voxeljet AG

Industrial 3D Printing

NYSE: VJET



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AGENDA

- **Company & business model**
- Technology & products
- Market & customers
- Growth drivers
- Financials

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SAFE HARBOR SUMMARY

This presentation contains forward-looking statements concerning voxeljet AG's business, operations and financial performance and condition as well as our plans, objectives and expectations for our business operations and financial performance and condition. Any statements that are not of historical facts may be deemed to be forward-looking statements. You can identify these forward-looking statements by words such as "believes," "estimates," "anticipates," "projects," "expects," "plans," "intends," "may," "could," "might," "will," "should," "aims," or other similar expressions that convey uncertainty of future events or outcomes. Such forward-looking statements involve known and unknown risks, uncertainties, and other factors that could cause actual results to differ materially from the projections and estimates contained herein and include, but are not limited to statements relating to: the current trend and inflection point of the market or industry; success and effects of our integrated business model; market demand or market acceptance of our products or services; ability to turn Services customers into Systems customers; expected growth of the 3D printing market; ability to meet growing demand; introduction of VJET XIOB and our new large HSS printer; continued innovation by voxeljet AG; new applications and markets to be supported by voxeljet AG; expected market sizes; actual and successful performance relating to VJET X printers; and voxeljet AG's ability to deliver a fully automated 3D printing solution for mass production. Factors that could cause actual results to differ materially from these forward-looking statements include, among others: the risks inherent in the company's industry; performance of and customer demand at the service centers; decisions and activities of the Company's management affecting margins, investment, capital spend; the Company's use of capital and strategy; the Company's ability to provide products and services satisfactory to its customers; development and achievements by competitors; economic and market conditions; the Company's outstanding indebtedness; the Company's ability to maintain sufficient internal controls over financial reporting; the impact of issuances of additional ADSs; and risks associated with conducting a global business, including application of foreign laws to contract and other disputes, environmental laws, enforcement and uncertain political and economic environments. These risks and other factors are discussed in more detail in the Company's public filings with the Securities and Exchange Commission. Statements made herein are as of the date hereof and should not be relied upon as of any subsequent date. The Company's past performance is not necessarily indicative of its future performance. The Company disclaims any obligation to update any forward-looking statements.

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Guidance

Any estimates, forecasts or projections set forth in this presentation have been prepared by voxeljet AG management in good faith on a basis believed to be reasonable. Such estimates, forecasts and projections involve significant elements of subjective judgment and analysis as well as risks (many of which are beyond management's control). As such, no representation can be made as to the attainability of management's forecasts and projections. Readers are cautioned that such estimates, forecasts or projections have not been audited and have not been prepared in conformance with International Financial Reporting Standards.

Non-IFRS Measure

The Company uses Adjusted EBITDA as a supplemental financial measure of its financial performance. As calculated under International Financial Reporting Standards ("IFRS") accounting principles, Adjusted EBITDA is defined as net income (loss), interest (income) expense, provision (benefit) for income taxes, depreciation and amortization, and excluding other (income) expense resulting from foreign exchange gains or losses on the intercompany loans granted to the subsidiaries. Management believes Adjusted EBITDA to be an important financial measure because it excludes the effects of fluctuating foreign exchange gains or losses on the intercompany loans granted to its subsidiaries which are difficult to forecast for future periods. Management regularly uses both IFRS and non-IFRS results and expectations internally to assess its overall performance of the business, making operating decisions, and forecasting and planning for future periods. Management believes that Adjusted EBITDA is a useful financial measure to the Company's investors as it helps investors better understand and evaluate the projections our management board provides. The Company's calculation of Adjusted EBITDA may not be comparable to similarly titled financial measures reported by other peer companies. Adjusted EBITDA should not be considered as a substitute to financial measures prepared in accordance with IFRS.

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Investment highlights



Addressing Large and Global Market Opportunity for Additive Manufacturing

Differentiated Technology, Uniquely Focused on Large-Scale 3D Production

Leading Automotive OEMs such as BMW, Daimler, VW and Volvo are Long-Tenured Customers

Business at Inflection Point as Key Customers Are Entering 3D Mass-Production

Visionary Leadership Team with Long Track-Record of Success

Integrated Business Model Drives Strong Financial Foundation

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Management board



Dr. Ingo Ederer

CEO, founder and shareholder

20 years with voxeljet
26 years of industry experience

Management combined
holds ~20% of VJET shares

Rudolf Franz

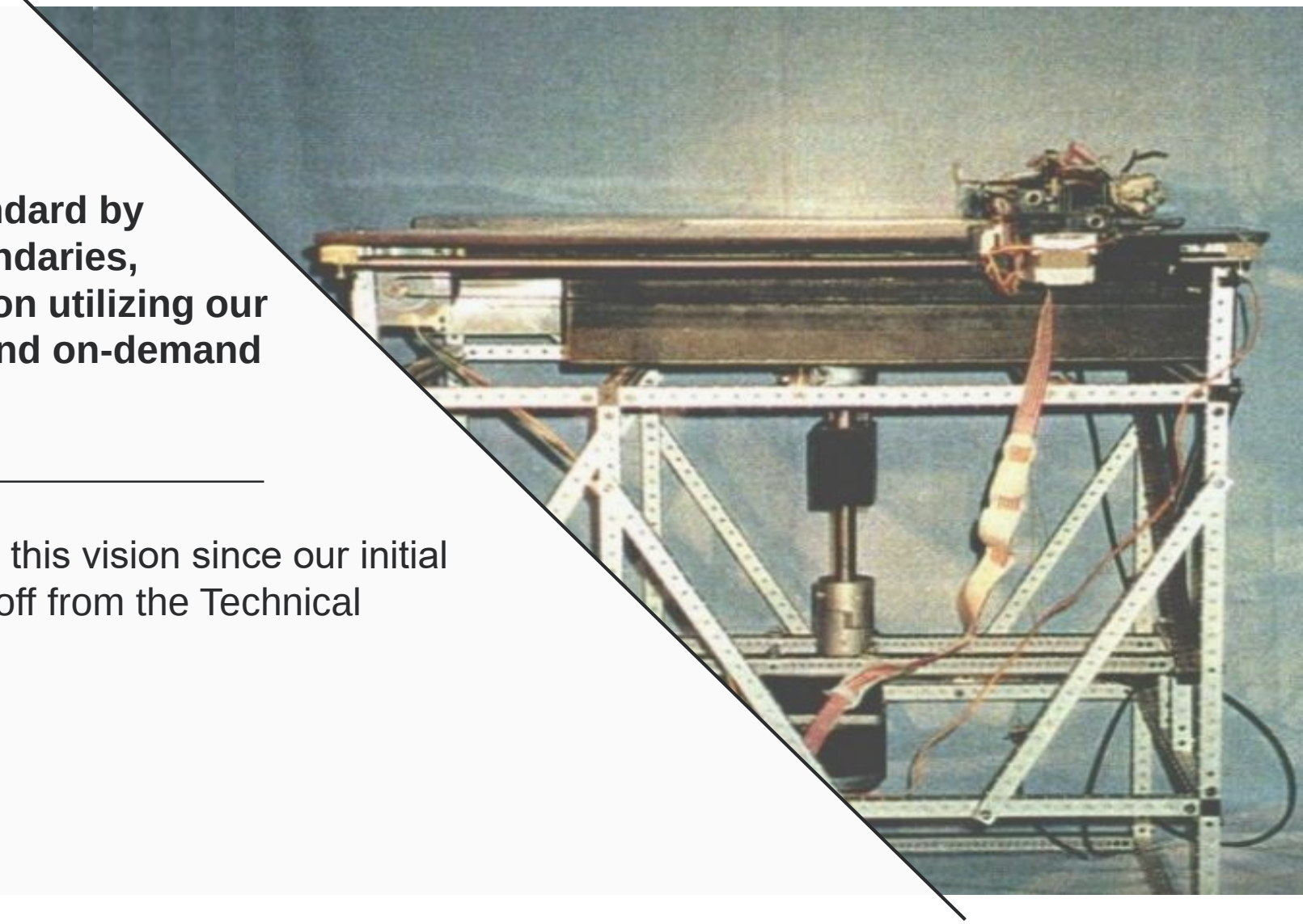


CFO and shareholder

16 years with voxeljet
24 years of industry experience

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Our vision



To establish a new manufacturing standard by constantly pushing technological boundaries, enabling cost-effective mass-production utilizing our high-speed, large-format 3D printers and on-demand parts services.

“We have been working towards realizing this vision since our initial days in 1999, when we started as a spin-off from the Technical University in Munich.”

