

# Vorteile im Ersatzteilmanagement mittels additiver Fertigung

ÖVIA Kongress - 09./10. Oktober 2019



Who we are:

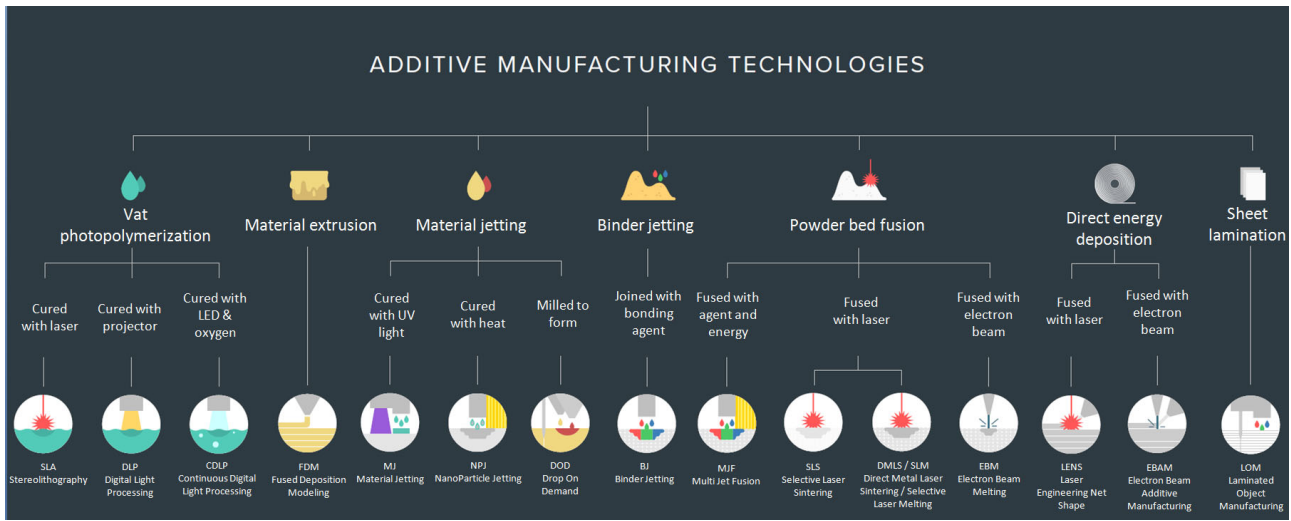
# **panki**

**RACING SYSTEMS**

... SPECIALISES IN DEVELOPING AND MANUFACTURING ENGINE AND DRIVETRAIN COMPONENTS FOR **RACING CARS, HIGH PERFORMANCE VEHICLES** AND THE **AEROSPACE INDUSTRY.**



