

**2nd munich
technology conference**
10–11 October 2018
TU Munich/Germany



#mtc2 #industrializeAM

Additive Manufacturing Driving Industrialization

With **Top
Speakers** from
the industry,
academia and
political sectors.

oerlikon



bayern  **innovativ**



SIEMENS
Ingenuity for life

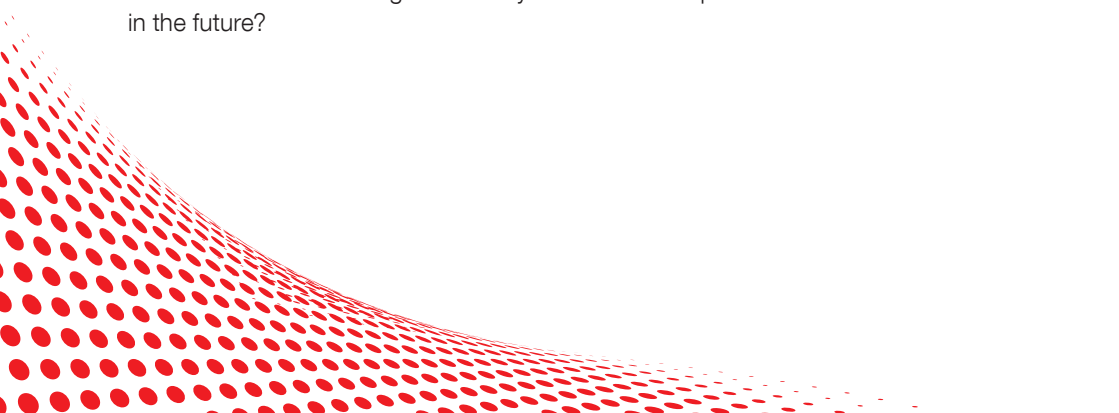


Topics

From the way we reduce carbon emissions to the way we replicate nature's creative processes, additive manufacturing (AM) is fueling a revolution, layer by layer.

The 2nd Munich Technology Conference on Additive Manufacturing (MTC 2) will advance discussions among renowned decision makers from industry, academia and state officials. The main focus of the conference is the industrialization of additive manufacturing. Participants will debate the current status and challenges of different markets, the entire process chain as well as its individual parts.

Further questions that will be addressed:

- How can we speed up the industrialization of AM?
 - Which challenges have to be overcome? How can we achieve that?
 - What are specific market success stories? And what can we learn from them?
 - What are the main cost drivers along the value chain? How can they be reduced?
 - What are focus areas of today's hardware providers?
 - Which materials are being used today? Which are of special interest in the future?
- 

Conference

Day 1 October 10, 2018

Block A
08:30–09:00

Welcome
Dr. Melinda Crane
Prof. Wolfgang A. Herrmann (TU Munich)
Prof. Michael Süß (Oerlikon Group)

Block B
09:00–10:00

Ecosystem
AM is one of the most promising future production technologies, enabling high-tech companies to increase their competitiveness, developed countries to secure jobs and new, disruptive business models to evolve. Representatives of industry and science discuss the value of AM, its challenges, its industrialization status and levers to speed up its exploitation. They will examine the role of government, science and industry in the industrialization process and the importance of collaboration.

Speakers:
Dr. Roland Fischer (Oerlikon Group)
Prof. Horst Wildemann (TCW)
David Joyce (GE Aviation)
Dr. Jan M. Mrosik (Siemens)

Moderation: Dr. Melinda Crane

10:00–10:30

Break/Networking

Block C
10:30–11:45

Markets I
Although numerous additively manufactured parts are already in the field, the different industries vary regarding their industrialization status. Based on specific case studies, current challenges and lessons learned will be explained on a detailed level.

Impulse Speaker:
Prof. Nikolaus A. Adams (TU Munich)

Speakers:
Lars Wagner (MTU Aero Engines)
José E. Román (Boeing)
Dr. Jérôme Rascol (Airbus)

Moderation: Dr. Melinda Crane

11:45–12:30

Lunch/Networking



Conference

Block D

12:30–13:45

Markets II

Impulse Speaker:

Prof. Welf-G. Drossel (Fraunhofer)

Speakers:

Raphael Lienau (LMT Fette)

Dr. Charles Tomonto (Johnson & Johnson)

Maximilian Hauk (BMW Group)

Gero Corman (VW)

Moderation: Dr. Melinda Crane

13:45–14:15

Break/Networking

Block E

14:15–15:30

Value Chain

Increasing productivity and reducing cost are only two key pillars for industrializing AM. Leading international specialists of industry, science and certification authority will discuss how to overcome the current hurdles along the value chain and how to speed up the industrialization status.