Dr. Ingo Ederer, CEO and founder of voxeljet

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voxeljet today

Established in **1999**

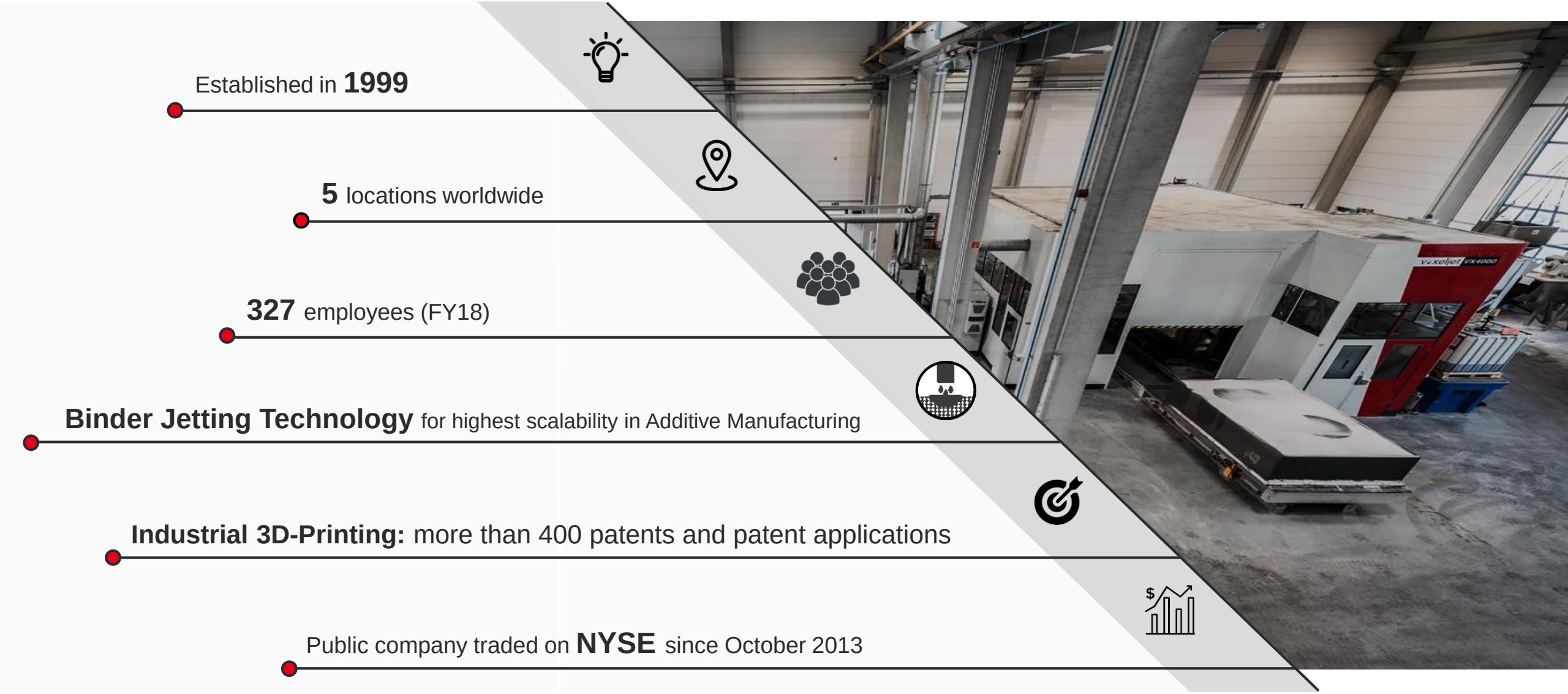
5 locations worldwide

327 employees (FY18)

Binder Jetting Technology for highest scalability in Additive Manufacturing

Industrial 3D-Printing: more than 400 patents and patent applications

Public company traded on **NYSE** since October 2013



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Synergies built on integrated business model

Services
(On-Demand Printing)

Systems

- 2018 Sales: EUR 13.8m
- Volume contracts
- Strong competitive position:
  global footprint/largest printers in the industry
- Optimized CAPEX and OPEX for own assets
- Low barriers to entry
  send data → receive printed parts; from n=1

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

Innovation
- Improvement of applications and solutions
- Insights into customer processes

- 2018 Sales: EUR 12.2m
- Multi-system sales
- After sales activities
- Direct parts technology
  High Speed Sintering
- Indirect metals technology via Hybrid AM

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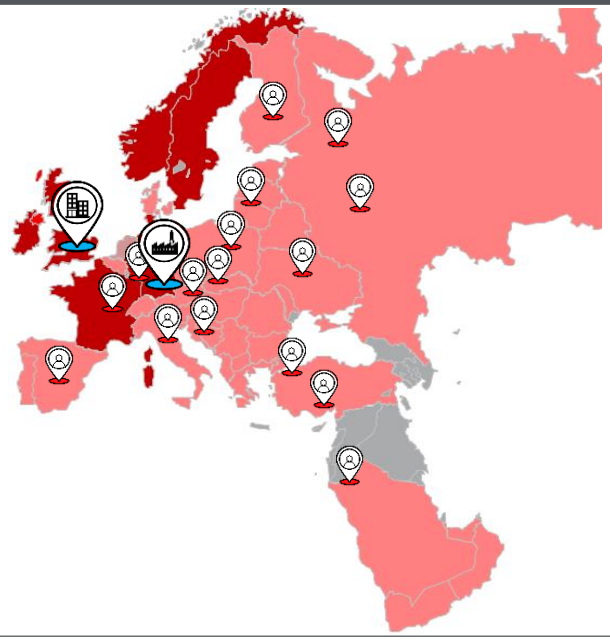
Powerful global sales network and production footprint

Americas: 32% of Sales

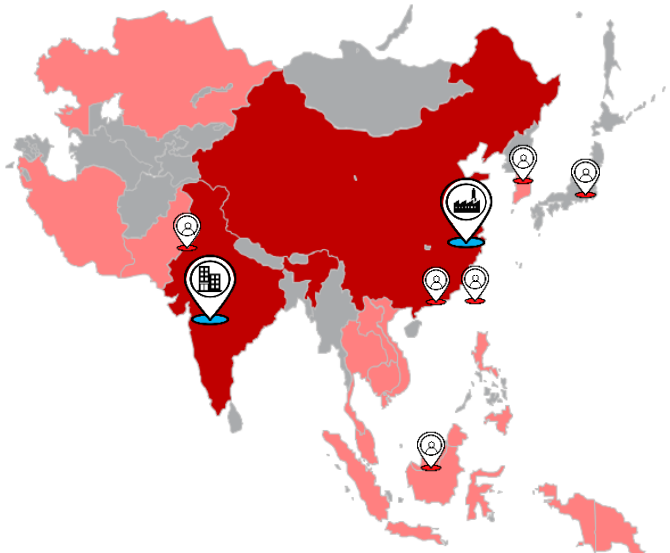
[based on 3Q19 sales]



EMEA: 58% of Sales



Asia: 10% of Sales



3 voxeljet plants / 2 sales offices (UK, India)