# Additive Manufacturing Technologies

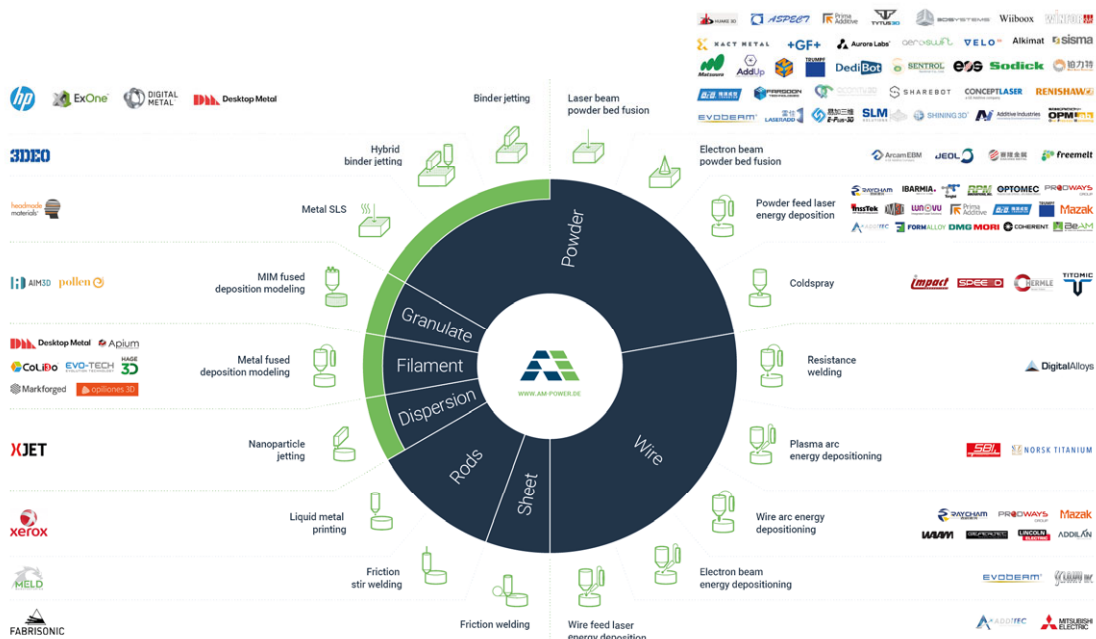


3

Source: 3D Hubs



# Metal AM technology landscape



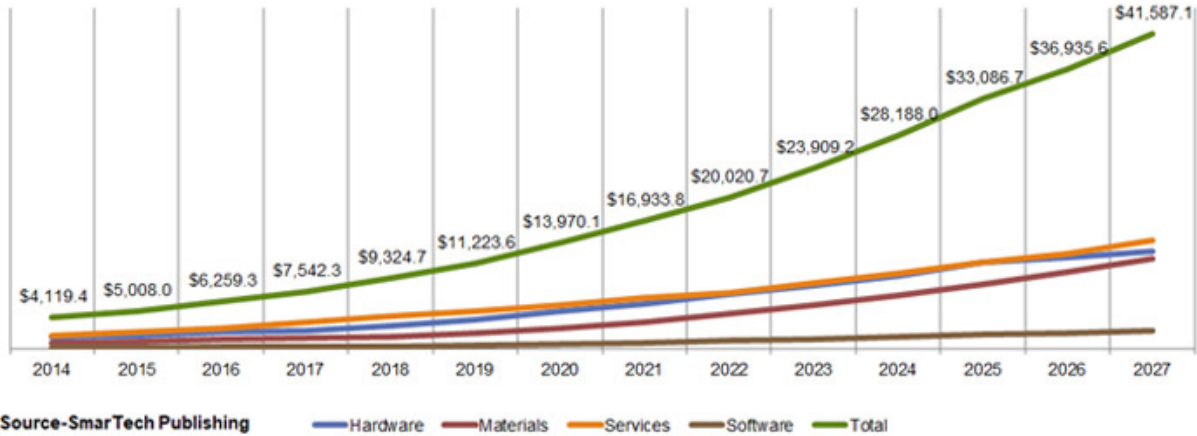
4

Source: AM Power



# Development of the AM market

**Total Additive Manufacturing Market Size, by Opportunity Segment, All Technologies (Professional environments only), 2014-2027(e)**

