



Ontwerpen voor nieuwe productietechnieken

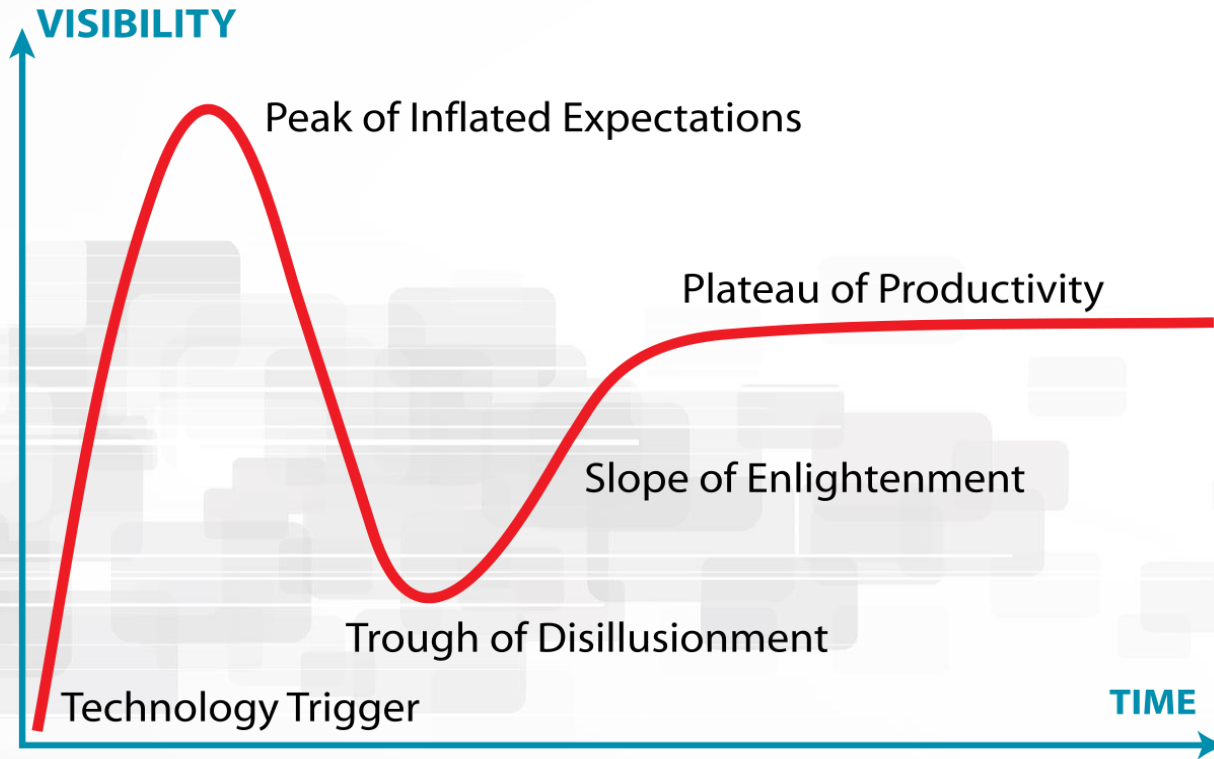
Bas Keijsers

Technical Manager Manufacturing

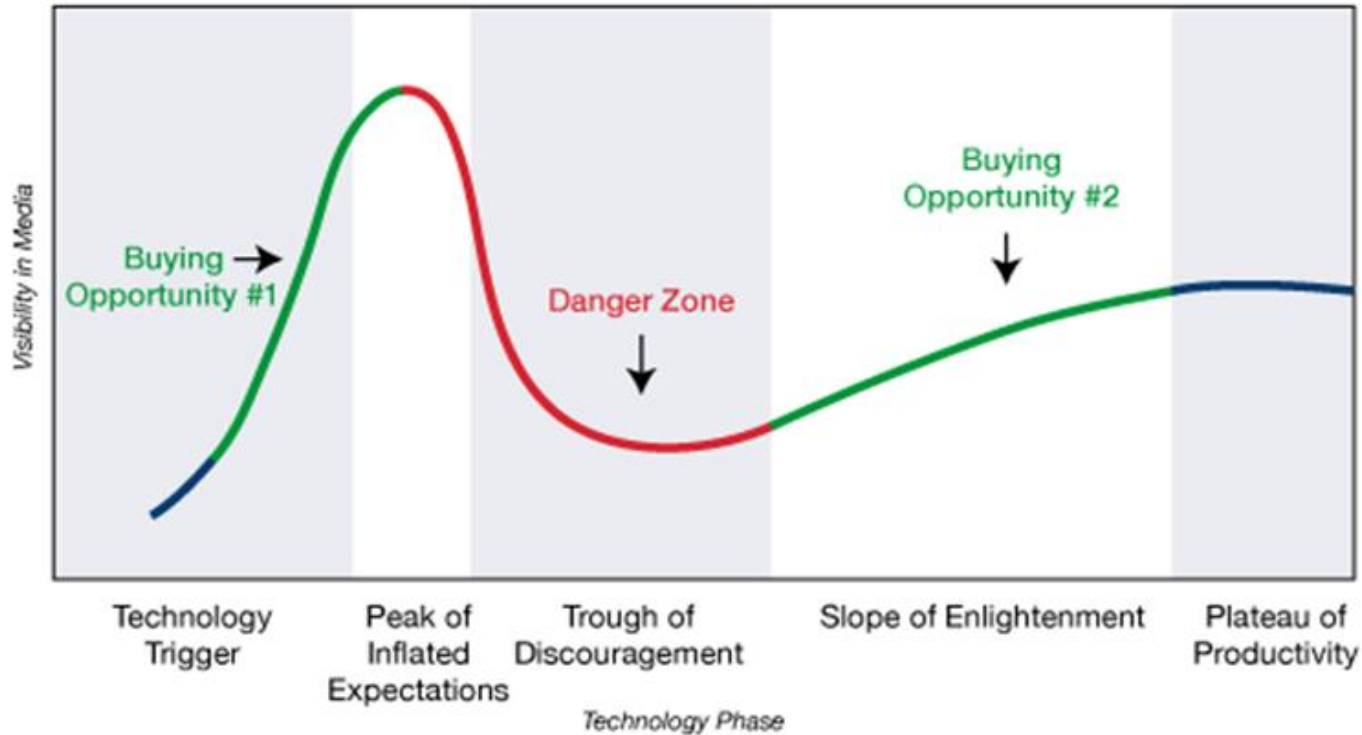
Hype or Reality?



