

Eliminate supply chain risks

With **Additive Manufacturing**

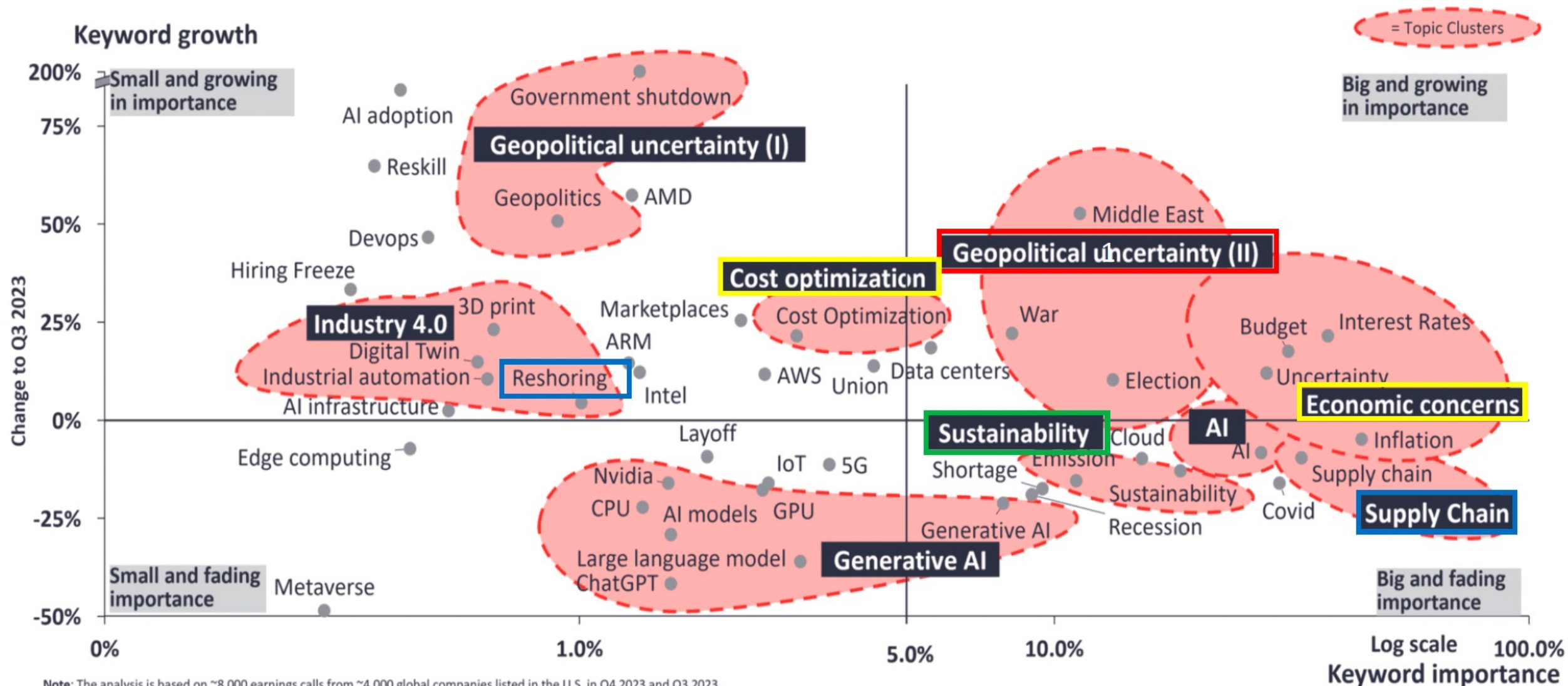
Analytics and Additive Manufacturing to transition to more Sustainable & Profitable supply chains

MAY 14TH and 15th 2024





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.

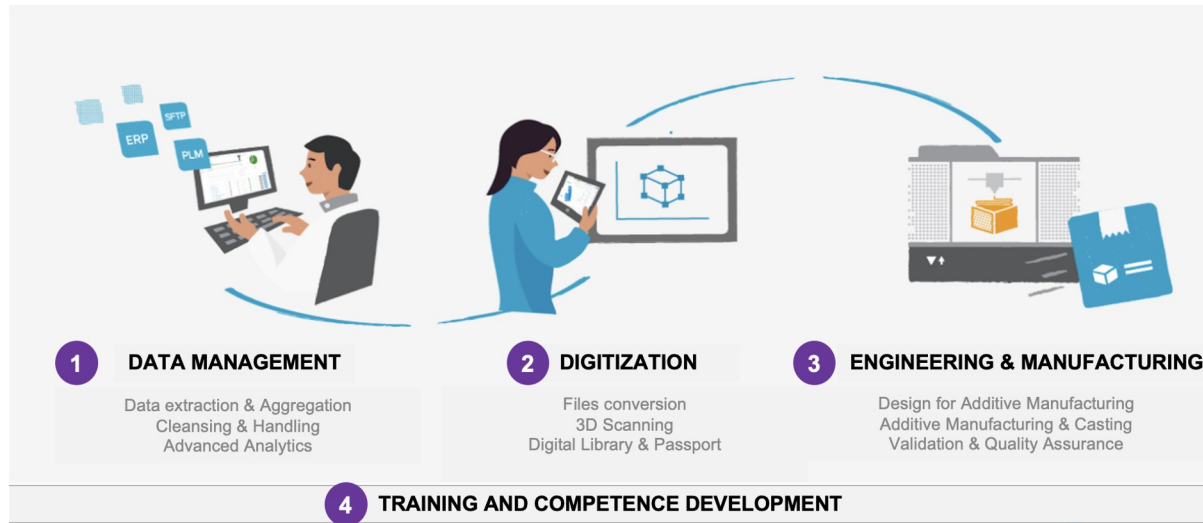
Source: IoT Analytics Research 2023 – We welcome republishing of images but ask for source citation with a link to the original post and company website.

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

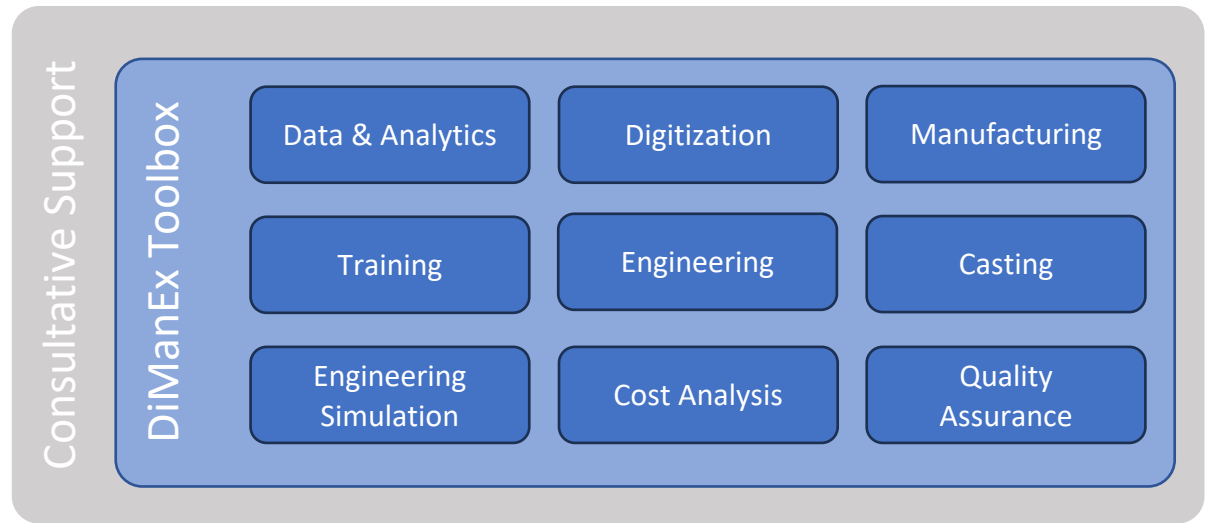
Sustainable Supply Chains by Digitization & Additive Manufacturing