21 voxeljet sales partners

voxeljet direct sales

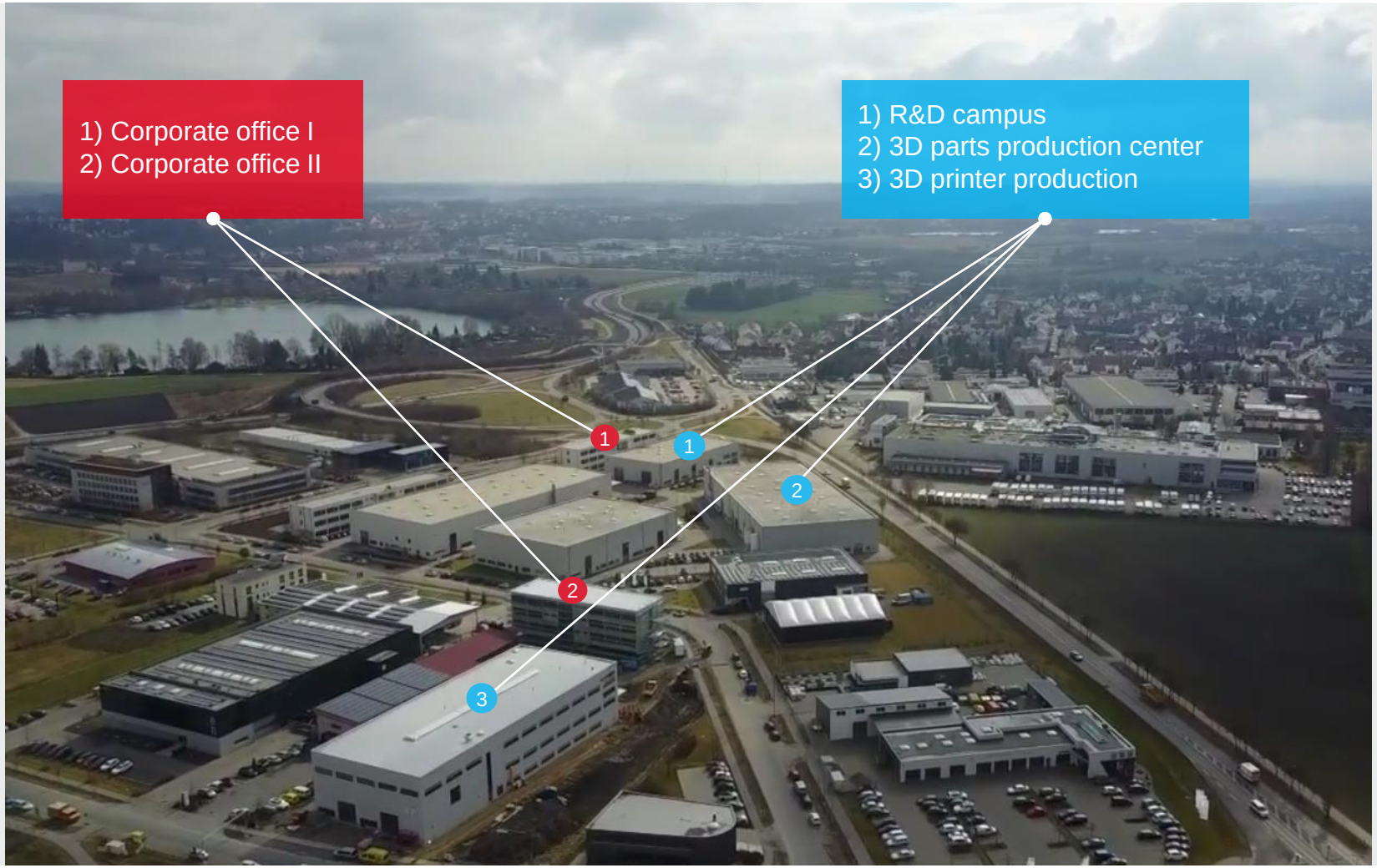
voxeljet sales partner coverage

Facilities in US and Asia focus on local and regional customers:
Key advantages of overseas facilities include: geographic proximity reduces transportation costs and purchase lead-time; provides timely value-added services for customers; staffs local engineers to promptly deliver technical and maintenance support

50,000 Sq. Feet	*1,000 Sq. Feet*	*135,000 Sq. Feet*	*1,000 Sq. Feet*	*78,000 Sq. Feet*
USA *3D Parts Production Center*	**UK** *Office*	**Germany** *HQs, R&D/Engineering, 3D Parts Production Center*	**India** *Office*	**China** *3D Parts Production Center*

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HQs in Germany (nearby Munich)



Comments

> One of the largest 3D parts production centers in Europe (> 100,000 parts p.a.)

> R&D hub: 51 (FY18) colleagues working on new and improved processes and 3D printers

> Production of print heads as the most critical part of a 3D printer

> Assembly of 3D printers

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New production facility in China (nearby Shanghai)





Opening ceremony, May 2019

Comments

> China as the largest casting market

> New state-of-the-art facility, 36 months free of rent (beginning in March 2019)

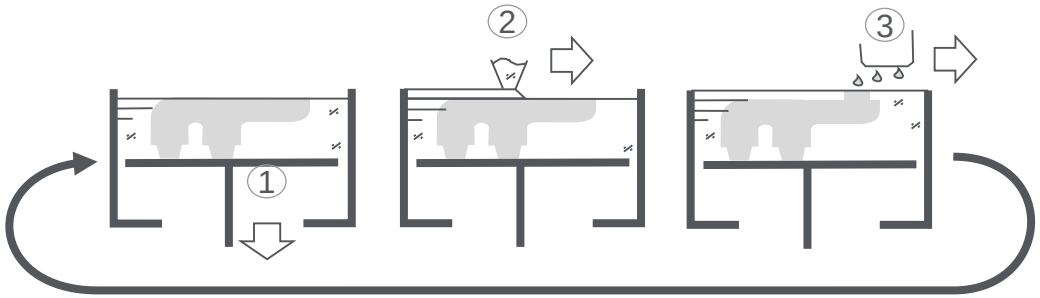
> Plan to source / assemble parts of our printers in China to reduce costs; primarily for the Asian market

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Powder binder jetting technology

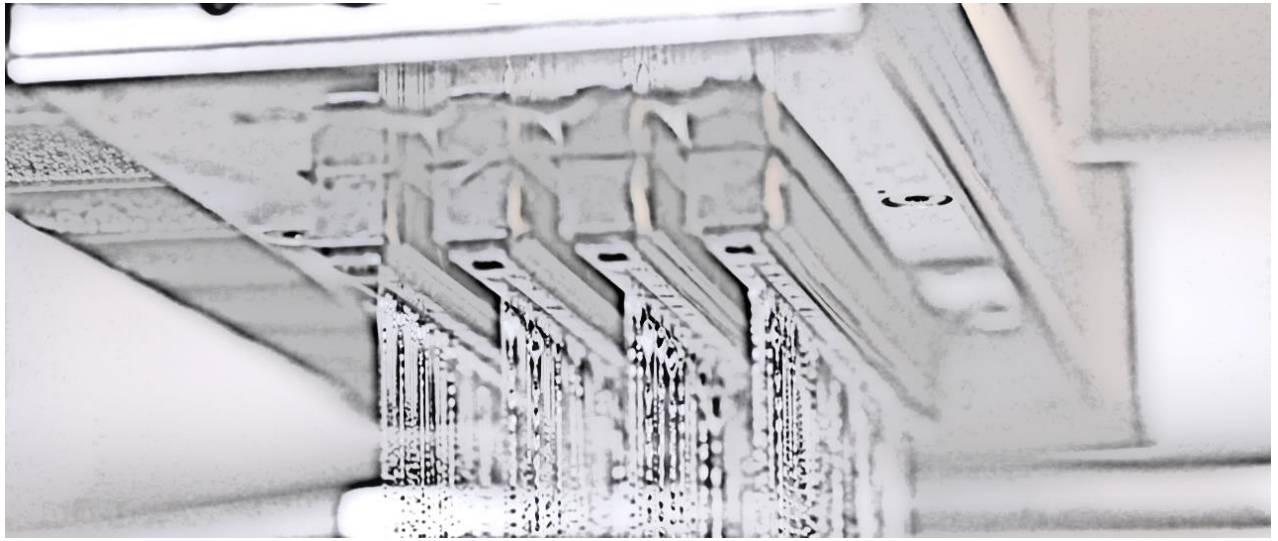


In additive manufacturing, shaped bodies are built up layer by layer. Powder binder jetting repeats the steps:

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**

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Product portfolio



VJET X *Layer Time* ***< 5*** *seconds*
https://www.youtube.com/watch?v=xZpmNZ3LCEM



VX4000 4,000 x 2,000 x 1,000 | 60 | 144 |
$2,100,000



VX2000 2,000 x 1,000 x 1,000 | 37 - 84 | 21 - 58 |
$950,000 – 2,000,000



VX1000 1,000 x 600 x 500 | 15 - 65 | 9 - 43|
$840,000 – 1,000,000



VXC800 850 x 500 x ∞ | 78 | 12 |
$735,000



VX500 500 x 400 x 300 | 25 – 35 | 4 - 7 |
$445,000 – 505,000



VX200 300 x 200 x 150 | 20 – 40 | 0,6 - 2 |
$150,000 - 260,000

Build Box Size (L x W x H) (millimeters) | Layer Time (seconds)[(1)] | Volumetric Output Rate (liters per hour)[(2)] | List Price[(3)]

