

MAGMA

MAGMA Economics



Dr.-Ing. Marcus Schopen

Workshop Non-Ferrous Applications

International MAGMA User Meeting 2024 Frankfurt

10th October 2024

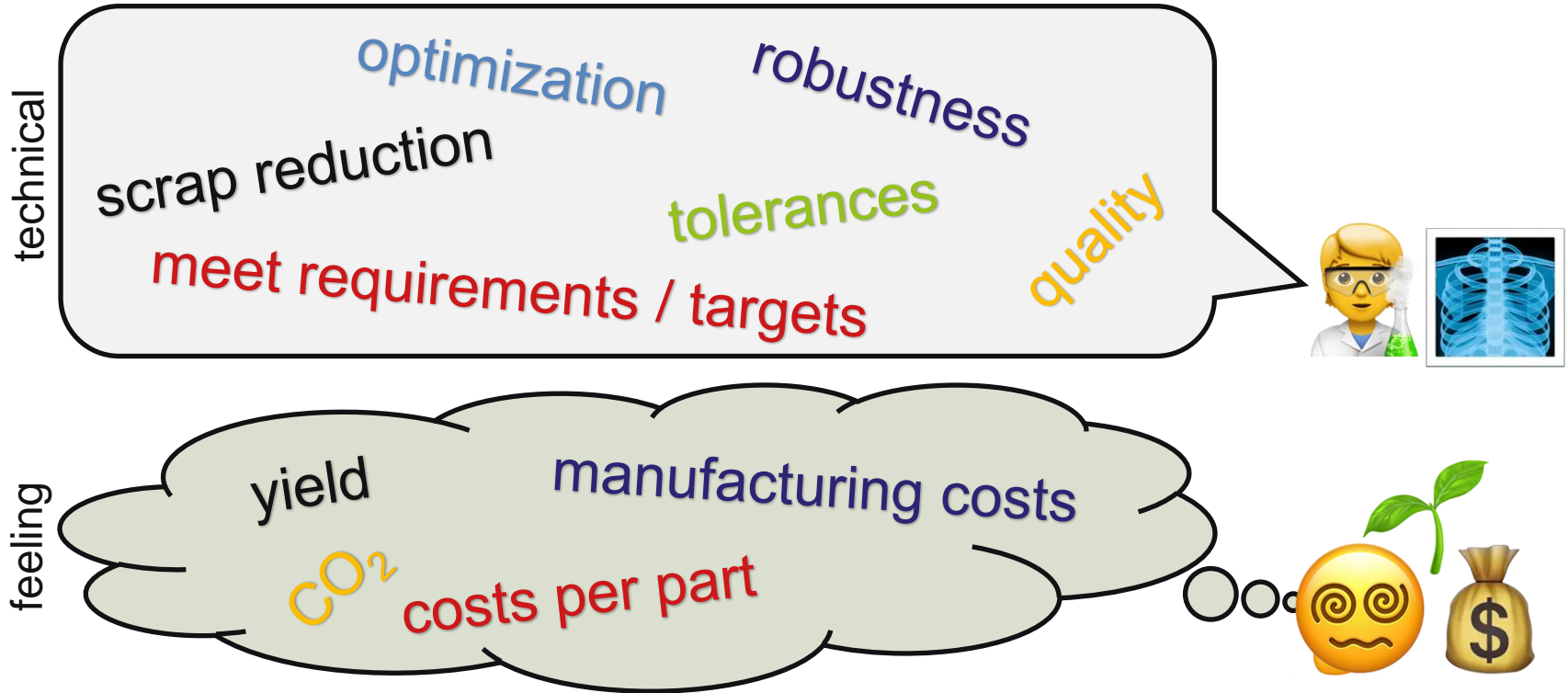
International MAGMA User Meeting 2024

October 9-11, Frankfurt



Motivation

Status Quo



MAGMA ECONOMICS

What is it...

