



# The future of work and production Trends and developments triggered by 3D printing technologies

by Simone Ehrenberg-Silies, Sonja Kind

PACITA 2nd European TA conference, The next horizon of technology  
assessment, Berlin, 25 – 27 February 2015



## What we are going to talk about

- The Prosumer: The customer becomes the new “co-worker” in an open innovation world
- The driving technology “additive manufacturing” and its impact on work and production
- Pouring water into the wine: technological challenges and media buzz

## Open innovation accelerates user integration into innovation processes – idea of added value is not new

Openness and flexibility of innovation processes

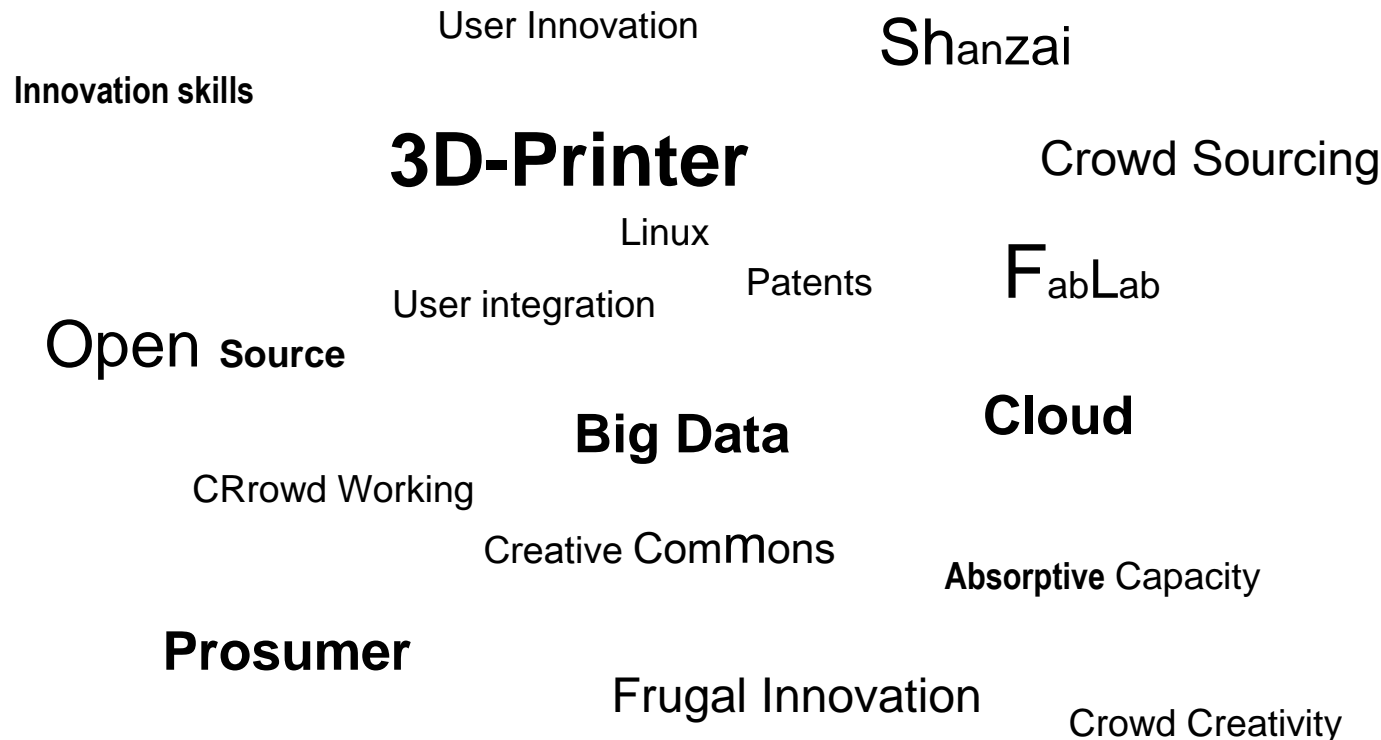
# Open Innovation

Heterogeneous R&D constellations

Increased evidence in the discussion

Added value

# Open innovation accelerates user integration into innovation processes – key words



## Involving users into innovation processes - Trends

- Proximity to **industry 4.0** concept: individualization and flexibility
- Customers participate in the production process:
  - Becoming part of the **creative design** and **manufacturing** process
  - **Materialization** is outsourced.
- Examples:
  - Kite Surfing
  - 3D printing technologies



