Ultrasim® 3D Cost Analysis (TCO)
Offering
Do you meet your target costs with the material-technology-solution? Using FFF, MJF, SLS, DLP, LCD

We only estimate manufacturing costs using industrial or customized production settings. If an offer from a service bureau is needed, please contact Sculpteo or the service bureau of your choice.
We support you in every stage – from starter to expert

➢ In the end, the 3D printed part has to meet your target costs. We offer quick feedback about cost per part, insights into cost structures and help to unlock the full potential for series applications:

### Starter

**Single Cost per Part:**

- Understanding the cost structure of your 3D printed part and what drives the costs.

### Premium

**Cost Benchmarking**

- Compare the costs of several AM technologies and understand what technology might be most suitable for you.

### Enterprise

**AM Cost Tool:**

- Use our in-house developed AM Cost Tool for your own calculations.

Coming Soon
## Ultrasim® 3D Cost Analysis (TCO) - Offering

### Starter
- **Cost per Part Offering**
  - Understanding the cost structure of your 3D printed part and what drives the costs.

### Premium
- **Cost Benchmarking**
  - Compare the costs of several AM technologies and understand what technology might be most suitable for you.

### Enterprise
- **AM Cost Tool**
  - Use our in-house developed AM Cost Tool for your own calculations.

#### What you get:
- Cost report as PDF
- Cost comparison of two AM technologies/materials
- Sensitivity analysis (what-if-analysis of cost parameters)
- AM cost tool

#### What AM technologies:
- MJF/ SLS/ LCD/ DLP/ FFF
- BASF material portfolio

#### What AM materials:
- BASF material portfolio
- External materials

#### What we need from you:
- STEP/STL
- TCO input data (PPT onepager)
- Add AM technology or material (+ 500€)
- Add cost iterations (+ 250€)

#### Get your Add-on:
- Add AM technology or material (+ 500€)
- Add cost iterations (+ 250€)

#### Lead time:
- 14 days
- On request

#### Price:
- Starting at 990 €
- Starting at 1.490 €
How it Works

Heidelberg, 13.06.22
Starter Workflow: Single Cost per Part

1. Input data

You receive a input report to define your production scenario.

2. Cost per Part analysis

We use our internal TCO tool developed over years to calculate the cost per part for your application.

3. Cost Report

You receive the detailed cost report as PDF.
## Starter Example: Ultrasint TPU01

### Scenario Context:
- 1,000 3D-printed BASF-ProtectivPad Demonstrator
- Cost per part analysis for Ultrasint TPU01 with MJF
- Dimensions: 145 x 160 x 25 mm
- Volume: 121 cm³

### Print Scenes:

### Material Information

<table>
<thead>
<tr>
<th>Material Information</th>
<th>Unit</th>
<th>MJF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material name</td>
<td></td>
<td>Ultrasint TPU01</td>
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<tr>
<td>Material price</td>
<td>€/kg</td>
<td>List price</td>
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<tr>
<td>Refresh-rate</td>
<td>old/new</td>
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<tr>
<td>Part density</td>
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### Machine Information

<table>
<thead>
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<th>MJF</th>
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</thead>
<tbody>
<tr>
<td>Machine name</td>
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<td>HP 5210</td>
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<tr>
<td>Build volume</td>
<td>mm</td>
<td>380 x 284 x 380</td>
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<tr>
<td>Assumed machine price/printer plus PPE and services</td>
<td>€</td>
<td>List price</td>
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<tr>
<td>Depreciation period</td>
<td>y</td>
<td>5</td>
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</table>

### Production Information

<table>
<thead>
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<th>Unit</th>
<th>MJF</th>
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</thead>
<tbody>
<tr>
<td>Production volume</td>
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<td>1,000</td>
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<tr>
<td>Parts per build</td>
<td>parts/build</td>
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<tr>
<td>Workdays per week</td>
<td>d/y</td>
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<tr>
<td>Production days</td>
<td>h/y</td>
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<td>Shifts per day</td>
<td>shift(s)/d</td>
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<tr>
<td>Total production time (print+setup)</td>
<td>h/job</td>
<td>16</td>
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<tr>
<td>Depowdering removal</td>
<td>min/part</td>
<td>2</td>
</tr>
<tr>
<td>FTE salary, operator</td>
<td>€/h</td>
<td>EU</td>
</tr>
<tr>
<td>Overhead (POH, IPOH &amp; SGA)</td>
<td>%</td>
<td>Not taken into account</td>
</tr>
</tbody>
</table>
Summary:
- MJF Unit Manufacturing Costs = 28€/part
- Mainly driven by costs of printer & maintenance (48%) and by cost of material (34%)
- Cost optimizing potentials by reducing annealing time to run to jobs/day
Premium - Workflow: Cost Benchmarking

1. Schedule a 30min call

Set up the customized production setting of your 3D printed part.

2. You provide input data

Technical and business assumptions needed for TCO.

3. Cost per part analysis

We perform the cost per part analysis, and additional what-if-analyses.

4. Cost Report and TCO Presentation

Deep dive into cost structure and how to unlock the full potential for series applications.
Premium Example: 3 Technologies

Scenario Context:
- 1,000 3D-printed automotive brackets per year
- Cost per part analysis for 3 different materials/technologies
  - LCD: Ultracur3D EPD 2006
  - MJF: HP PP
  - FFF: Ultrafuse ABS

Print Scenes:

Material Information | Unit | FFF | MJF | LCD
---|---|---|---|---
Material name | | ABS | PP | EPD 2006
Material price | €/kg | 33 | 35 | 61
Refresh-rate | old/new | 1,04 | 0,89 | 1,2
Part density | g/cm³ | - | 80:20 | -

Machine Information | Unit | FFF | MJF | LCD
---|---|---|---|---
Machine name | | Ulitmaker S5 | HP 5210 Pro | LC Magna
Build volume | mm | 330 x 240 x 300 | 380 x 284 x 380 | 510 x 280 x 350
Assumed machine price/printer plus PPE and services | € | - | 80:20 | -
Depreciation period | y | 5 | - | -

Production Information | Unit | FFF | MJF | LCD
---|---|---|---|---
Production volume | parts/year | 1,000 | - | -
Parts per build | parts/build | 8 | 60 | 10
Workdays per week | d/y | - | 5 | -
Production days | h/y | - | 250 | -
Shifts per day | shift(s)/d | - | 1 | -
Total production time (print+setup) | h/job | 48 | 12 | 11
Manual support removal/Depowdering | min/part | 1 | 2 | 5
FTE salary, operator | €/h | - | - | 25
Overhead (POH, IPOH & SGA) | % | - | Not taken into account | -
Summary:

- MJF (16 €/part) > LCD (15,5 €/part) > FFF (6,5 €/part)
- FFF: Mainly driven by machine and material costs; low machine invest; support removal costs can be reduced by water soluble material (BVOH)
- MJF: Mainly driven by costs of printer & maintenance; potential for optimized nesting for lower printer costs & maintenance
- LCD: Mainly driven by material costs; high amount of support increases costs for material and labor for support removal; machine costs can be reduced with optimized part orientation for more parts/job
Any Questions? Contact Us!

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Innovating Additive Manufacturing