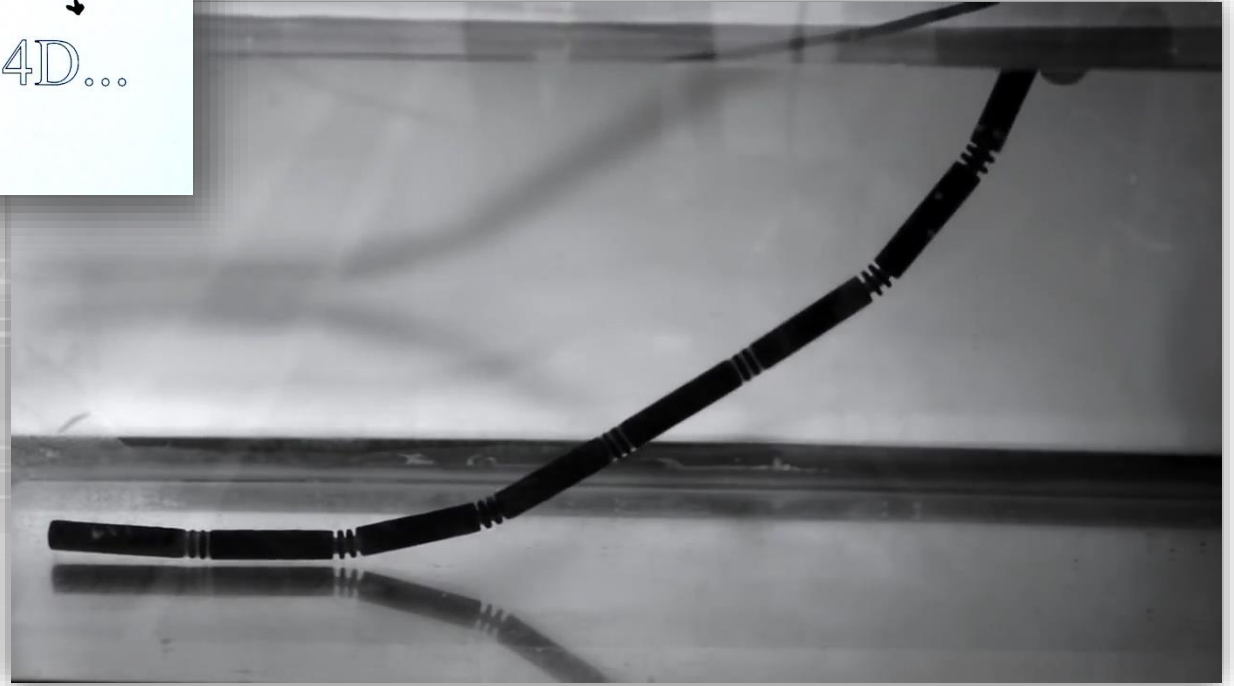
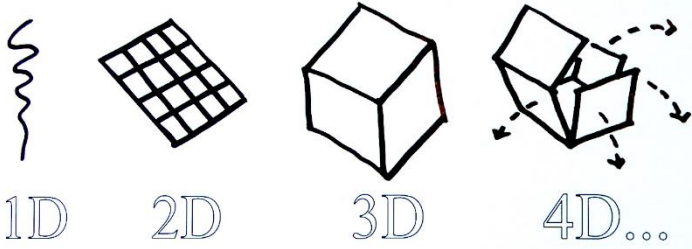
Gartner's hype cycle



Buy or bye?

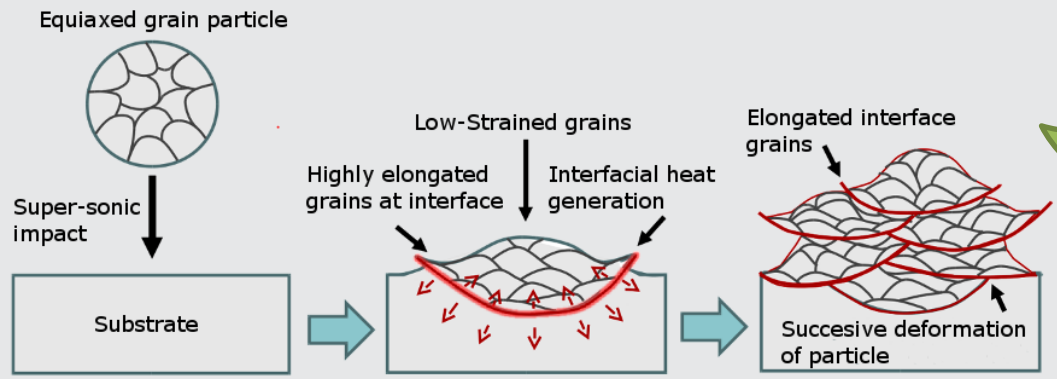
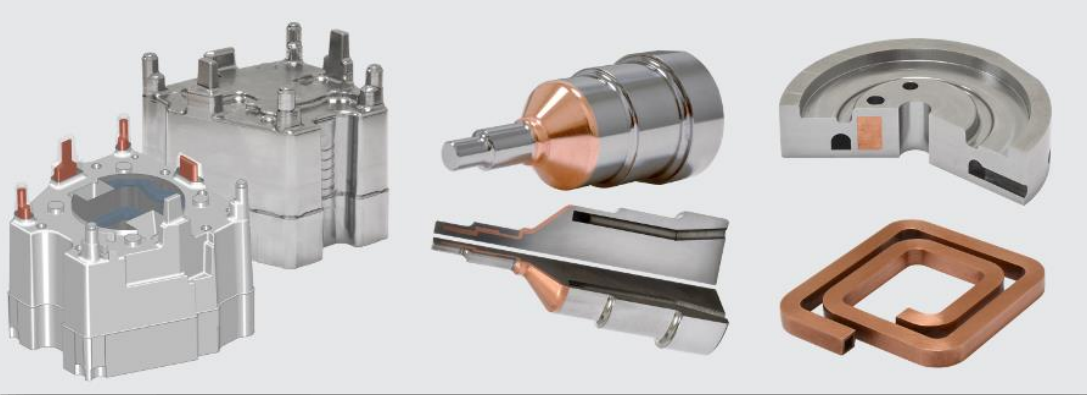