- a new, additional **perspective** in MAGMASOFT®
- **easy to use & free** of charge.
- **production costs** and/or **CO₂** emissions estimation for castings

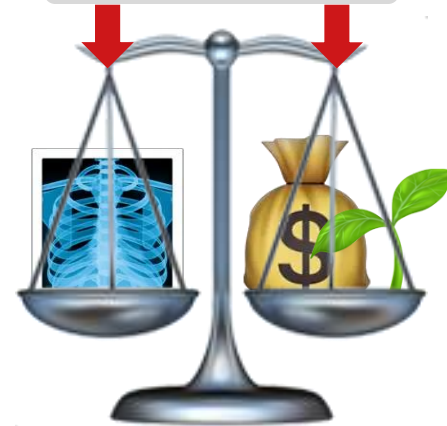
MAGMA ECONOMICS provides further criteria – in addition to quality – for evaluating the best solution: **costs and CO₂**.

- We are talking about costs, **NOT** price!
- It is **NOT** a comprehensive **cost-/CO₂-calculation program!**



MAGMASOFT®
autonomous engineering

project information



MAGMA ECONOMICS

How does it work...

- With support from the **cost sheets** ...
- ...and the **already available information** in MAGMASOFT® simulation projects
- ...and **without any further input**
- ...estimations of **costs** and/or **CO₂ emissions** are automatically calculated.
- Including **DoEs**

MAGMA ECONOMICS

Where is the benefit?

- ▢ More **robust**, better and more **sustainable evaluations & decisions...**
 - ▢ with **additional decision criteria**,
 - ▢ by adding **more/different people** in the decision making process and
 - ▢ by gains of **knowledge & visualization** the relation btw. **costs/CO₂** and **quality**.
- ▢ Furthermore **time can be saved** in the development process by
 - ▢ **early considerations** of **costs** and **CO₂** emissions in the simulation phase and by
 - ▢ **avoiding** unnecessary simulations.



