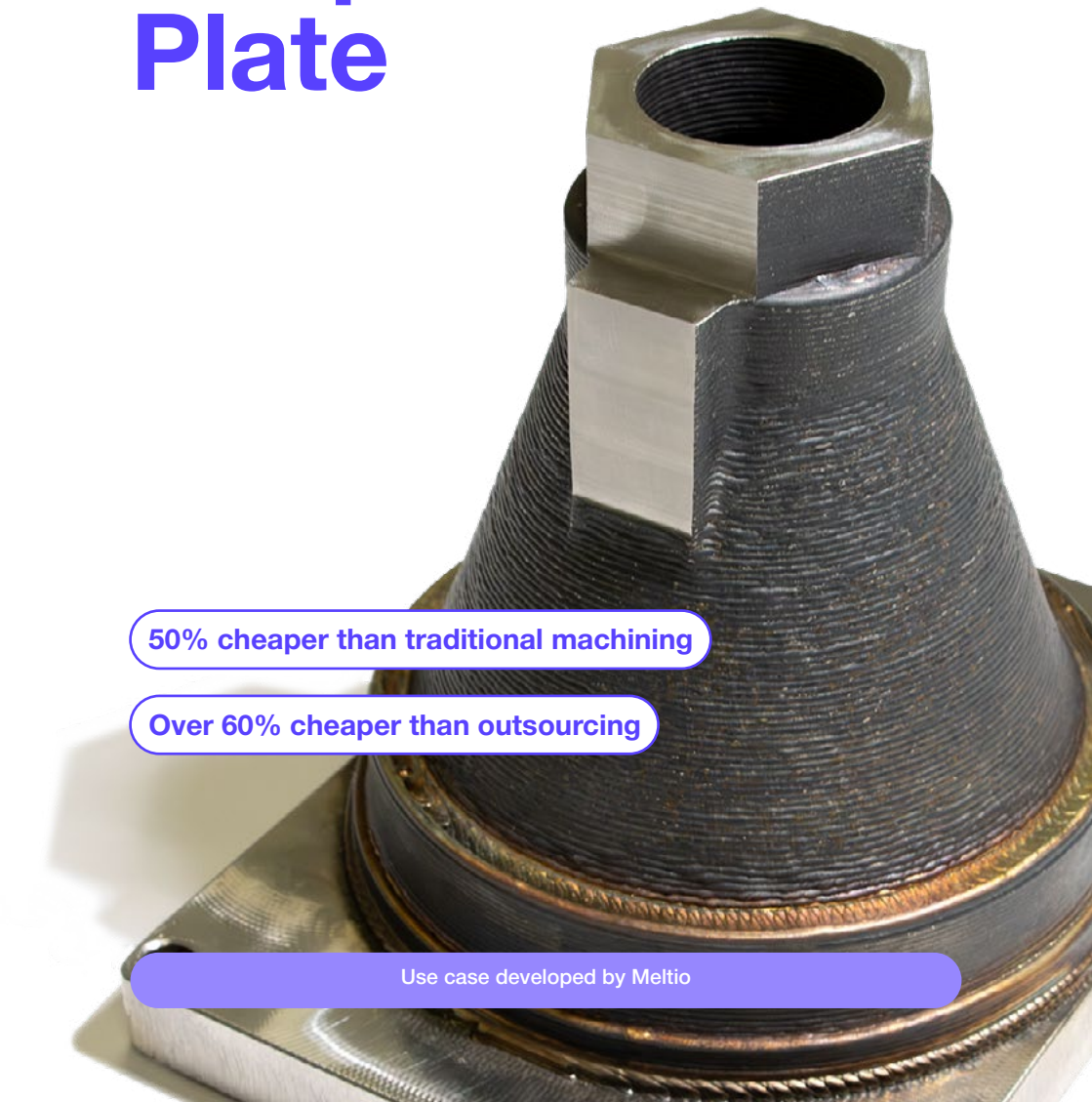
MELTIO

Use Case: Manufacturing

Adapter Plate



50% cheaper than traditional machining

Over 60% cheaper than outsourcing

Use case developed by Meltio

This use case presents the internal evaluation of manufacturing a 150 mm diameter Adapter Plate for the Inert Bubble using Metal Additive Manufacturing with Meltio technology.

