

CADENAS INDUSTRY FORUM 2024

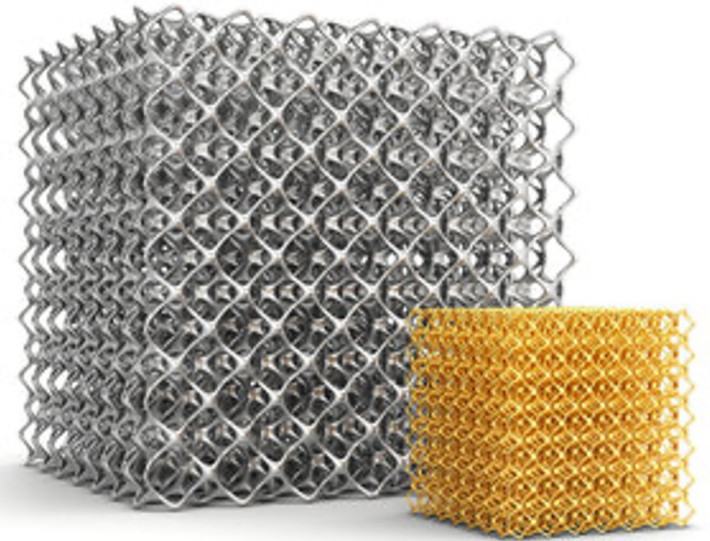
How to use Analytics and Additive Manufacturing to transition to a Digital and more Sustainable supply chain

MARCH 19TH and 20TH 2024



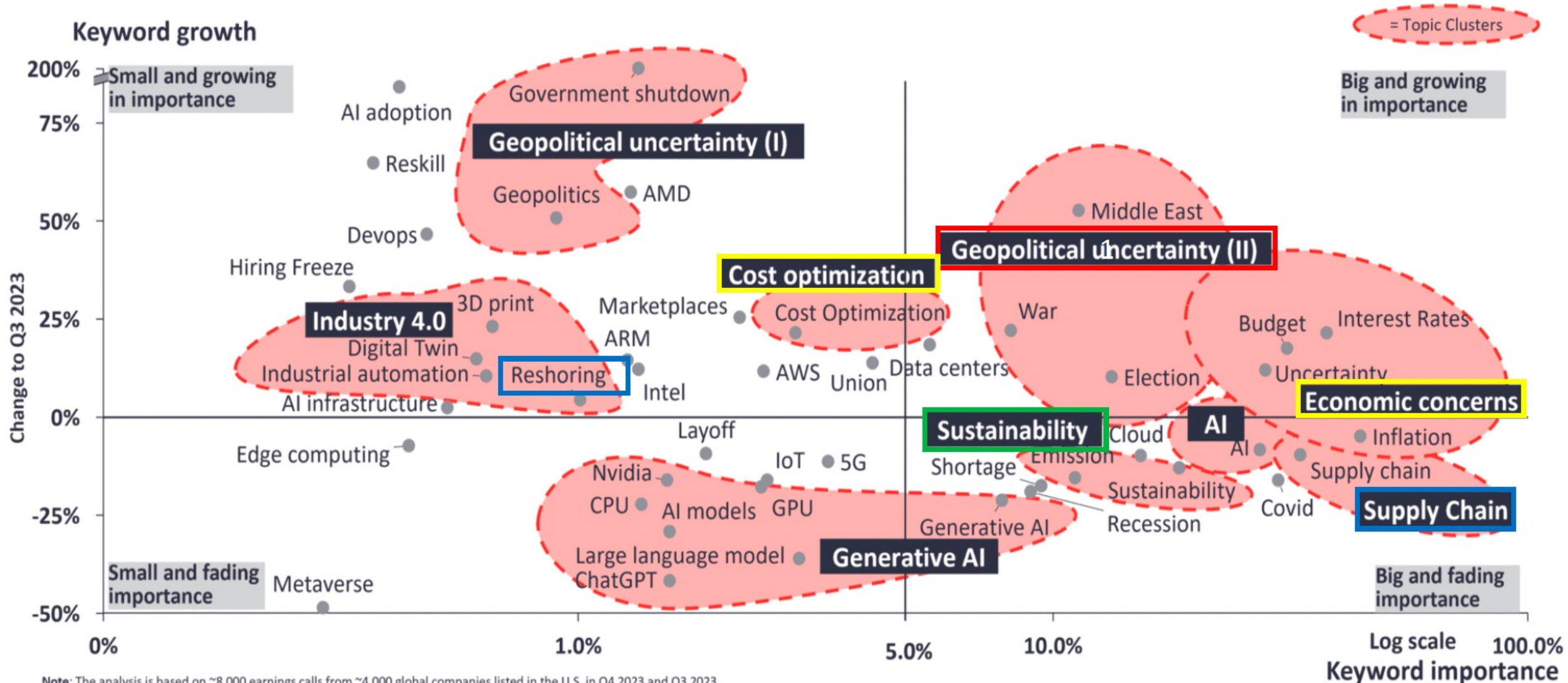
DiManEx

Intro





What CEOs talked about in Q4/2023 (vs. Q3/2023)



Note: The analysis is based on ~8,000 earnings calls from ~4,000 global companies listed in the U.S. in Q4 2023 and Q3 2023.

The mentions of the selected keywords in each call were counted in each quarter.