## Brave new world right now? Pouring water into the wine...of industrial production

### ➤ **AM is mostly used for Rapid Prototyping**

#### **Inhibitors to further technology diffusion of AM in industrial production**

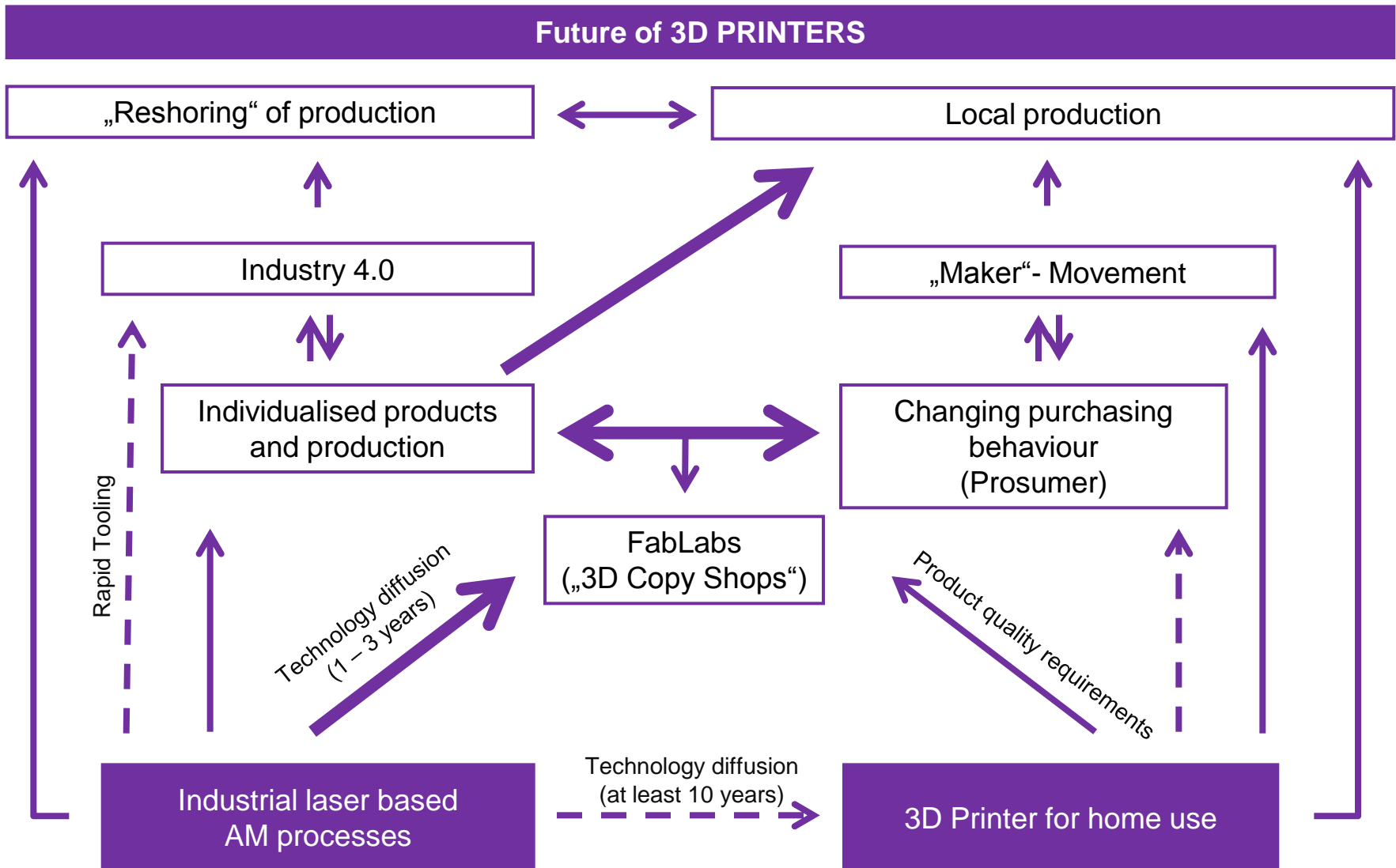
- High standards for operation conditions (e. g. need of constant humidity)
- Operators require special knowledge and skills
- The quality of components heavily depends on material and the respective used additive processes.
- Process chains in industry are not yet adapted for the further processing of additive manufactured components.

## Brave new world right now? Pouring water into the wine...of home use

### Inhibitors to further technology diffusion of 3D printers in home production

- 3D printers for home use are no Plug-and-Play-Technology
- The conventional FDM models are slow, imprecise and limited in terms of material
- 3D scanners can only detect the surface of an object, but not its “inner life”
- Complex and big objects need to be divided into component assemblies, integrated connection designs must be created

# Summary: The Future of 3D printer technology





# Thank you for your attention!

## Simone Ehrenberg-Silies

Email: [simone.ehrenberg-silies@vdivde-it.de](mailto:simone.ehrenberg-silies@vdivde-it.de)  
Phone: +49 30 310078 187

## Dr. Sonja Kind

Email: [sonja.kind@vdivde-it.de](mailto:sonja.kind@vdivde-it.de)  
Phone: +49 30 310078 283

VDI/VDE-IT - Steinplatz 1 - 10623 Berlin - Germany

Source fotos: <http://www.sportkiten.com> (05.02.2015),  
<http://blog.iwulfy.com/2013/11/13/inside-the-shapeways-factory-a-willy-wonka-wonderland-for-3d-printing-photos/> (23.02.2015)