

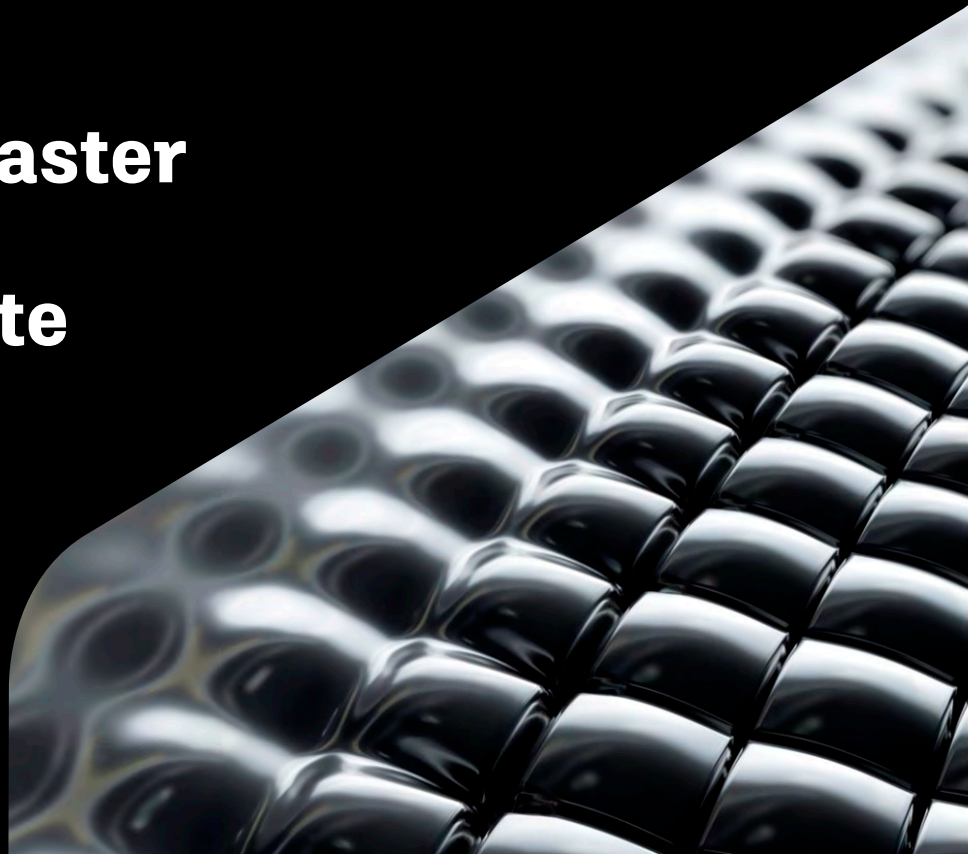


Building more sustainable products, faster with Fusion 360 and Makersite

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Class Agenda



Why does sustainability matter? And how to tackle it in product design?



Our Makersite – Autodesk Partnership



Live Demo with PEMBREE

The Class Objectives



Understand how to manage the impacts of a product through design decisions



Discover how Makersite and Autodesk are partnering to bring sustainability insights into early product-design phases



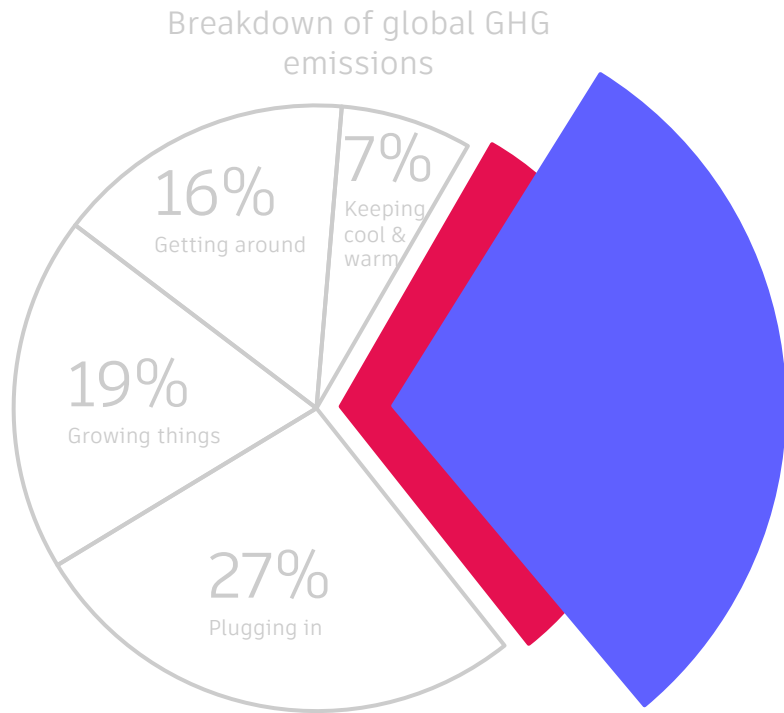
Feel empowered and able to make a difference with the new Autodesk Fusion 360 Makersite plug-in