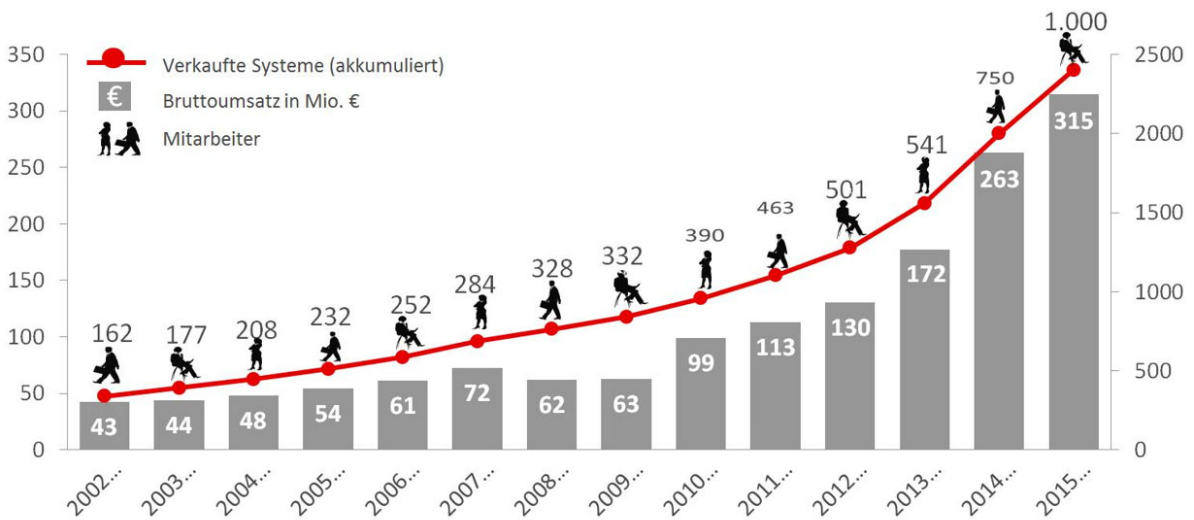


5

Source: SmarTech Publishing



# Development of metal AM – i.e. EOS



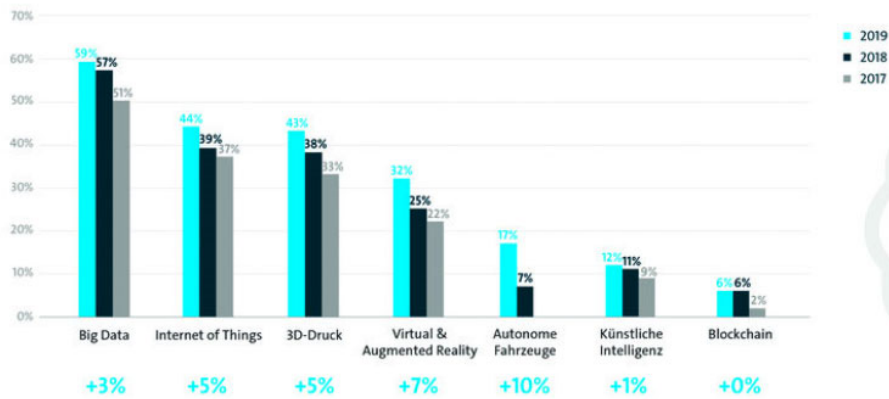
6

Source: EOS



# Production of the future is digital – AM is digital

Welche Technologien werden in Ihrem Unternehmen genutzt oder der Einsatz ist geplant/wird diskutiert?\*



Basis: Alle befragten Unternehmen (2019: n=606; 2018: n=604; 2017: n=505) | Angaben für »aktuell im Einsatz« & »Einsatz geplant oder diskutiert«  
Quelle: Bitkom Research

