

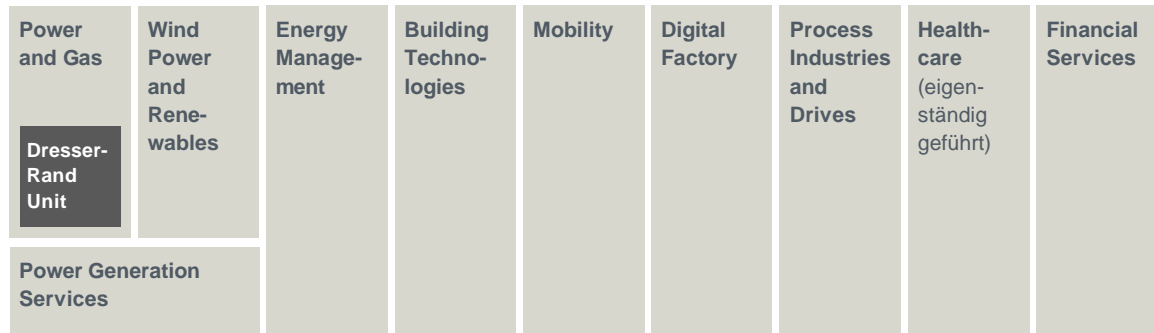
Siemens Corporate Technology | Oktober 2015

Additive Manufacturing, A Key for Future Production

Fachkonferenz 3 D-Druck in der Automobilindustrie
 Martin Schäfer
 20.- 21. Oktober 2015, Augsburg

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Vision 2020 – A customer-oriented setup



Our organization

Corporate Technology at a glance

Corporate Technology (CT) CTO – Prof. Dr. Siegfried Russwurm			
Business Excellence, Quality Management, top* <ul style="list-style-type: none"> Business excellence Quality management Internal process and production consulting 	Corporate Intellectual Property <ul style="list-style-type: none"> Protection, use and defense of intellectual property Patent and brand protection law 	Development and Digital Platforms <ul style="list-style-type: none"> Competence center for horizontal and vertical product-and-system integration as well as software, firmware, and hardware engineering 	Innovative Ventures <ul style="list-style-type: none"> Access to external innovations Start-up foundation Commercialization of innovations
New Technology Fields <ul style="list-style-type: none"> Research into potentially disruptive innovations with high market potential 	Research and Technology Center <ul style="list-style-type: none"> Development of technologies with a broad impact Incubator for innovations of our portfolio 	Technology and Innovation Management <ul style="list-style-type: none"> Siemens' technology and innovation agenda Standardization, positioning regarding research policy 	University Relations <ul style="list-style-type: none"> Global access to the academic world Top positioning in terms of university cooperations

