

## Organic and Printed Electronics – Paving the way for novel applications

Basmati Workshop

Nov 11, 2016, Barcelona

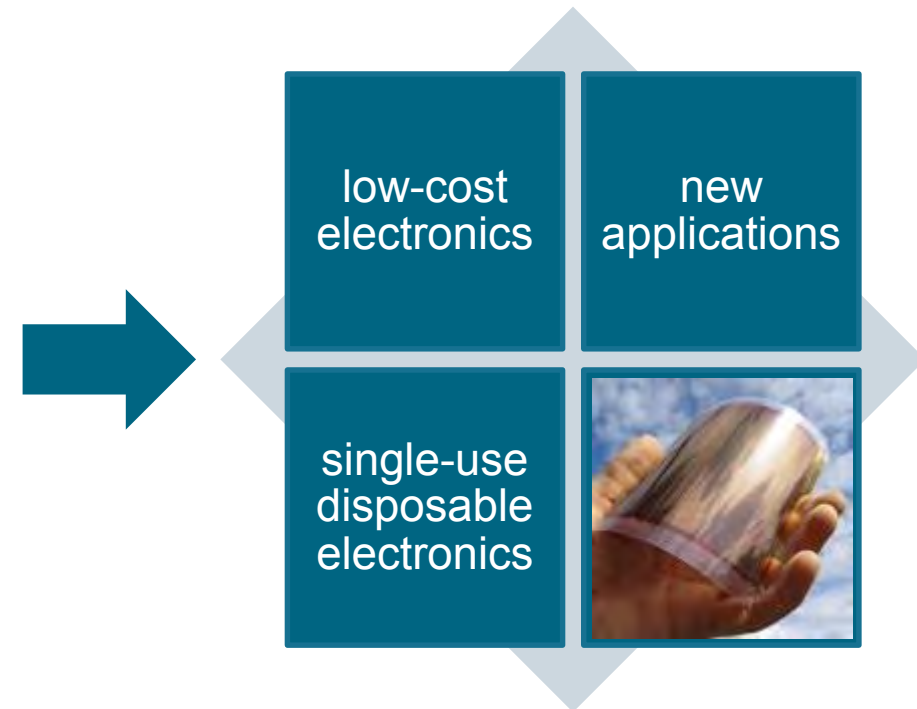
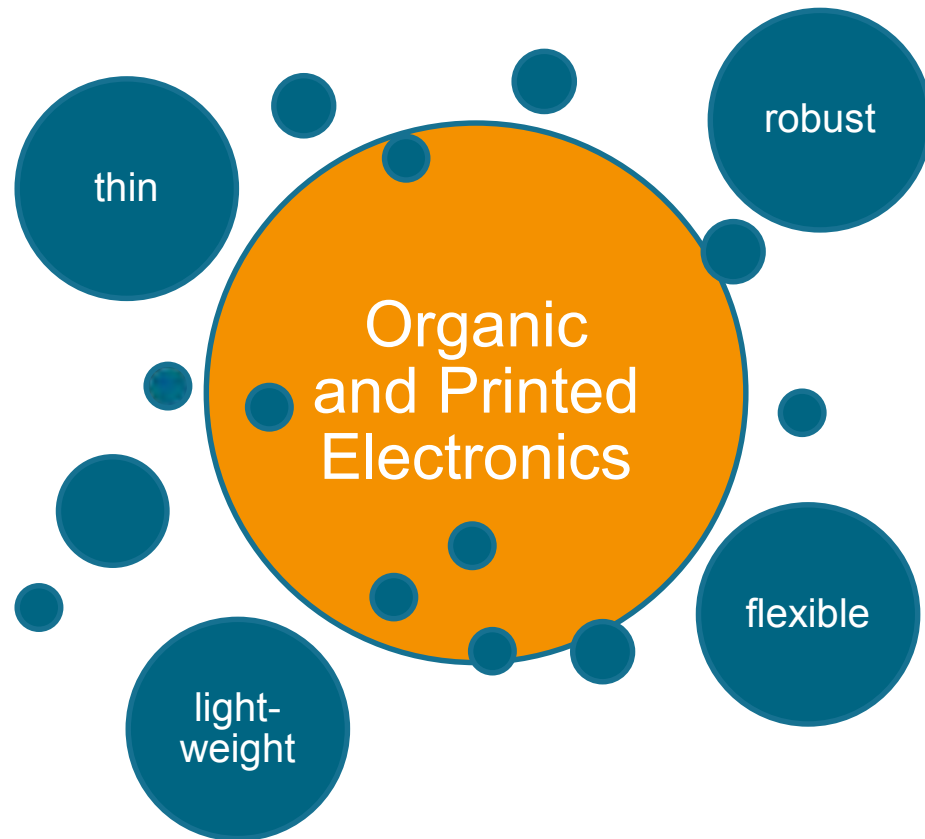
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A working group within