ANALYSE - JUSTIFY - DIGITIZE - PRINT LOCAL

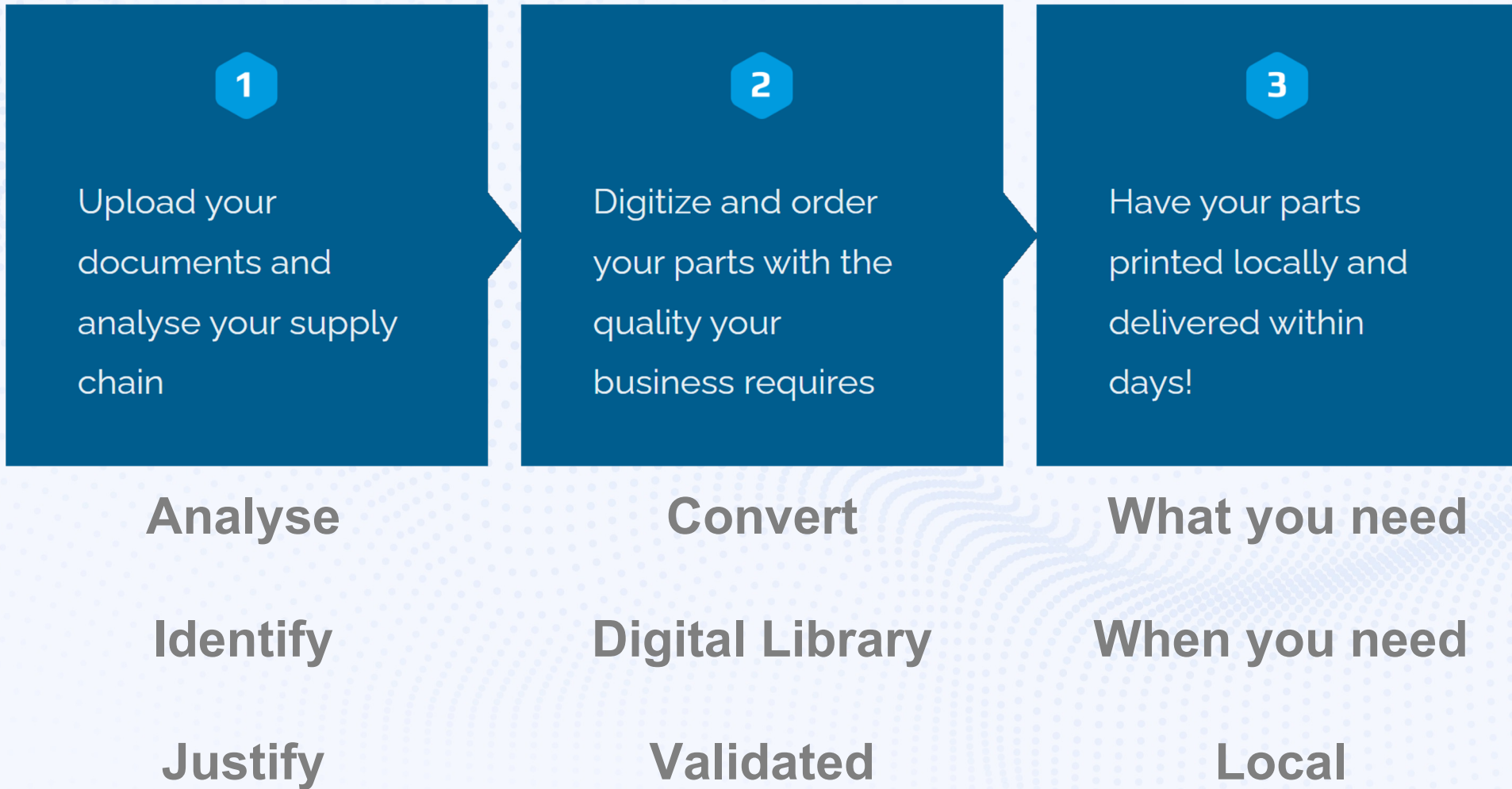
DiManEx End to End Service



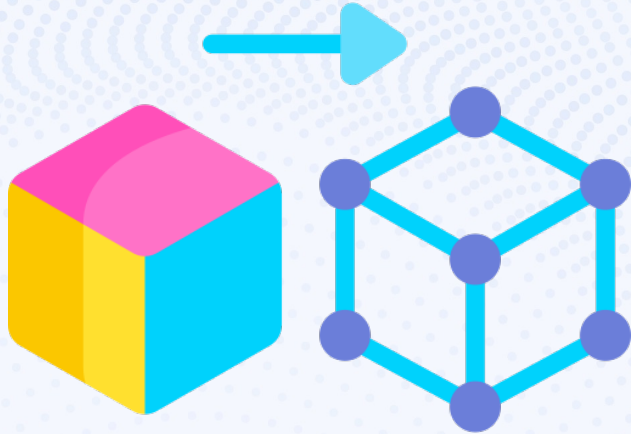
DiManEx Modular Toolbox



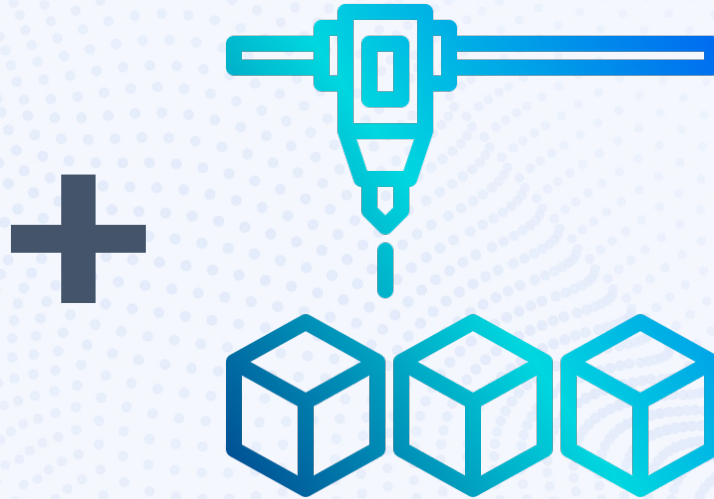
Sustainable Supply Chain **Operating Model**