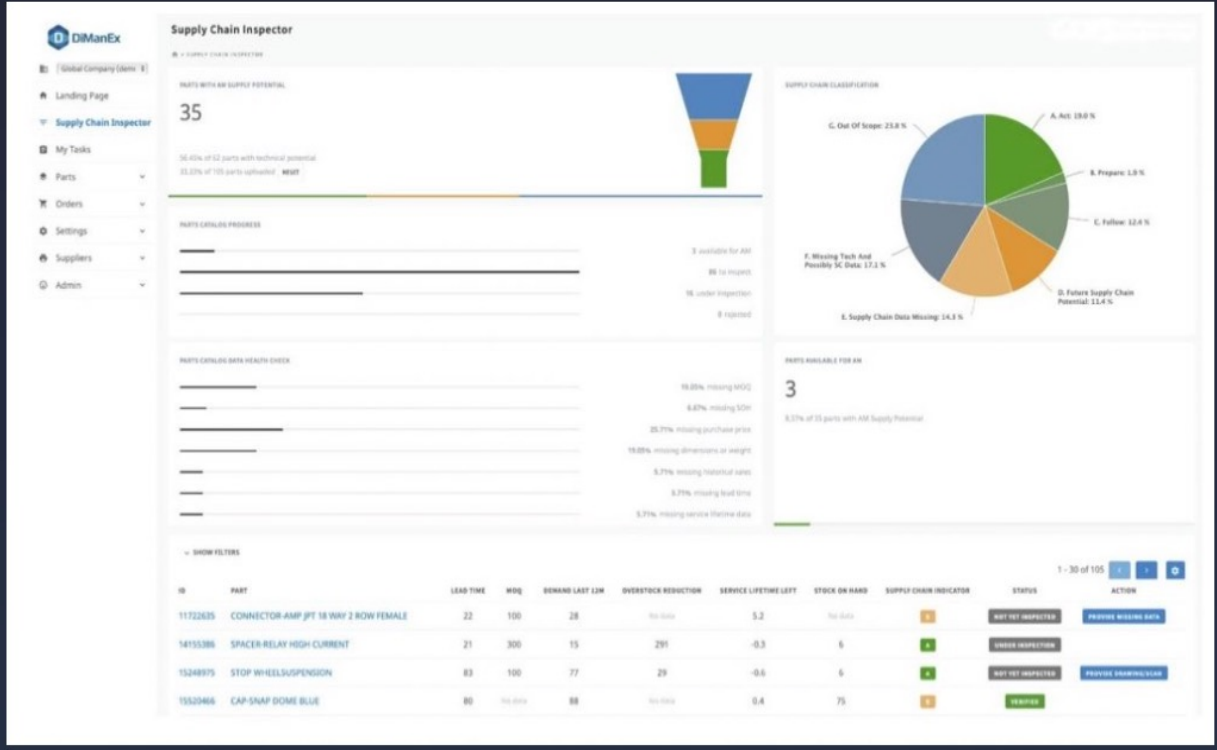
Source: IoT Analytics Research 2023 – We welcome republishing of images but ask for source citation with a link to the original post and company website.

(Share of companies that mentioned the keyword in Q4 2023 at least once)

Optimise and future-proof your supply chain

with our AI-based end-to-end Additive Manufacturing platform

[BOOK A DEMO](#)



- ✓ Reduce supply chain risks
- ✓ Save up to 58% costs and eliminate waste
- ✓ Achieve your sustainability goals

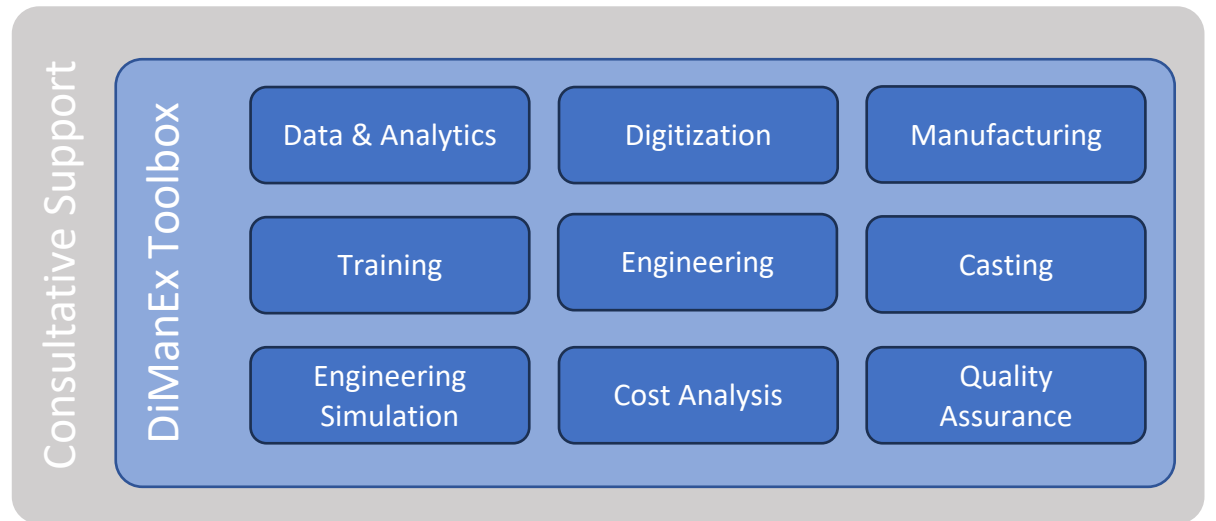
Digitization & Additive Manufacturing in Sustainable Supply Chains