# Organic and Printed Electronics

Ambient intelligence – Electronics everywhere



# Organic and Printed Electronics

## Examples of OPE



Active and passive electronic devices



Displays and lighting



Power supply



Sensors

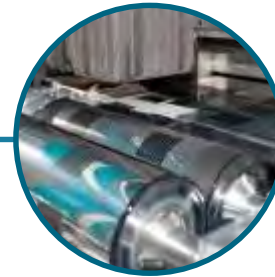
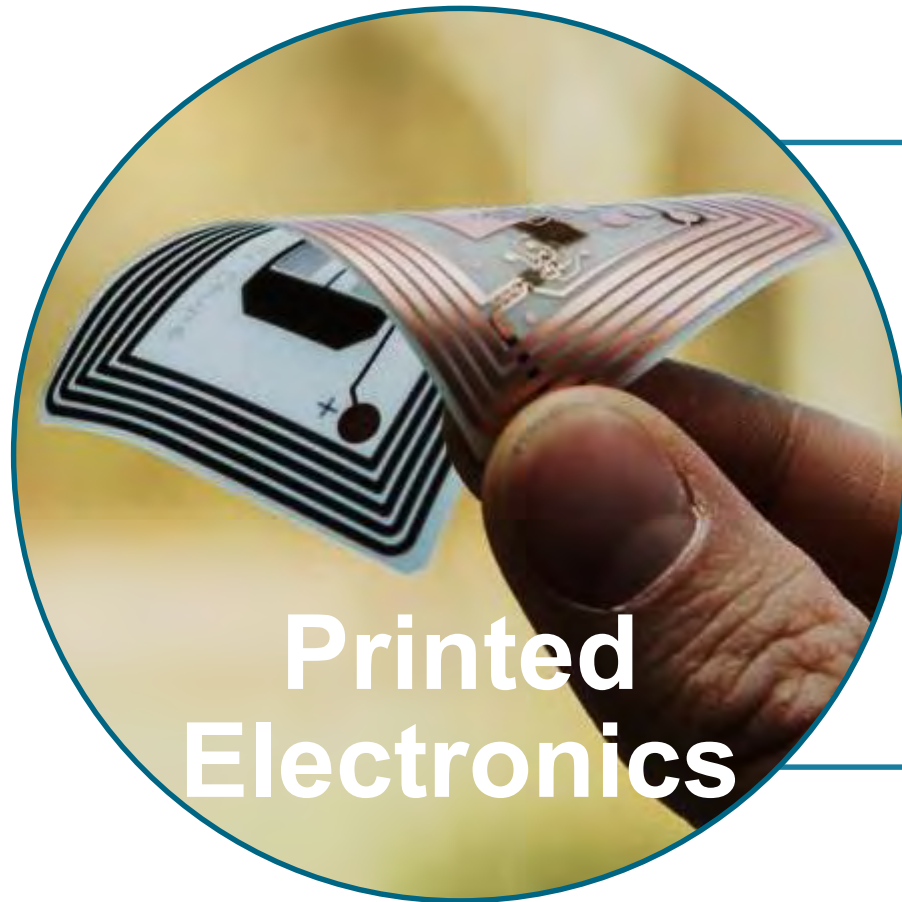