Sustainable supply chain = Economic AND Ecologic



DIGITIZATION



ADDITIVE MANUFACTURING

=



SC PROFIT & PLANET

Sustainable Supply Chain Requirements



Physical to Digital



Data based



Location independent



Supplier independent

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

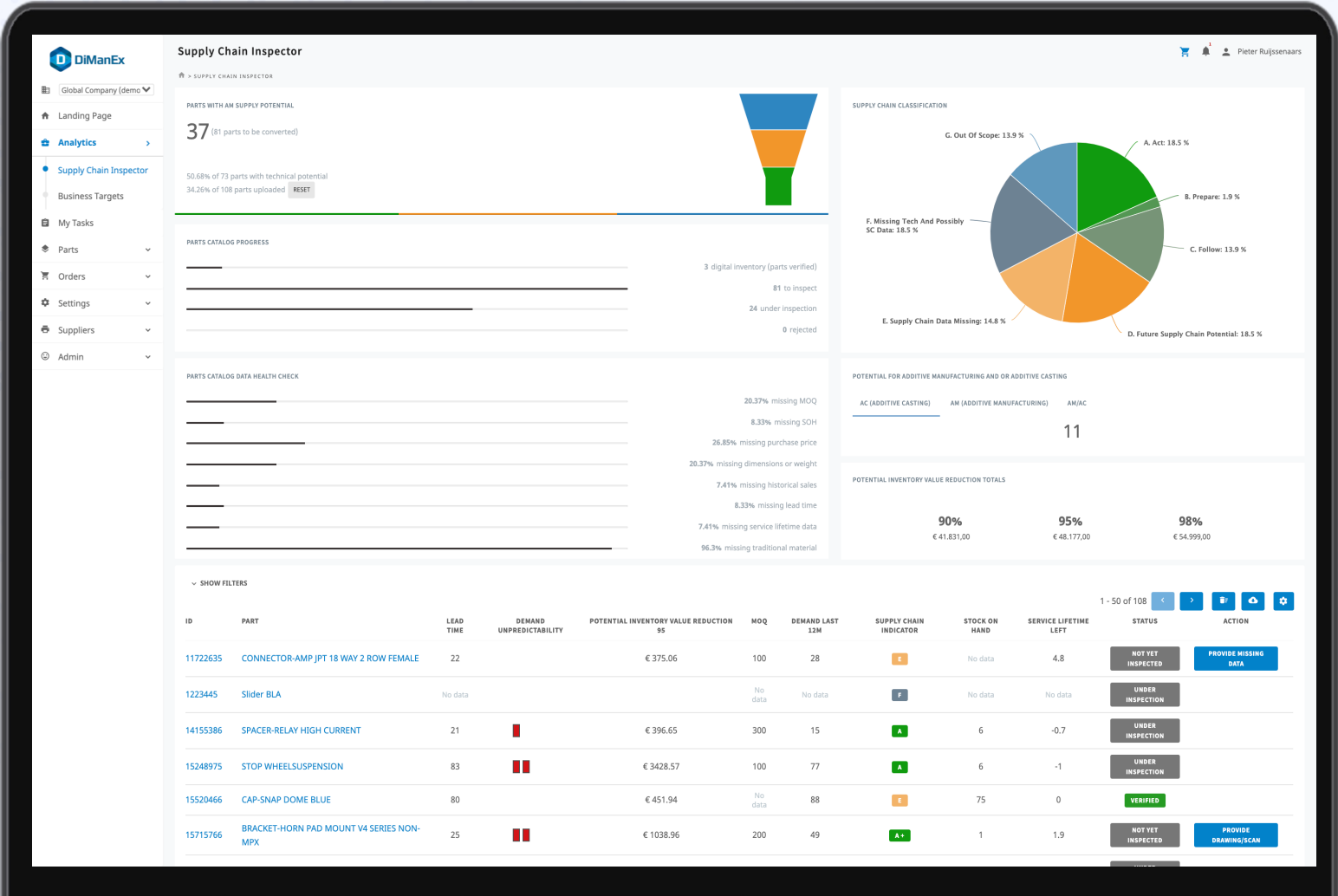
Reduce Waste

Less Transport &
CO2 emission

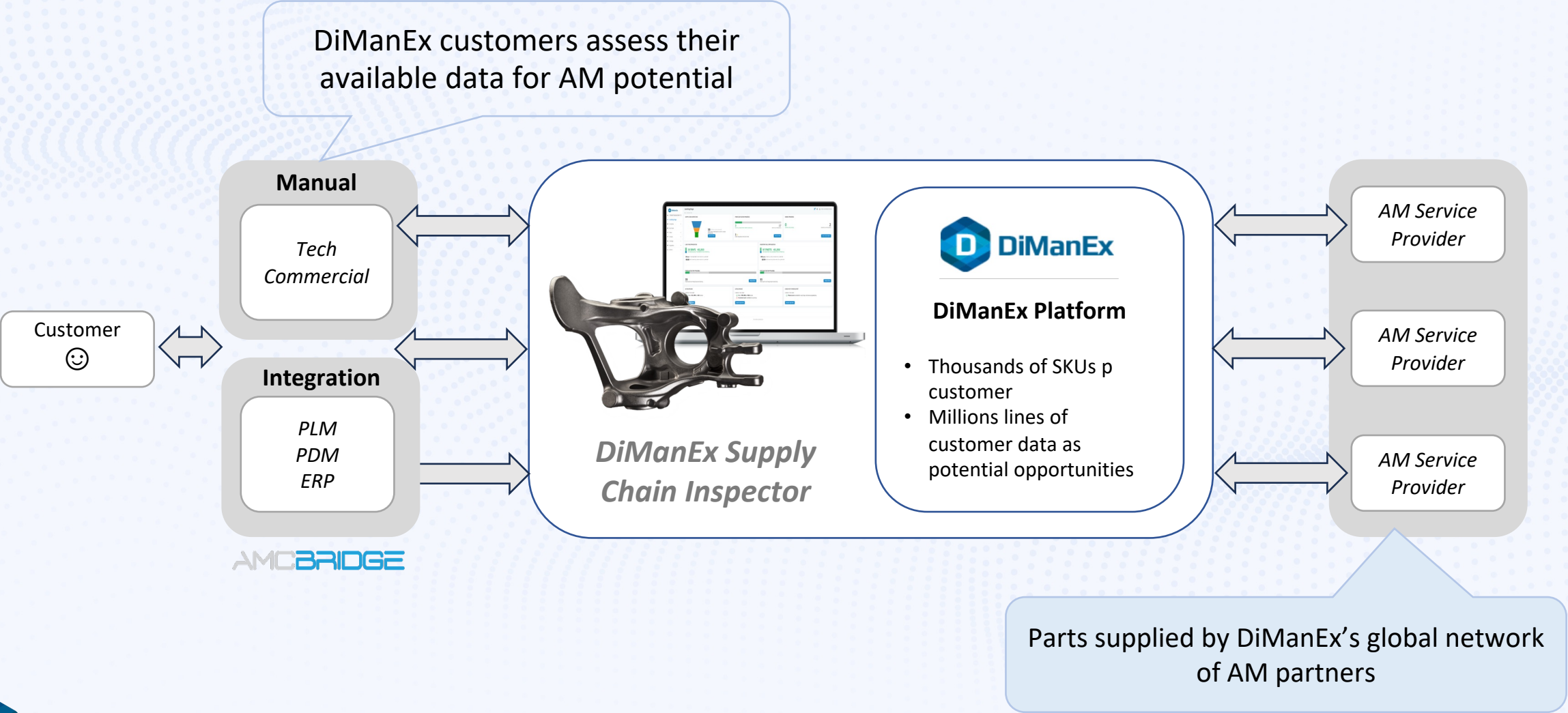
Less Scrapping

Data & Analytics Business driven Supply Chain decisions

COMPLETE
ACCURATE
CONNECTED
TOTAL COST
BUSINESS
ACTIONABLE



Data & Analytics Identifying AM Potential



Data & Analytics **Business driven Supply Chain 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