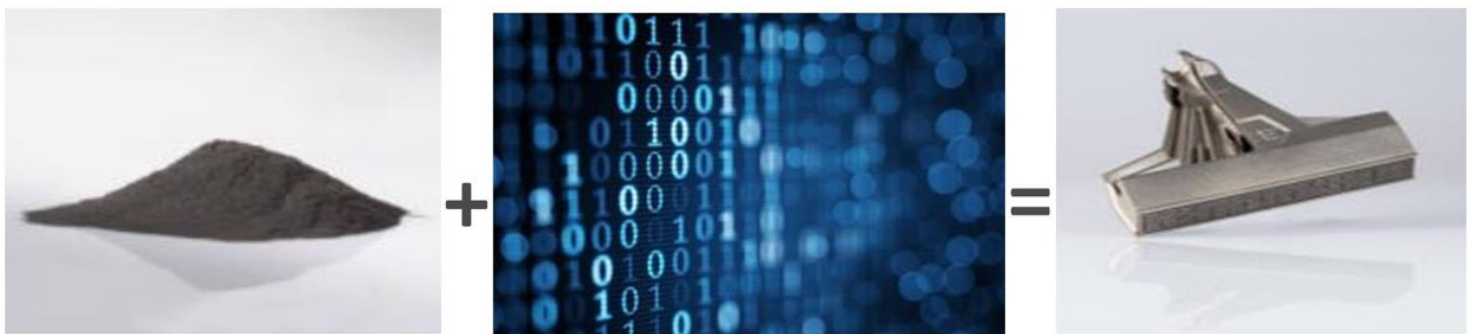
bitkom

„82% der Unternehmen messen Big Data große Bedeutung zu, 68% dem 3D-Druck.“

Source: Bitkom

**pankl**  
RACING SYSTEMS

# Production of the future is digital – AM is digital

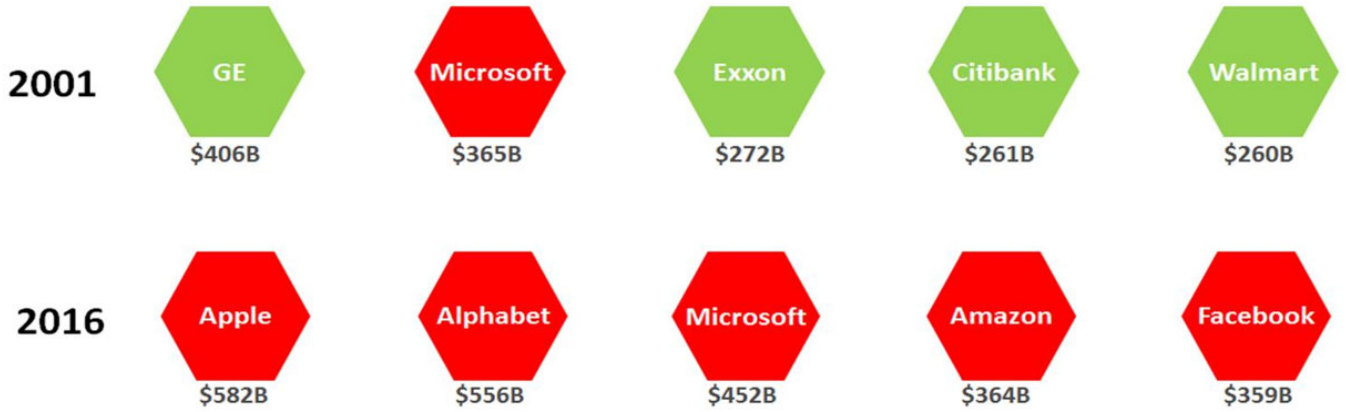


