Program MSE
MSE Day 18.11.2022

Knowledge Transfer & Innovation – Different Ways from Lab to Fab

Michael Hirtz, Nathalie Matter-König, Jasmin Aghassi-Hagmann

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Knowledge Transfer & Innovation – Different Ways from Lab to Fab

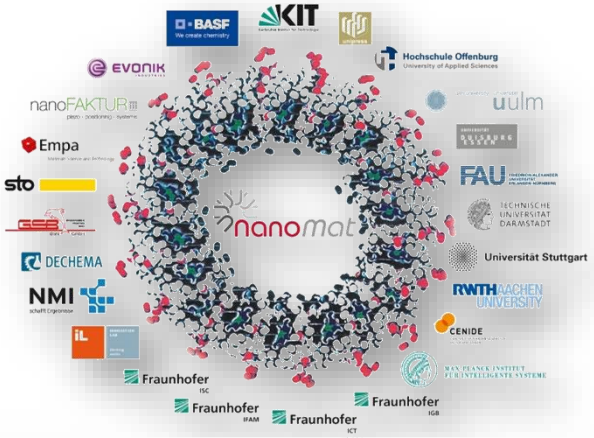
Three exemplary Stories

I. Founding a Spin-Off

II. Innovation – from Paper to Product

cooperative project

III. Knowledge Transfer & Networking – NanoMat / MaTeLiS



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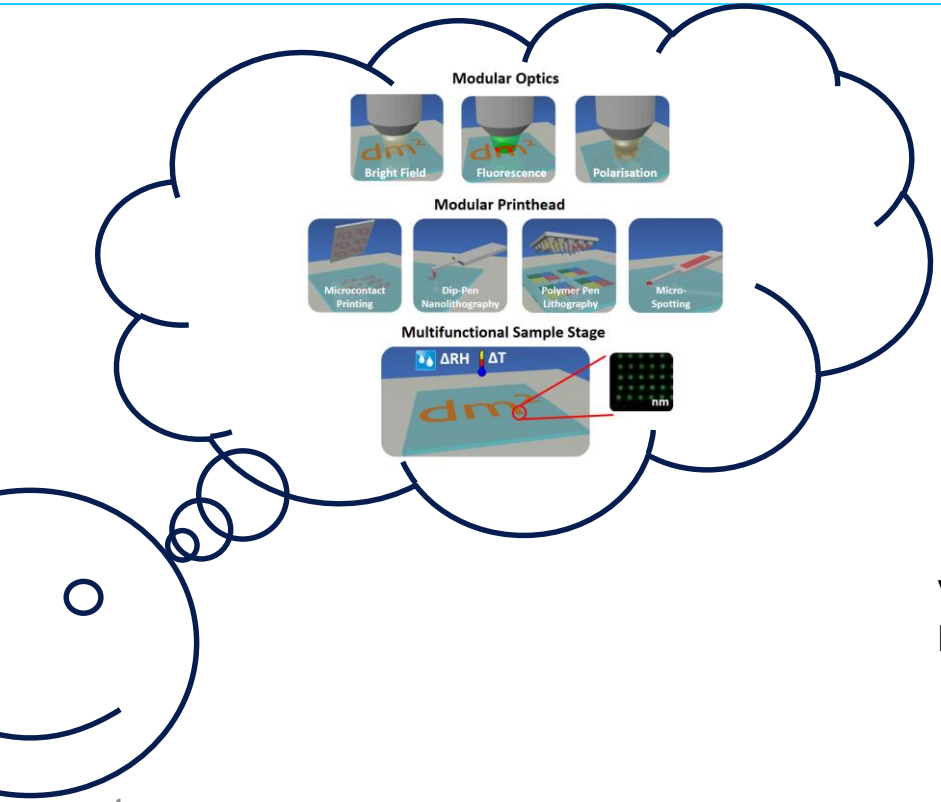
Founding a Spin-Off

Founding a Spin-Off at KIT

The Idea is there – now what?



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KIT IRM

KIT GRÜNDER SCHMIEDE

eXIST Existenzgründungen aus der Wissenschaft

?