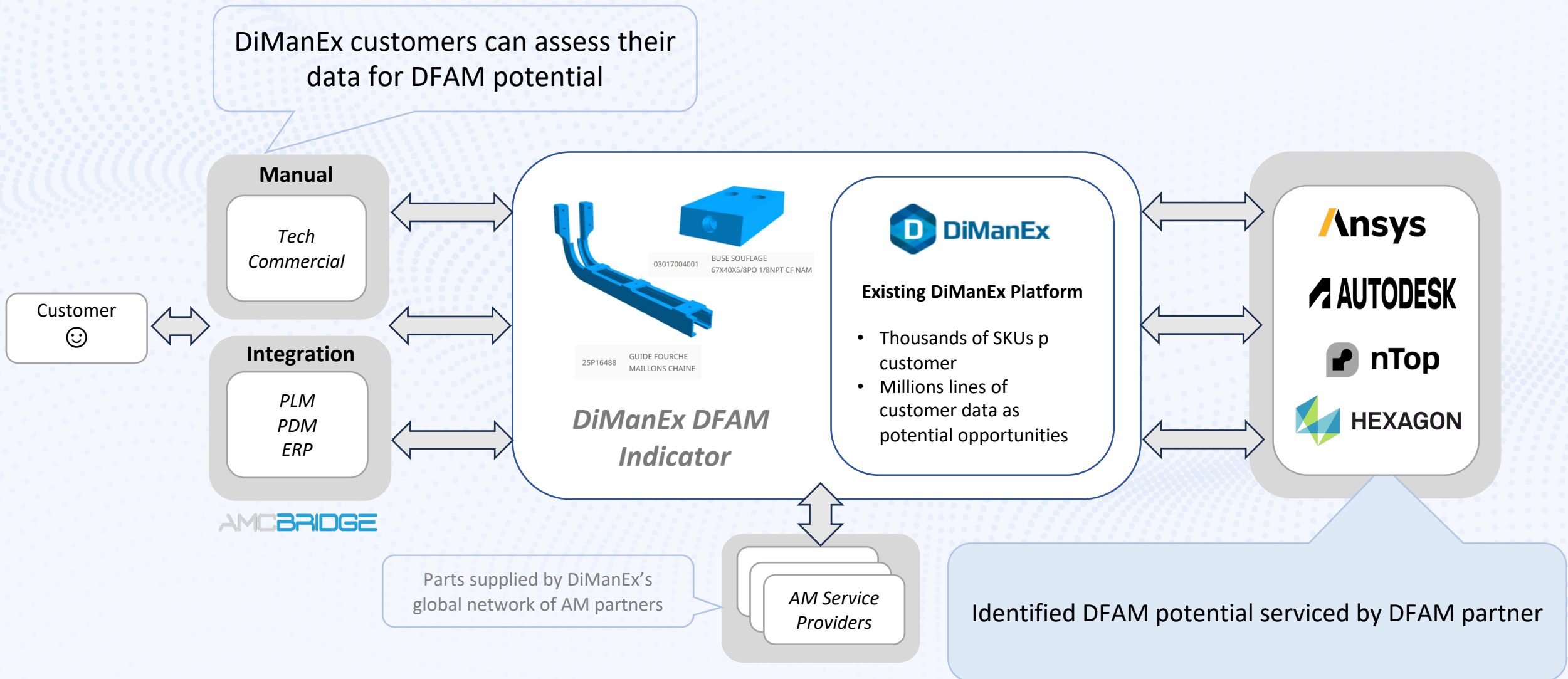
992 parts show Lifetime Cost Reduction potential of **€1.2 Mio less Total Cost of Ownership**