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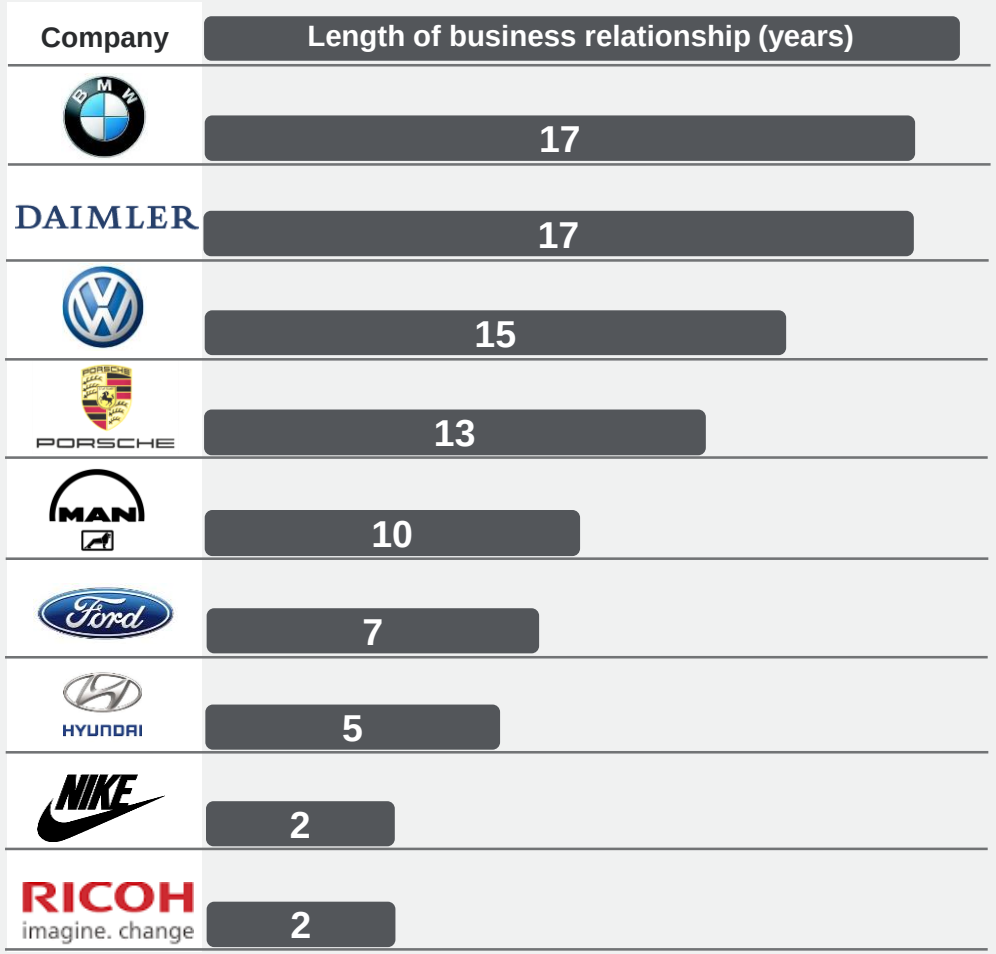
(1) Layer times are indicative and depend on system configuration and materials
(2) Volumetric output rates are approximated and depend on, among other factors, layer thickness
(3) Prices are indicative, depend on system configuration and materials and are subject to change

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Proven track record

Long-term relationship with global industry leaders



Why Additive Manufacturing is being adopted

90% of all manufactured goods contain some metal castings, and our disruptive technology is rapidly displacing how molds and patterns are made.

> No need to invest in tooling – molds created using 3D printers (reduced storage needs)

> Ability to alter the design digitally and re-print the mold / shell quickly without significant incremental cost

> Key benefits

- Process and product innovation
- Higher accuracy and optimized geometric shapes
- New and improved features and functionalities
- Faster time to market
- Lower labor requirement

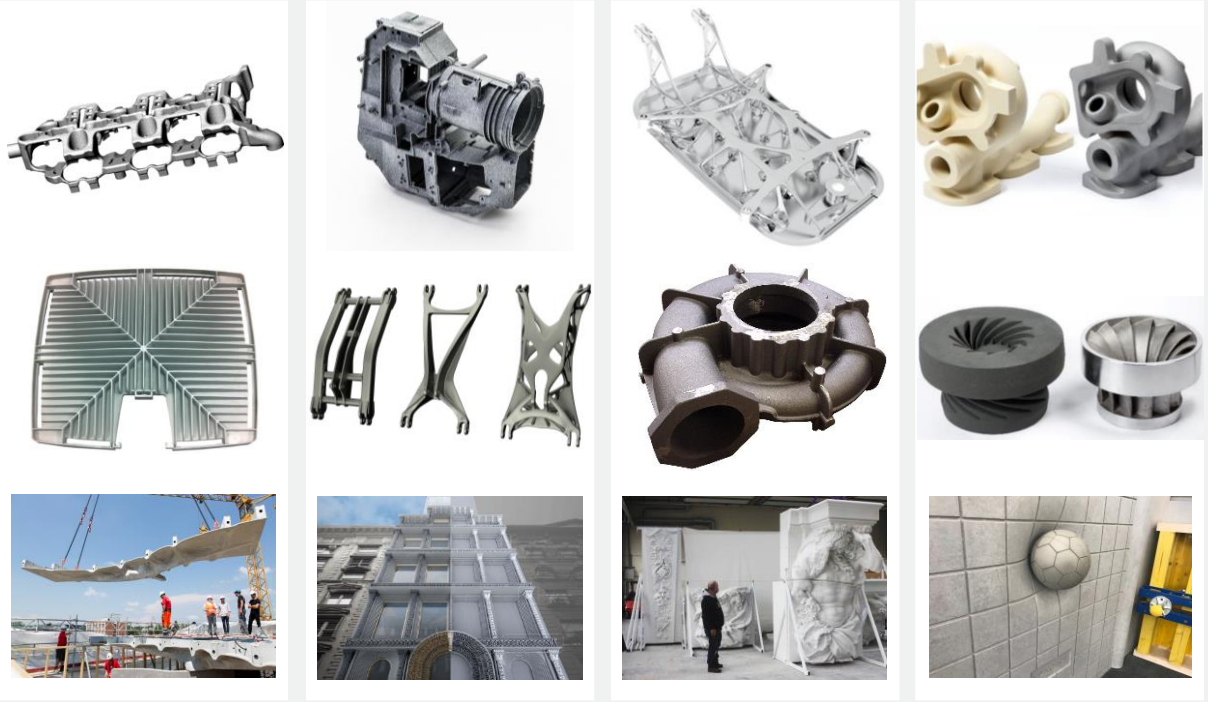
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Applications

AUTOMOTIVE, AEROSPACE, GENERAL ENGINEERING

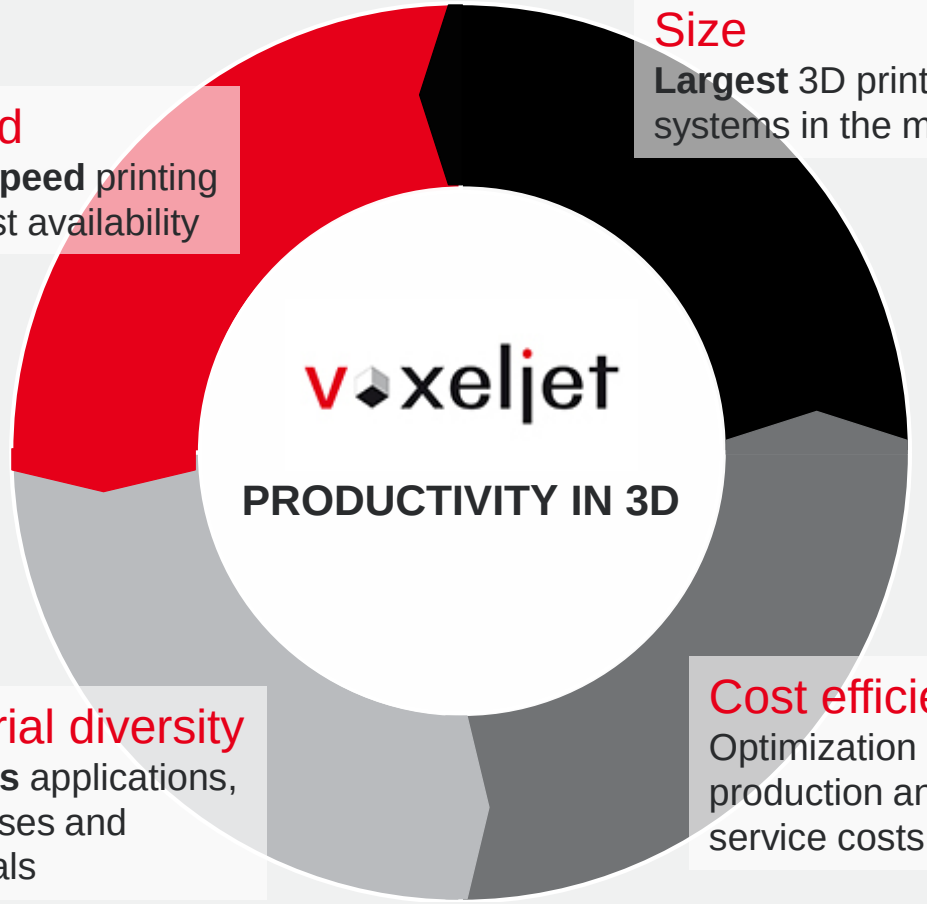
MECHANICAL ENGINEERING & DESIGN

ART & ARCHITECTURE



Size
Largest 3D printing systems in the market

Speed
High speed printing and fast availability



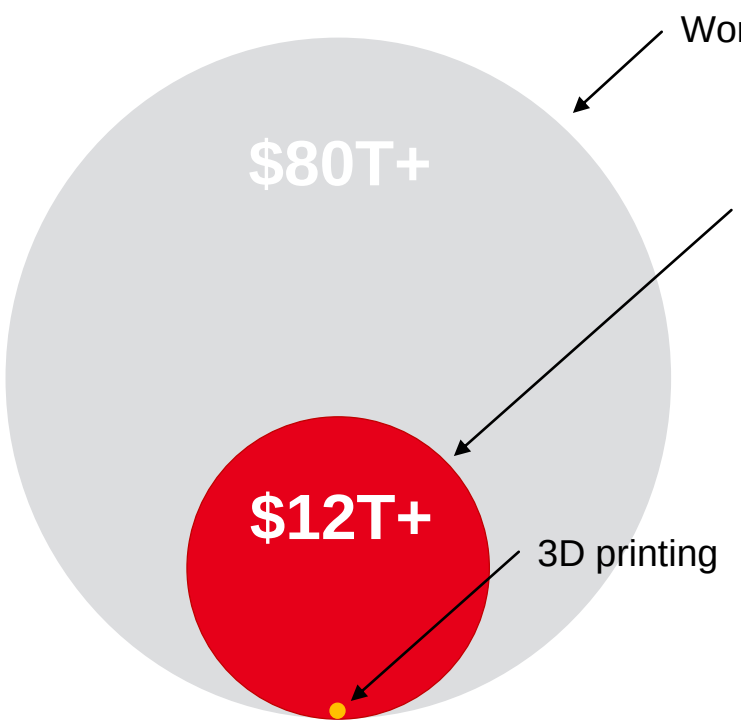
Material diversity
Various applications, processes and materials