ANALYSE - JUSTIFY - DIGITIZE - PRINT LOCAL

DiManEx End to End Service



DiManEx Modular Toolbox



More data

Less vulnerable

Less material

Insights

Better service

Less transport

DO MORE WITH LESS

More profitable

Less CO2

More local

Less cost

More freedom

Less parts

More digital

Sustainable Supply Chains **Benefits**



Part Availability

Improve Serviceability

Shorter Lead Times

Less parts on Back Order List



Complexity Reduction

Pay as You Use

Supplier reduction

Shorter (digital) supply chain



Agility/Flexibility

Reduce Obsolescence

Reduce COVID risk

Reduce Supplier risk



SC/Cost Optimization

Less Transport - and Sourcing cost

Reduce Working Capital need

Less remaining Lifetime Cost



Sustainability

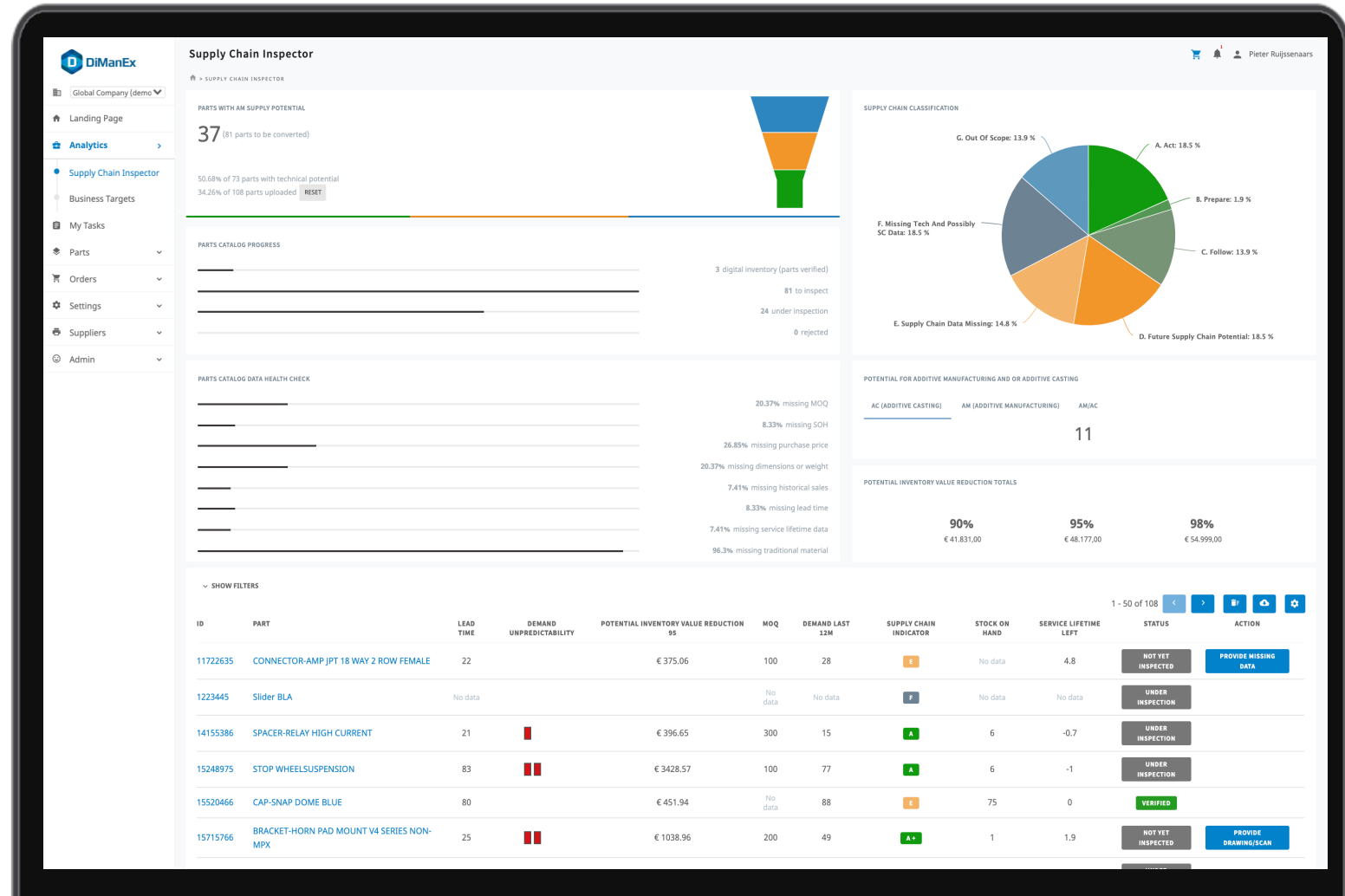
Reduce Waste

Less Transport & CO2 emission

Less Scrapping

Think before you start **Data & Analytics**

COMPLETE
 ACCURATE
 CONNECTED
 TOTAL COST
 BUSINESS
 ACTIONABLE



Data & Analytics **Business driven AM in SC decisions**

Analytics &
Identification

52.760 unique parts analysed

Shorter Lead
Times

61 days of total average lead time reduction

Reduce
Working
Capital need

10.693 parts **show Inventory Value Optimization** potential: worth **€6.8 Mio**

Less
remaining
Lifetime Cost

992 parts show Lifetime Cost Reduction potential of **€1.2 Mio less Total Cost of Ownership**

Pay as You
Use

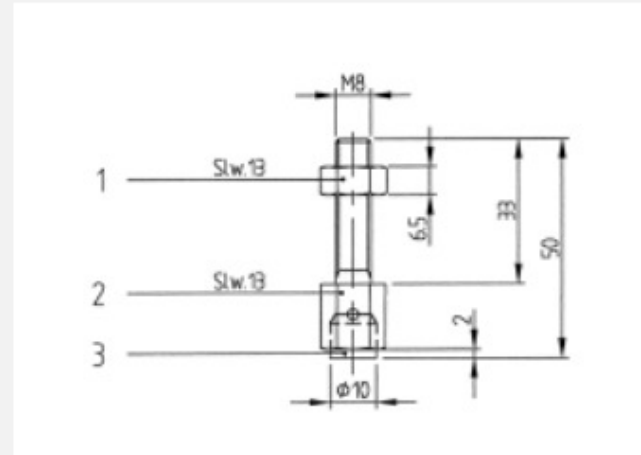
992 parts printed require **€1 Mio less Working Capital**

Data & Analytics Business driven redesign of parts

- Less material
- Less weight
- Stronger part
- Less maintenance
- Less production cost SLT
- Circular material

Aanslag

142710058_001_b_2 / KR275294



Part info:

- Original price 92,73€
- Quantity: 4-89-71 pcs/year
- Average annual usage 54
- MOQ: 10
- Lead time: 70d
- SLT: 24 years

Potential for:

- Simplified design
- Price reduction up to 50-60%
- Lead time reduction
- MOQ reduction



Waste reduction



Design improvement

One off Cost Est: € 8K

Est saving -€ 72k



-60%

Purchase price



-60d

Leadtime in days

Think before you start **Data & Analytics**

PLM / PDM / CAD / PDF / ERP ANALYSIS

3D PRINTABLE?