4D Printing



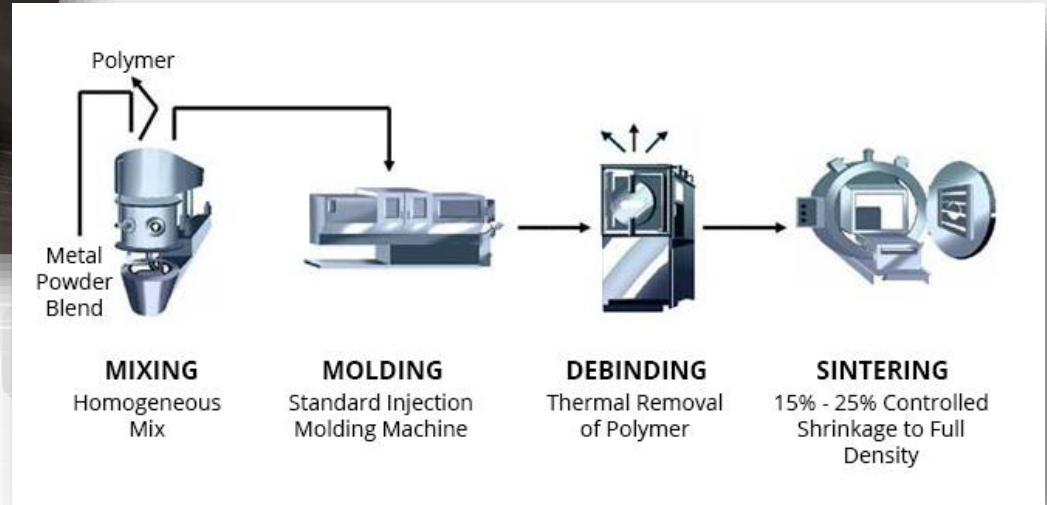


MPA Metal Powder Application



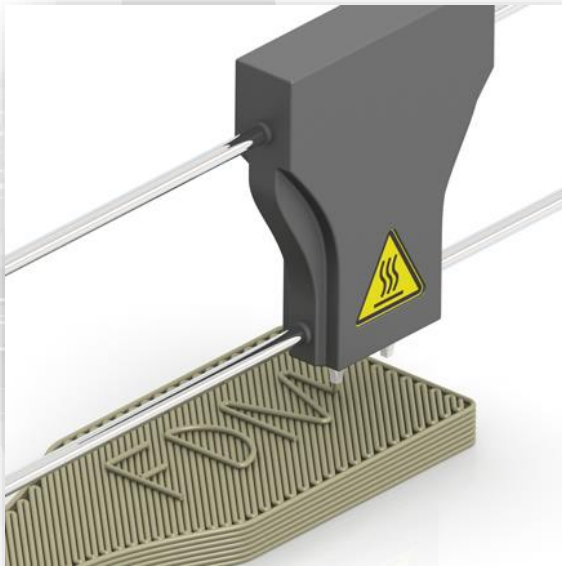
10 GPa
1000°C

MIM - Metal Injection Molding



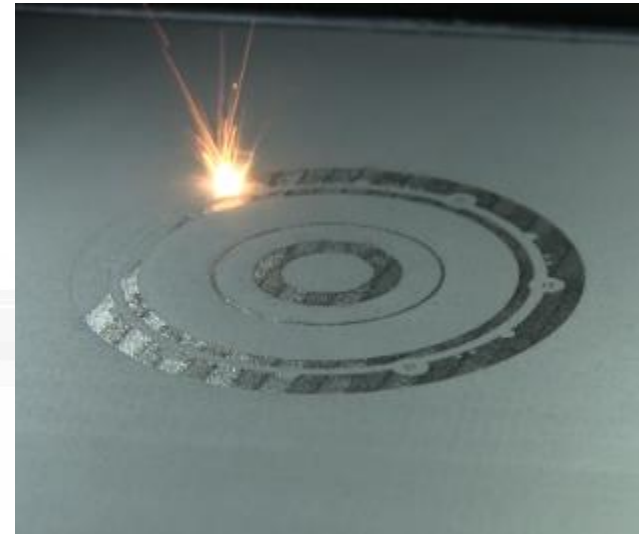
FDM

Fused Deposition Modeling



SLS

Selective Laser Sintering



SLA

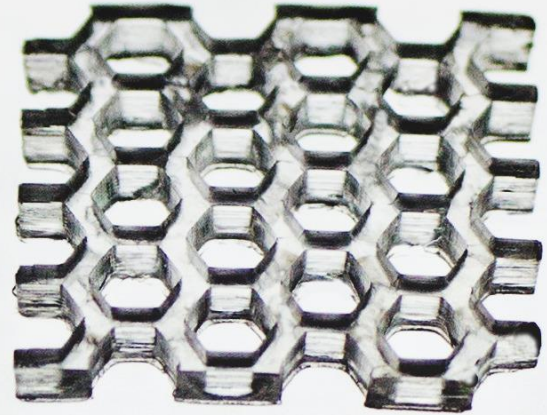
Stereolithography

ADAM

Atomic
Diffusion
Additive
Manufacturing



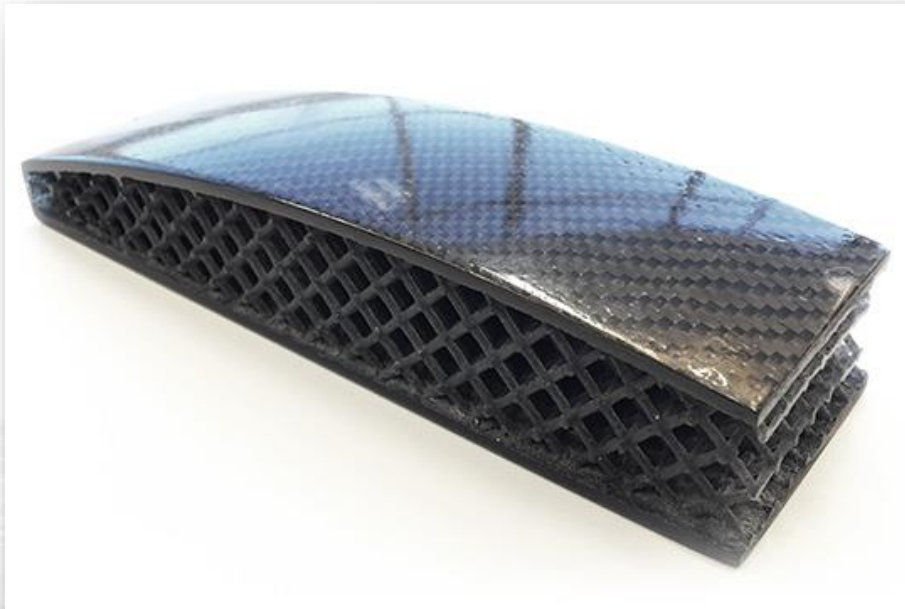
Glass printing



Ceramic printing



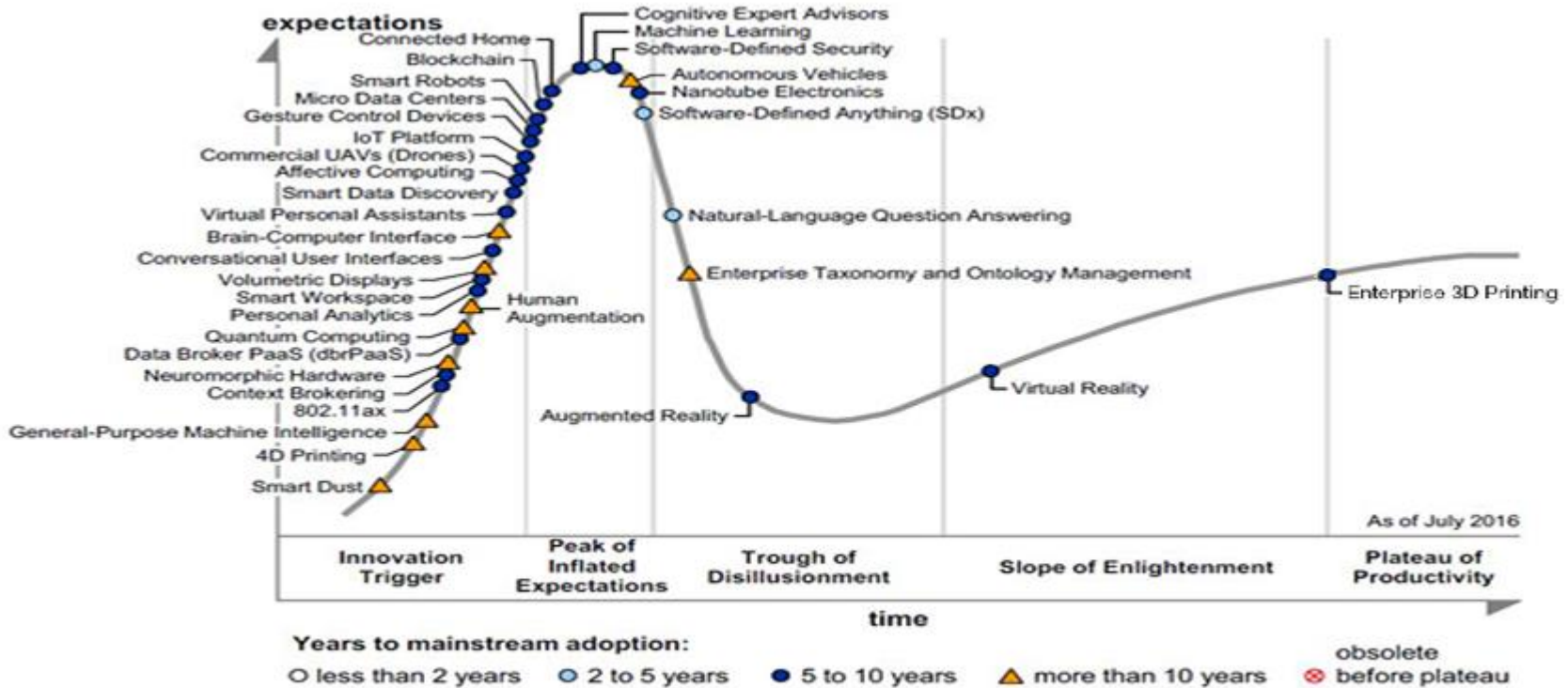
FRP3D



Hybrid Machining



Let's get real



Source: Gartner (July 2016)

FDM printing

3d printer - Google zoek

Veilig | https://www.google.nl/search?q=3d+printer&oq=3d+printer&aqs=chrome..69i57j0l5.2743j0j4&sourceid=chrome&ie=UTF-8#tbs=vw:mr:1,pric

3d printer

Alle Afbeeldingen Maps Shopping Meer Instellingen





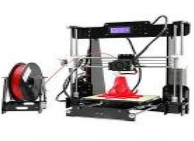
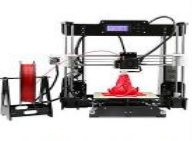

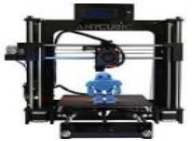
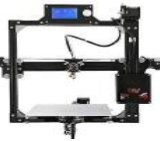
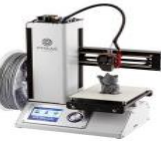




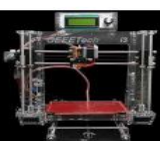



Alle filters wissen Tot € 300 Sorteren: Standaard Weergeven: Raster Mijn shoppinglijst (0)

