs, Transmissive QDs	Immersible displays, 3D curved displays, 2D-3D display, Light field displays	Flexible MicroLED, Bendable displays, 2D-3D display, Light field displays
<b>OPV</b>	OPV for OPV for OPV	OPV for IoT (sensors, etc.), OPV wearables, simple, portable charging, OPV for energy harvesting combined with energy storage, OPV power supply for consumer goods, Color E Ink, etc.	Transparent OPV (T-OPV)	OPV on „off“ available surfaces, multi devices, combined with thin film battery, High transparent OPV (HTOPV)
<b>Electronics &amp; Components</b>	Printed devices: RFID sensors, primary batteries, Early-gen printed secondary batteries, piezoelectric elements, Sensors: glucose, pressure, temperature, humidity, printed photo-conducting elements, 6th Gen. flexible on-chip, thin Device and flexible interconnects, stretchable conductors / heaters, 3D touch sensors	High performance printed supercapacitors, flexible printed secondary batteries, integrated, supercapacitor/battery, light sensor, conductive heaters, 3DPP technologies for low energy heating and CO2E, 2D & large area flexible electronics, active touch sensor/structure backplane	Printed secondary ion battery, printed super capacitors, integrated sensors, photo, phase array antenna patches, Printed energy harvesting capacitors, active variable phase array antenna patches	Complex stretchable electronics, Printed complex logic, flexible batteries, bio-compatible batteries, Printed energy harvesting capacitors, active variable phase array antenna patches
<b>Integrated Smart Systems</b>	Touch, force and pressure sensors, Printed supercapacitor elements, Sensors: embedded in cars and other products, Blood glucose sensor, humidity/O2 patches, Sweat sensors for hydration, Smart labels with printed logic, Smart displays, Building heat detection, Smart mat for baby care	Sports tracking with smart textiles, flexible with printed tracks and sensor electronics, linked to phone, Digital medication adherence monitoring, Biomedical textiles and patches with several measurement channels, Smart bandaid sensors beyond building heat detection, Smart mat for baby care	Sets of patches with integrated functionalities and near contact, Environmental monitoring, Smart labels, Printed active sensor labels, Patches with embedded sensing, Embedded embedded in food packaging, Smart bandaid sensors beyond medical prevention	Connected ambient intelligence smart floors and other building / surfaces, Printed active sensor labels, Patches with skin-like stretchability

**OE-A Roadmap for market entry in large volumes in various fields of application**  
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### **Organic and Printed Electronics Association**

The OE-A (Organic and Printed Electronics Association) is the leading international industry association for flexible, organic, and printed electronics. The OE-A represents the entire value chain of this emerging industry. Our members are world-class global companies and institutions, ranging from R&D institutes, mechanical engineering companies and material suppliers to producers and end-users. Well over 200 companies from Europe, Asia, North America, and Africa are working together to promote the establishment of a competitive production infrastructure for organic and printed electronics. The vision of the OE-A is to build a bridge between science, technology, and application. The OE-A is a working group within VDMA. More than 3,600 member companies from the machinery and equipment manufacturing industry make VDMA the largest industry association in Europe. [oe-a.org](http://oe-a.org)

### **Flexible, organic, and printed electronics**

Organic and printed electronics stands for a revolutionary new type of electronics: they are thin, lightweight, flexible, robust, and produced at low cost. It enables new applications, including single-use devices enabling ubiquitous electronics.

### **LOPEC**

The OE-A and Messe München are the hosts of LOPEC, the premier international exhibition and conference for the printed electronics industry. It addresses end-users, engineers, scientists, manufacturers, and investors. LOPEC 2024 will be held March 05- 07, 2024. [lopec.com](http://lopec.com)