Speakers:

Prof. Axel Stepken (TÜV SÜD)

Jason Oliver (GE Additive)

Dr. Xu Xiaoshu (Farsoon Technologies)

Dr. Christian Bruch (Linde Group)

Dr. Naomi Murray (Stryker Orthopaedics)

Ralph Resnick (America Makes)

Moderation: Dr. Melinda Crane

Block F

15:30–16:15

Material

Materials are the source of every produced AM part. Experts from industry and academia give insights into the role materials play, how the current materials portfolio will develop and how this will help to speed up the industrialization of AM.

Impulse Speaker:

Prof. Konrad Wegener (ETH Zürich)

Speakers:

Dr. John Dunkley (Atomising Systems)

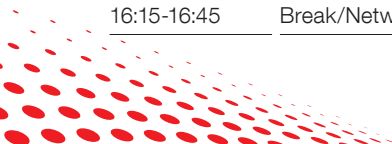
Florian Mauerer (Oerlikon Group)

Volker Hammes (BASF New Business)

Moderation: Dr. Melinda Crane

16:15–16:45

Break/Networking



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Block G

16:45-17:30

Hardware I

During the past years, improvements in AM hardware and process have been achieved. Nevertheless, there are numerous challenges to overcome until printers have reached their full potential. Experts will give insights into the most advanced solutions and discuss how printers can fasten industrializing AM.

Speakers:

Dr. Thomas Fehn (Trumpf)

Dr.-Ing. Gereon W. Heinemann (SLM Solutions)

Frank Herzog (Concept Laser)

Dr. Hans J. Langer (EOS Group)

Mathias Wolpiansky (Realizer)

Moderation: Prof. Johannes H. Schleifenbaum (RWTH Aachen)

Block H

17:30-18:15

Hardware II

Speakers:

Ric Fulop (Desktop Metal)

Hanan Gothait (XJet)

Vyomesh Joshi (3D Systems)

Andy Middleton (Stratasys)

Dr. Tim Weber (HP)

Moderation: Prof. Johannes H. Schleifenbaum (RWTH Aachen)

Block I

18:15–18:30

Closing

Dr. Melinda Crane

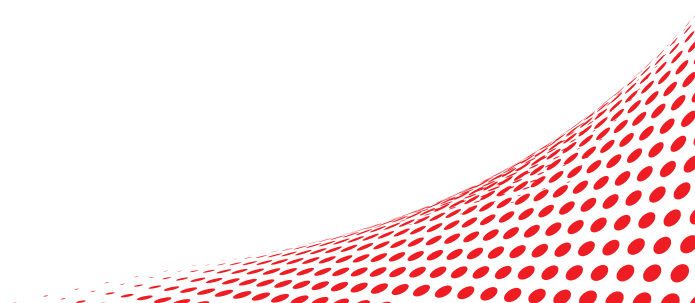
Dr. Roland Fischer (Oerlikon Group)

18:30–19:15

Transfer to Dinner Venue

19:15–22:00

Evening Reception at Residenz Max-Joseph-Saal
(Invited Guests)



Speakers



**Prof. Dr.-Ing.
Nikolaus A. Adams**
TU Munich
Professor



Dr.-Ing. Christian Bruch
Linde Group
Member of the Executive Board



Gero Corman
Volkswagen Group
Digitalization
Head of 3D-Printing/Additive Manufacturing



Dr. Melinda Crane
Journalist and Moderator



**Prof. Dr.-Ing.
Welf-Guntram Drossel**
Fraunhofer IWU
Head of Institute



Dr. John Dunkley
Atomising Systems
Chairman



Dr. Thomas Fehn
TRUMPF Additive
Manufacturing
General Manager Sales,
Marketing & Finance



Dr.-Ing. Roland Fischer
Oerlikon Group
CEO



Ric Fulop
Desktop Metal
CEO and Co-founder



Hanan Gothait
XJet
Founder



Volker Hammes
BASF New Business
VP & CEO 3D Printing Solutions



Maximilian Hauk
BMW Group
Vice President
Production Pilot Plant



**Dr.-Ing. Gereon W.
Heinemann**
SLM Solutions Group
Chief Technology Officer



**Univ.-Prof. Dr. Wolfgang
A. Herrmann**
TU Munich
President



Frank Herzog
Concept Laser
Chairman & CEO



Vyomesh Joshi
3D Systems
CEO & President



David Joyce
Vice Chair, GE,
and President & CEO,
GE Aviation



Dr. Hans J. Langer
EOS Group
CEO & Chairman

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Raphael Lienau
LMT Fette Werkzeugtechnik
Development Engineer & R&D Project Head
thread rolling systems