Pay as You Use

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

Data & Analytics Identifying (re) Design for AM Potential

DiManEx customers can assess their data for DFAM potential

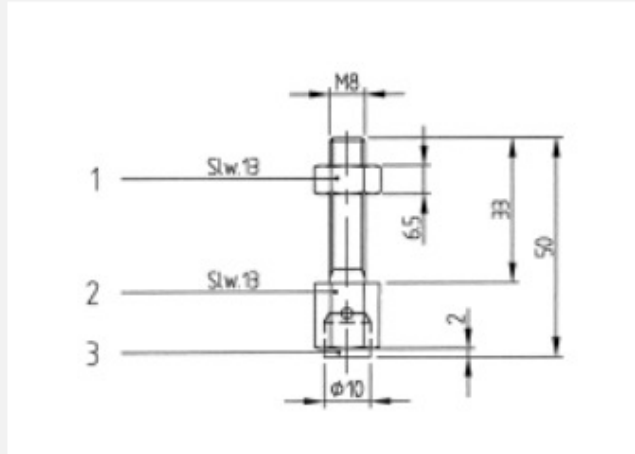


Data & Analytics **Business driven redesign of parts**

- 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

One off Cost Est: € 8K

Est saving -€ 72k



Waste reduction



Design improvement



-60%

Purchase price

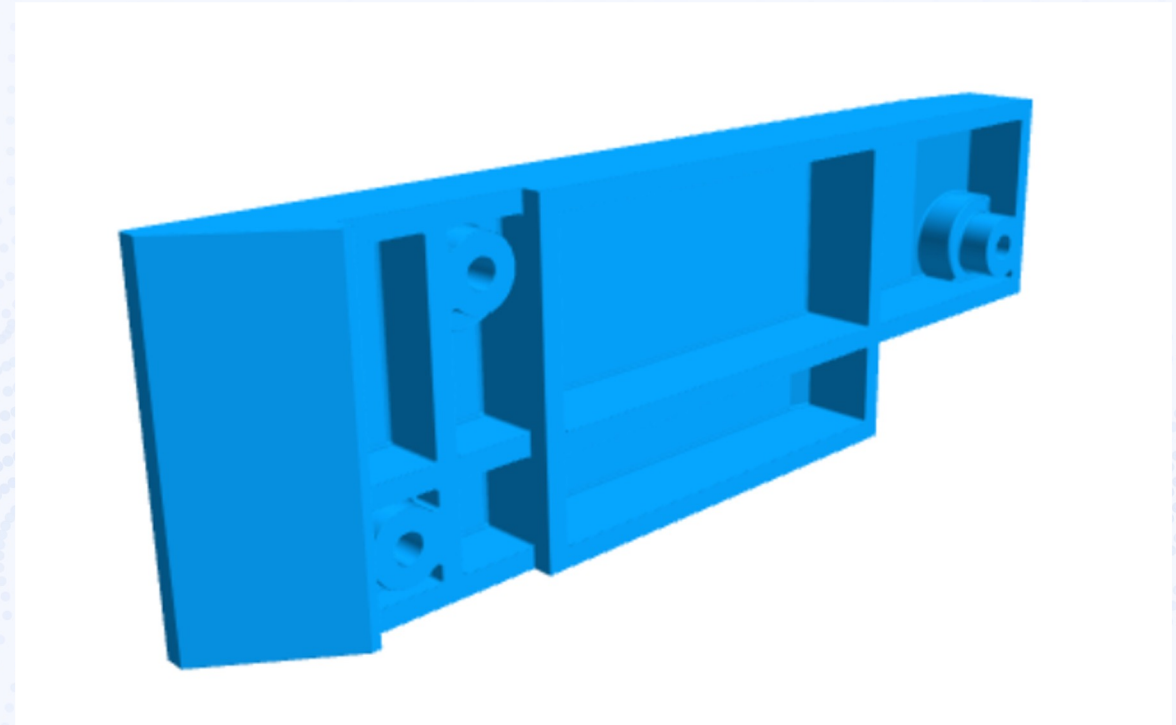


-60d

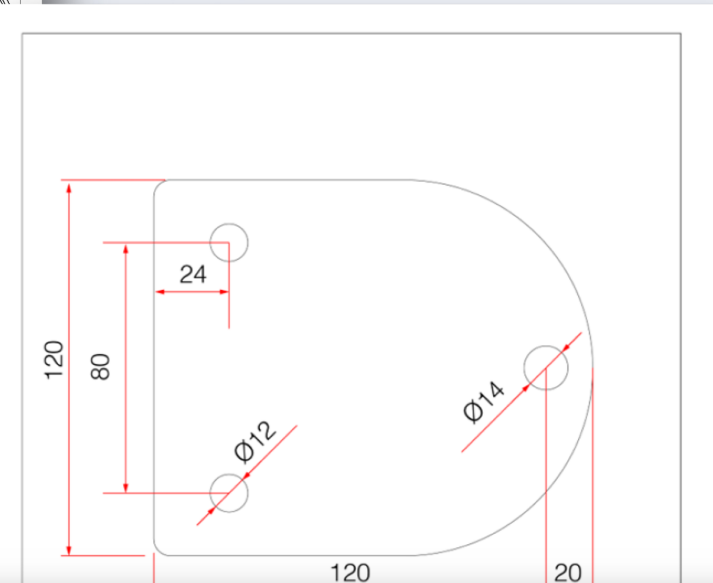
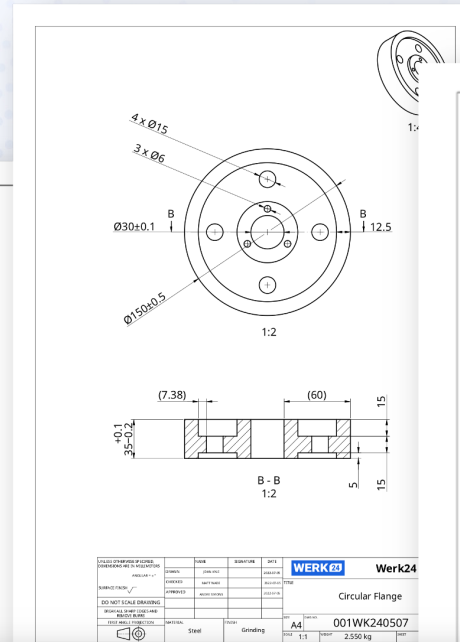
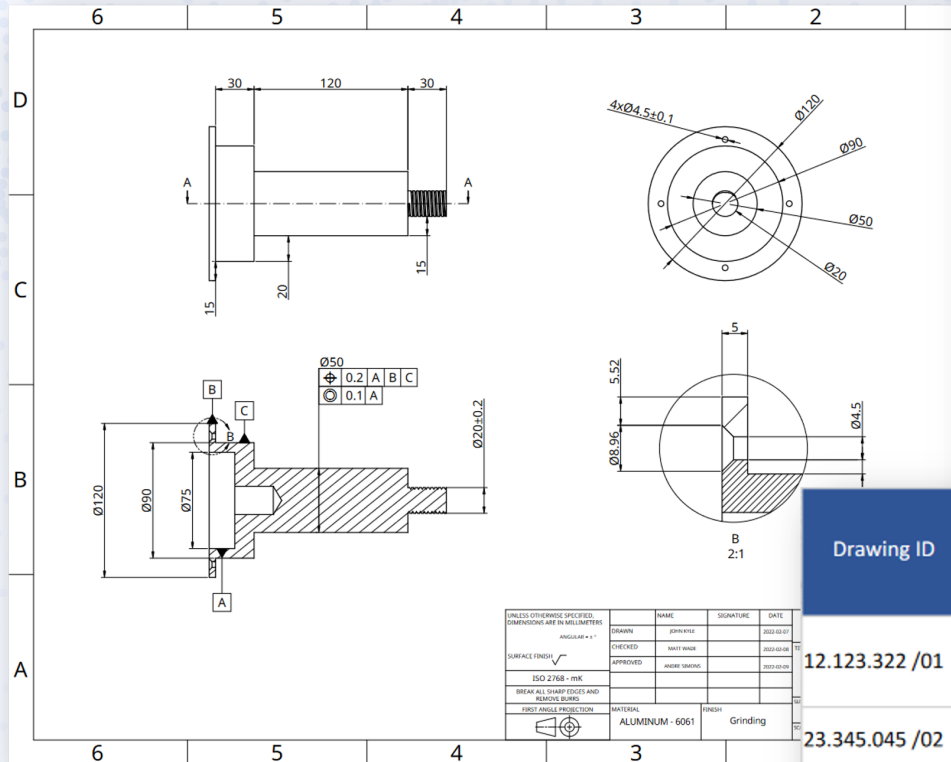
Leadtime in days

DiManEx Design for AM - Case Study

- Component designed for manufacture using traditional methods cost €160 to produce using HP MJF PA12
- Analysis indicated a potential material reduction of 41%, with a high likelihood ● of return on investment in DfAM service.
 - Redesign service cost €200
 - New design quoted at €99.20 a 38% cost reduction
 - €1,216 cost saving based on annual use (20x per yr)
 - **€24,320 saving** over component lifecycle (20 yr)
- Redesign helped to justify switch to AM, facilitating zero inventory, faster lead-times, avoiding MOQs and new tooling costs.