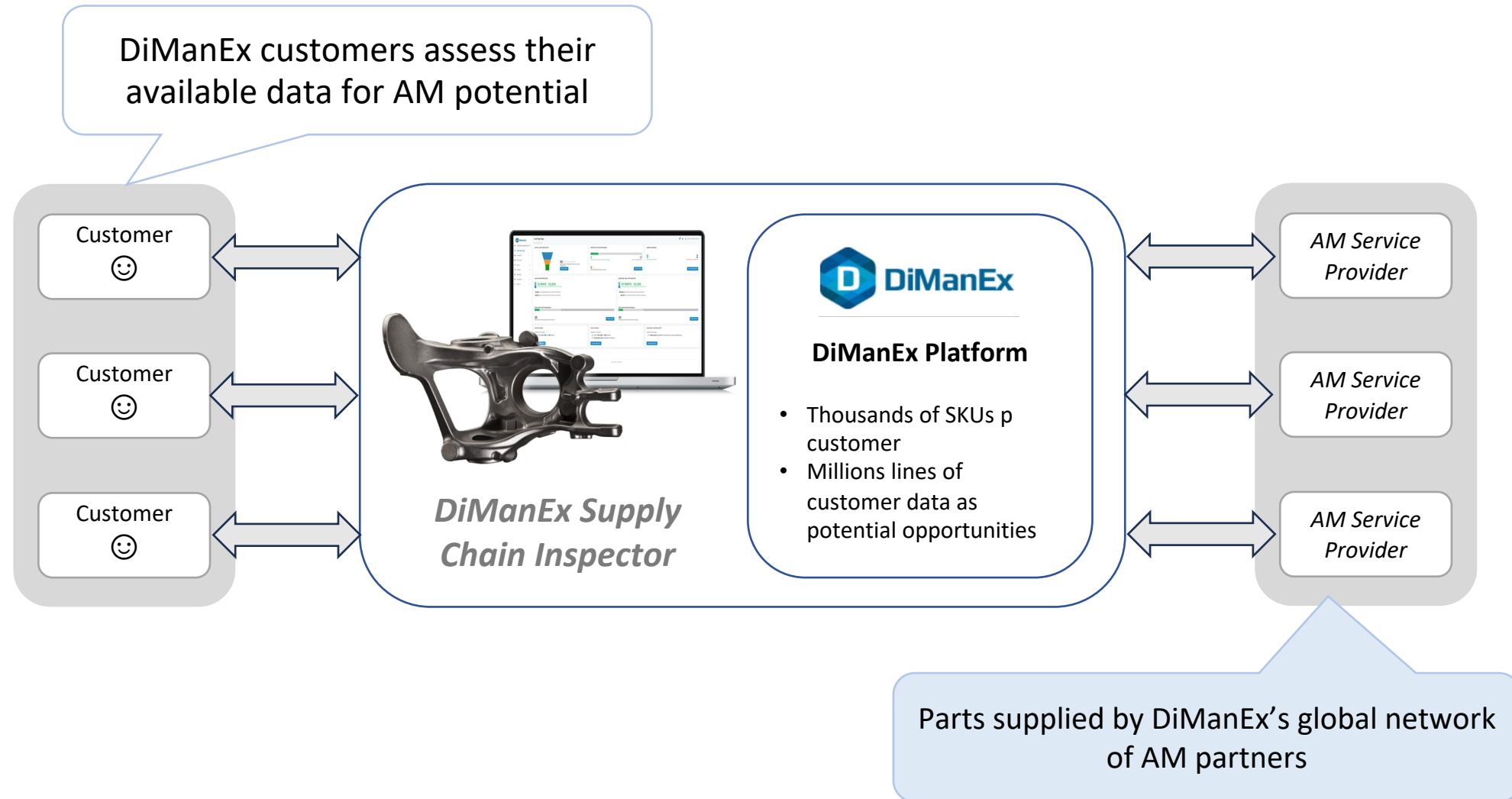


RE-DESIGNABLE?

