Investment Highlights – Industrial 3D printing

- Highly scalable binder-jetting technology
- Unique printhead technology allows highest volumetric output rate in the 3D printing industry (>420 patents and patent applications)
- Industry leading provider of technology for serial production

- Starting to commercialize new innovations and 3D printers for additive series-production: VJET X and VX1000 HSS
- Leverage recent investments in additional capacity to meet growing demand

- Founder CEO and key inventor of binder-jetting technology with more than 20 years of experience in the 3D printing equipment market and holder of more than 50 patents in the field of 3D printing
We are in the business for additive series production

**Situation**

New products and components are designed with improved features and properties. Such products and components have complex geometries and/or require sophisticated supply chains.

**Problem**

With traditional manufacturing alone, these geometries cannot be manufactured. With 3D printing, there is no such limitation.

But in its current form, 3D printing is not yet ready for high-volume, series production because operational costs are too high and the performance too low.

**Solution**

To address the performance issue, we believe we have developed the fastest binder-jetting 3D printers currently available. To reduce the operational costs of our 3D printers, we integrate them into already existing supply chains. We use a hybrid approach to manufacture complex metal parts.

**Outlook**

We have invested significantly into our IP portfolio and hold over 420 patents and patent applications. We expect to benefit from the increased demand for our solutions for additive series production by commercializing 3D production cells with multiple 3D printers and large volume contracts for 3D printed parts.

Market leading binder-jetting technology

*In additive manufacturing, shaped bodies are built up layer by layer. Powder binder/ink jetting repeats the steps:*

1) Lower the layer
2) Coating with particle material such as sand or plastic
3) Printing with a binding agent or ink

*Key advantages as compared to other additive manufacturing technologies:*

> Scalability: number, size and performance of printheads
> Ready for large-scale manufacturing
> Material diversity: various industrial grade materials
COMPANY PROFILE – voxeljet AG (NASDAQ: VJET) INDUSTRIAL 3D PRINTING

Integrated business model: capture business either as on-demand printing contract (Services) or 3D printer sale (Systems)

Services
- Services revenue 2019: $12.5M
- Volume contracts
- Strong competitive position
- Low barriers to entry

Synergies
- Risk balancing
  - Capture business either as 3D-Printer sale or on-demand printing contract
  - Balance long with short sales cycles
- Customer
  - Early awareness of new projects
  - Strong customer relationships
- Operations
  - Long track record of executing large-scale projects
  - High cost competitiveness and efficiency

Systems
- Systems revenue 2019: $15.1M
- Multi-System Sales
  - 7 platforms, > 20 material & process combinations
  - Recurring revenue through after sales activities

Strong competitive position and diversified blue-chip customer base

- High material diversity: Sand, Ceramics, Metals, Plastic polymers like PA, PP, TPU, etc.
- Size: Largest binder-jetting 3D printing systems in the market
- Length of business relationship in years:
  - DAIMLER: 18
  - BMW: 18
  - Volvo: 16
  - PORSCHE: 14
  - FORD: 8
  - PSA: 7
  - HYUNDAI: 6
  - NIKE: 3
- PRODUCTIVITY IN 3D
  - Cost efficient production: Through economies of scale
  - Speed: High speed printing and fast availability
COMPANY PROFILE – voxeljet AG  
(NASDAQ: VJET) INDUSTRIAL 3D PRINTING

Case Study I: new features, less manufacturing complexity and lower costs

<table>
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<tr>
<th>Casted in aluminum (old version)</th>
<th>Improved 3D printed pattern for casting (printed on voxeljet VX1000 PMMA 3D printer)</th>
<th>Casted in titanium (new version)</th>
<th>Mounted on rocket</th>
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New features through 3D printing

Left side: old, aluminum version. Middle left: 3D printed pattern for the casting of new titanium grid fins (pattern was printed on voxeljet’s VX1000 PMMA 3D printer). Middle right: new titanium fins are stronger, but still light enough to rival aluminum. Right side as mounted on rocket: new fins have a completely different shape. This new shape provides better zero-lift total drag and lift-to-drag ratio over the older ones.

Case Study II: new features, less manufacturing complexity and lower costs

**High pressure die casting:**
70 pieces and then assembled

**High pressure die casting:**
two pieces and then assembled

Individual metal pieces made by high pressure die casting; requires large and complex casting tools out of steel, which can cost > $1M. with voxeljet’s VX4000 3D printer, the largest binder jetting system of this kind, sand moulds for the casting of large metal parts can directly be printed and no tools are required.
COMPANY PROFILE – voxeljet AG  
(NASDAQ: VJET) INDUSTRIAL 3D PRINTING

Expected strong momentum through attractive long-term market drivers

› 3D printing will become a mainstream technology for series production

› Demand for lightweight, complex components expected to increase dramatically across industries

› Automation will become a key focus for the industry and offering integrated solutions is expected to be a huge market opportunity

› 3D printing will be a driver for environmental development: less waste in production and higher usage efficiency

Breakdown 2Q2020

Order Backlog
3D printers, 3rd party, €M

Revenue
By geographic region

Opex
By function

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