Why does sustainability matter?

And how to tackle it in product
design?

What We Make Has The Biggest Impact



31%

of total greenhouse gas emissions come from what we make

80%

of greenhouse gas emissions are embedded at design stage

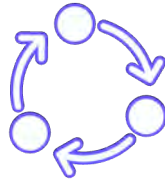
Source:

- Gates, B. (2021). How to avoid a climate disaster: The solutions we have and the breakthroughs we need. Allen Lane.
- McKinsey (2020) 'Design cost-effective, carbon-abated products with resource cleansheets'

How We Make It (Design) Can Be Challenging



As designers, you feel responsible for the sustainability of our products



Product innovation is slow, and as designers you are dependent on others for data to influence your design choices



There is a lack of appropriate tools to empower you to take fast and meaningful design decisions

“

Twenty years ago, a designer would only think about the head of the product: How do we produce it? How can we sell it? How will people use it?

I think more and **more designers now look at the tail of the product, how will it be thrown away and what's going to happen after that.**

-Sept 2019

OKI SATO

Head of Design

n e n d o



“

Decision makers are head of functions or teams from Innovation, Design, R&D, Procurement, IT etc. **For big companies it can be a pretty complicated process**, especially when the company business covers industrialization, production and manufacture and overall cost, service and training, hardware and software, and maintenance etc.

Designer @ Philips

PHILIPS



“

We desperately need tools using AI to make indications quickly **on materials and how to make things more circular**. It's just too complex for our human brain.

-April 2020

TIM BROWN
Chair



Sustainable Design Principles exist as a tool to help

However, those lack the rigor of quantitative assessment

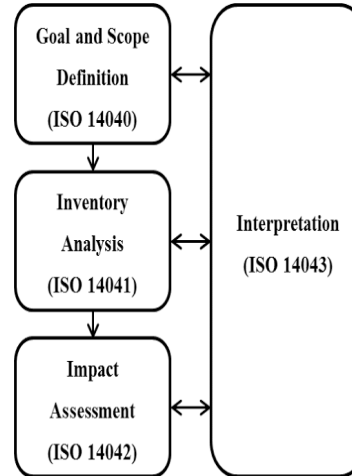


Lifecycle Assessment (LCA) adds the quantitative rigor

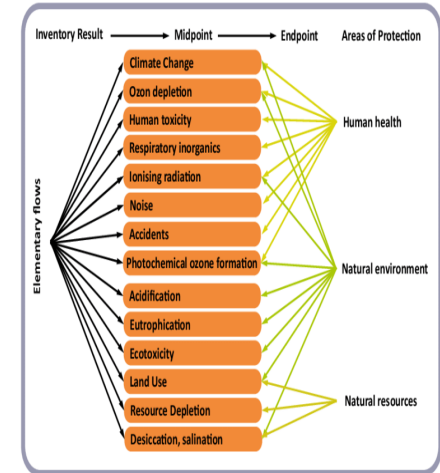
The “golden standard” of impact measurement



Lifecycle



LCA phased and standards



Typical mid and end-point impact categories

But LCA comes with its challenges too



Complex –
requires LCA
experts



Disconnected
from the product
design process
and designers



Done too late in the
product
development
process



Lacking data to
be accurate and
actionable



Often expensive,
long, hard to do



Disconnected to
other type of
assessment (cost,
compliance, etc.)