Luw locatie: 's-Hertogenbosch

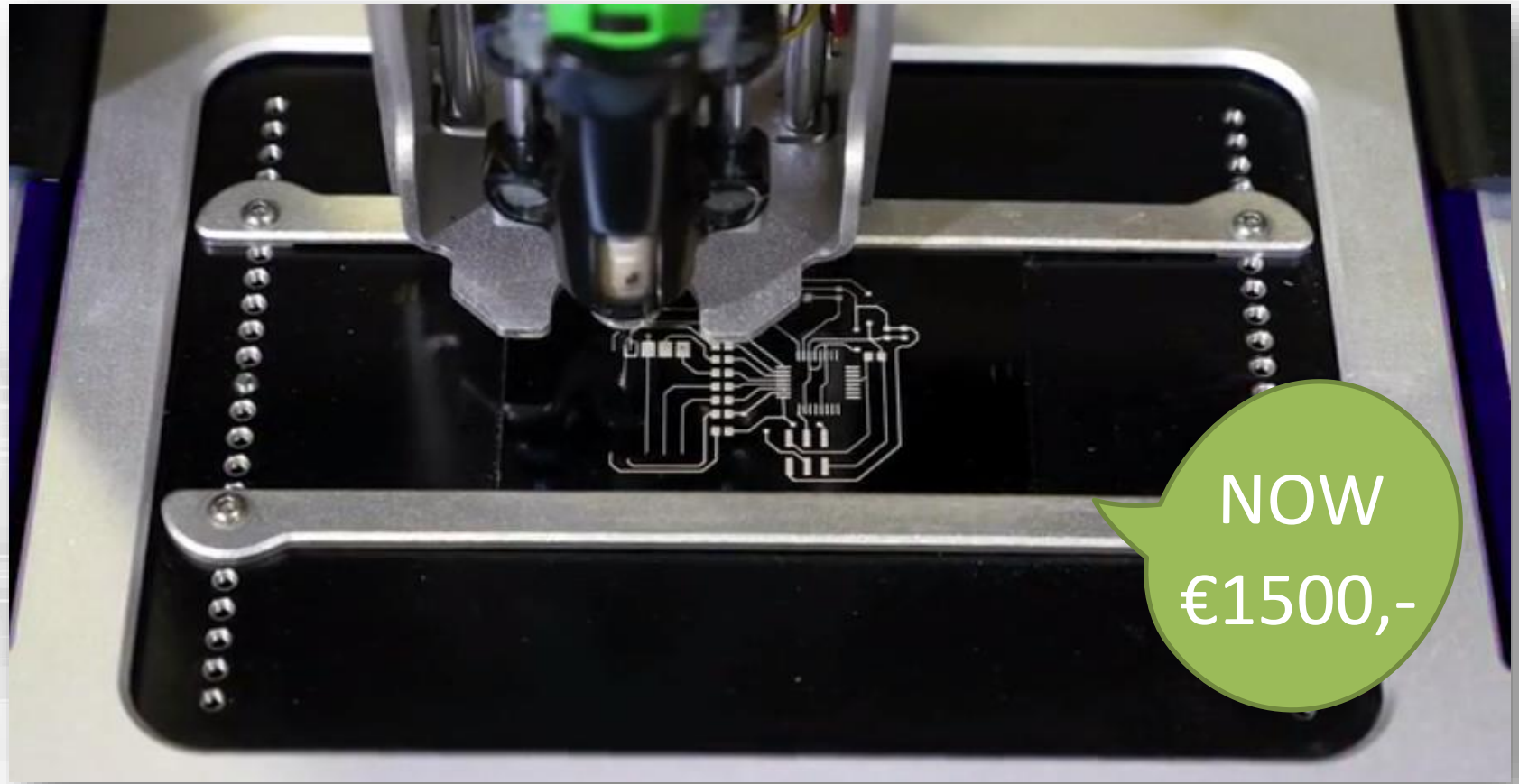
Alleen tonen Nieuwe artikelen

Prijs - Wissen Tot € 300 € tot € 300 Zoeken

Verkoper 3DWare bol.com Foto Meinema Megekko.nl wehkamp Meer

 <p>XYZprinting Da Vinci Mini 3D Printer € 295,00 bij 3D Ninja B.V.</p>	 <p>Drukbed-uitbreiding/Velleman K8200 Geschikt voor: Velleman K8200 € 139,00 bij 2 winkels</p>	 <p>da Vinci Mini W € 295,00 bij 4 winkels ★★★★★ (45)</p>	 <p>anet a3 hoge precisie hoge kwaliteit fdm desktop 3D-printer #00001 € 260,05 bij LightInTheBox</p>	 <p>anet a8-b hoge precisie hoge kwaliteit fdm desktop diy 3d printer ... € 130,36 bij LightInTheBox</p>	 <p>anet a8 FDM desktop diy 3D-printer #00001 € 130,36 bij LightInTheBox</p>
 <p>anet a8 nieuwe versie fdm desktop diy 3d printer (adjustable ... € 160,04 bij LightInTheBox</p>	 <p>3D-printer diy kit onderwijs Prusa 3 hoge precisie #00002 € 173,04 bij LightInTheBox</p>	 <p>3d printing anet a2-b hoge precisie hoge kwaliteit fdm desktop diy ... € 145,30 bij LightInTheBox</p>	 <p>PrimaCreator P120 Standaard 3D Printer € 299,00 bij 3D Ninja B.V.</p>	 <p>CoLiDo zelfbouw-3D-printer € 294,30 bij 123-3D.nl ★★★★★ (1)</p>	 <p>Flashforge MK10 Dual Extruder Set Standaard 3D Printer € 149,00 bij 3D Ninja B.V.</p>
 <p>da Vinci miniMaker Special Edition Red 3D Printer € 259,00 bij 3DWare</p>	 <p>geeetech macreator 2 desktop ultrahoge precisie plaatwerk 3D ... € 232,01 bij LightInTheBox</p>	 <p>Geeetech i3b 3d printer usb gravure gebied 200 200 180mm abs pla ... € 163,73 bij LightInTheBox</p>	 <p>DaVinci XYZprinting 3FM1WAEU101F Fused Filament Fabrication (FFF) € 254,90 bij 2 winkels ★★★★★ (45)</p>	 <p>Ultimaker Advanced Printing Kit 2 3D Printer € 107,69 bij 3D Ninja B.V.</p>	 <p>XYZprinting Da Vinci 1.0 Pro - Laser Module 3D Printer € 159,00 bij 3D Ninja B.V.</p>