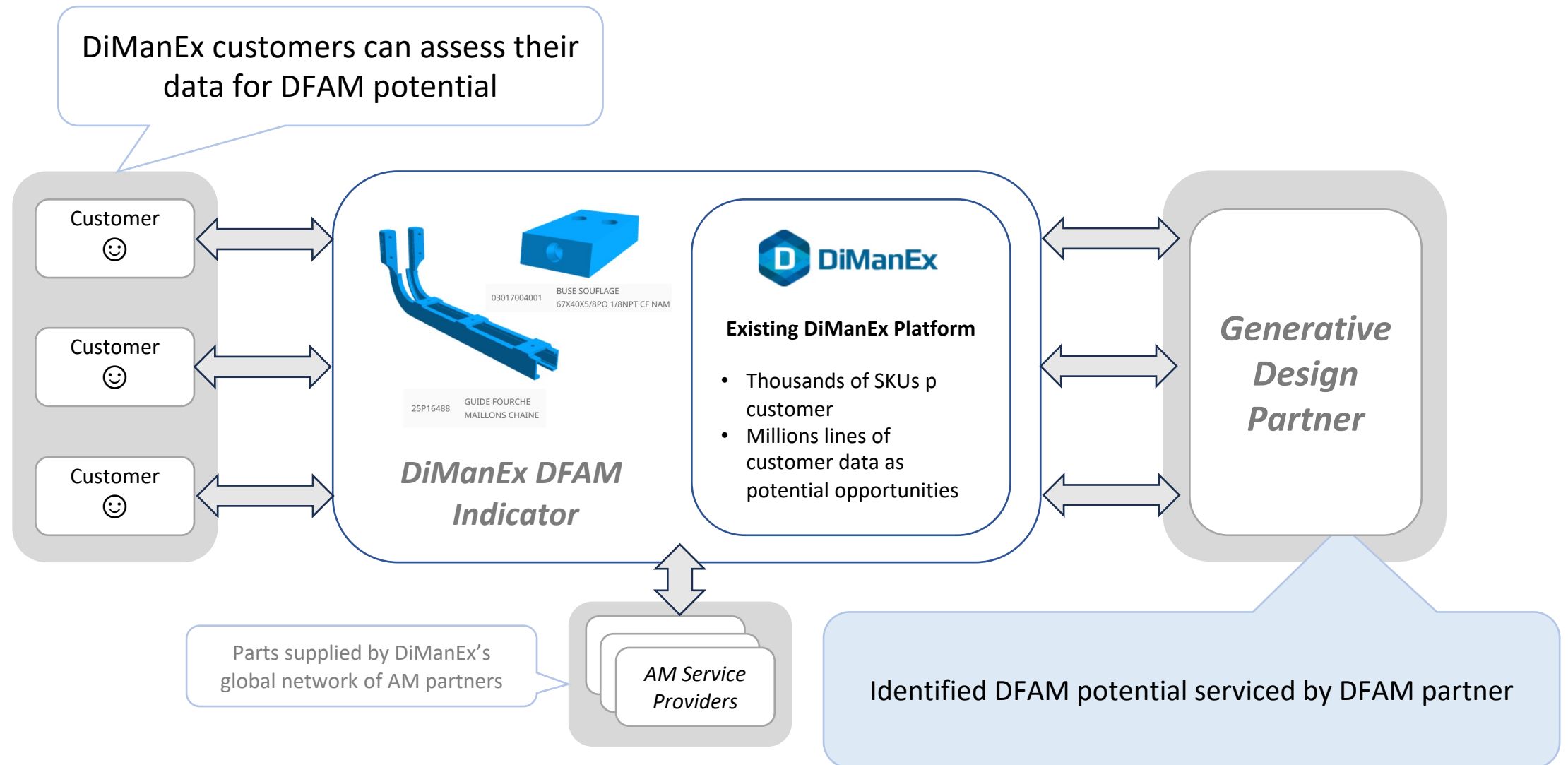


SAVE TIME, COST, MATERIAL, ENVIRONMENT

Data & Analytics Identifying AM Potential



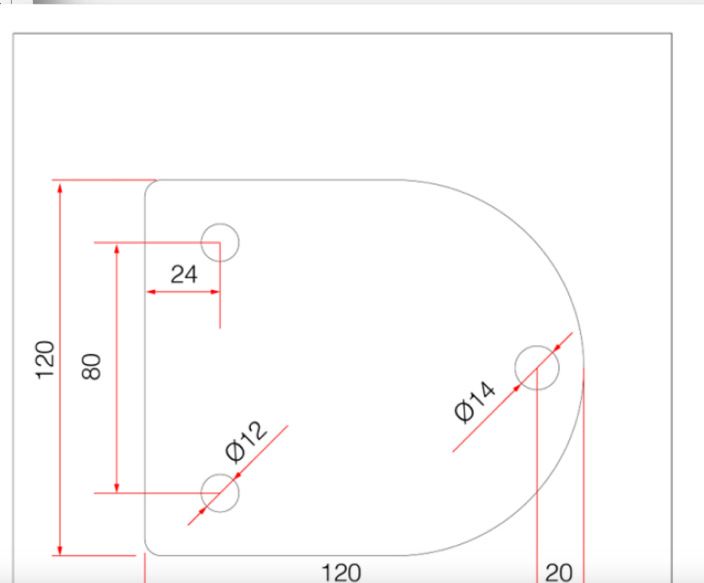
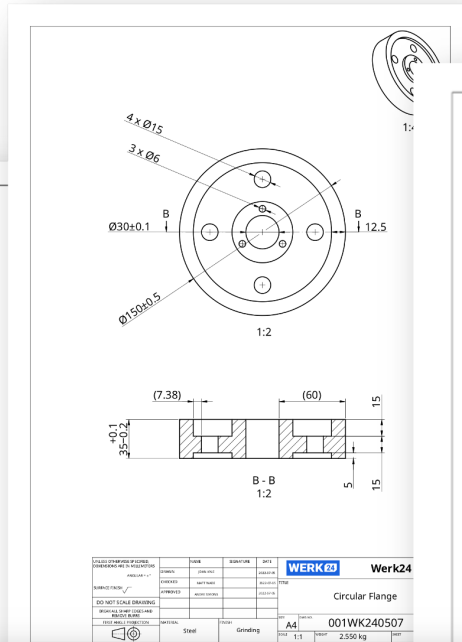
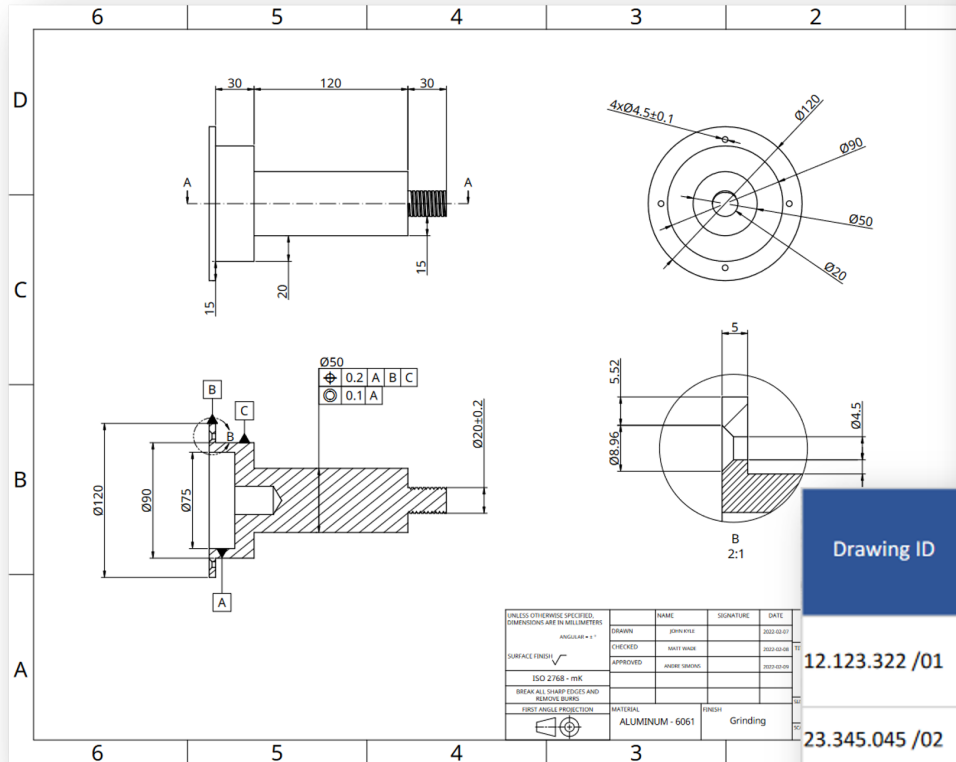
Data & Analytics Identifying Design for AM Potential