Our Partnership

Makersite - Autodesk



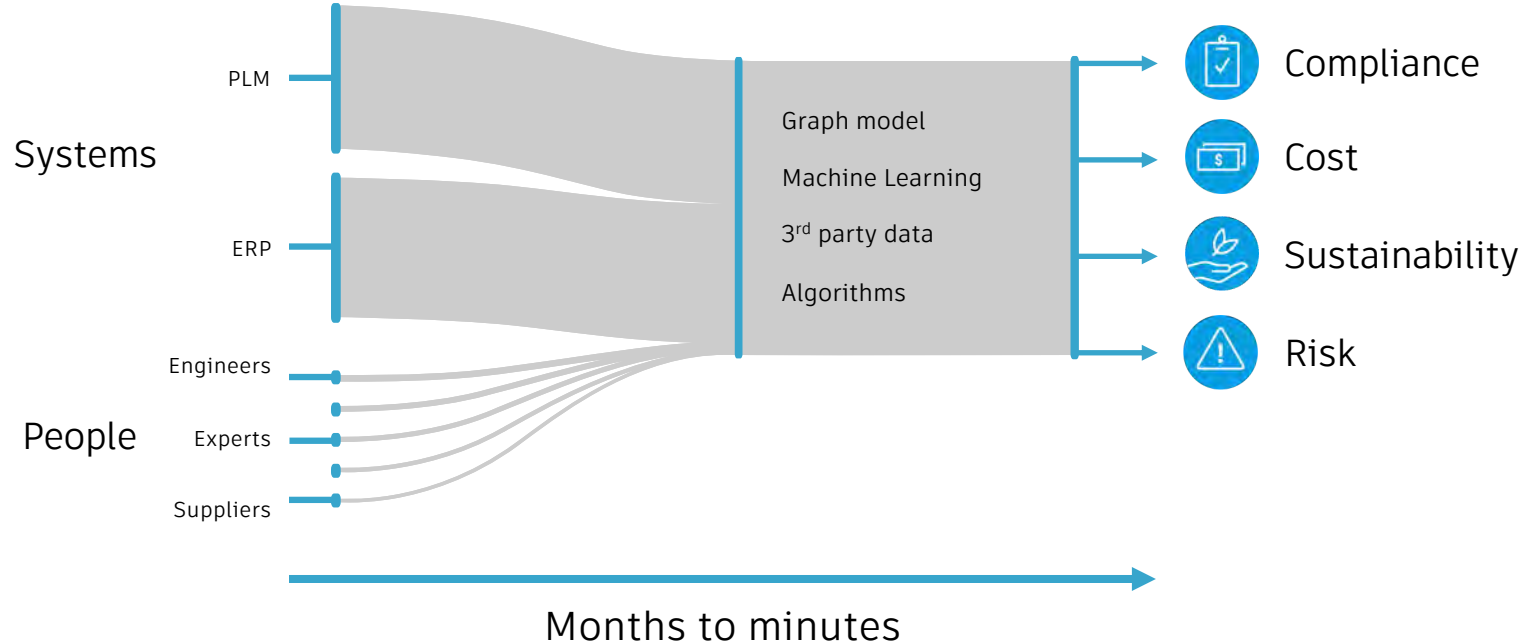
A software-as-a-service provider based in Germany

Delivering AI, data and apps

To power sustainable product and supply chain
decisions



Solution: digital twins of how stuff is made



We started in 2018, and since then....