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Helmholtz Enterprise

Venture Capital / Private Investor

ptj Projektträger Jülich Forschungszentrum Jülich

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Founding a Spin-Off at KIT

A long Story short

pre 2017 | 2017 | 2018 | 2019

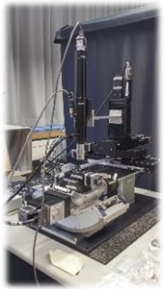
HE-Proposal

revised HE-Proposal

Helmholtz Enterprise (HE) Phase

HE+ Phase

Founding of n.able GmbH in May 2019



1st prototype of printer

KIT IRM

Karlsruher Institut für Technologie

continuous discussions, feedback and coaching

µyPrint

1st pilot installation

KIT Campus TRANSFER

1st commercial installation via KCT

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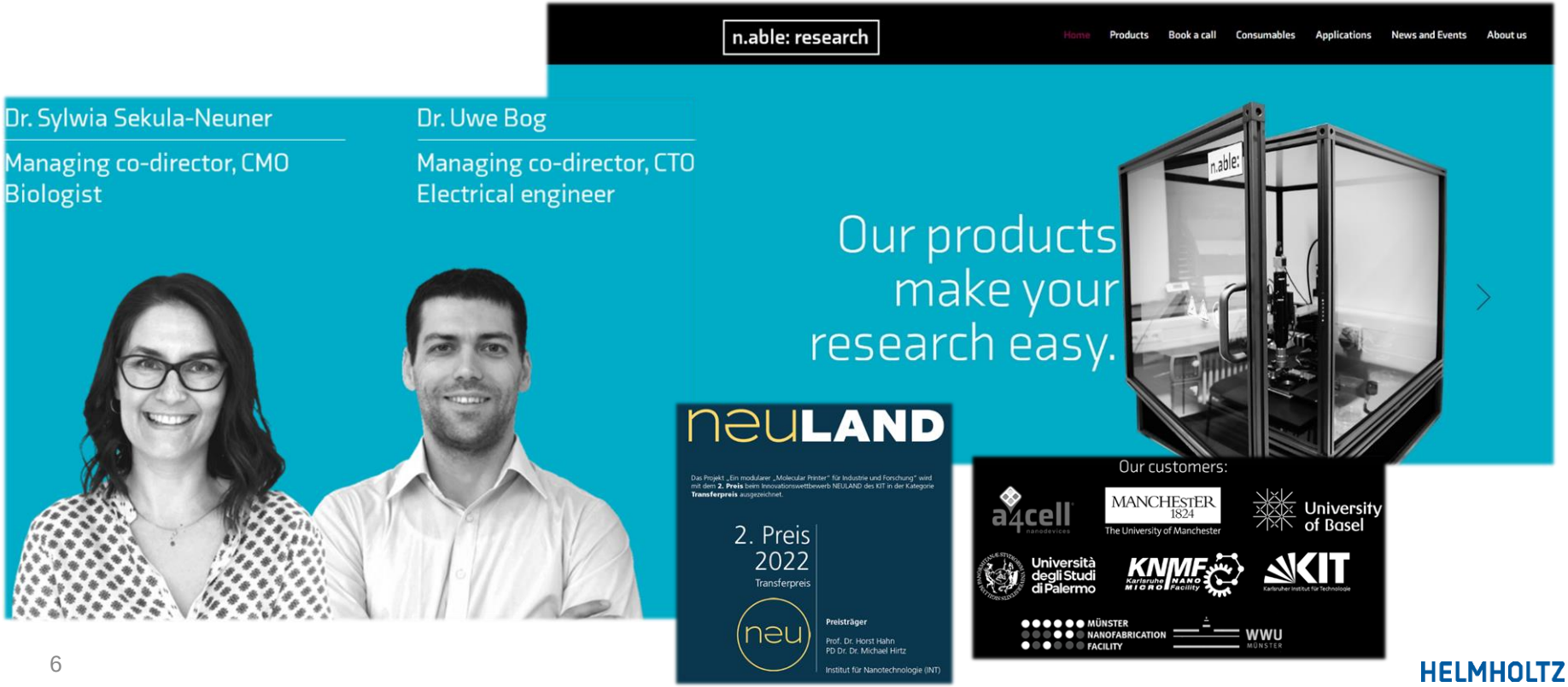
Founding a Spin-Off at KIT

n.able GmbH



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Innovation with Industry

Knowledge Transfer to Industry

SensIC

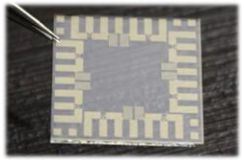
- **BMBF-funded Research Project**

  „Eindeutige Identifizierbarkeit für vertrauenswürdige Hybrid-Sensorelektronik mit Hilfe additiver Fertigung“ (SensIC)