Cost efficiency
Optimization of production and service costs

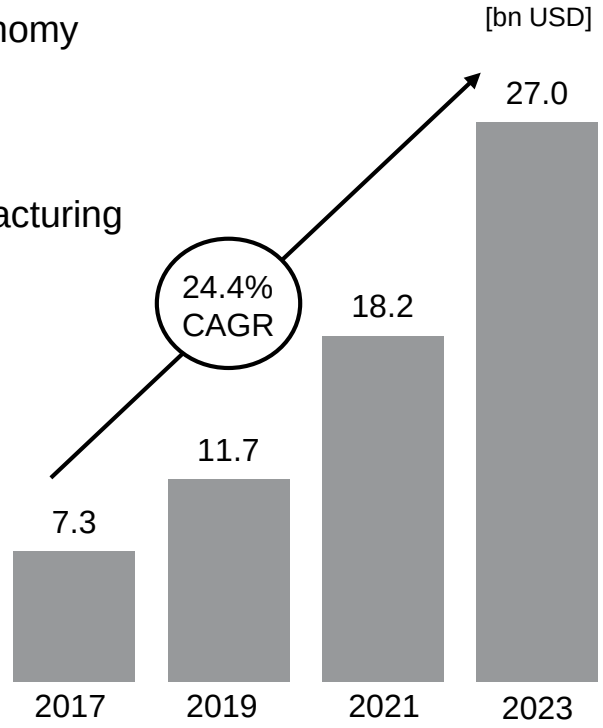
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Substantial addressable market for 3D printing

Manufacturing sector offers great potential for 3D printing

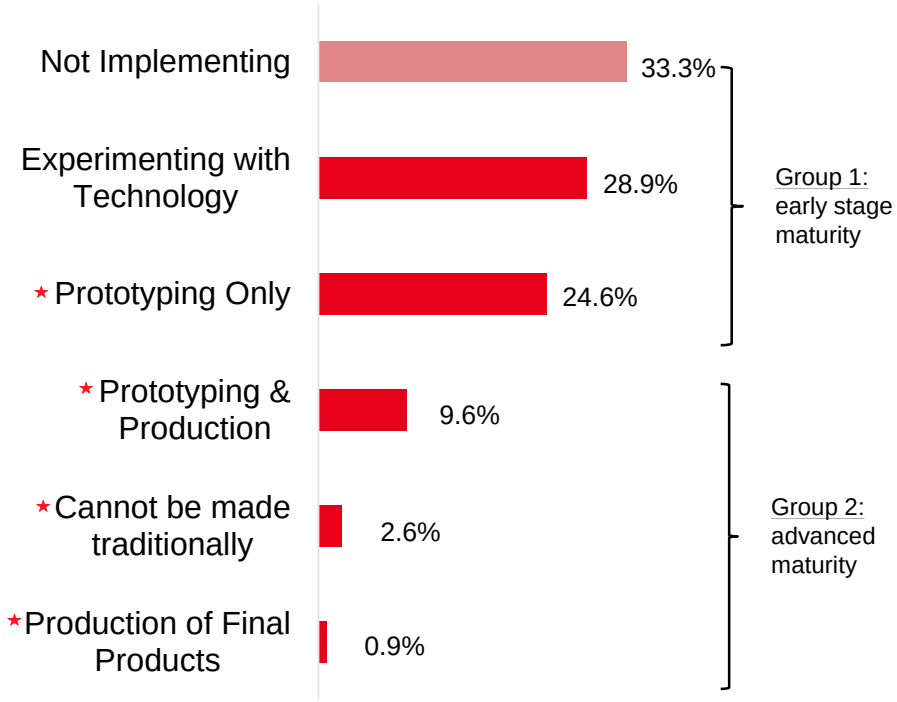


3D Printing market expected to continue strong growth



Industrial Uses

Significant Runway for Further Adoption

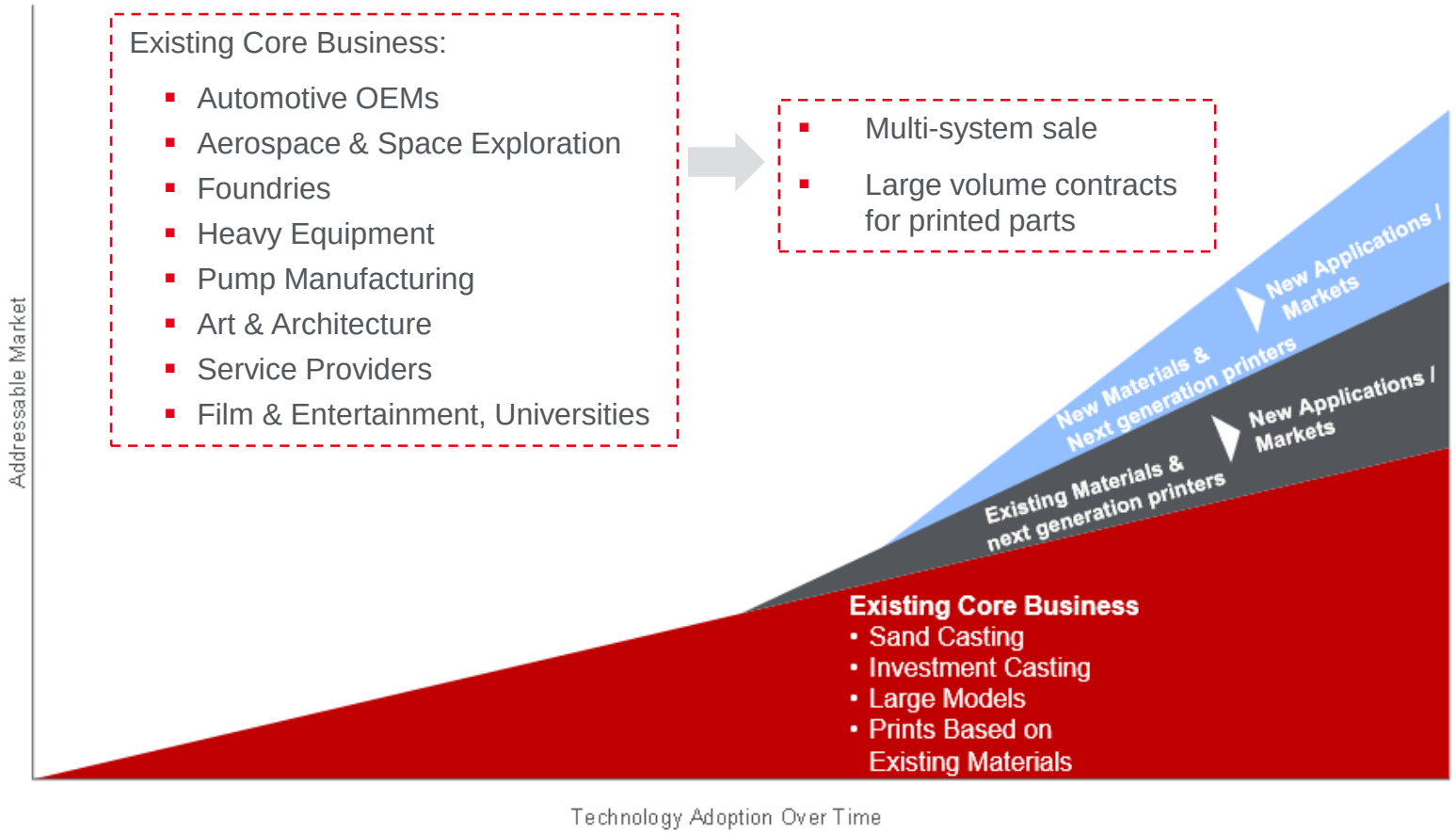


★ Targets for Systems sales

Source: Wohler's Associates (2018), HPQ, ATKearney, VJET

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Our growth strategy remains unchanged



