

Business and Investment Opportunities in Additive Manufacturing and 3D Printing

15th Annual International Wohlers Conference

Date and Time	Thursday, 5 December 2013, 09:30 – 17:00
Location	Portalhaus, Room Frequenz 2, Hall 11, Exhibition Center Frankfurt/Main, Germany
Organizer	DEMAT GmbH
Chairman	Terry Wohlers, Wohlers Associates, Inc.
Conference Language	English
Registration Fee	Full day €300 + VAT (exhibitor), full day €390 + VAT (non-exhibitor), half day €160 + VAT (exhibitor), half day €220 + VAT (non-exhibitor). 10% early bird discount when registering by 31 October. Fee includes entrance into the conference and exhibition, technical papers, refreshments, and lunch.
More Information	Contact Mrs. Verena Frenkler at 49 69 27 40 03 30, verena.frenkler@demat.com, or fax 49 69 27 40 03 40.

Conference Overview



Additive manufacturing (AM) and 3D printing—terms that are used interchangeably—are gaining the attention of many of the largest and most important organizations in the world. A representative from a large aerospace company in the U.S. stated that the technology will not create thousands of new companies, but rather tens of thousands. He may be right. Investment is at an all-time high and it will likely lead to new businesses, business models, organizations, products, and services.

The speakers have been carefully selected based on their knowledge, experience, and insight into the technology and where it is headed in the future. For 15 years, the focus of this event has been on quality of information and not quantity. If you are exploring opportunities in additive manufacturing and about to make important business decisions, you will want to attend this conference.

Attend this event to discover how individuals and organizations around the world are launching new businesses and business models and investing in what many people believe could become the Next Big Thing.

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Session I: Morning

Includes lunch



09:30

Welcome

Dr.-Ing. Eberhard Döring, CEO
DEMAT GmbH (Germany)

Döring is a mechanical engineer with a PhD in plastics processing. He created the EuroMold exhibition concept and has been the CEO of DEMAT and exhibition manager since 1996.



09:45

Keynote: Additive Manufacturing Tales from the Antipodes

Dr. Olaf Diegel, CEO
ODD Guitars (New Zealand)

Diegel is both an educator and a practitioner of mechatronics and engineering product development with an excellent track record of developing innovative solutions to engineering problems. In his role as an academic at Massey University in Auckland, he teaches students about mechatronics and product development. In his consulting practice, he develops a wide range of products for New Zealand and international companies. Over the past 10 years, he has developed over 60 commercial products including innovative new theatre lighting products, security and marine products, and several home health-monitoring products.

Presentation Summary Additive manufacturing has begun its gradual transition from being a technology that is used mainly for prototyping to technology for the manufacture of real commercial products. Consequently, we need more examples of products that take advantage of the benefits AM offers. Diegel will examine a number of commercial products, including ODD 3D-printed guitars, that use AM as their core manufacturing technology. Also, he will underscore some of the major business advantages that these technologies provide.



10:30

Unprecedented Opportunities Abound

Mr. Terry Wohlers, Principal Consultant and President
Wohlers Associates, Inc. (USA)

Wohlers has provided consulting assistance to more than 200 organizations in 24 countries. He has authored nearly 400 books, articles, and technical papers and has given 100 keynote presentations on five continents. He has been interviewed by *The Economist*, *Forbes*, *Fortune*, *USA Today*, *The Wall Street Journal*, Bloomberg TV, CNBC, MSNBC, Australia's Sky News, China's CCTV, and countless domestic and foreign magazines, journals, and newspapers. In 2007, more than 1,000 industry professionals from around the world selected Wohlers as the #1 most influential person in rapid product development and additive manufacturing.