PCB printing

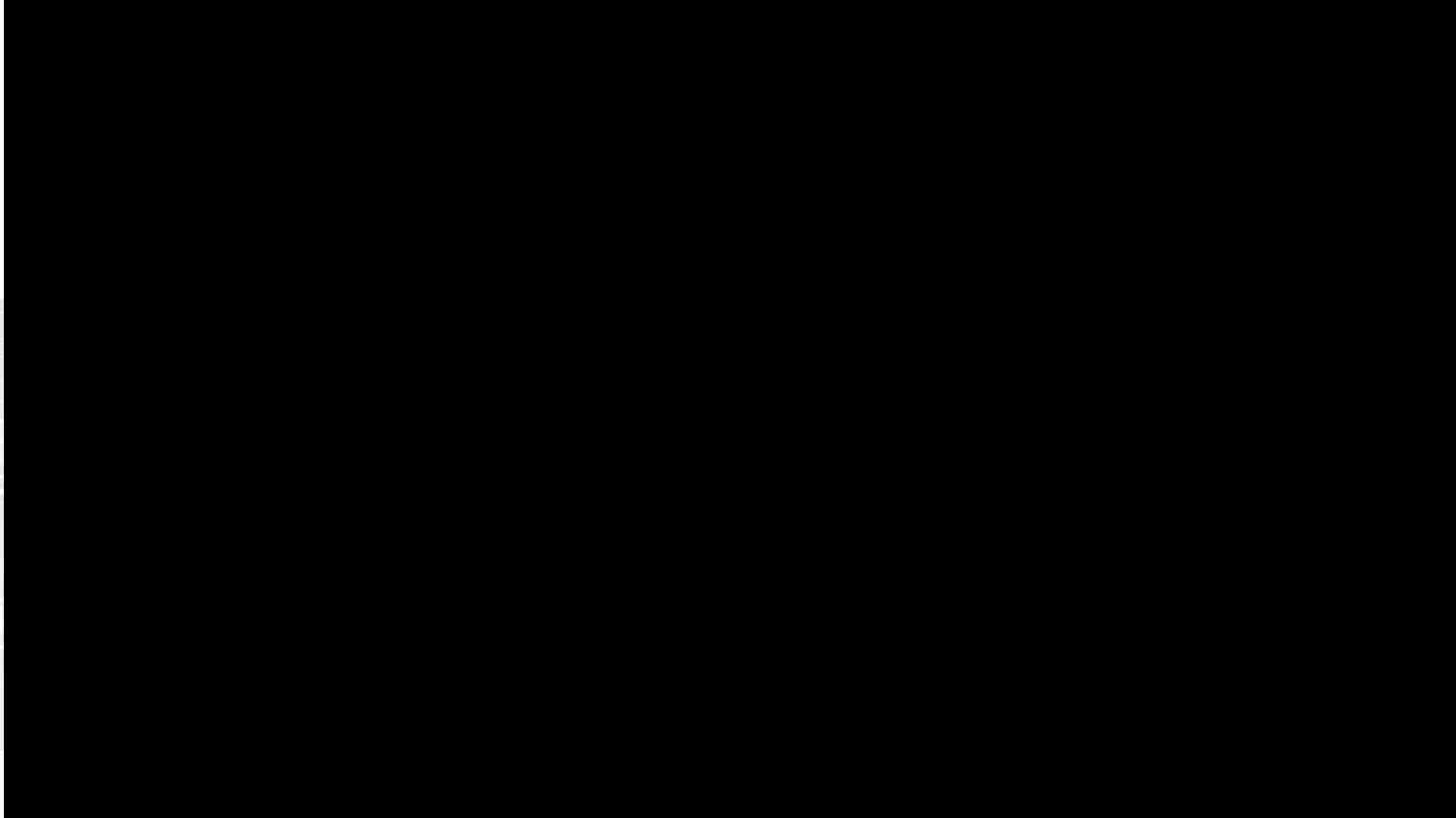


NOW
€1500,-

3D Metal printing



Biomimicry



Biomimicry



Biomimicry



Biomimicry



Biomimicry



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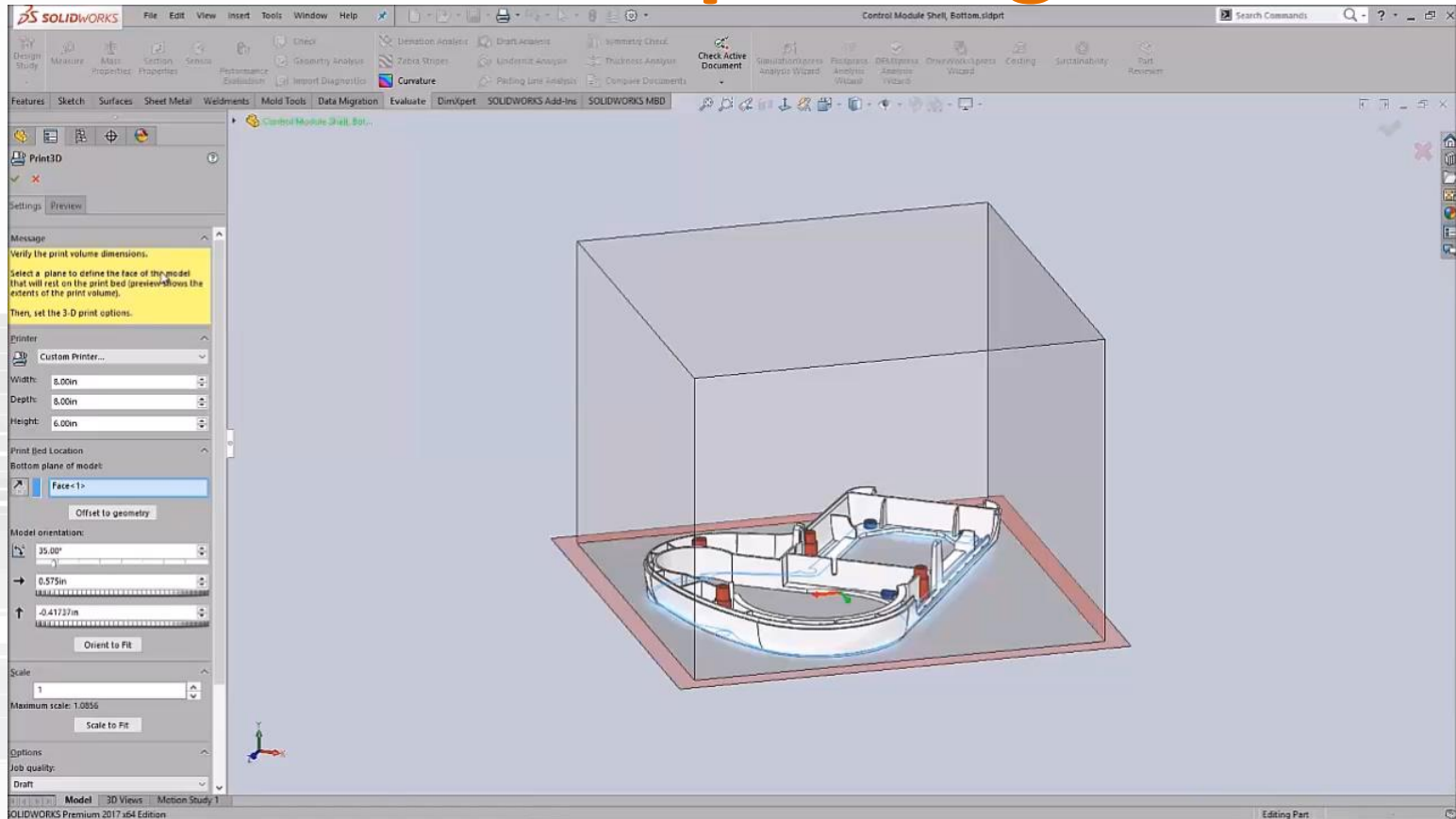
Morphological analysis

