

Preface

“Industrializing Additive Manufacturing” is the proceedings of the first scientific conference on *Additive Manufacturing in Products and Applications AMPA 2017*. The conference provides a platform for the exchange of ideas and knowledge among engineers, designers, and managers. Its objective is to support real-world value chains by developing additively manufactured serial products.

Additive Manufacturing (AM) often has been referred to as a future production technology enabling the next industrial revolution. Additive processes offer very different characteristics when compared to conventional manufacturing processes, such as almost unlimited freedom in design and an efficient digital process chain allowing for lot size one manufacturing. Many AM processes were invented between the mid-1980s and the early 2000s. Researchers all over the world dedicated their work to understanding and improving AM materials and processes. Thanks to them, we now have access to a large variety of industrial AM machines and commercially available materials.

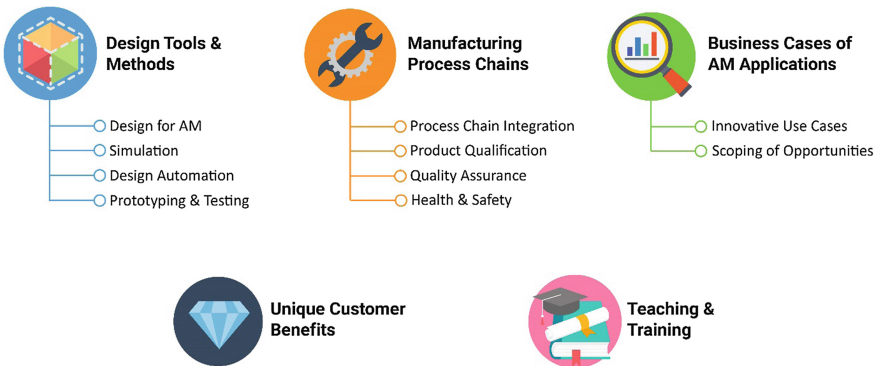
Yet still we are just at the beginning of an industrialization of AM. There are several challenges to face in regard to quality, productivity and robustness of processes, and a demand for new materials. Nevertheless, it can be clearly stated that Additive Manufacturing by now is a mature process ready for industrial production. Engineers in industry do not question the operational readiness of the processes anymore. Their concern now is how to benefit from Additive Manufacturing and how to integrate AM into their existing product development and production processes. Having a reproducible process delivering parts of sufficient quality and acceptable costs is only the starting point for the industrialization of AM. Additive Manufacturing is taking the next step on its journey toward a broad range of series production, and we are facing many new scientific challenges.

Transforming the potential benefits of Additive Manufacturing into a successful industrial or end-user product is a challenge to all disciplines along the product development process. Designers and engineers need strategies to help them identify the right applications, tools, and methods for an efficient design process using the freedom of design to create benefits for users as well as the manufacturer. Production engineers have to assess Manufacturing Readiness Levels, implement

AM machines into the existing production chain, ensure an efficient operation, and establish quality assurance and control mechanisms. Examples for AM-specific topics on the economic side are make-or-buy decisions, supply chain organization, new business models, and converting Unique Selling Propositions in additional revenue.

The topics of *Additive Manufacturing in Products and Applications* cover all topics necessary to develop and produce successful products.

- Design Tools & Methods: Identifying and designing AM parts
- Process Chain Integration: Setting up a safe and efficient production infrastructure
- Business Cases of AM Applications: Quantifying the benefits of AM
- Unique Customer Benefits: Learning from good and unusual examples
- Teaching and Training: Bringing knowledge and experience to new users



We would like to thank everyone who contributed to the success of the *Additive Manufacturing in Products and Applications* conference: Thanks to the authors for their valuable papers and talks, to the members of the industrial and scientific committees for their hard but fair reviews and for chairing sessions, to the participants of the sessions for the fruitful discussions, and last but not least to all those who supported the conference in the background.

Mirko Meboldt
Christoph Klahn



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