Data generation 3D scanning



Data generation 2D file Data Extraction



Drawing ID	Drawing Designation	Length in mm	Diameter in mm	Surface Treatment	Material Category	Dimensional tolerance	Surface tolerance	Number of undercuts [pcs]	Number of holes [pcs]	Number of Threads [pcs]	Rotationally symmetrical yes / no
12.123.322 /01	Studs	110.5	45	-	steel	IT7	> Rz 16	2	1	1	YES
23.345.045 /02	Pipe	331	24	-	steel	IT6	-	1	2	0	YES
33.564.023 /01	Pod	24	14	-	steel	-	> Rz 16	0	1	0	YES
33.016.099 /01	Support Rod	565	24	induction hardened	steel	IT7	-	0	2	0	YES
98.012.001 /03	Socket	30	16	Surface hardened	steel	IT6	> Rz 4	1	1	0	NO

Data generation 2D file Data Extraction

All batches	File Name	Drawing	Drawing ID	Printability ↓	Size (mm)	Technology	Note
Additive Test 21_12	210708_12		WK2404	100%	245x45x15	SLS, FDM	
Mobility Department	210705_08		WK2391	100%	140x120x6	FDM	
Gear Components	210704_01		WK2379	100%	245x20x15	SLS, FDM	
Rotational parts	120912		2741-P-601	100%	140x120x6	SLS, FDM	
Additive Test 21_09	190719_04		2741-B-521	65%	60x34x24	SLS, FDM	
All Drawings	190719_01		2652-C-113	4%	100x100x40,5	SLS, FDM	
	190719_01		2652-C-113	21%	114,5x32x32	SLS, FDM	

WERK24
Battery Holder

ISO 2768 - mK
FIRST ANGLE PROJECTION

PA 65

001WK24060722 01
1:1 0.660 kg 1 of 1

Data generation **Library of validated digital twins**

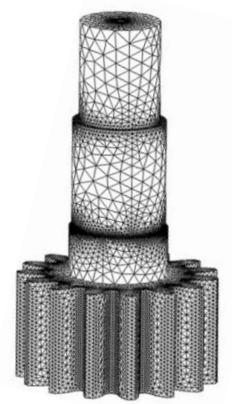
MODELS

DEFAULT COLORED

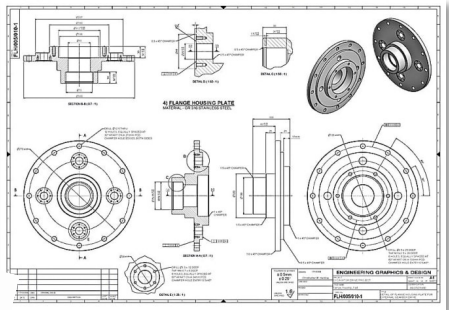
DIGITAL LIBRARY



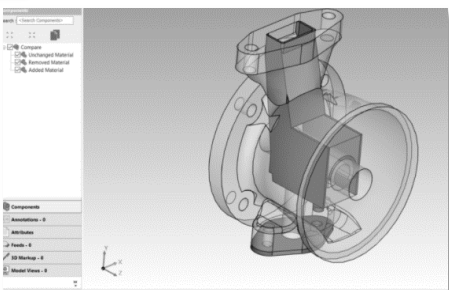
STL file



PDF



CAD



FILE NAME	TYPE	SIZE	DATE UPLOADED	APPROVED	APPROVED BY ADMIN
capn001_Plug...	STL	9.56 MB	08/09/2020 13:53	<input type="checkbox"/>	<input type="checkbox"/>
capn001	DXF	197.70 KB	28/08/2020 17:34	<input type="checkbox"/>	<input type="checkbox"/>
capn001	STEP	1.10 MB	08/09/2020 13:52	<input type="checkbox"/>	<input type="checkbox"/>
STL_Q_Checklis...	DOCX	40.29 KB	08/09/2020 13:55	<input type="checkbox"/>	<input type="checkbox"/>
vag plug	PNG	80.82 KB	28/08/2020 17:34	<input type="checkbox"/>	<input type="checkbox"/>