  - **Mission**: Establish product authenticity and security for new hybrid electronic systems, exemplified by a temperature monitoring system in hose systems for automotive/industry
  - Total Budget 4,25 Mio.€, KIT Budget 700k€, runtime 2021–2024
    Research topics: Printed temperature sensors, hardware-based security, development of hybrid systems (combination of silicon based and printed electronic)

GEFÖRDERT VOM

Bundesministerium für Bildung und Forschung



Project Partners

- Continental AG (Projektkoordination)
- Cyient GmbH
- Hochschule Offenburg
- Karlsruher Institute of Technology
- Leibnitz INM
- Polysecure GmbH

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Knowledge Transfer to Industry

SensIC

- **BMBF-funded Research Project**

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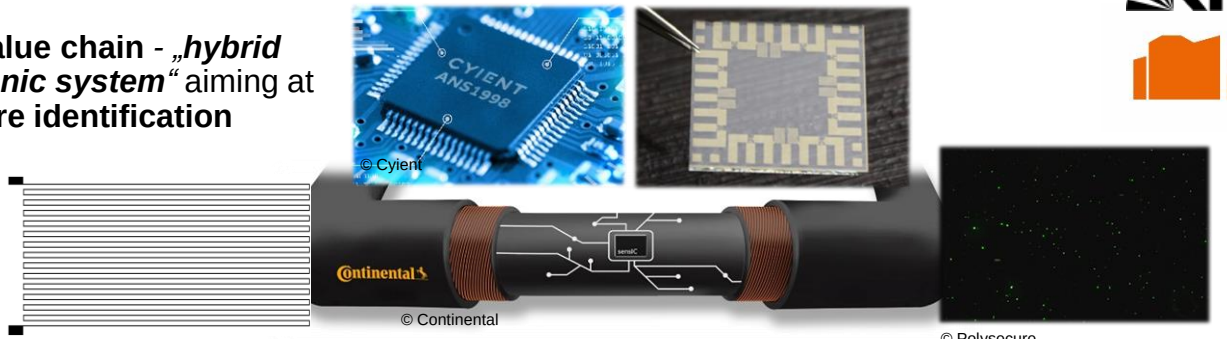
Smart Pipe Systems

- printed front-end for temperature sensor (Continental, Leibniz INM), and silicon based IC in foundry-technology, 180nm TSMC (Cyient)
- printed „physical unclonable function (PUF) core“ as hardware-based security feature (KIT)
- protection against manipulation in form of fluorecent particle patterns in the pipe material

KIT GRÜNDER SCHMIEDE
startup secure KASTEL

New value chain - ***„hybrid electronic system“*** aiming at a **secure identification**



© Cyient
© Continental
© Polysecure

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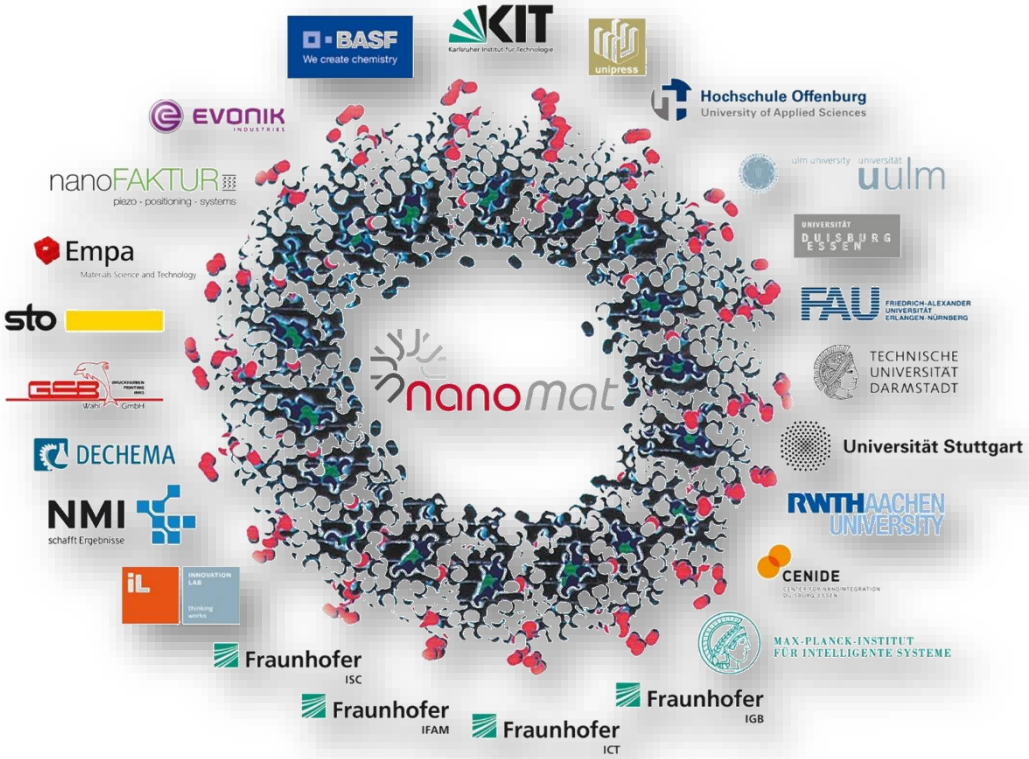
Knowledge Transfer / Networking