Morphological Chart

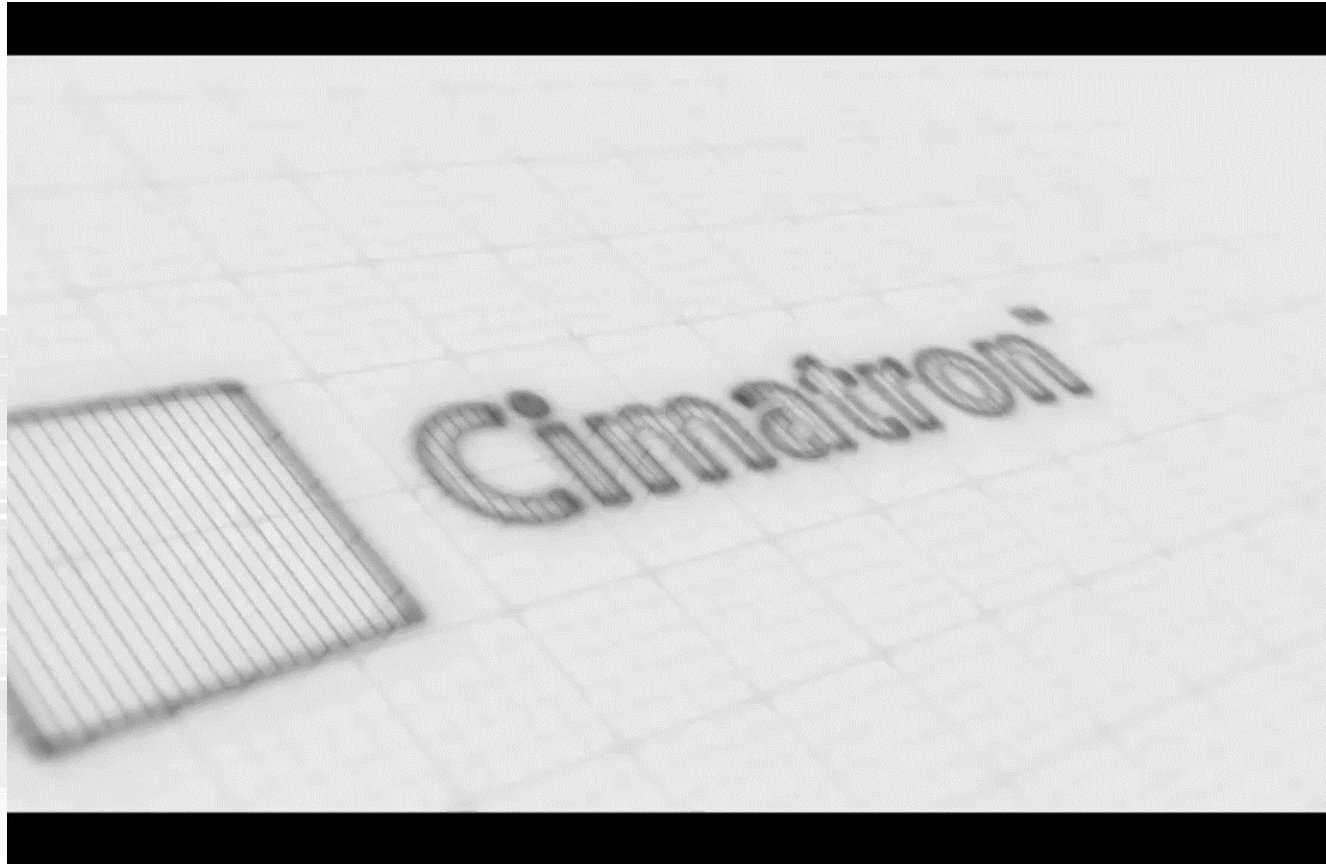
solutions →

sub functions	'human power'														
	steering														
	transmission														
	surprise														
	learning effect														
	acceleration														
	'human power' 2														
	steering 2														