Presentation Summary The additive manufacturing and 3D printing (we use the terms interchangeably) industry is experiencing extraordinary change. Interest is at an all-time high, and it extends beyond the engineering and scientific communities. The mainstream media and investors are captivated by the technology. Government agencies at many levels around the world are investing in the technology like never before. Some of the largest global brands and corporations, such as Airbus, BMW, Boeing, General Electric, Haier, SAP, Staples, and UPS, are engaged. Meanwhile, hype and misinformation are rampant, making it difficult for anyone new to the industry to separate fact from fiction.

11:00

Break and Refreshments



11:30

3D Printing Investments in China

Mr. James Yu, CEO and Chairman
WestingCut Group (China)

Yu is co-founder and CEO of WestingCut Electric Inc. (Shanghai), WestingCut Heavy Industrial Science and Technology Inc. (Anhui), WestingCut Heavy Industrial Technology (Shanghai), Xery 3D Printing Science & Technology Inc. (Hefei), and Xery 3D Printing Science & Technology Inc. (Anhui). From 1998 to 2007, Yu was a senior engineer at Husky Injection and Molding Systems Ltd. (Bolton, Canada) and Sensor and Software Inc. (Mississauga, Canada). He also served as a professor at Shanghai University of Science and Technology from 1989 to 1997.

Presentation Summary China's voice in 3D printing has gained significant ground over the past 12 months. Private capital investment organizations are hard at work identifying valued companies in 3D printing. Meanwhile, the stock values of publicly traded companies in 3D printing have increased substantially. The governments of different provinces have issued policies, such as direct capital investments and R&D initiatives, to support the development of the 3D printing industry.



12:00

New AM Business Opportunities and Investments in South Africa

Prof. Deon de Beer, Executive Director, Technology Transfer and Innovation
Vaal University of Technology (South Africa)

As one of the early pioneers of AM in South Africa, de Beer has taken a keen interest in the promotion and development of the country's AM landscape. Over and above his own activities, he played a key role in the Rapid Product Development Association of South Africa. His interests lie in the development of AM applications, which took him into AM platform development for unique applications. He is a sought after speaker and has published widely on many AM-related subjects, research and technology management, and technology transfer.

Presentation Summary Following a staggering 100% increase in total machine sales since mid-2011, 2012 closed with approximately 800 machines in South Africa. Personal 3D printers (priced at under \$5,000) accounted for about 55% of all machines. A recent analysis showed that AM platform investment in South Africa has exceeded \$20 million, with about 50% spent in the last financial year. Professor de Beer will reveal the backdrop of new industry sector development, resulting in a fourth generation boom in South Africa's AM industry.

12:30

Buffet Lunch

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Session II: Afternoon

Includes lunch



14:00

Future AM Business Opportunities from the "Marble Model" Perspective

Mr. Wilfried Vancraen, CEO
Materialise (Belgium)

Vancraen began his career in 1985 after receiving a Master of Science degree in electro-mechanical engineering. Working as a research engineer and consultant at the Research Institute of the Belgian Metalworking Industry, he discovered 3D printing. Passionate about the technology, and firm in his belief that it could help create a better and healthier world, he founded Materialise in 1990. Vancraen holds several patents related to the technical and medical applications of 3D printing. He is the recipient of the 2011 RTAM/SME Industry Achievement Award.

Presentation Summary Vancraen will show how the 3D printing evolution can be seen as an interpolation between the evolution of 2D document printing and the evolution of the plastics industry. By looking at additive manufacturing in this context, we can gain important insights into the ways in which the AM market may also develop and thereby identify future business opportunities. This will be illustrated using the “marble model” for the gradual evolution of AM in the years to come.



14:30

The Value Proposition for Medical Applications of AM

Mr. Andy Christensen, President
Medical Modeling Inc. (USA)

Christensen has been active in the additive manufacturing and 3D printing industry since 1996 and is currently the owner of Medical Modeling Inc., a medical device service provider based in Golden, Colorado. The company is supporting his vision to improve patients' lives through the use of AM technology and personalized solutions. Every day around the globe, Medical Modeling's products are used to provide surgical teams more confidence. Also, they provide patients with excellence in reconstructive surgical care through the use of patient-specific anatomical models, personalized surgical guides and instruments, and AM-fabricated implants.