Our global presence

Partner to customers all over the world

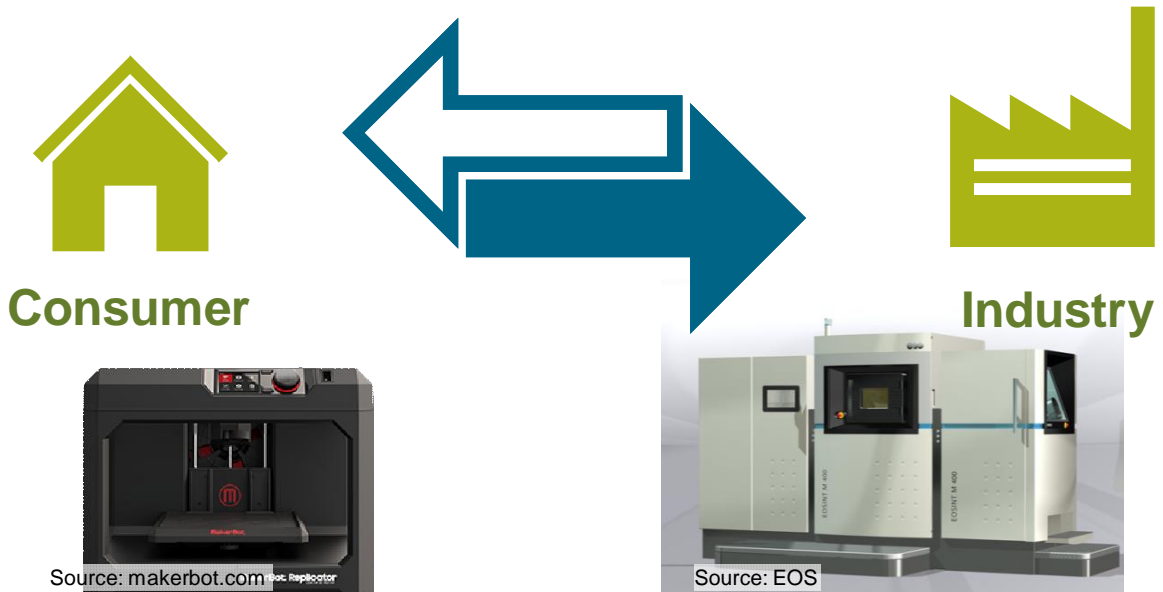


Additive Manufacturing at Siemens

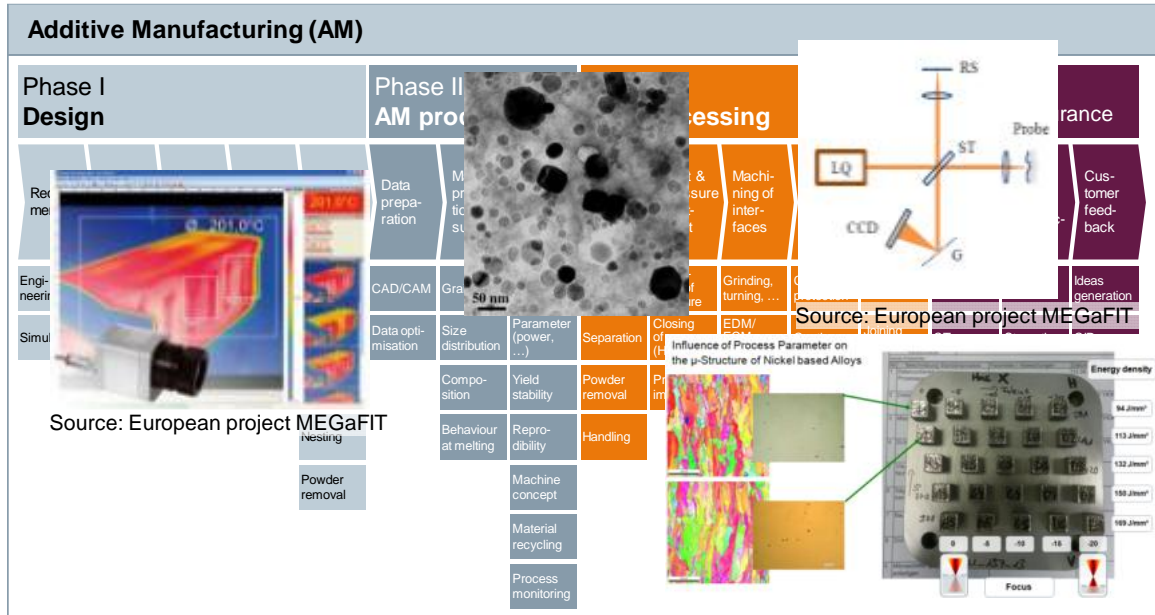


“3D printing” versus Additive Manufacturing

Different requirements

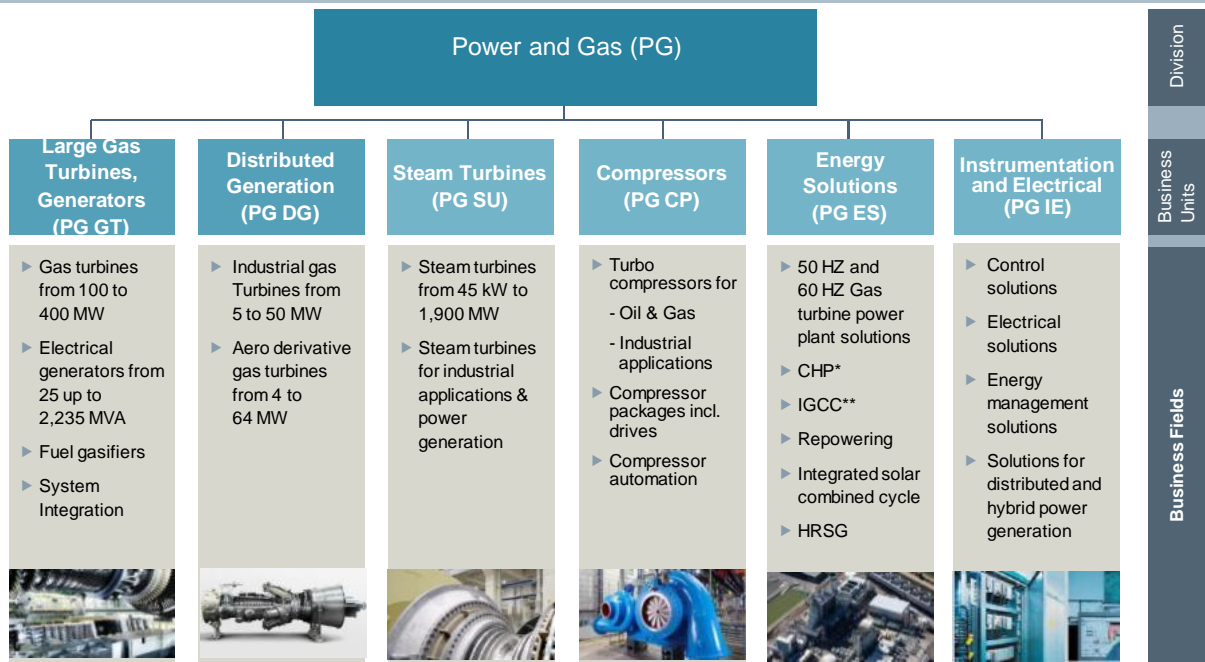