Feeling?! 🤔

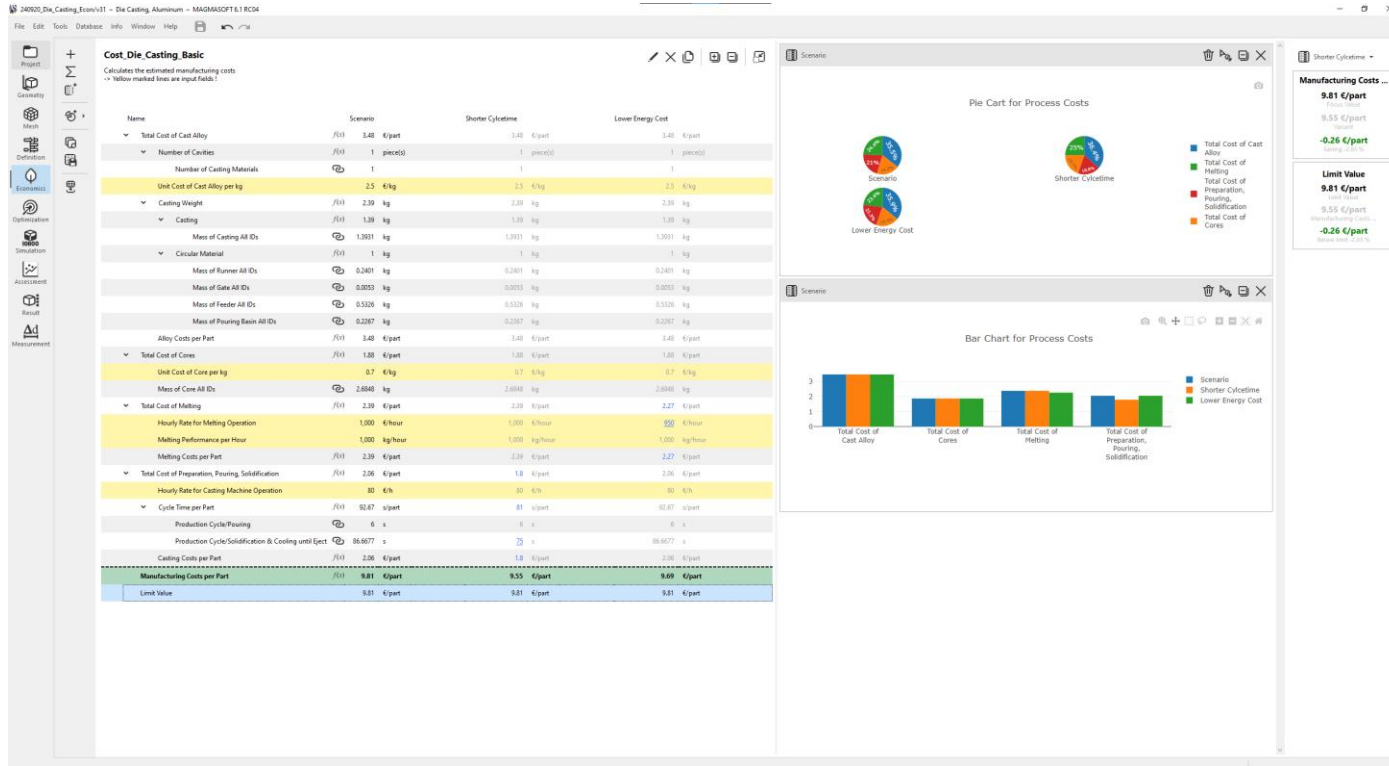


Quantitative Values! 🧐

Live Demo

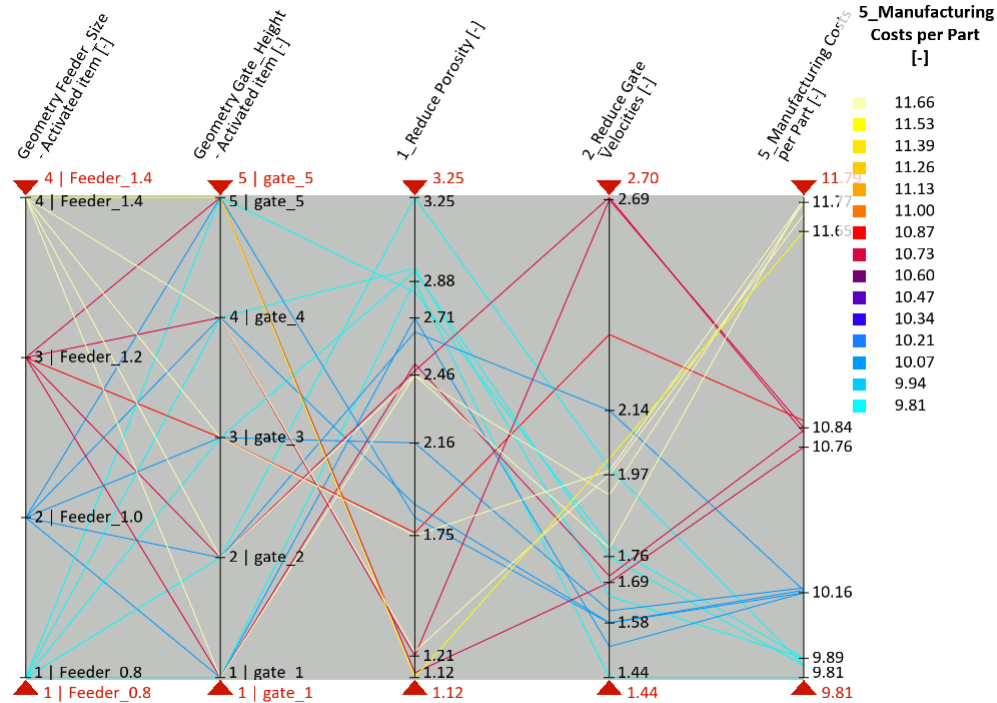
Summary

Cost Sheets and What-If Scenarios



Summary

Optimization and DoE



Summary

Compare Versions

Compare Dialog
Compare your selection

Filter icons: Funnel, Add, Remove

| Name | (1) Version 31 | (2) Version 32 | (3) Version 33 |
|---|----------------|----------------|----------------|
| > Design Variables | | | |
| > Objectives | | | |
| Output Values | | | |
| Constraints | | | |
| ▼ Economics | | | |
| > Total Cost of Cast Alloy $f(x)$ | 3.48 €/part | 3.48 €/part | 3.48 €/part |
| > Total Cost of Cores $f(x)$ | 1.88 €/part | 1.88 €/part | 1.87 €/part |
| > Total Cost of Melting $f(x)$ | 2.39 €/part | 2.4 €/part | 2.42 €/part |
| > Total Cost of Preparation, Pouring, Solidification $f(x)$ | 2.06 €/part | 2.1 €/part | 2.12 €/part |
| Manufacturing Costs per Part $f(x)$ | 9.81 €/part | 9.86 €/part | 9.89 €/part |
| Limit Value | - €/part | - €/part | - €/part |

Close

Thank you for your attention.

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