Networking between Industry and Academia

NanoMat within the Center MaTeLiS

Industry
BASF SE
GSB-Wahl GmbH
nanoFAKTUR GmbH
Continental
Polysecure
Cyient
Beyond 2D
Ingun GmbH
MEMIS
Infineon

Associations
DECHEMA
IHK und TRK Karlsruhe



Universities
University Duisburg-Essen
Karlsruhe Institute of Technology
University Ulm
University Warsaw
University Konstanz
HS Offenburg
University Stuttgart
University Heidelberg

Research Institutes
EMPA (Zürich)
Fraunhofer IFAM
Fraunhofer ISC
MPI-IS, Stuttgart
NMI Tübingen

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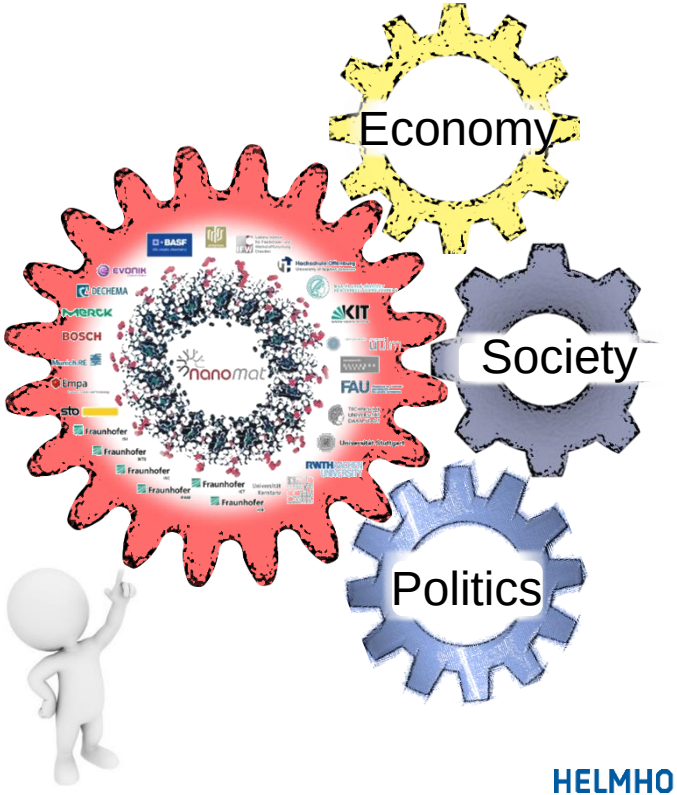
Networking between Industry and Academia

The Center‘s Mission

- knowledge transfer between industry and science
- initiate new cooperations
- generate visibility for nanomaterials in politics, international bodies and the public



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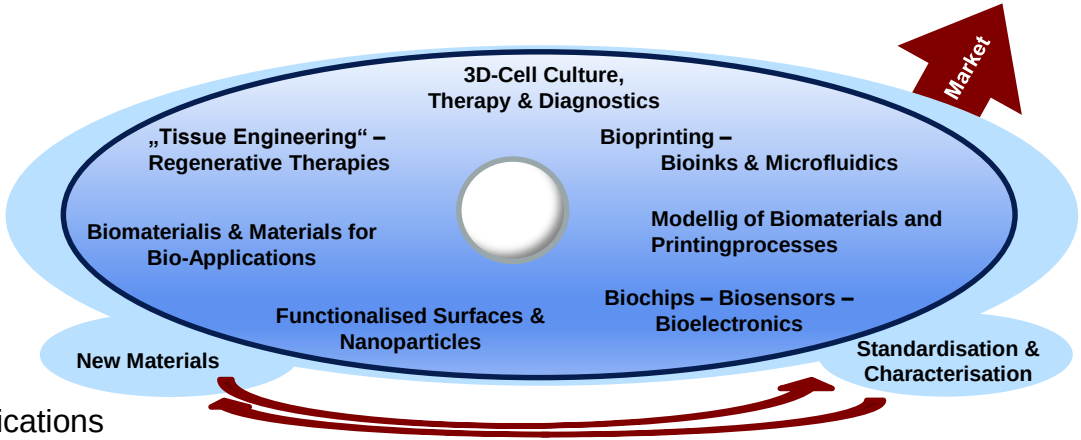
Networking between Industry and Academia