Comments

> **New materials:**

- for High Speed Sintering (HSS): polypropylene (PP), thermoplastic polyurethane (TPU), polyether block amide (PEBA), customer specific materials
- For sand casting: environmentally friendly binder system for zero emissions during casting

> **New applications for HSS**

- Consumer goods & Electronics (sports equipment, footwear, prosthetics)
- Industrial & Services (enclosures, fluid & air ducts, pneumatic robotics)
- Automotive (customized interior parts, fluid vessels, snap fits and exterior components)

> **Next generation printers:**

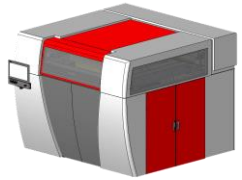
- From small series production to large-scale manufacturing via voxeljet X-technology

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- Company & business model
- Technology & products
- Market & customers
- **Growth drivers**
- Financials

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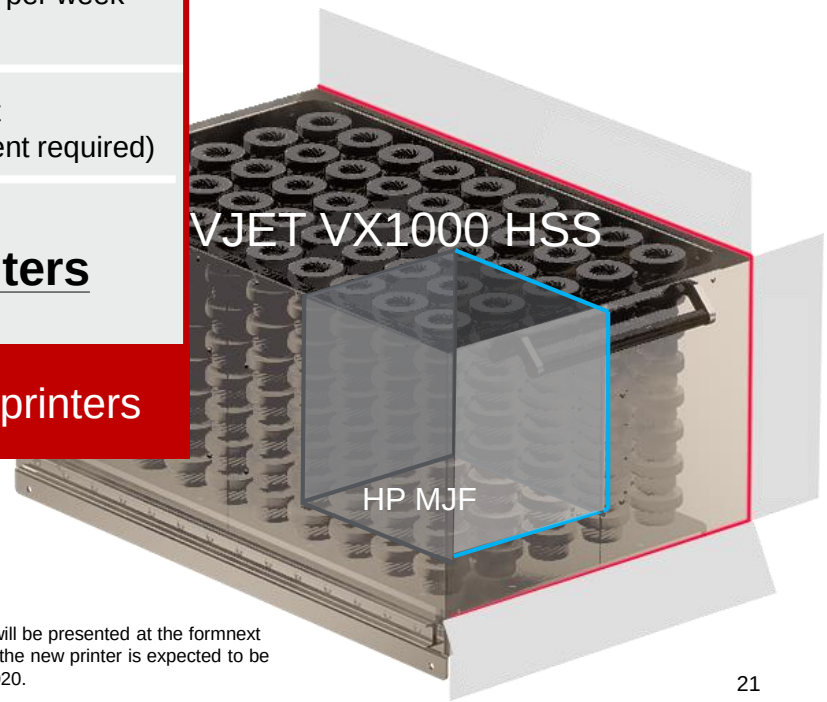
voxeljet VX1000 HSS / Series production of functional parts

	HP Jet Fusion 5210	HP Jet Fusion 4200	voxeljet HSS 200	voxeljet VX1000 HSS
				
Ideal for	Mid-volume production environments producing over 550 parts per week	Industrial prototyping and final part production environments producing up to 200 parts per week	Industrial prototyping and final part production environments producing up to 100 parts per week	High-volume, series production of final parts > 5,000 parts per week
Running costs	Better	Good	Fair (no detailing agent required)	Best (no detailing agent required)
Effective build volume	41 liters		9 liters	**248 liters**