15+ Awards



35 Enterprise Customers



75+ years experience



Founder



Services & Data



Engineering

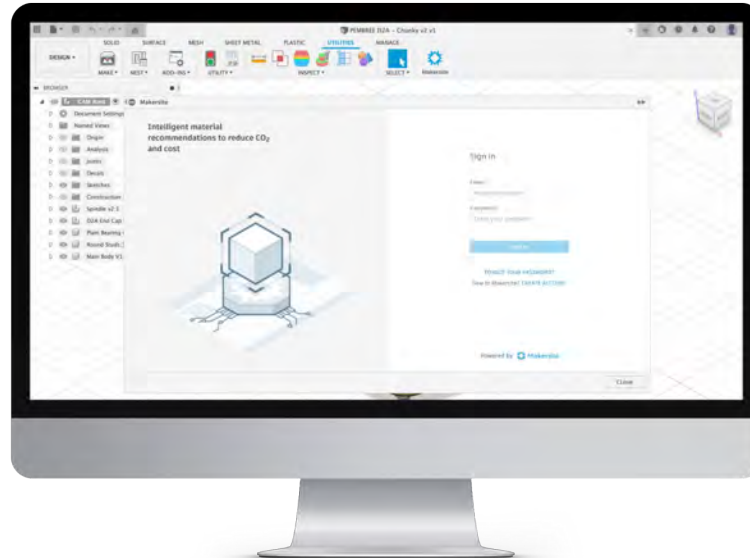


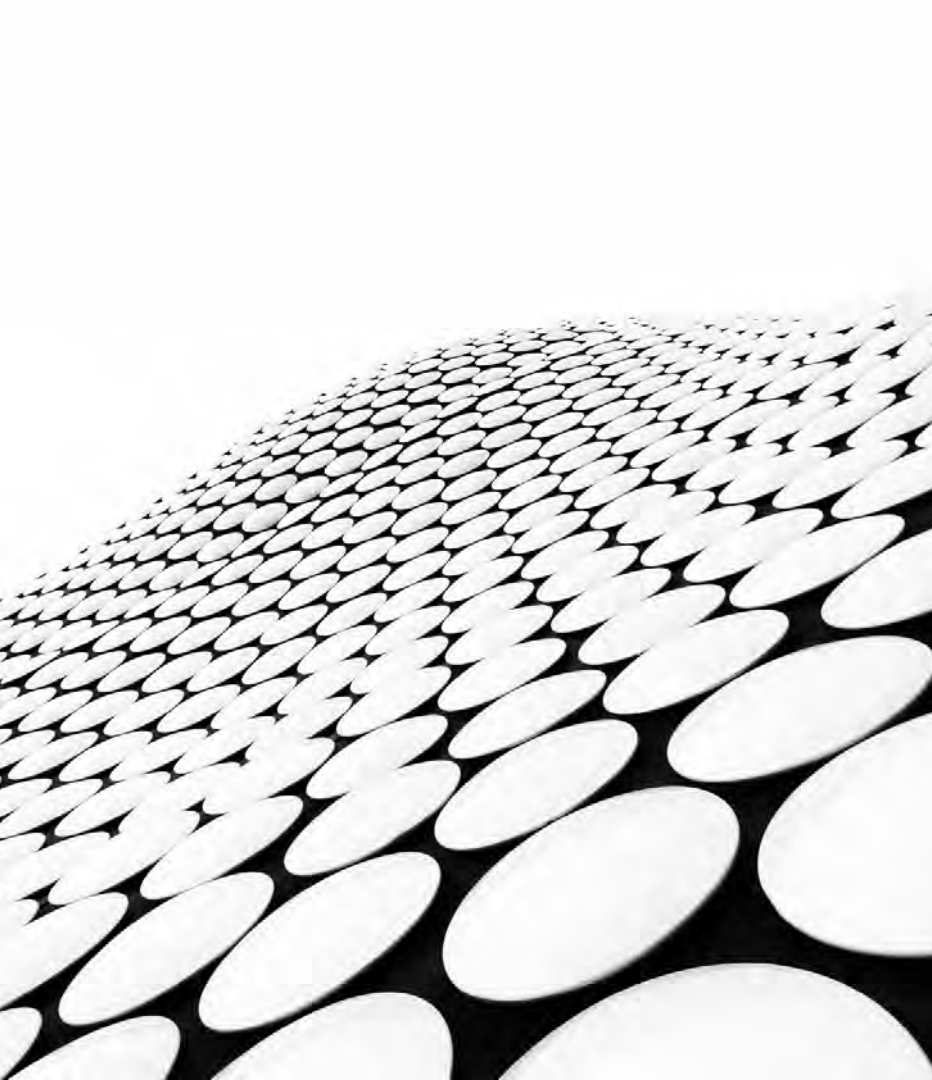
Sales & Marketing



Operations

Our Partnership





Our Shared Vision



Engineers hold the keys to solving our sustainability problem



Life Cycle Approach is key to making the right decisions about products and supply chains