Florian Maurer
Oerlikon Group
Head of BU
Additive Manufacturing



Andy Middleton
Stratasys
Executive Vice President



Dr. Jan M. Mrosik
Siemens
CEO Division Digital Factory



Dr. Naomi Murray
Stryker Orthopaedics
Director
Advanced Operations



Jason Oliver
GE Additive
President & CEO



Dr. Jérôme Rascol
Airbus
Head of the Additive Layer Manufacturing
Platform



Ralph Resnick
America Makes
Founding Director NCDMM
President and Executive Director



José Enrique Román
Boeing
Managing Director Boeing
Research and Technology Europe



**Prof. Dr.-Ing. Johannes
H. Schleifenbaum**
RWTH Aachen
Professor



**Prof. Dr.-Ing.
Axel Stepken**
TUV SUD
CEO



Prof. Dr. Michael Süß
Oerlikon Group
Chairman of the Board of Directors



Dr. Charles Tomonto
Johnson & Johnson
Engineering Fellow, Material Characterization
Lead, 3D Printing
Center of Excellence



Lars Wagner
MTU Aero Engines
Chief Operating Officer



Dr. Tim Weber
HP
General Manager of Metal 3D Printing



**Prof. Dr. Konrad
Wegener**
ETH Zurich
Professor



**Univ.-Prof. Dr.
Dr. h.c. mult.
Horst Wildemann**
TCW
Managing Director



**Mathias
Wolpiansky**
Realizer
Managing Director



Dr. Xu Xiaoshu
Farsoon Technologies
Founder & CEO

Workshops

Day 2 October 11, 2018

Doors open

08:00

Grouping

09:00

09:30–11:30
12:30–14:30*

AM as a Service – Building an Integrated AM Supply Chain

This workshop will draw on the participants' breadth of knowledge to answer one of the most complex questions the AM industry is facing today: How can we build an AM supply chain?

We would like to elaborate different challenges that various parties in the supply chain face, analyse specific interface challenges and define what needs to be done by whom to foster an AM supply chain.

Oerlikon Group

Moderators: Florian Mauerer, Dr. Christian Häcker

Advances in Materials for Additive Manufacturing

AM is used today with a wide variety of materials. This session will focus on the metal powders segment of the overall market for AM materials. Attendees at the workshop will be able to participate in several smaller discussions on the potential markets for metal powders, growing applications as well as hardware developments that are driving the materials roadmap. Commercial business models existing in the current supply chain will also be considered and how these might evolve in the future.

Oerlikon Group

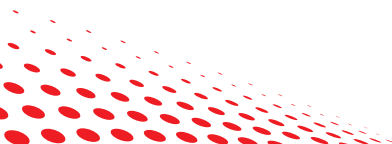
Moderator: Dr. Kartik Rao

Industrialization of the AM Value Chain through Gas-enabled Innovation

Our expert workshop "Industrialisation of the AM Value Chain through Gas-enabled Innovation" will reflect our commitment to partnership and teamwork within AM. This interactive session will be framed by a series of customer insights from a range of market segments. We will then be taking a close look at the gas-related AM challenges at different steps in the value chain (from powder production and storage through printing to post-treatment), and inviting you to collaboratively explore potential answers to those challenges with other participants.

Linde Group

Moderators: Pierre Forêt, Anja Goller



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Hardware: Printers, Powder and People

This workshop looks at hardware in its broadest sense and how it can define a successful additive strategy. Participants will discuss the current state of additive, the importance of selecting the right machine for their business and their application, the need to respect the power and properties of the powder, and why people in the organizations are critical in driving change and the adoption of additive. We will share our successes, failures and learnings from our own additive journey – we hope you will share yours too.

GE

Moderators: Dr. Matthew Beaumont, Christian Rensch, Robert Dean

Exploring the Key Questions to Shape the Future of Our Shared AM Ecosystem to Speed up the Industrialization

Maturing an industry from a well-established prototype to a series production status is the joint task of the whole AM industry, independent of the role along the value chain. Siemens has a unique approach with seamless integrated software, automation and digitalization solutions helping machine builders and end users to improve their business. In this breakout, we will co-innovate in cross-industry groups along the different steps of the digital thread from designing a product, designing a production line, running an AM production till continuously improving the performance by means of digitalization, starting with current road blocks, identifying key principles and measures to be developed for the future success. Latest development results of Digital Right Management or Siemens' Additive Manufacturing Network will be shared, and future requirements will be worked out.