Focus Group Biomaterials

- **Mission:** Cooperation Industry/Academia, Projects for Innovation and Commercialization
- Regular meetings of members (Speakermeetings + Events)
- 30 Members



- **Nanovision 2020: Sense of Material**
  - Topics: Smart Nanomedicine, Bioelectronics, Functional Surfaces
- **2021 Focus Group Biomaterials Meeting:**
  - Topics: Regenerative Therapies, Nanoparticle Synthesis, Materials for Bio-Applications
- **2022 Materials Day (MaTeLis – NanoMat):**
  - Topics: Virtual Material Design, Biomimetic Materials, Bioprinting

Upcoming Event

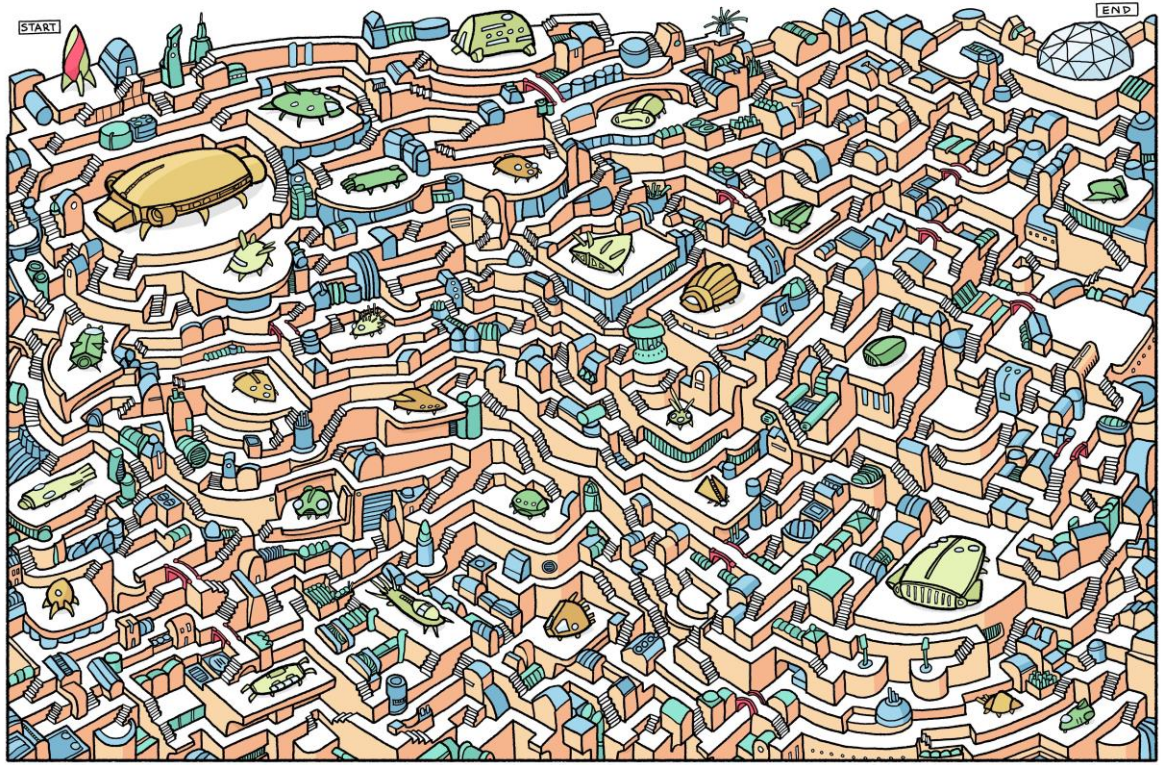
MaTeLiS Science-Industry-Symposium

Registration Deadline 21.11.

https://www.nanomat.de/Nanomat-Symposium-2022.php

Conclusions

Choose your Path – there are many!



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Lessons learned (for me):

- take part in the relevant networks
- seek early contact to the research and innovantion management at your institution
- make use of different support offers
- choose the path that fits **you** best

THANKS FOR YOUR ATTENTION!