The analysis compares three approaches: in-house production (Meltio LMD + partial machining), traditional full in-house machining, and outsourcing to a third-party supplier.

- **Objective**
  Production optimization
- **Sector**
  Manufacturing
- **System**
  Meltio M600
- **Material**
  Stainless Steel

Challenge

High material waste during traditional machining (high buy-to-fly ratio).

Increased costs for raw materials and consumables.

Long machining times due to not ideal CNC equipment.

Higher dependence on external services and longer lead times.

Low profitability when producing small volumes.

Solution

The strategy involved **metal 3D printing** a near-net shape of the Adapter Plate using LMD technology, followed by **selective machining** only on critical surfaces.

Results

50% cheaper than traditional machining

Scalable solution

Over 60% cheaper than outsourcing

Increased production flexibility

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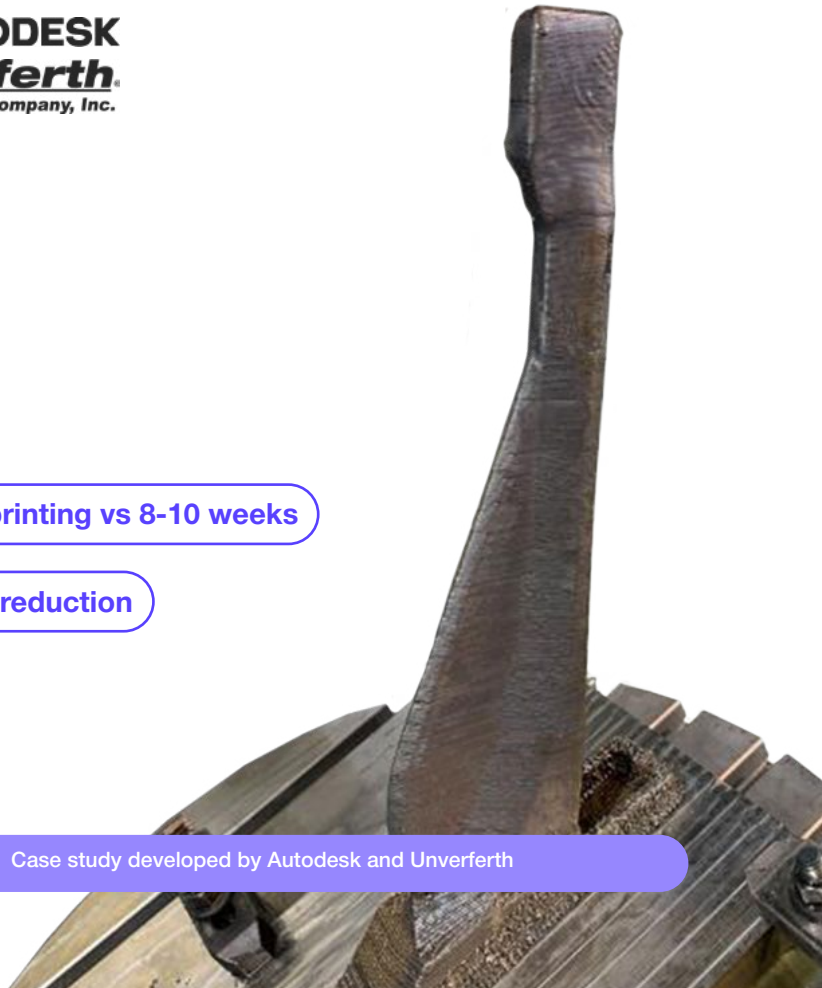
Case Study: Agriculture

Injection knife Redesign

AUTODESK
Unverferth
Manufacturing Company, Inc.



15 hours printing vs 8-10 weeks

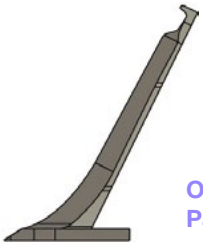
92% Cost reduction

Case study developed by Autodesk and Unverferth

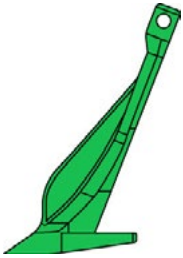
This case study between **Autodesk and Unverferth** highlights how Meltio's technology is capable of overcoming several constraints in the agricultural sector.