SCAN

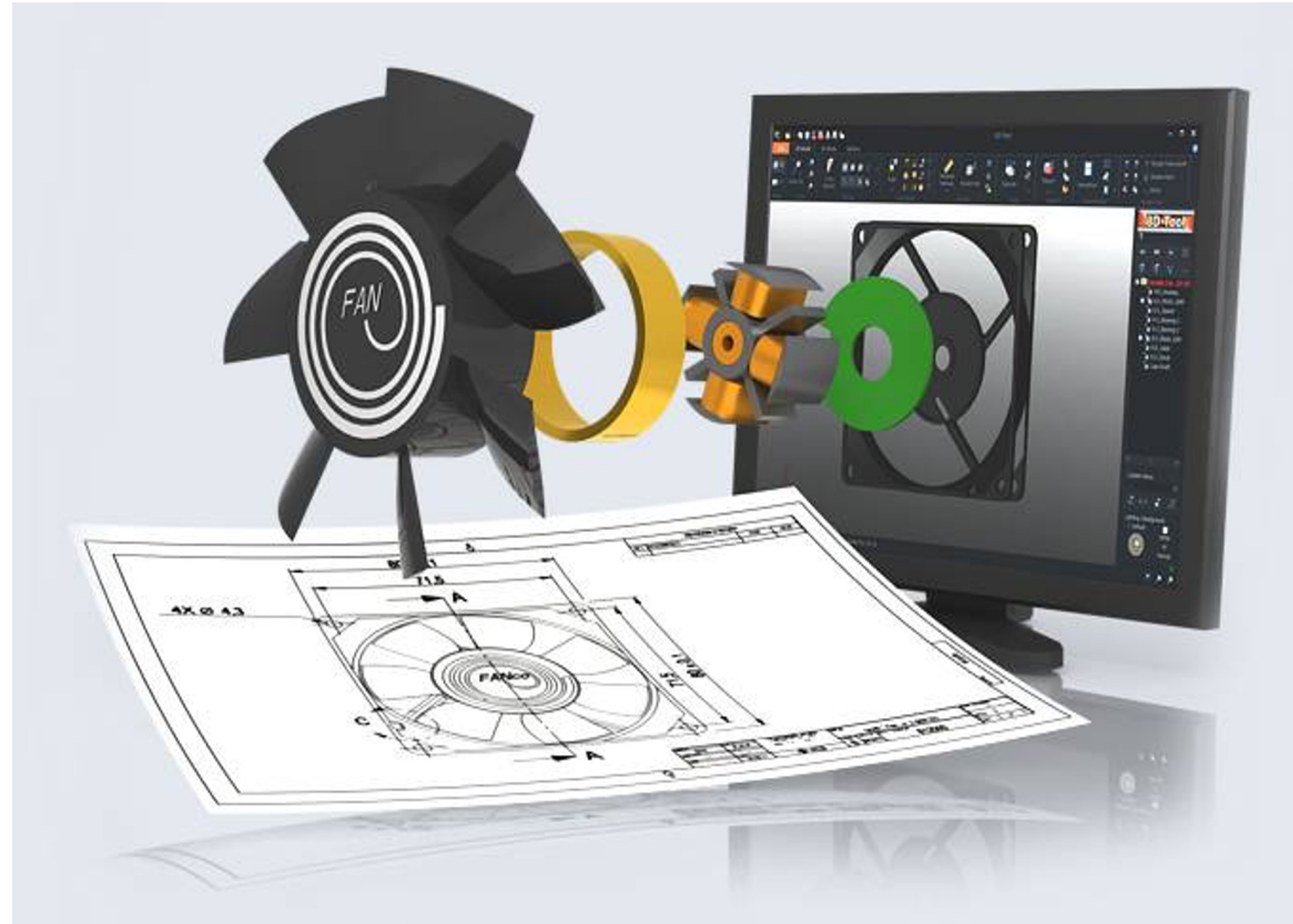


Data generation **CAD Data Analysis**

Similarity search printability

Identification of larger potential

From CAD product catalogues



Use Case Part families

Benefit: **Speed up validation process and generate benefits at high(er) speed**



Use Case Mirrored Parts

Benefit: **Getting faster response to the RFQs resulting in faster TTM**

The screenshot displays a software interface for comparing two parts. On the left, a 'Tabular Compare' window shows a side-by-side comparison of two CAD files: '1-34-621-034.stp' and '1-34-621-037_correct.stp'. The table below details their properties, with green circles indicating identical values and red circles indicating differences.

Description	1-34-621-034.stp	1-34-621-037_correct.stp
ERP data		
ARTNR (Article)	● -	● -
FILENAME (Filename)	● 1-34-621-034.stp	○ 1-34-621-037_correct.s...
MODDATE (Modification date)	● 28.09.2023 19:09:56	○ 28.09.2023 19:12:12
Parameter		
EXTERNAL_ID	● cnhi_1-34-621-037...	○ cnhi_1-34-621-034_V4
PART_NAME	● COVER_V2 PA12	○ Cover_V4 PA12
AM_MATERIAL_TYPE	● Plastic	● Plastic
TM_MATERIAL_TYPE	● -	● -
Topology		
General		
X Dimension	● 115.407 mm	● 115.407 mm
Y Dimension	● 149 mm	● 149 mm
Z Dimension	● 116.98 mm	● 116.98 mm
Major Dimension	● 149 mm	● 149 mm
Medium Dimension	● 116.98 mm	● 116.98 mm
Minor Dimension	● 115.407 mm	● 115.407 mm
Area	● 57204.7 mm ²	● 57205.1 mm ²

On the right, a '3D comparison' window shows a 3D model of a blue plastic part. The model is semi-transparent to reveal internal features. A 3D coordinate system with X, Y, and Z axes is overlaid on the model. A small 'Front Right' view indicator is visible in the top right corner of the 3D view.