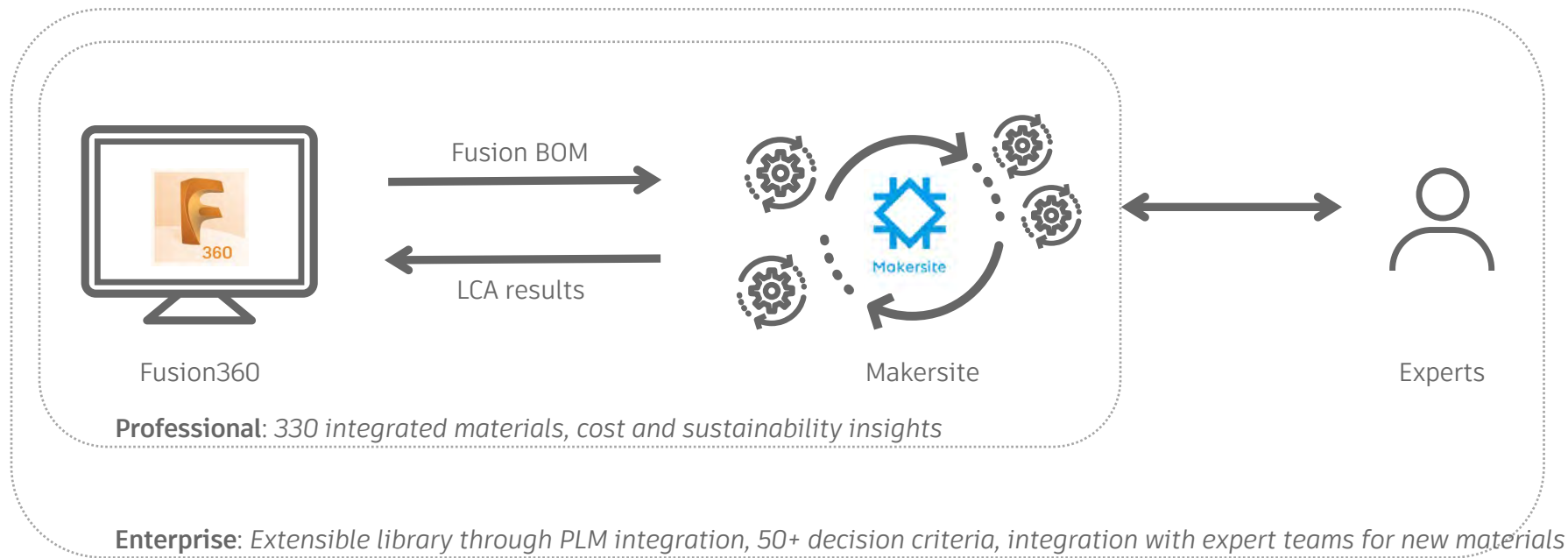
CAD is the best environment to enable those decisions about product designs

Our Mission

To enable every product designer to make high-conviction decisions based on a broad set of criteria, in real-time by leveraging the synergy between Autodesk's leadership in Design and Makersite's leadership in data & insights