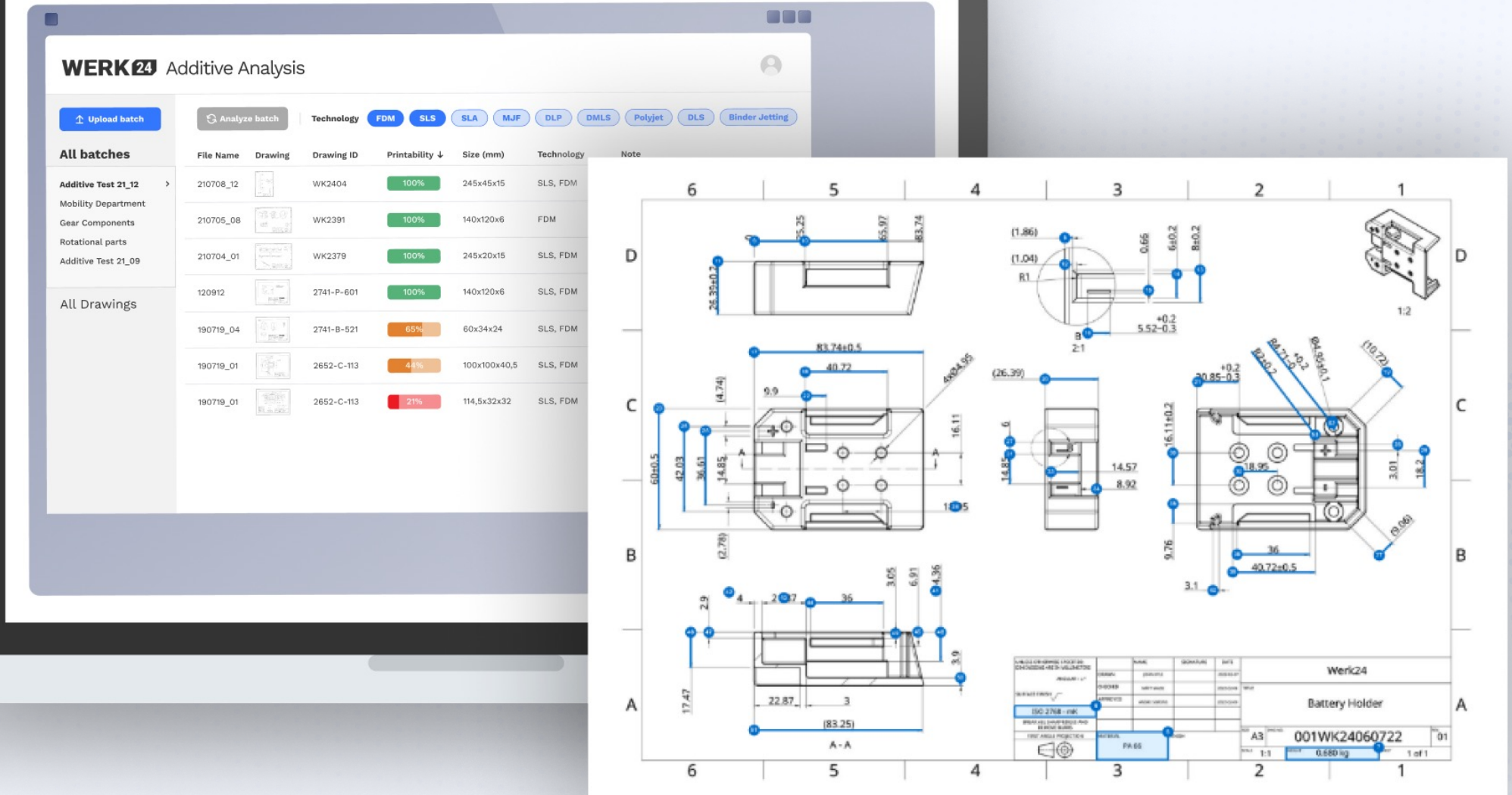


Lack of Data - 2D file Data Extraction



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

Lack of Data - 2D file Data Extraction



Partner: Werk24

Lack of Data - 3D scanning



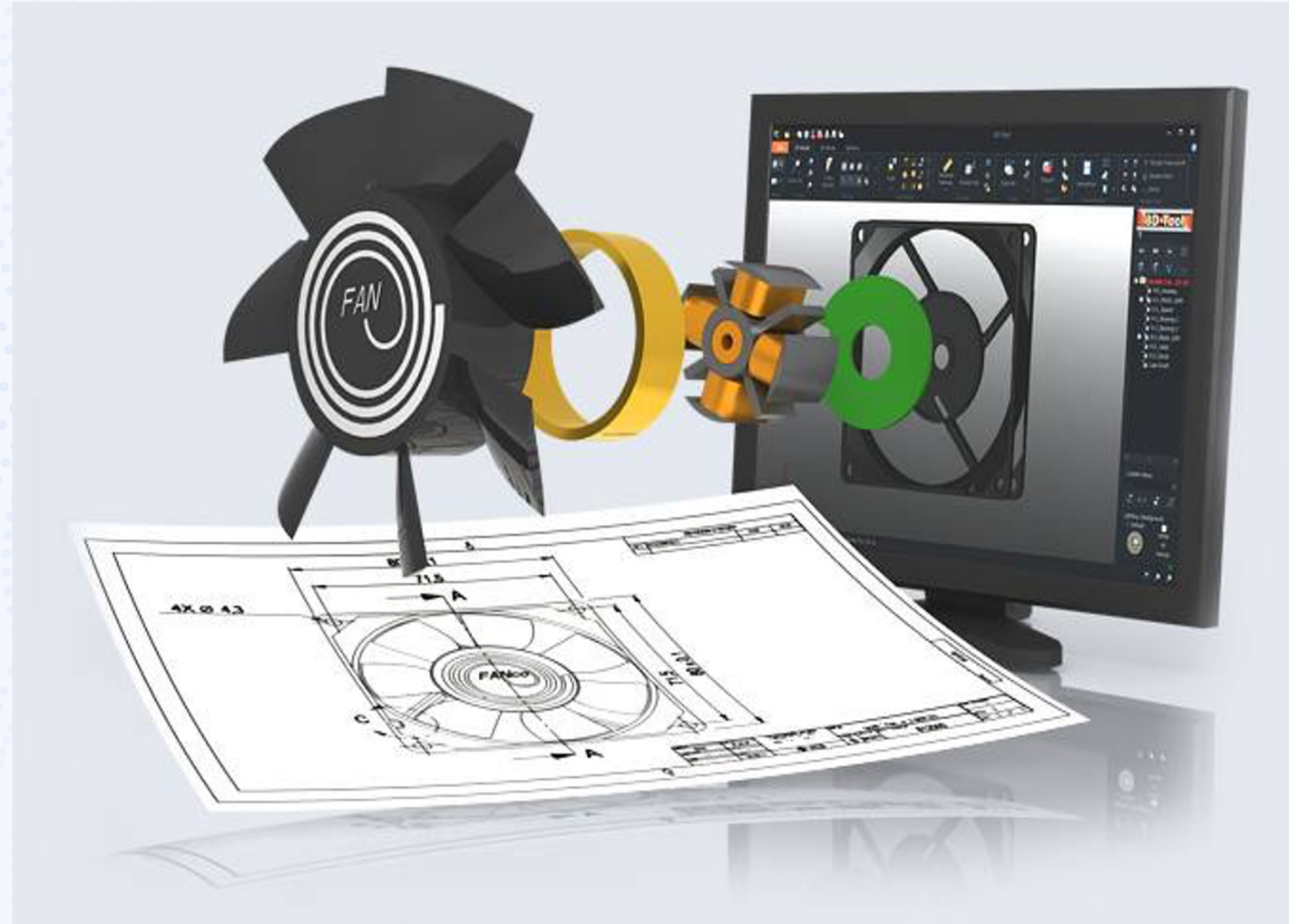
Use of CAD data - **analysis on similarity**

Analytical data extracted

Identification of larger potential

Similarity search printability

With electronic CAD product catalogues



Partner: Cadenas



Location independent Library of validated digital twins to print locally

MODELS

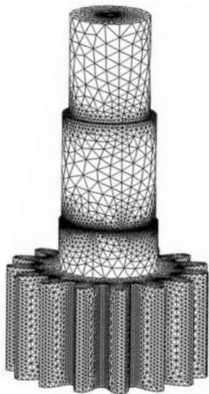
DEFAULT COLORED

DIGITAL LIBRARY

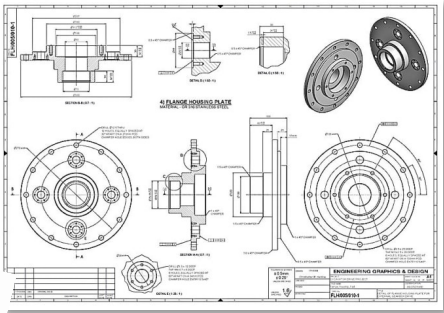


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	capnl001		DXF	197.70 KB	28/08/2020 17:34	☐	☐
	capnl001		STEP	1.10 MB	08/09/2020 13:52	☐	☐
	STL Q_Checklis...		DOCX	40.29 KB	08/09/2020 13:55	☐	☐
☒	vag plug		PNG	80.82 KB	28/08/2020 17:34	☐	☐

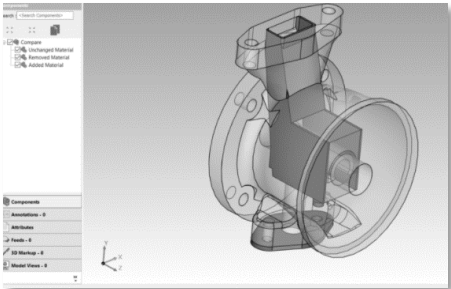
STL file



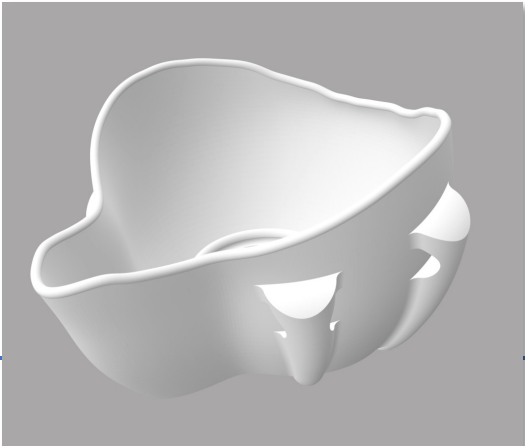
PDF



CAD



SCAN



Location Independent **Print locally in quantity & quality needed**

DiManEx Service Provider Network

343 views

Last edit was seconds ago

Add layer Share Preview



MUST HAVE:

ALL 3D MATERIALS

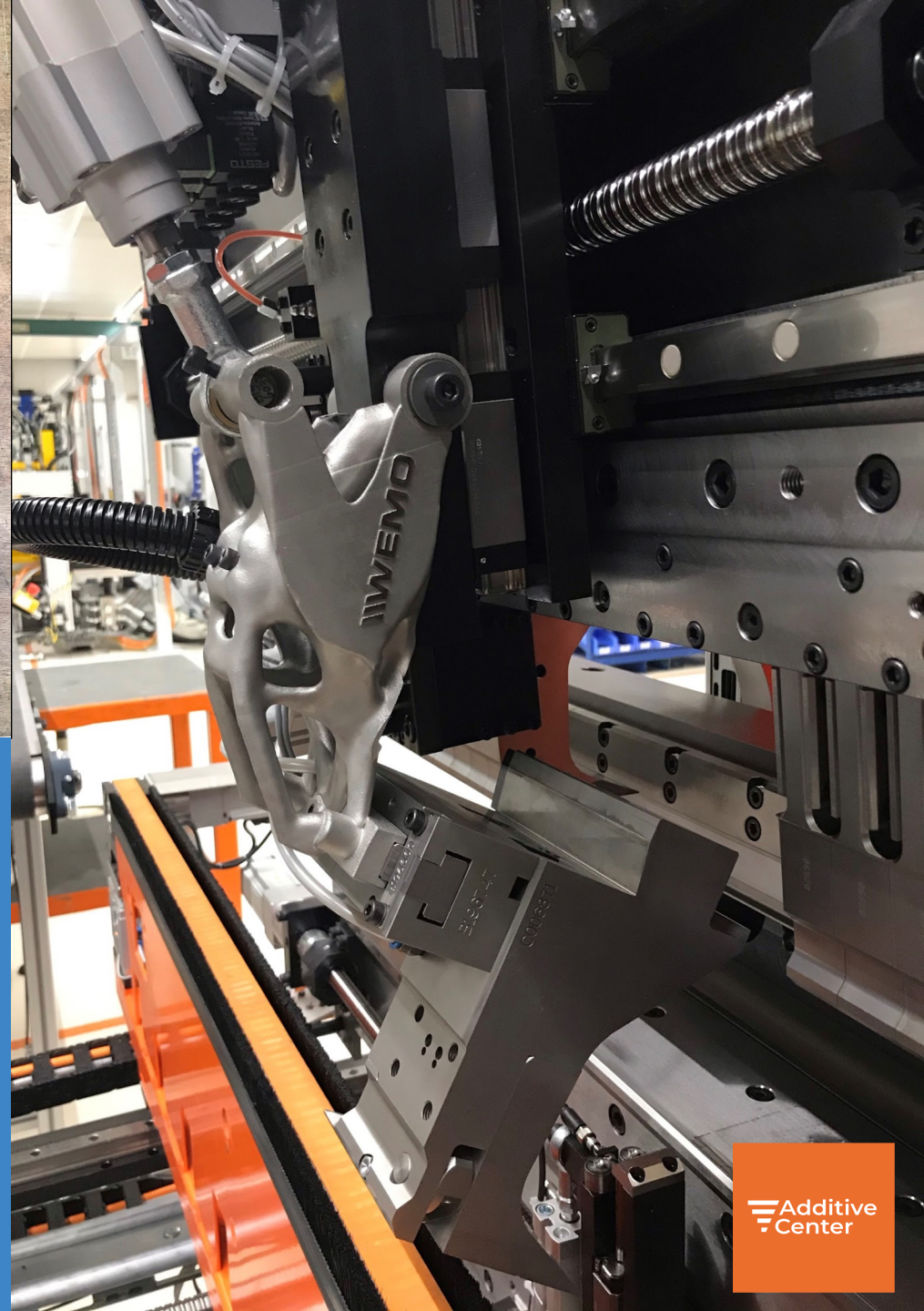
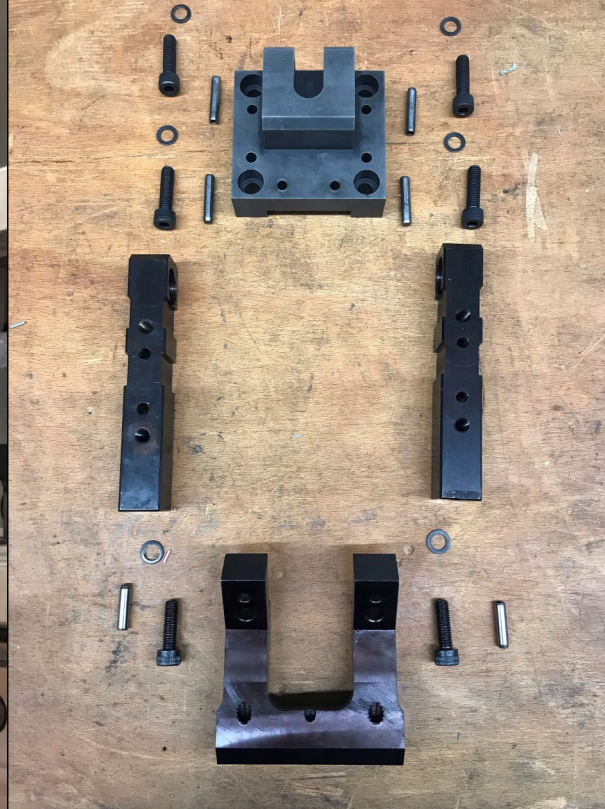
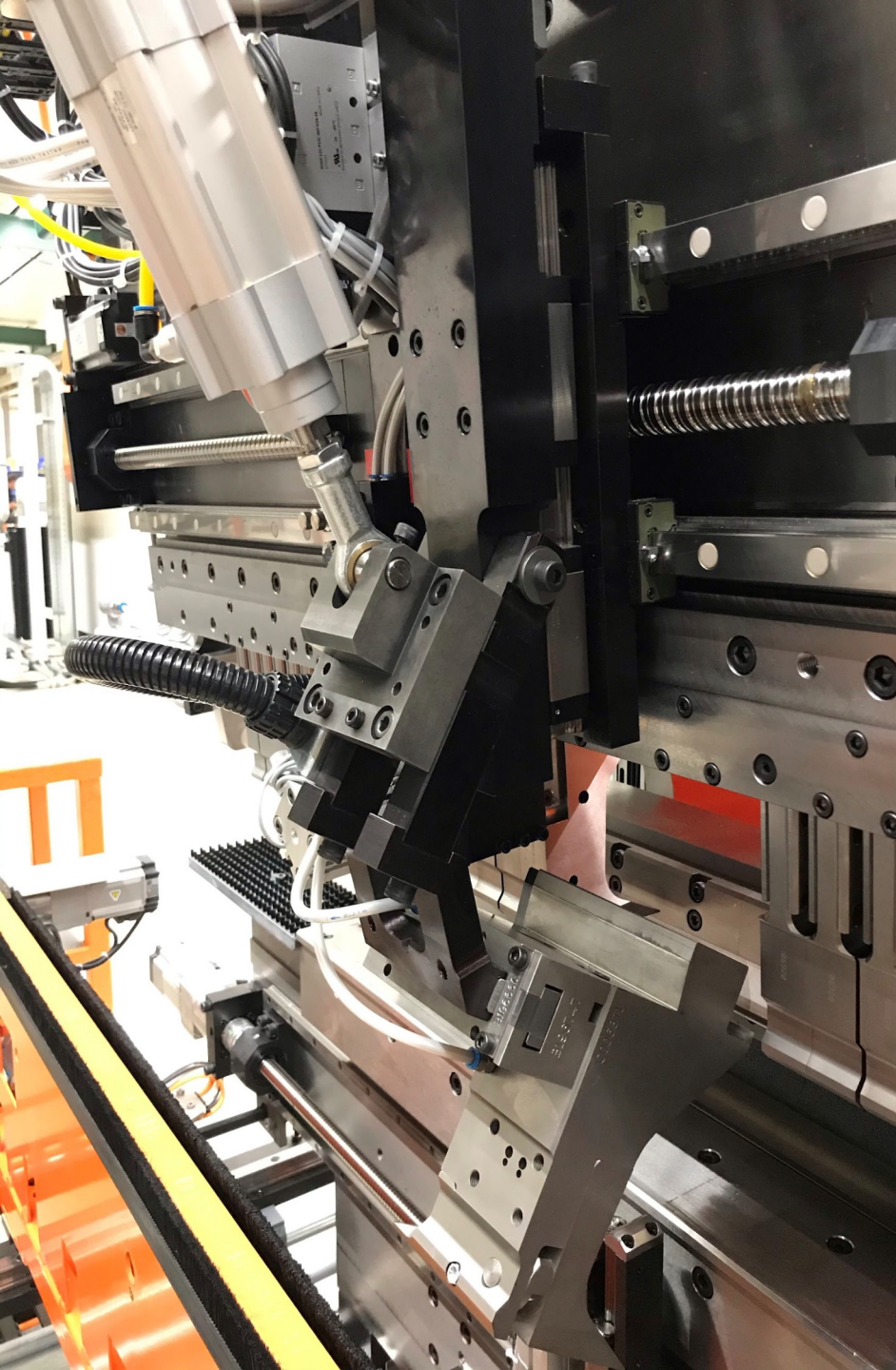
ALL TECHNOLOGIES