Additive Manufacturing – Process Chain



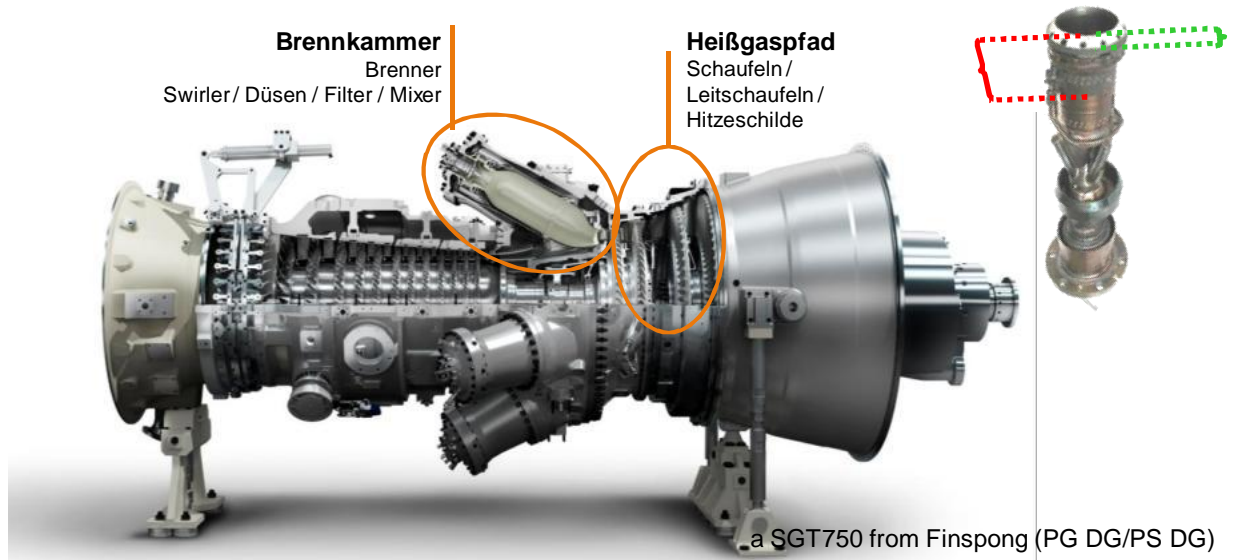
Potential for unique features are based on the mastery of knowledge intensive process chain and the interaction between manufacturing process, material condition and component properties