Source for HP data: HP Inc. 4AA7-4999ENA, May 2019

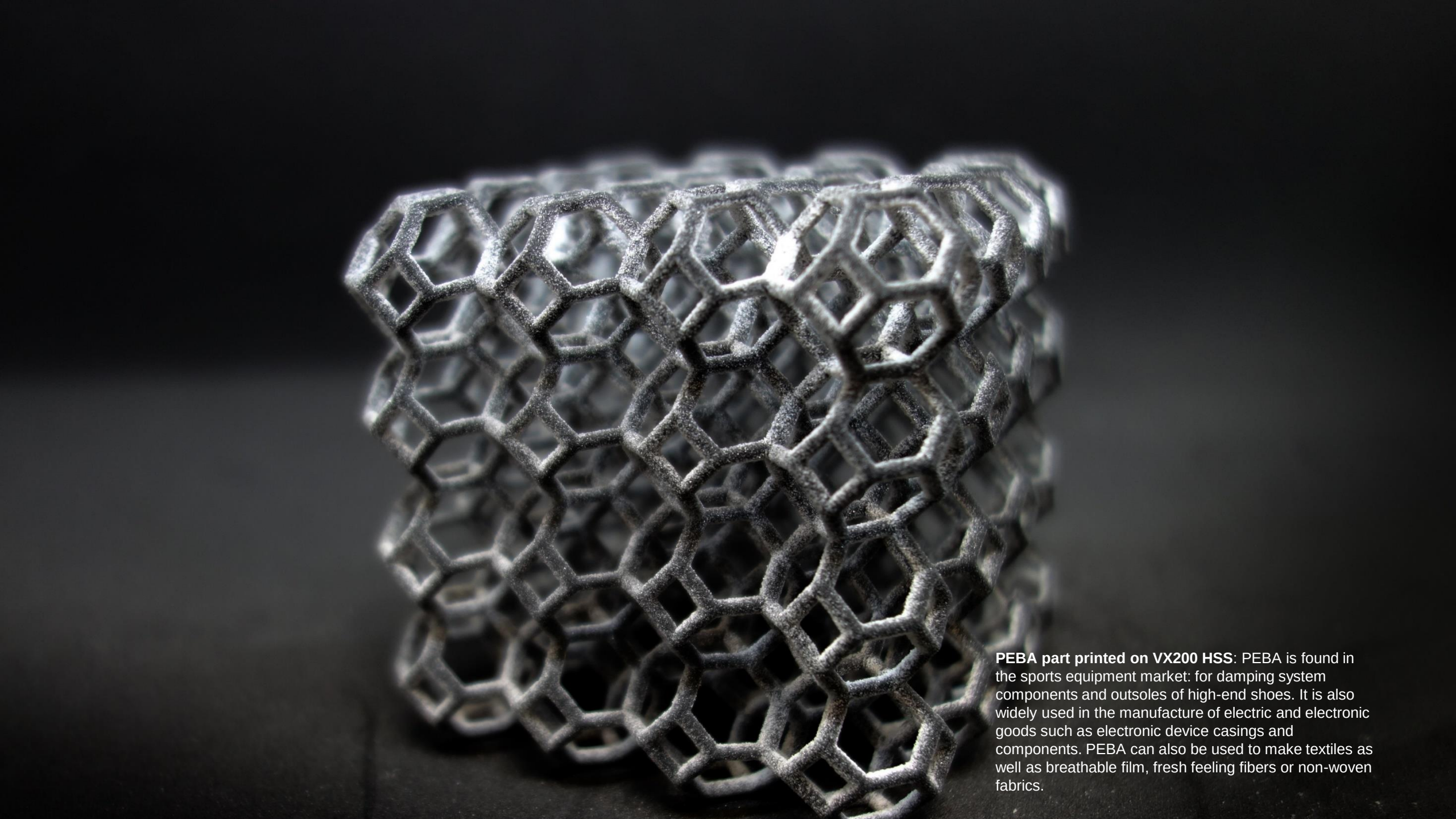
Source: voxeljet AG

New voxeljet VX1000 HSS with 6x larger build volume than comparable 3D printers



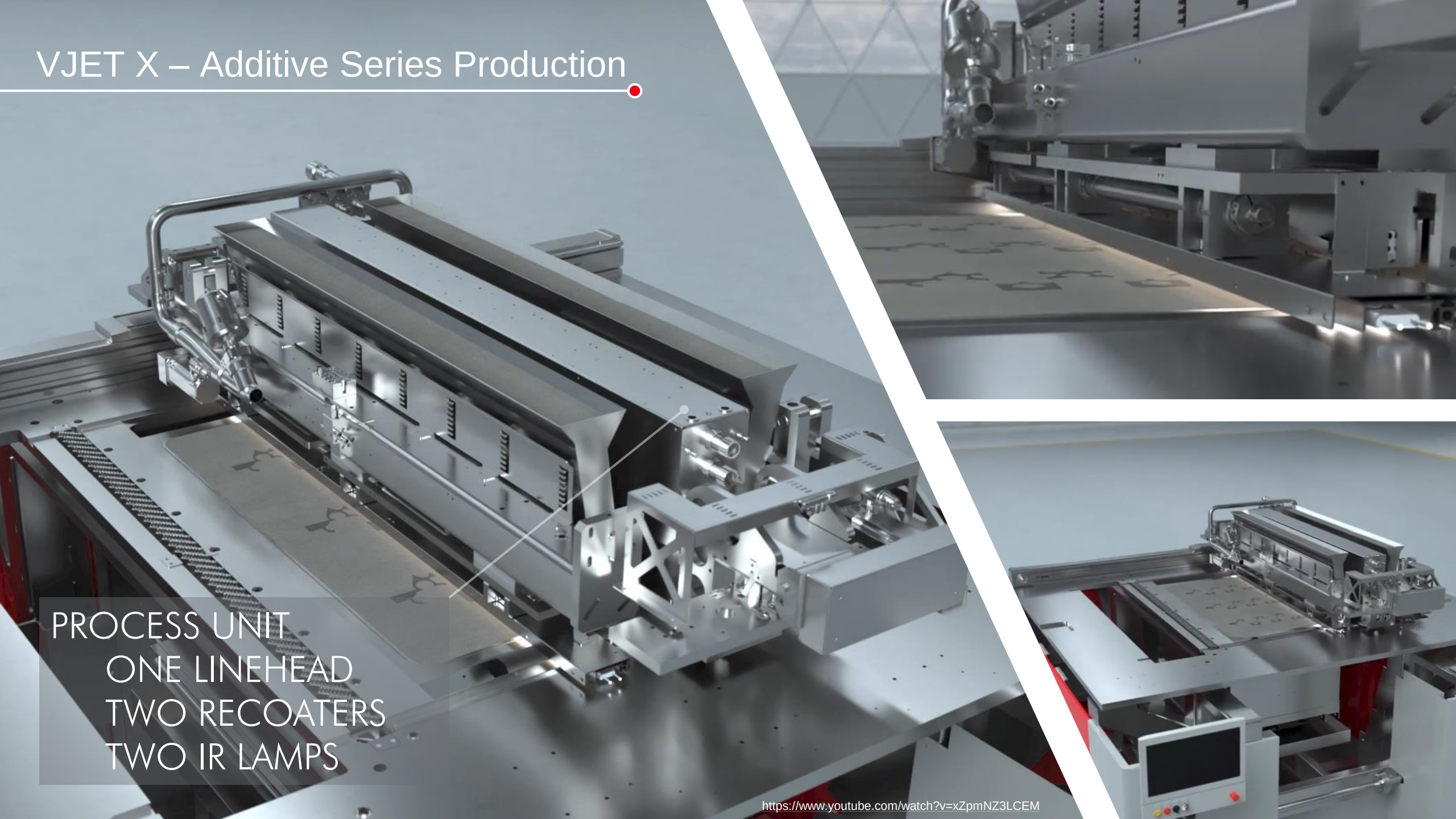
A prototype of the new voxeljet HSS printer will be presented at the formnext show in Frankfurt, November 19 – 22, 2019; the new printer is expected to be commercially available towards the end of 2020.

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PEBA part printed on VX200 HSS: PEBA is found in the sports equipment market: for damping system components and outsoles of high-end shoes. It is also widely used in the manufacture of electric and electronic goods such as electronic device casings and components. PEBA can also be used to make textiles as well as breathable film, fresh feeling fibers or non-woven fabrics.

VJET X – Additive Series Production



PROCESS UNIT
- ONE LINEHEAD
- TWO RECOATERS
- TWO IR LAMPS

https://www.youtube.com/watch?v=xZpmNZ3LCEM

VJET X in automotive series production

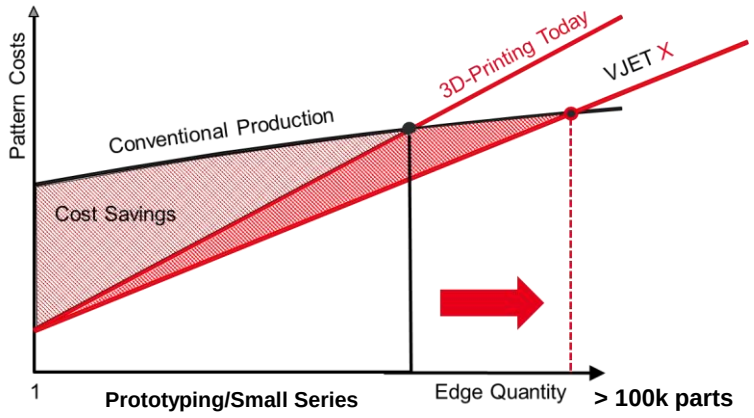
Dilemma for car manufacturers

> Increasing fuel-efficiency requirements mean that engines are becoming more complex (“downsizing”)

> Therefore, R&D departments of automotive OEMs developed new components for more efficient cooling of engines or batteries in EVs

> **BUT** the production departments could not produce them at scale: conventional production does not work because the component is too complex

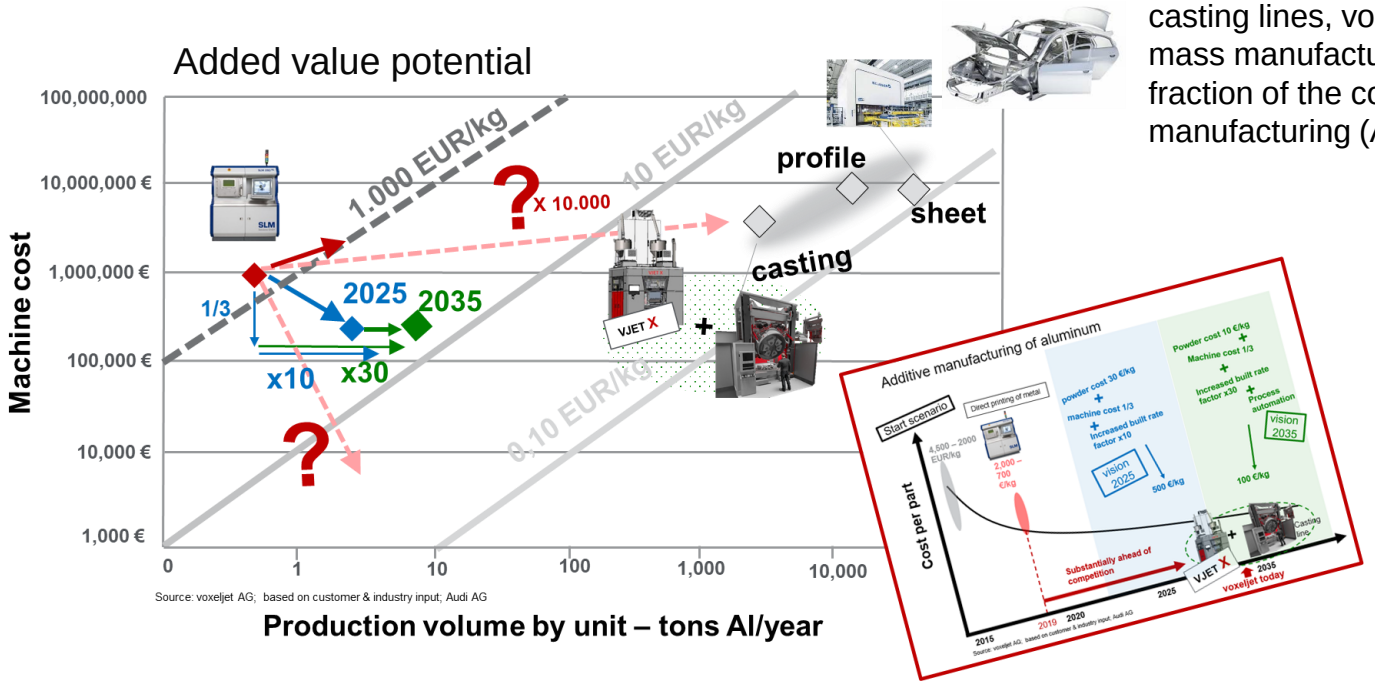
> Direct metal printing is too expensive/slow for series production



voxeljet solution: VJET X

> Because AM makes more complex geometries possible, these metal components have new features: applied to car production for example, components are lighter and have optimal geometric shapes for heat control: this can help to reduce vehicle CO_2 emissions substantially

> When combining VJET X and conventional casting lines, voxeljet can already today mass manufacture complex metal parts at a fraction of the costs of other additive manufacturing (AM) players in the market



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Frequently asked questions

Why did you reorganize voxeljet UK?

- At our 10,000 square feet facility in Milton Keynes in the UK, voxeljet UK operated two VX1000 printers and two VX200 HSS printers.
- Following a thorough analysis, we decided to consolidate European 3D printing in the German HQs and cancel the lease of the Milton Keynes facility.
- This will help to reduce overall costs and should lead to improved gross profit margins by realizing economies of scale in the German 3D parts production center.
- **voxeljet UK will expand its sales team and is focusing on selling 3D printed parts and 3D printers.**

What is the status of VJET X?

- The first two VJET X units are printing at the automotive OEMs facility in Germany. Together with our partners, we are currently improving the processes after the 3D printing to ensure reliable parts quality.
- We are optimistic to get this done in the near future and expect to book revenue for the first two VJET X units early next year. We also expect to receive an order for additional VJET X units.
- **We are being approached by other OEMs and Tier-1 suppliers, who are very keen to learn more about VJET X and its application in series production.**

What does the trend to e-mobility & reduced CO_2 emissions mean to you?