Source: EOS

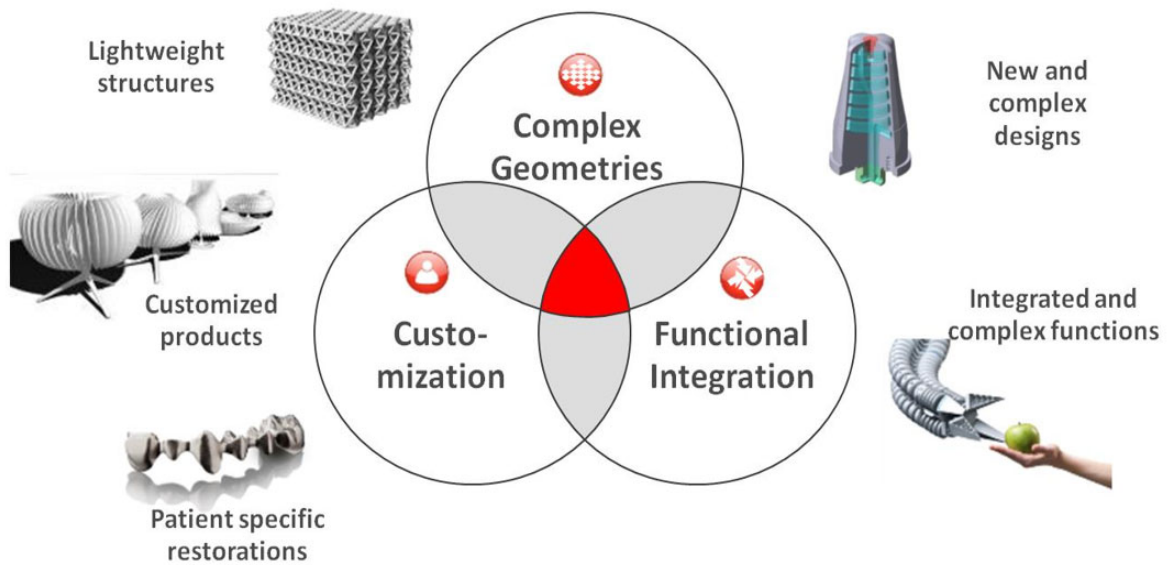
**pankl**  
RACING SYSTEMS

# From Analog to Digital

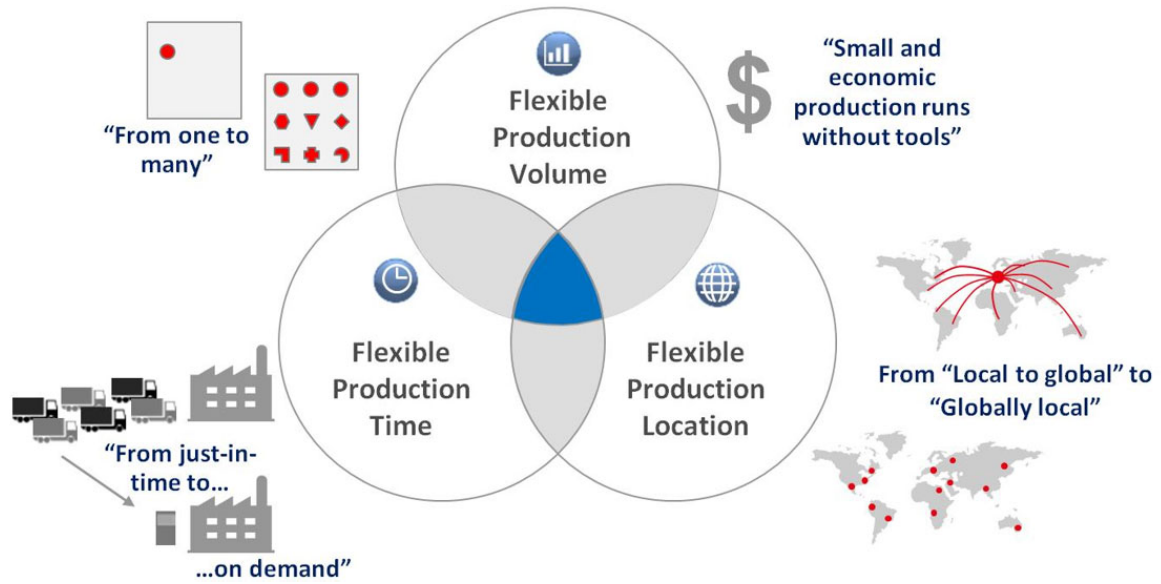
Top 5 Publicly Traded Companies by Market Capitalization ◆ Digital ◆ Other