SolidWorks 3D printing



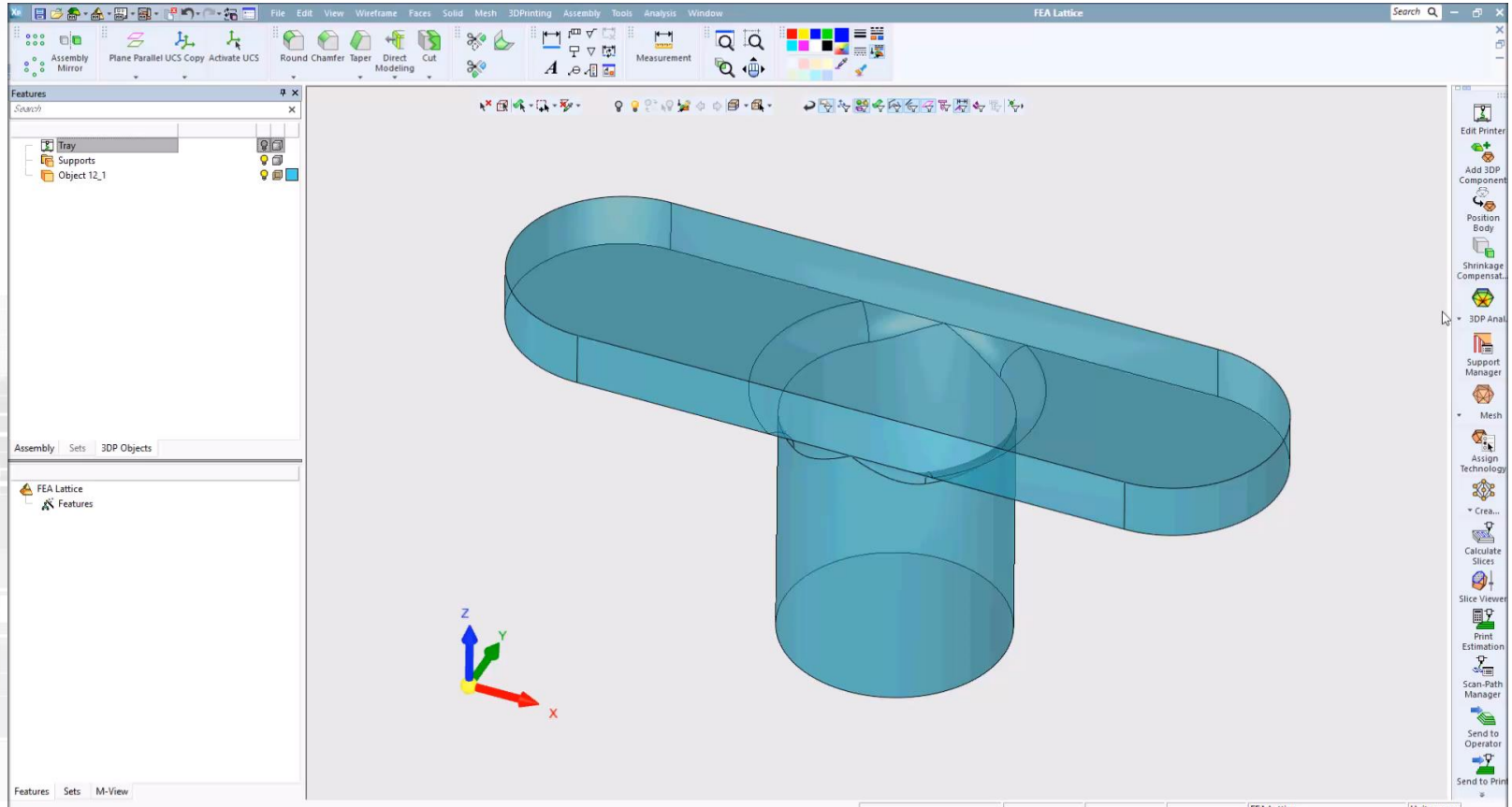
Conformal cooling



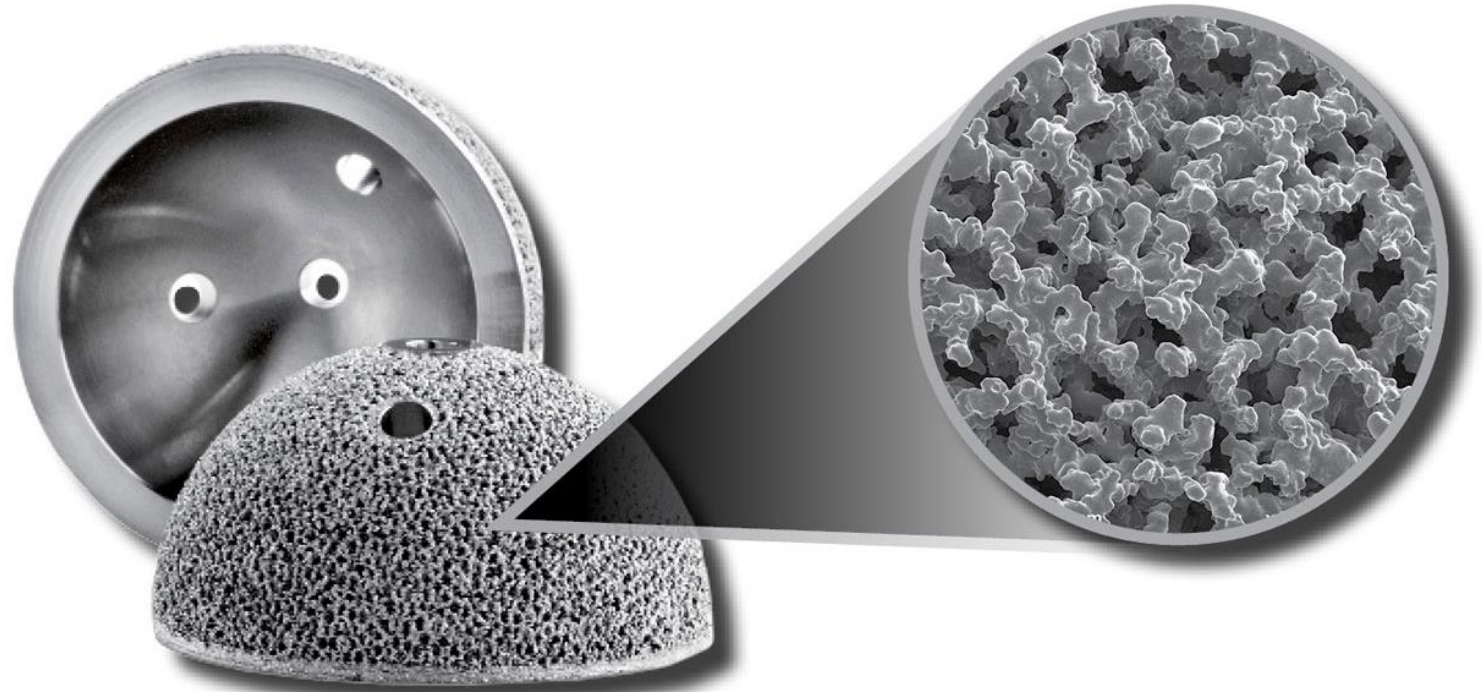
Lattice infill



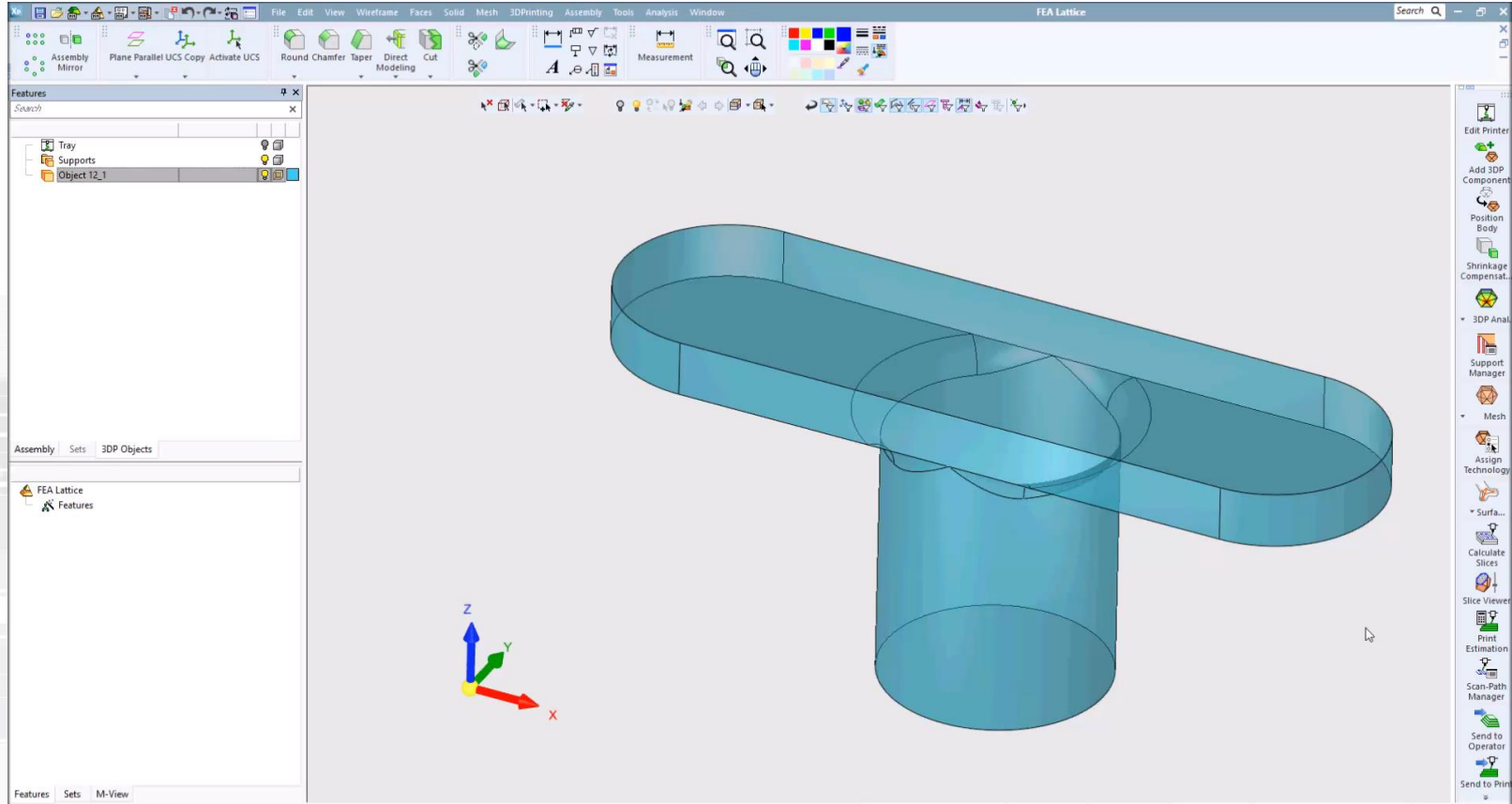
Lattice infill



Surface lattice



Surface lattice



Topology optimization







Thank you!