- The trend to e-mobility, reduced CO_2 emissions and improved fuel efficiency means three things: first, the demand for hybrid vehicles is growing. Hybrid vehicles need more parts in higher complexity than single internal combustion engines (ICE).
- Second, the demand for super-efficient ICEs with lower CO_2 emissions is growing as a result of stricter environmental regulations. Such engines have higher energy densities and need better cooling devices, which can only be made with 3D printing. This also applies to new battery and electric engine housings for electric cars. Third, the demand for light-weight, complex structural parts is growing.
- **The above can only be realized- at scale and in a cost-efficient way, by combining 3D printing and conventional manufacturing (voxeljet's hybrid AM).**

What are your growth drivers?

- **Large volume contracts for printed parts:** Our business strategy focuses on growing our on-demand parts production segment in order to print more parts for our existing customers and gain new customers in Europe, Asia Pacific and Americas. We are currently negotiating large volume contracts with several customers.
- **Multi-system sale:** We use our knowledge and market position to increase the sales of our 3D printers. With VJET X and the new VX1000 HSS printer, we believe to be in a position to sell multiple systems to individual customers. For example, we signed a frame contract for five VJET X units with a large German automotive OEM at the end of 2018. A big US sports equipment company is very keen to use the VX1000 HSS in the mass production of a new type of shoe component.

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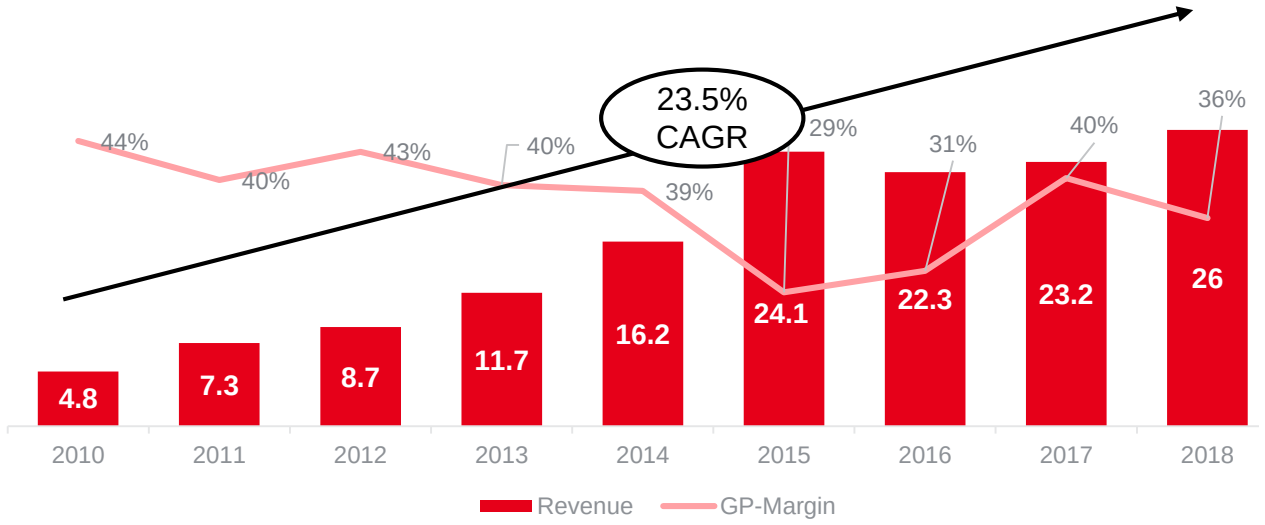
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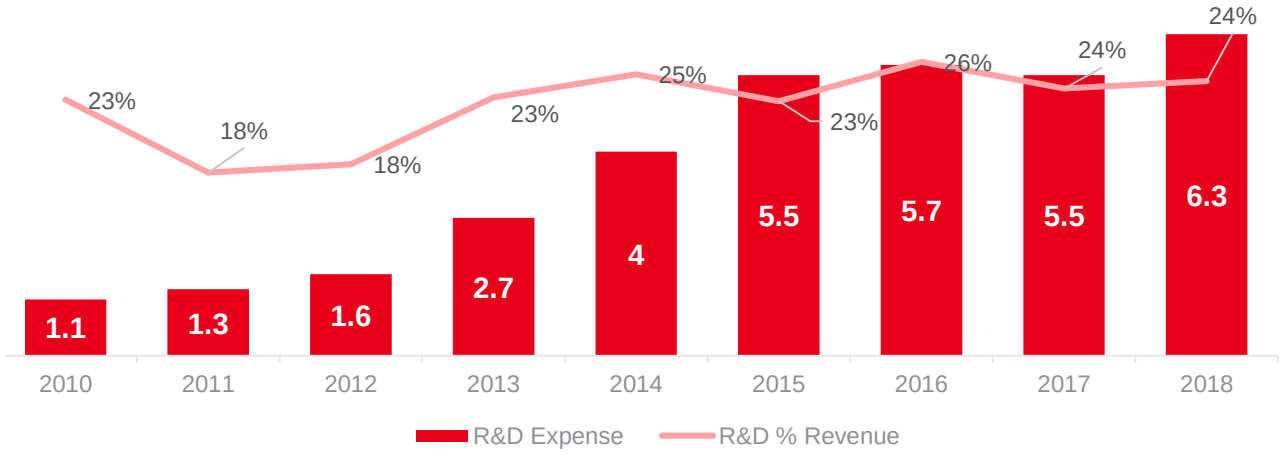
Long-term revenue growth supported by strong R&D

Long-term revenue growth

(€ in Millions)



Strong commitment to R&D



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Balance sheet (selected items)

Thousands of EUR (except per share data)	09/30/2019	12/31/2018
Cash and cash equivalents	6,573	7,402
Financial assets (bond funds)	6,408	12,905
Liquidity	12,981	20,307
Trade receivables	3,583	6,030
Inventories	13,002	10,064
Property, plant and equipment	29,757	27,675
Total debt and finance lease obligations	21,324	21,916
Equity	37,174	46,475
Weighted average shares outstanding	4,836,000	3,940,636
Weighted average ADSs outstanding	24,180,000	19,703,180

Comments

- Recent investment in infrastructure including the new Chinese service center requires little additional infrastructure investment in the near future
- Total debt of 21.3 million euros consists of 20 million euros of long-term debt, which includes 10 million euros from the EIB's *Horizon2020* venture debt program and 3.8 million euros of lease liabilities as a result of initially applying the IFRS 16 standard. These lease liabilities were previously classified as operating leases

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Projected long-term operating model 2025

Expected revenue growth **15-20% p.a.**

Projected gross margin **> 40%**

Projected operating expenses

R&D:	12.5% Revenue
Sales:	10.0% Revenue
Admin:	7.5% Revenue

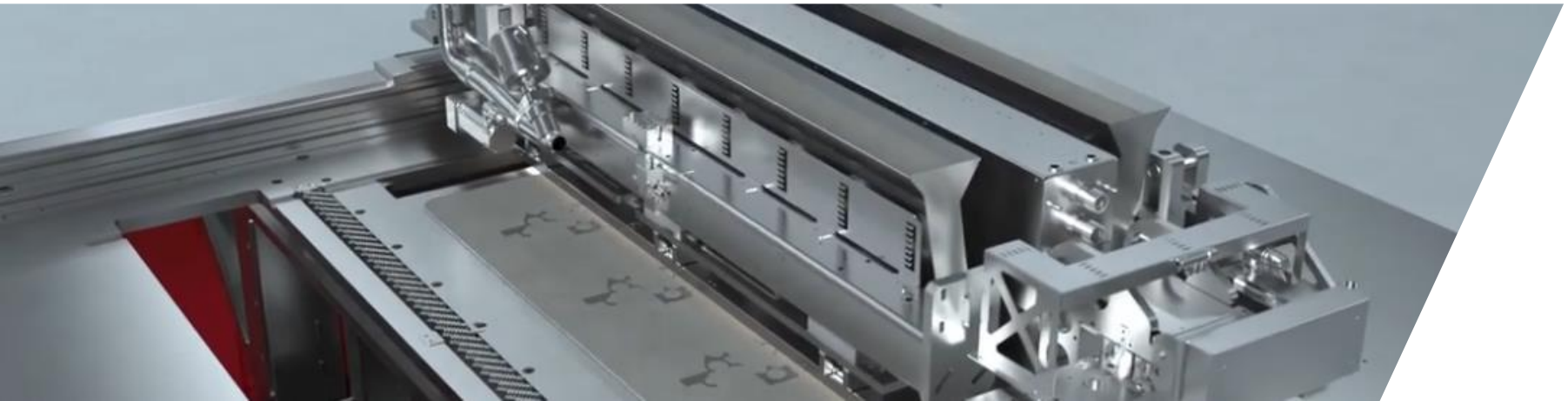
Expected EBITDA margin **20-22.5%**
Expected EBIT margin **12.5-15.0%**

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Industrial 3D Printing



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