### Smart Systems

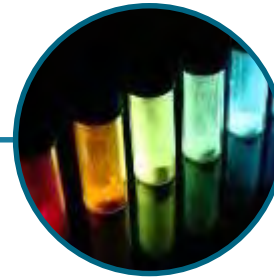


# Organic and Printed Electronics

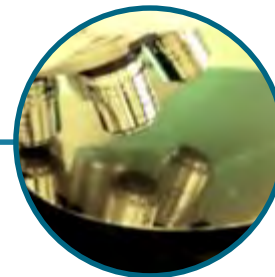
Interaction of several fields



Printing



Chemistry



Microelectronics





## OE-A - Overview



Global **non-profit industry association** for organic and printed electronics, driven by over 230 international members

OE-A is a working group within VDMA

Our members represent the **entire organic electronics value chain**:

- » End-users
- » Producers & system integrators
- » Equipment & tool suppliers
- » Component & material suppliers
- » R&D institutes & universities

# OE-A's key activities

- » International networking & communication platform
  - Frequent Working Group Meetings in Europe, North America, and Asia
  - Seminars & joint booths at international conferences and trade shows
- » Market & technology information
- » Research & development
- » Education & Training
- » Standardization
- » Global visibility
- » Representation of interests & funding





# LOPEC 2017, March 28-30

## ICM Munich, Germany

### The central marketplace for Organic and Printed Electronics

- » 2,300+ attendees
- » 140+ international exhibitors
- » 190+ presentations

### Exhibition

- » Largest industry exhibition in the field
- » On-site production on demo line

### Conference

- » Business, Technical, Scientific Conference
- » Pre-conference seminars

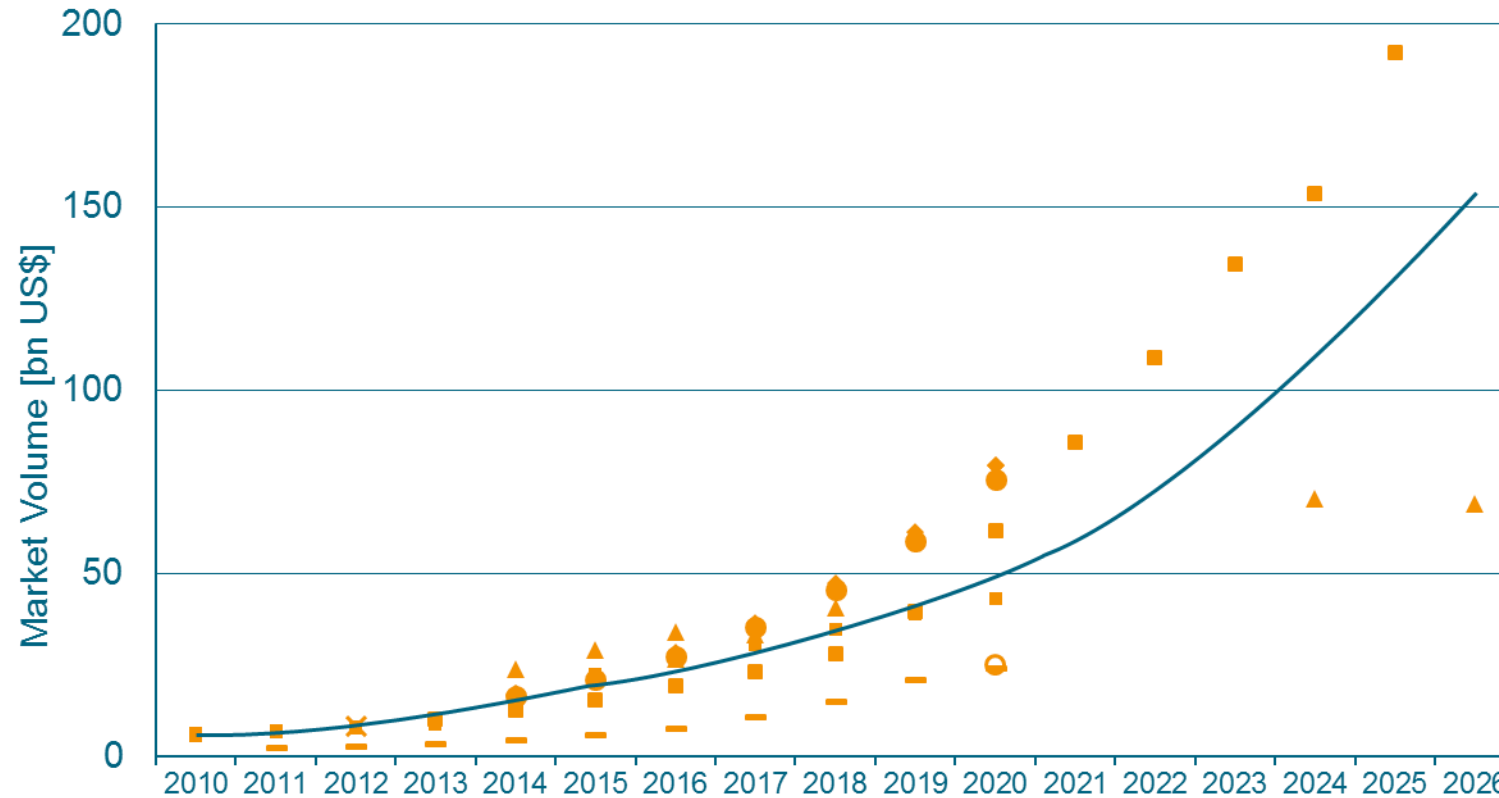
**10% discount for OE-A members**



[www.lopec.com](http://www.lopec.com)

# Organic and Printed Electronics

## A Multi-Billion \$ Market



© OE-A 2016

Sources: Allied Market Research, Displaybank, IDTechEx, Konica Minolta, Markets and Markets, Smithers Pira, Transparency Market Research

Organic electronics enables new applications and opens new markets

2015: 24,5 Bn US\$, predominant by OLED displays

Potential for a 50 Bn US \$ market within the next 10 years driven by lighting, displays, OPV, logic, memory / RFID, sensors

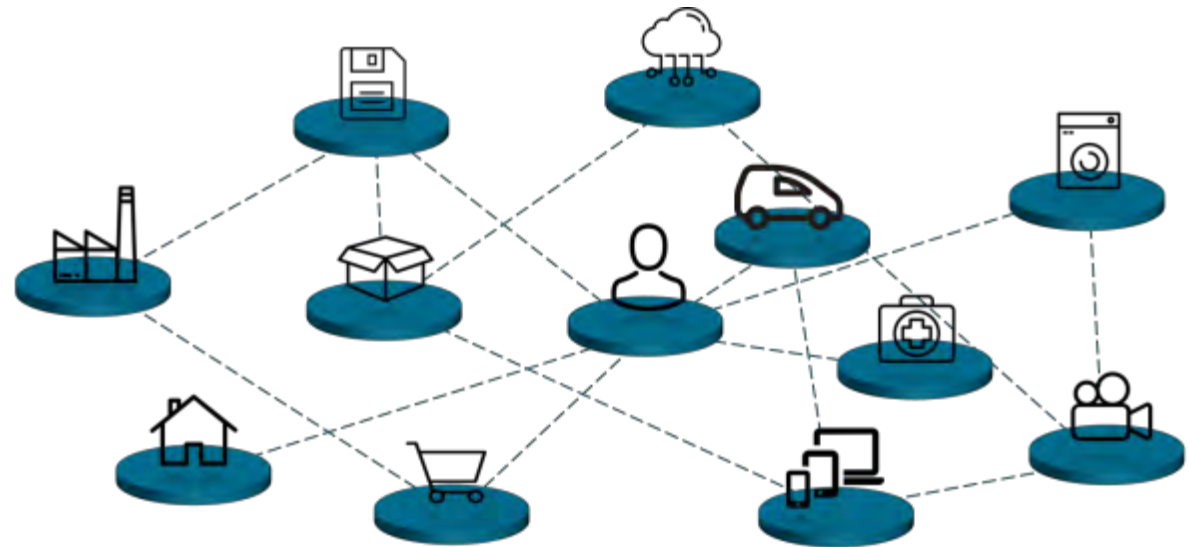


# The Internet of Things – Electronics everywhere

Every object will be equipped with a unique digital ID and communicated autonomously