ALL LOCATIONS

100%

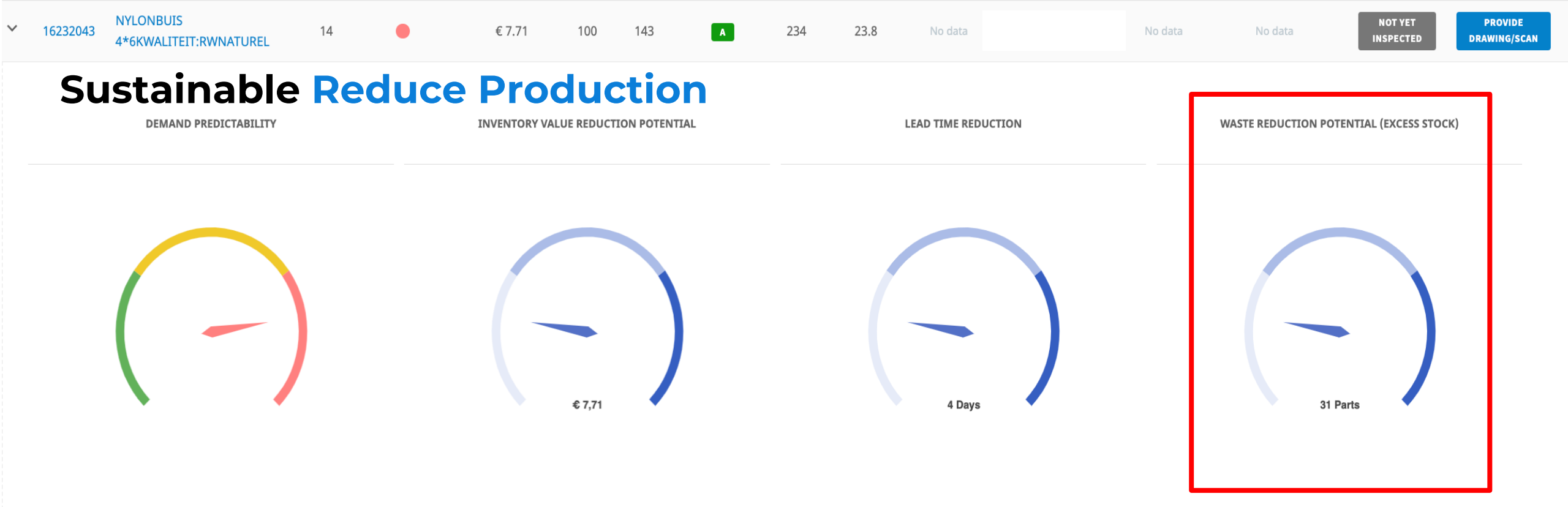
Availability





Complexity
&
Cost

Reduction



Assessed 14K Stock Keeping Units

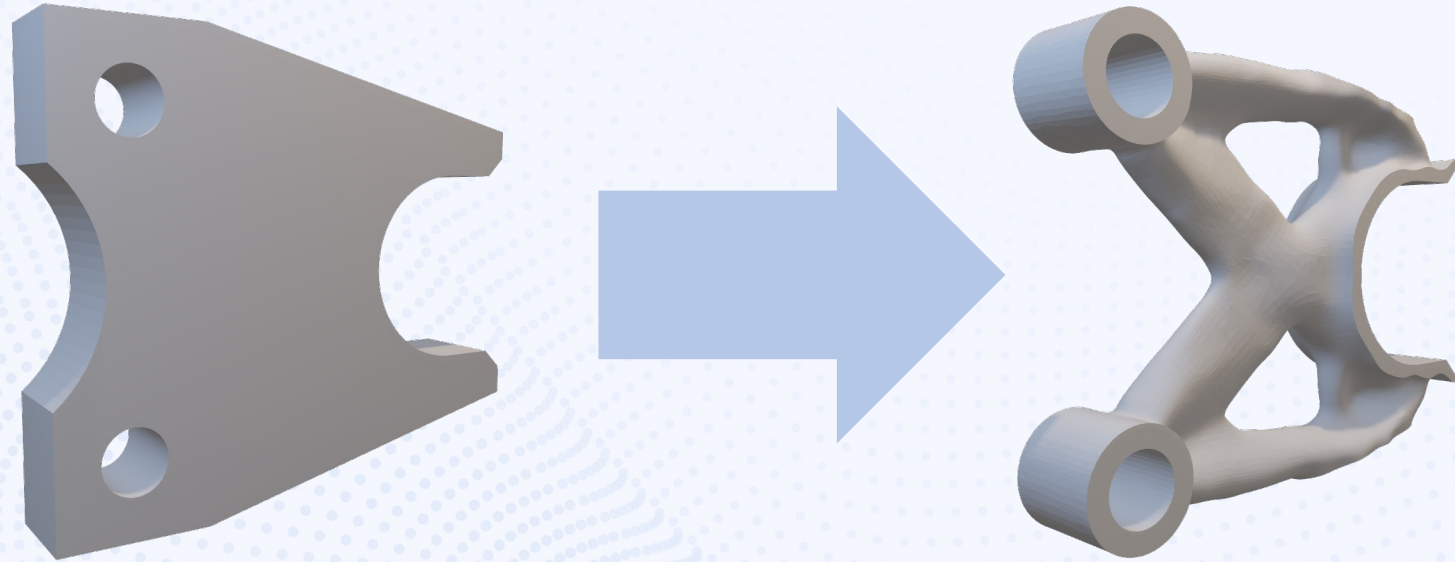
Calculated the Average Annual usage

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

Material reduction - 109.574 Kg



Sustainable **Reduce Material AND Cost**



Actual AM cost reduction through redesign – 34% / €3.91

Annual savings from AM redesign - €7,200

Lifetime savings through AM redesign - €72,000

Extra: Lifetime inventory cost reduction through AM adoption



Sustainable **Reduce Transport**

Operations across three continents

Central warehousing US

Selected 1000 SKUs used for business in EU

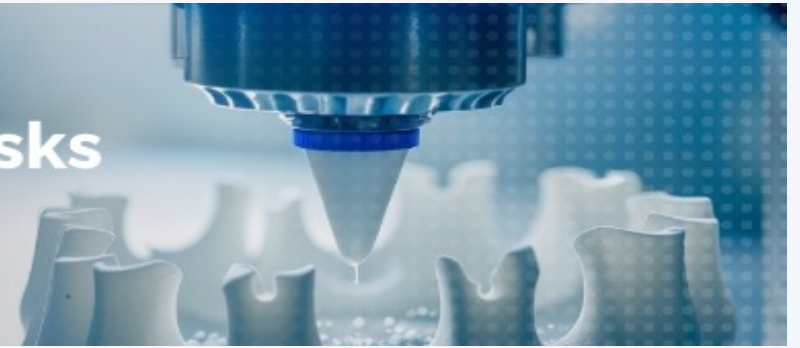
Calculated the number of parts not stocked in US but printed locally in EU. Estimated number of parts per transport and frequency based on demand. Calculated average number of KM's transport reduced.

Benefit: transport reduction in one month 48.000 Km



Eliminate supply chain risks

With **Additive Manufacturing**



Our **DFAM** feature is a..

TCT Awards finalist!



Pieter Ruijssenaars
Founder - CEO DiManEx



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