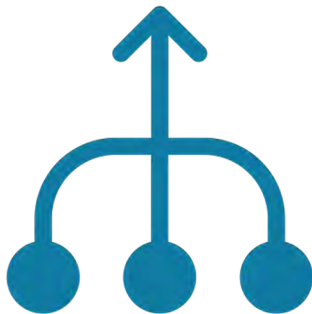
Our Vision



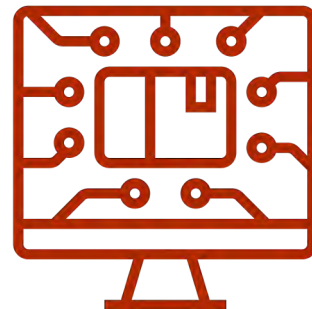
Our Ultimate Outcomes



Enabling engineers to
build more sustainable
products faster



Connecting disjointed
workflows, people &
expertise



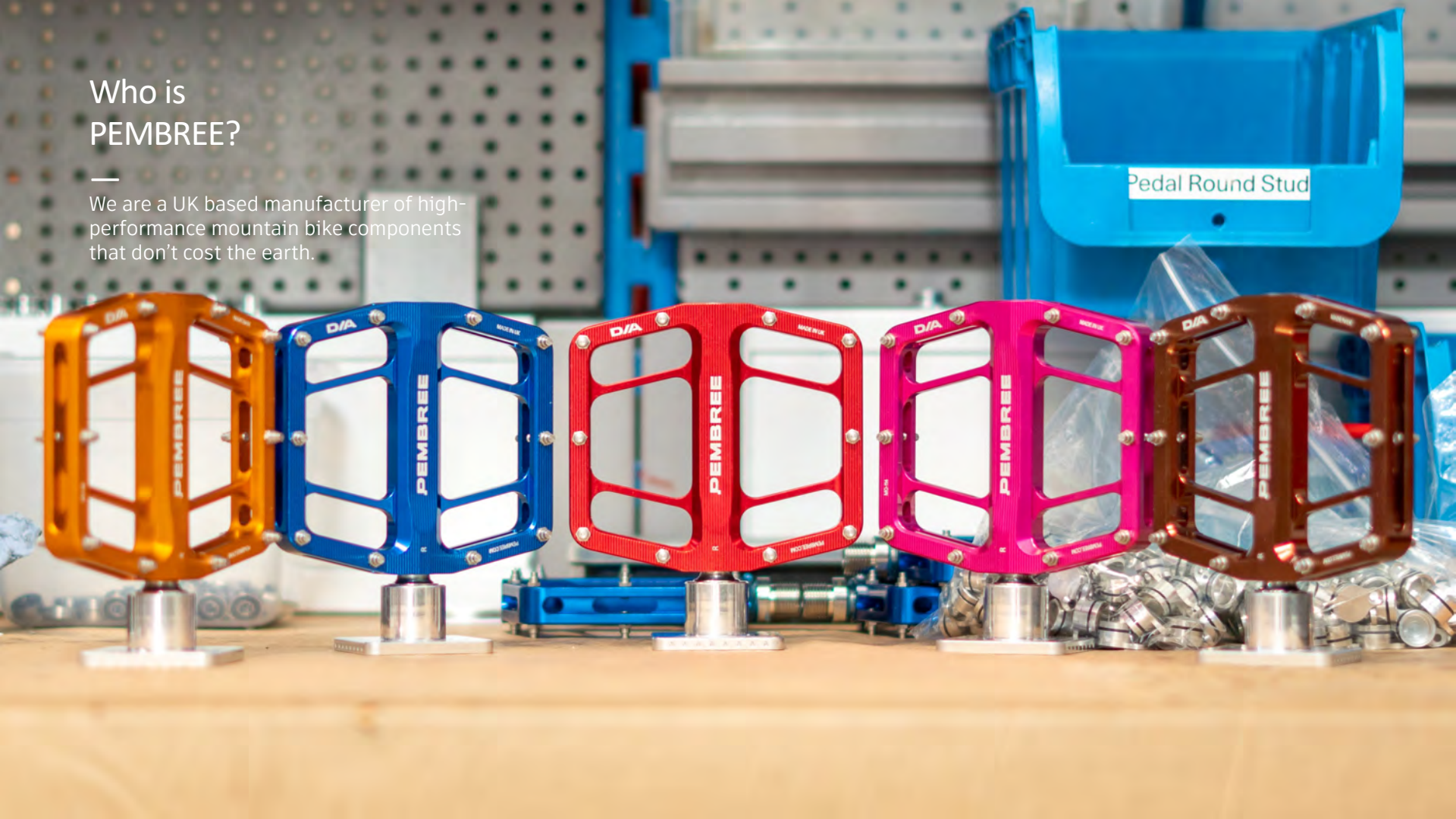
Making digital product
passport the new norm



**Live demo with
PEMBREE**

Who is PEMBREE?