Injection knives are a **critical wear component** in agricultural equipment, responsible for cutting into the soil and injecting fertilizer or slurry.

- **Objective**
  Reduce Cost and time
- **Sector**
  Agriculture
- **System**
  Meltio Engine for CNC
- **Material**
  Stainless Steel



Original Part



Redesigned Part

Challenge

The component is a traditionally cast injection knife, conventionally hardened steel, which presents machining hard-to-reach slot and as it's a tall component, it may have distortion issues.

Solution

Redesign and using the Meltio's technology with a traditional CNC platform.

Results

15 hours printing vs 8-10 weeks

Tooling free prototyping

92% Cost reduction

Efficient low-volume part production

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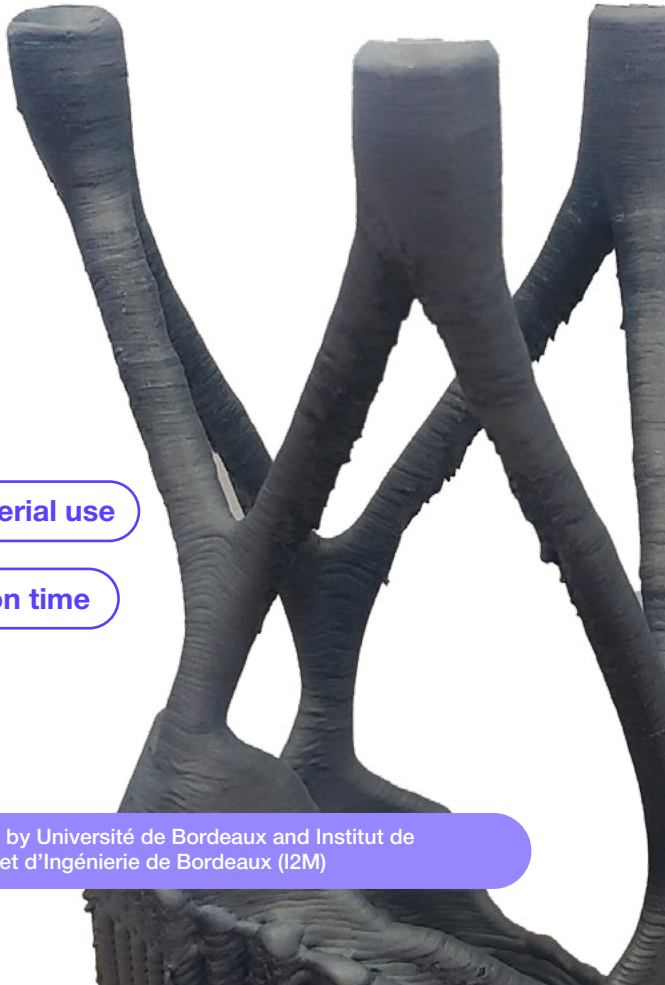
Use Case: Aerospace

Tripod Lightweighting

I2M BORDEAUX



35% reduction in material use

10.5x faster production time

Use Case developed by Université de Bordeaux and Institut de Mécanique et d'Ingénierie de Bordeaux (I2M)

This use case was developed together with the **I2M laboratory and the University** of Bordeaux to advance the frontiers of metal Additive Manufacturing (AM).

The I2M laboratory faces the challenge of reducing the weight of aerospace component, a tripod, without compromising their structural integrity, in order to enhance fuel efficiency and overall performance.

- **Objective**
  Reduce the weight
- **Sector**
  Aerospace
- **System**
  Meltio M600
- **Material**
  Stainless Steel

Challenge

The goal was to design a **lightweight** yet robust tripod that **reduce material consumption** while maintaining necessary mechanical properties.

Solution

Topological optimization algorithms to remove non-critical material from the design.

Results

35% reduction in material use

Shorter lead times

10.5x faster production time

Strong mechanical properties