## Device requirements

- » Sensing & data transfer
- » HMI: signalling & interaction
- » Energy management / power autonomy



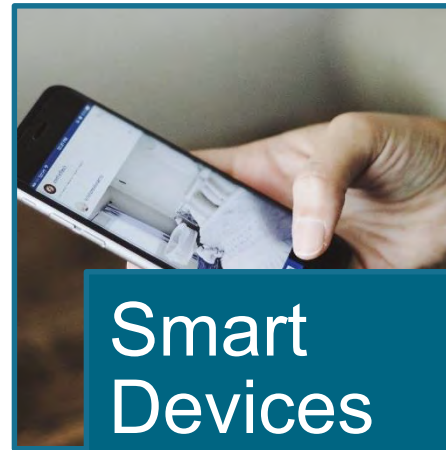
# The Internet of Things – Electronics everywhere

## “Evolution of electronics”



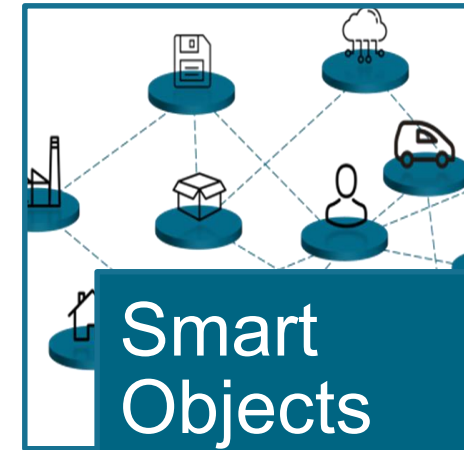
### Computers

- ~ 400 million p.a.
- ~ \$100 per IC



### Smart Devices

- ~ 10 billion p.a.
- ~\$1-10 per IC



### Smart Objects

- > 1 trillion p.a.
- < ct 1-10 per IC





# OE-A Roadmap, 6th edition

## Clusters



# OE-A Roadmap, 6<sup>th</sup> edition

## OE-A brochure „Summary – OE-A Roadmap, 6th edition“, March 2015

- » Includes Roadmap summary article as well as information on OE-A and its services
- » Available for download at [www.oe-a.org/downloads](http://www.oe-a.org/downloads)

## White Paper „OE-A Roadmap for Organic and Printed Electronics, 6th edition“, June 2015

- » Full text, all graphics, 130+ pages
- » Members: Free access to printed and pdf version & Annex with detailed tables available
- » Non-members: For sale at [www.oe-a.org](http://www.oe-a.org)



# Scheduled Meetings



## 7<sup>th</sup> OE-A Asian Working Group Meeting

- » February 14, 2017 (day before Printable Electronics Japan)  
Tokyo, Japan  
Joint meeting with JEITA, JAPER A & JAPEC

## 13<sup>th</sup> Annual General Assembly / 40<sup>th</sup> Working Group Meeting

- » March 27, 2017 (day before LOPEC)  
Munich, Germany

## 41<sup>th</sup> Working Group Meeting

- » Oct. 2017  
hosted by CDT, Cambridge (UK)  
Additional one-day industry workshop





# OE-A @ International Trade Fairs and Conferences 2017 (preliminary)



## CES

- » January 05-08, 2017, Las Vegas, NV (US)  
OE-A conference track “Printed Electronics: Enabling the Future” on Jan. 06



## innoLAE

- » January 31-February 01, 2017, Cambridge (UK)  
OE-A presentation; joint OE-A / LOPEC booth



## LOPEC

- » March 28-30, 2017, Munich (DE)  
OE-A booth



## interpack

- » May 04-10, 2017, Dusseldorf (DE)  
OE-A booth, part of VDMA Food Processing and Packaging Machinery booth



## productronica

- » November 14-17, 2017, Munich (DE)  
joint OE-A / LOPEC booth



# Conclusion

- » Organic and printed electronics enables new business opportunities
- » Key industries like automotive, healthcare, consumer electronics already use organic and printed electronics on a large scale
- » Flexible & printed batteries as major enabling technology for IoT
- » Cooperation along the value chain is key for success





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