We are a UK based manufacturer of high-performance mountain bike components that don't cost the earth.



OUR MISSION



To become a global leader
in ethical, transparent and
ecologically sustainable
manufacturing





Our Approach

—
Passively influence the mountain bike industry with products that are high performing, sustainable, durable, locally manufactured, and sensibly priced.





Our Approach

Passively influence the mountain bike industry with products that are high performing, sustainable, durable, locally manufactured, and sensibly priced.

Our Partners



Our Lifecycle Analysis



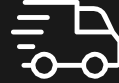
Extraction
of raw
material
—



Manufacture of
raw material
—



Manufacture of
parts at PEMBREE/
supplying partners
—



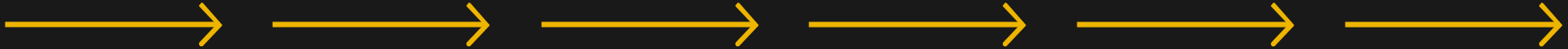
Transport to
customer
—



Use & Servicing
—



Recycling at
end of life
—



Why this
approach?

THE FUTURE

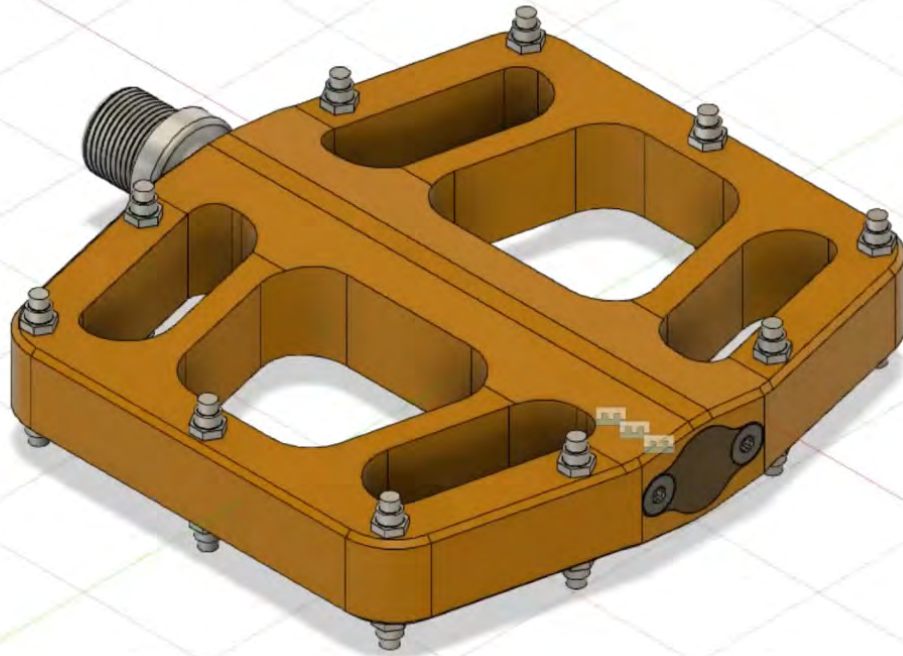


**Let's see the Fusion360
Makersite Plug-in
in action**



BROWSER

- CAM Root
- Document Settings
- Named Views
- Origin
- Analysis
- Joints
- Decals
- Sketches
- Construction
- Spindle v2:1
- D2A End Cap v1:1
- Plain Bearing v1:1
- Round Studs:1
- Main Body V1:1



COMMENTS



The benefits



Getting immediate
feedback on design, at
the fingertip



Understanding &
prioritizing hot spots to
tackle



Explore alternatives and
open discussions with
suppliers



What's next ?

Learn more!

- You are interested in learning more?
 - Scan this QR code and fill up this form and we will keep you up to date!
- The beta version of the Fusion360 Makersite plug-in will be soon available to a limited number of users
- During AU, go to the Factory Live Event to see the plug-in in action



URL: <https://makersite.io/autodesk-powered-by-makersite/>

**What's the largest
impact you can
make?**



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