Siemens

Moderator: Dr. Karsten Heuser

*Depending on number of registrations

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Workshops

Day 2

October 11, 2018

09:30–11:30

The Roadmap to a Solid and AM-compatible Business Model

12:30–14:30*

Decision makers are initially faced with a large number of questions when new technologies are gaining in importance and potentially have an influence on the own business model. AM is advancing rapidly, but these technologies must be evaluated for their suitability for use and effects on the company. Business models are the foundation of every company. In order to succeed, basic questions such as “What is the added value/pain point resolved to the customer?”, “How is value created, and what does the revenue estimation look like?” must be answered. AM represents a disruptive change which touches many aspects of current business models and presents challenges for the creators or new ones. For these and other questions, the “Roadmap to a Solid and AM-compatible Business Model” workshop should shed light and provide you with initial decision support for tackling AM projects in your company in a targeted and holistic manner. The workshop is complemented by interactive exercises allowing the participants to initiate their thinking towards business model transformation.

TÜV SÜD

Moderators: Gregor Reischle, Max Rehberger, Stefanie Sagerer

How to Facilitate the Entry of SMEs and Newcomers into Additive Manufacturing?

Today, AM technologies are close to industrialization. Nevertheless, AM is a very complex technological topic going along with open questions and uncertainty. The aim of this workshop is to identify requirements, challenges and technologies, which influence the widespread use and the development of new applications in the field of AM. Discussing these points helps to develop support measures for newcomers and SMEs to facilitate their entry into AM. So technology requirements will be highlighted, opportunities for SMEs as well as newcomers and the implementation of specific services offered by network and cluster organisations will be discussed. The results of the workshop will be flowing into the work and the development of a roadmap AM in Bavaria. The creation of this roadmap is an activity of the Bavarian coordination center of additive manufacturing, based at the Bayern Innovativ GmbH.

Bayern Innovativ

Moderators: Dr. Tobias Zehnder, Tina Johnscher, Dr. Matthias Konrad

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AM4.0: IoT, Smart Data Management and AI as Accelerators for Industrializing Additive Manufacturing

AM can benefit in manifold ways from approaches that shape the bubble Industry 4.0. Within this session, insights will be shared and discussed in this field covering preprocess steps, such as simulation-driven part design, and process optimization in process approaches, such as process monitoring, and control postprocess approaches, such as CAD-CAM coupling for efficient and consistent post processing. Furthermore, the discussion will be open for topics that concern automation and connected additive production.

Technical University of Munich supported by Fraunhofer IGCV

Moderators: Andreas Bachmann, Fabian Bayerlein,
Dr.-Ing. Christian Seidel

Selection of Methods & Technologies for AM Integration

One of the major challenges firms face in the process of implementing AM are the wide possible applications varieties as well as the numerous impacts within the firm. In this workshop, participants have the opportunity to ask specific questions along the following topics: selection of printable parts, profitability analysis, supply chain building, investment planning, human resource planning. The workshop is structured and discussed along the named main topics. The presented approach for the selection of methods and technologies for the AM integration is based on a holistic evaluation of the implications of AM within a company as, for example, the reduction of costs for product redesign, supply chain costs, choice of external suppliers and organizational aspects. In addition, a roadmap for an implementation process is presented.

TCW Transfer-Centrum

Moderators: Prof. Horst Wildemann, Adrian Markgraf, Michael Schöppe

End 15:00

*Depending on number of registrations

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Contact

Technical University of Munich
Audimax, Arcisstr. 21
80333 Munich, Germany

Get there by public transportation

- Train: München Hauptbahnhof (+U2)
- Underground (U2): Theresienstrasse
- Tram (27/28): Pinakothek
- Bus (100): Technische Universität
- There are limited, paid parking options on Theresienstrasse and Luisenstrasse.



Audimax

The two-day conference will take place at the Technical University of Munich.



Munich

Located in the south of Germany, the Bavarian capital Munich is home to 1.5 million people and numerous leading industry and service companies, as well as the world-renowned Technical University of Munich. Visitors from across the globe are attracted by cultural highlights such as the annual Oktoberfest, the Deutsches Museum – the world's largest museum of science and technology – the many galleries and the Bavarian way of life.