More potential identified

More with 3Dfindit

More digital & data based

Less time wasted of engineers

DO MORE WITH LESS

More parts engineered

Less CapEx

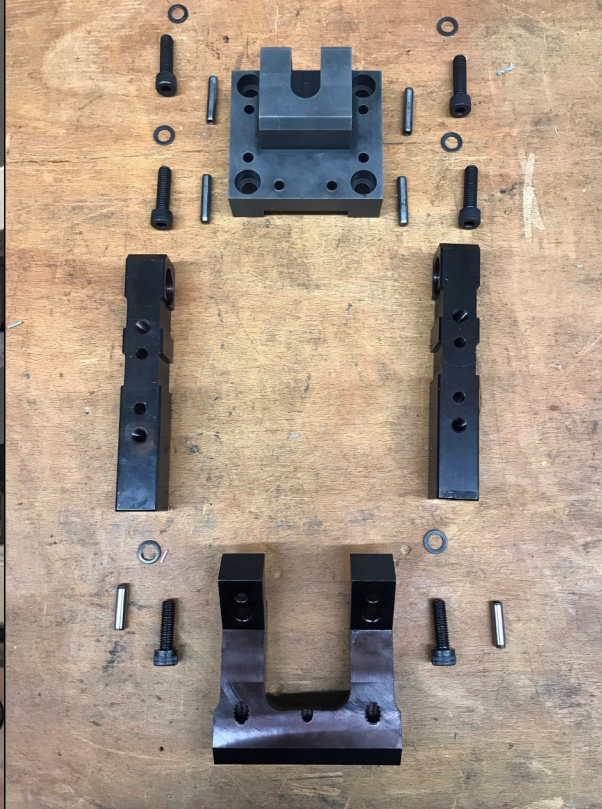
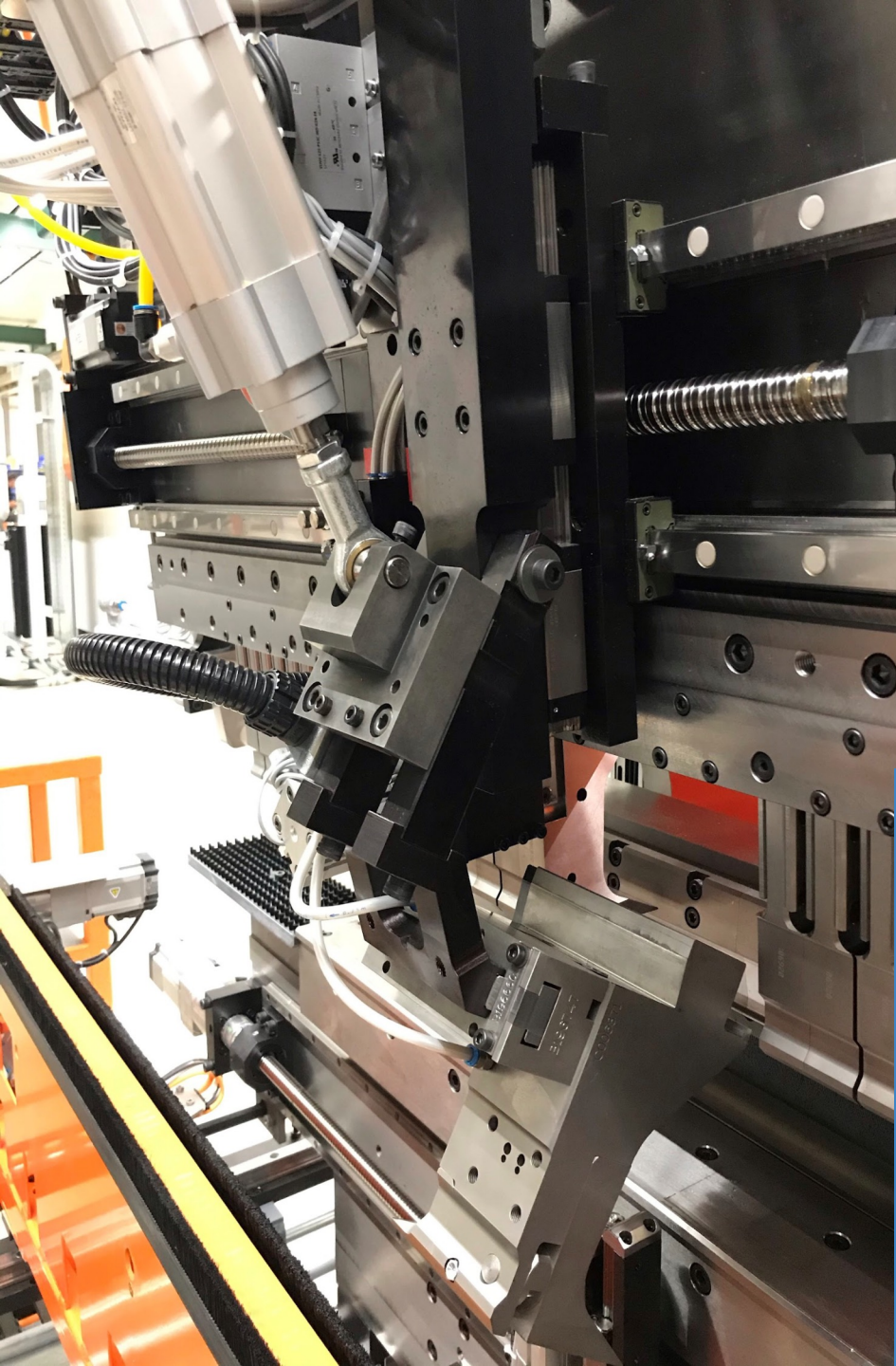
Less cost in engineering

More business driven

100%

Availability





Complexity
&
Cost
Reduction

DEMAND PREDICTABILITY



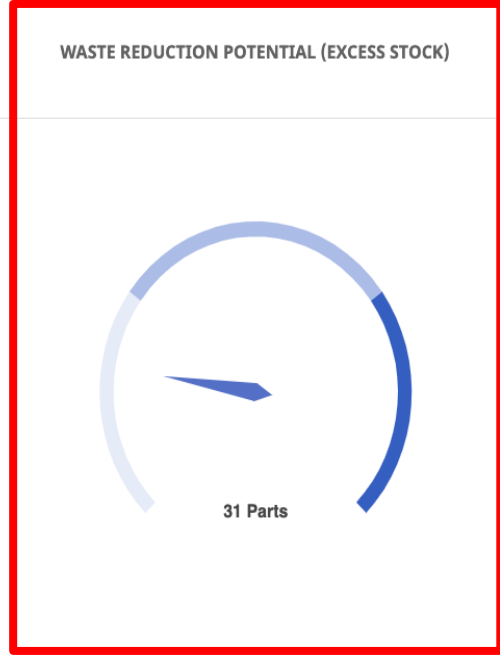
INVENTORY VALUE REDUCTION POTENTIAL



LEAD TIME REDUCTION



WASTE REDUCTION POTENTIAL (EXCESS STOCK)



Assessed 14K Stock Keeping Units

Calculated the Average Annual usage

of parts not purchased (3D print only the # of parts needed)

Material reduction - 109.574 Kg



Too good to be true?

Try it yourself. Start small and get your first part delivered within a week.

And no worries – we'll be with you every step of the way.

1

Upload your documents and analyse your supply chain

2

Digitize and order your parts with the quality your business requires

3

Have your parts printed locally and delivered within days!

Book a demo and discover...

- ✓ The ins and outs of our platform in just 45 minutes
- ✓ The benefits of AM for your supply chain
- ✓ How to start small with 3D printing

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