# Freedom of Design in AM



# Freedom of Production in AM

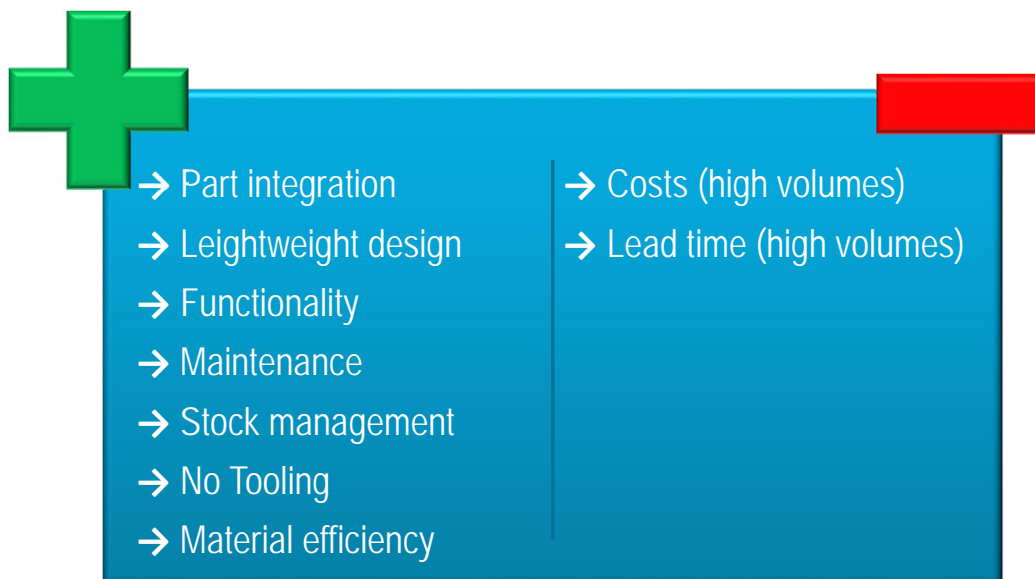


11

Source: EOS



# Benefits and challenges in AM



12



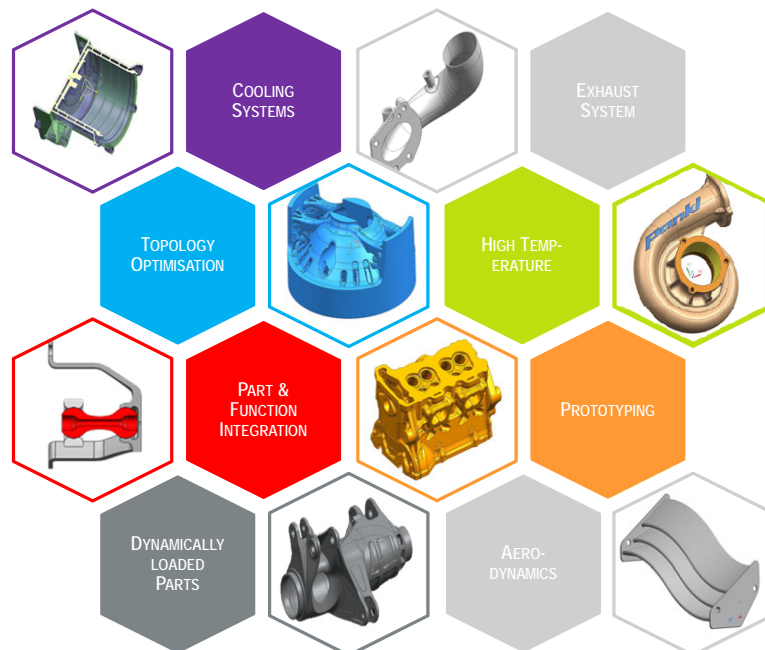
# Why printing (spare) parts?

- Spare part costs (low volumes)
- Storage costs
- Missing & expensive tooling
- Non or poor data available → reverse engineering
- Print-on-demand
- Increasing variety of products → from standard parts to customisation and individualisation
- etc.

13



# Applications for Additive Manufacturing



14

Source: EOS



# The development circle of an Additive Manufactured Part



**BÖHLER**

**EOS**  
e-Manufacturing Solutions

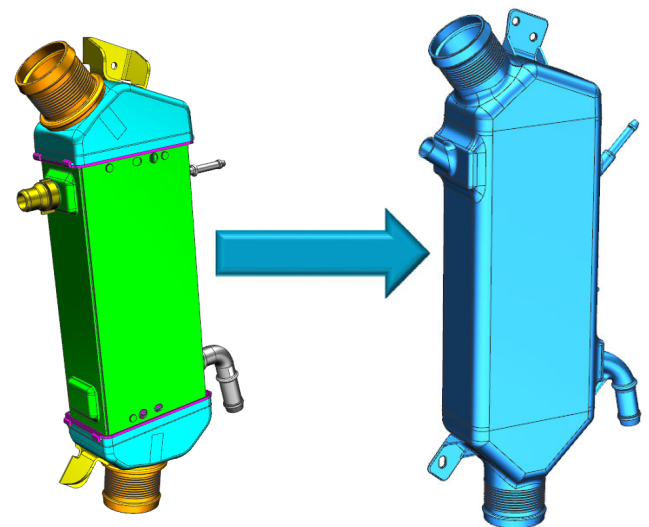
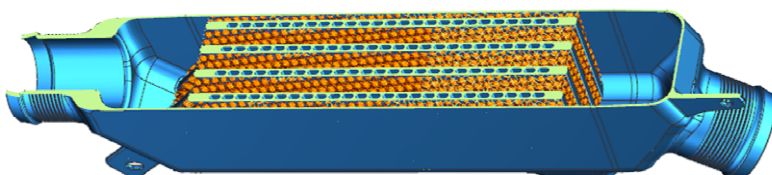
**Quintus**  
TECHNOLOGIES

**pankl**  
RACING SYSTEMS

15

# Show Case Water-Air-Cooler

- Reduced No. of components from 20 to 1
- Mass reduction
- Improve of heat transfer
  - Less cooling liquid needed
  - Use of smaller pumps
  - Less energy for cooling system
- Reduced risk of single part failure
- Less risk for leakage



**pankl**  
RACING SYSTEMS

16

## Show Case Exhaust System



17

Source: BBI Autosport

**panki**  
RACING SYSTEMS

## Show Case Reverse Engineering



Original (plaster)



3D-Scan



FDM-print

18

**panki**  
RACING SYSTEMS



Thank you for your attention!