Presentation Summary The value proposition for businesses across the additive manufacturing and 3D printing landscape is wide ranging. They span from those wishing to sell high-end printers and supplying raw materials to those wishing to provide services. In the service world, the higher value markets on the early side of this market are aerospace and medical devices. With services involving instruments, off-the-shelf and patient-specific products, and implants, companies are finding many ways to use AM for medical products and services. Christensen will explore them and the market potential for AM in the medical device sector.

15:00

Break and Refreshments



15:30

Intellectual Property Considerations When Investing in AM

Mr. William J. Cass, Partner
Cantor Colburn LLP (USA)

Cass holds a B.S. in mechanical engineering from Worcester Polytechnic Institute and a law degree from Western New England University School of Law. He has practiced law for the past 25 years. Cass is co-chair of Cantor Colburn's Litigation Department and has spoken on topics concerning intellectual property internationally at EuroMold, SME's RAPID, and at a recent White House symposium. Cass holds a commercial multi-engine instrument rating and advises clients in aviation technology. Bill combines his extensive trial experience with his engineering education to present technically complex matters to judges and juries. His cases involve complex technology, including medical devices, circuitry, mechanical engineering, material science, chemistry, and computer software.

Presentation Summary The future of additive manufacturing has never been brighter. Key patents in fused deposition modeling, stereolithography, and laser sintering have or will soon expire. Startup companies and others are building on these concepts while innovating and attracting new investment. Before entering the AM industry or acquiring technology, it is important to consider the IP landscape and its possible implications. Cass will address the due diligence process that is used to access a given AM technology and the steps leading to an acquisition to insure freedom of operation.



16:00

A Material Producer's Perspective on Additive Manufacturing

Ms. Sylvia Monsheimer, Director of Additive Manufacturing
Evonik Industries AG (Germany)

Sylvia Monsheimer is in charge of business and market development for additive manufacturing at Evonik's Performance Polymers. Over the past 20 years, she had many responsibilities in the Application Department, and has been in charge of laser sintering powder development for more than 14 years. She also tracks new technologies in additive manufacturing and explores suitable materials for them. In her function as head of the Department of Strategic Innovation Projects, she investigated areas such as nanoparticles in polymers and the interactions between modified polymers and lasers.

Presentation Summary Monsheimer will provide an overview of R&D investment in AM and how it can lead to new business opportunities. She will explain the development of entirely new AM processes and the need for joint development approaches. Governmental support and funding play a very important role and can be seen worldwide. She will also describe Evonik's approach to research and development, with an emphasis on additive manufacturing.



16:30

AM Investments in the USA

Mr. Tim Caffrey, Associate Consultant
Wohlers Associates, Inc. (USA)

Caffrey holds a B.S. in mechanical engineering from the University of New Mexico. He worked at Boeing for 10 years, including four years directing the operation of the company's in-house additive manufacturing services. His 20 years of writing experience includes aircraft engine maintenance and pre-flight test procedures for Boeing, engine case repair procedures for Pratt & Whitney, technical content for the web, and marketing copywriting for Walmart's corporate headquarters. Caffrey works on a wide range of consulting projects at Wohlers Associates, and is a principal author of the annual *Wohlers Report*.

Presentation Summary In the past 18 months, additive manufacturing has received an unprecedented level of attention from the mainstream media, companies of all sizes, government agencies, and the investment community. Caffrey will provide a summary of investment activity in the USA that will include an update on the National Additive Manufacturing Innovation Institute, initiated last year by the White House. Caffrey will highlight additional R&D funding by the USA government, investment by fund managers and institutional investors, and crowdfunding, such as Kickstarter, used to launch new companies and products.

17:00

Final Questions and Closing Comments