Power and Gas Division



* Combined heat and power ** Integrated gasification combined cycle

AM at is PG DG and PS DG; Industrial Gas Turbine



High Tech-Components with complex design and high potential to increase the benefits of the customer (e.g. efficiency; life time)

SLM: RaBuTiR (3)



Main benefits:

- Faster repair
- Technology updates included

Industrialisation Line Integration

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Hannover Fair 2015 Digitalization Forum

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Additive Manufacturing is a key technology to fulfill market requirements

Market requirements

Levers

- Increased energy and resource efficiency
- Highly complex structures and designs
- Individualized mass production
- Shorter innovation cycles

- Designed-in functionality
- High end resilient materials
- Rapid prototyping
- Spare parts on demand

Additive Manufacturing¹

1) ISO/TC 261 – Additive manufacturing

The Siemens portfolio along the entire value chain enables the industrialization of Additive Manufacturing

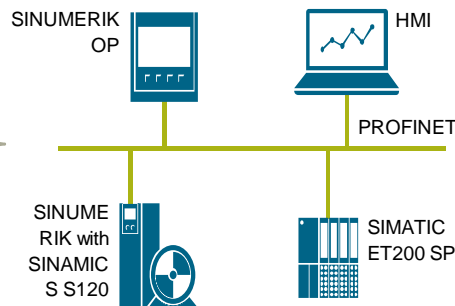
PLM Software

Automation

Product



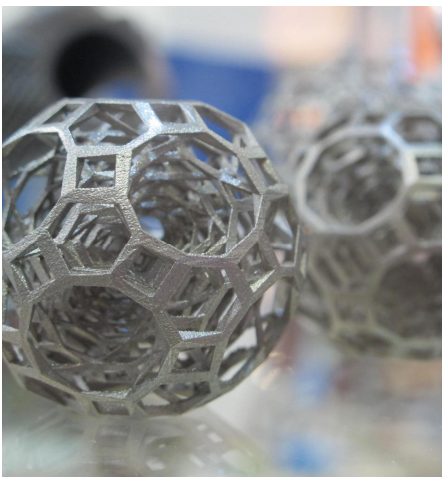
Material



Summary and Outlook

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Summary



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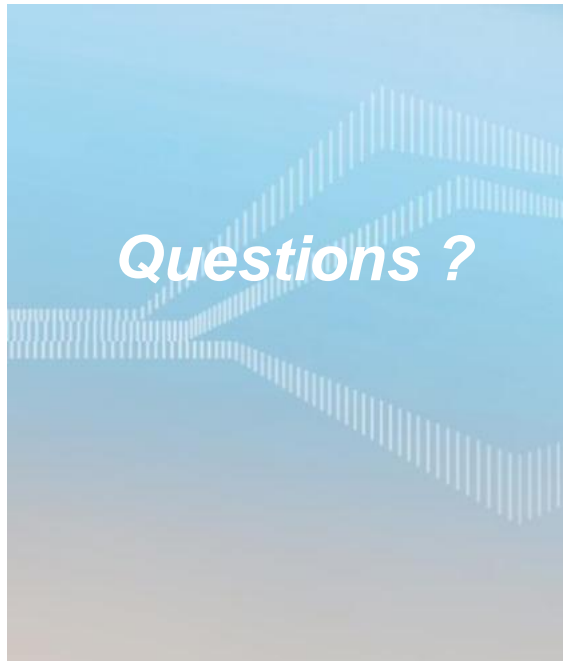
Additive Manufacturing ...

... facilitates optimization potentials.

... is on the path of industrialization.

... requires a holistic digitalized approach.

Many thanks!



Martin Schäfer

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