

Kärcher Municipal optimized assembly line through Digital Twin layout simulation

PROJECT EXAMPLE



INITIAL SITUATION

Client: German manufacturer of municipal vehicles

Challenge:

- High product variety made assembly planning complex.
- Planning in Excel spreadsheets became unmanageable.
- Unbalanced operator deployment → inefficiencies and bottlenecks.
- Lack of transparency for decision-making in layout changes.

SOLUTION

- Built a Digital Twin of the assembly line using ipolog.
- Simulated material flows and workstation layouts.
- Ran multiple what-if scenarios (operator allocation, takt time changes).
- Integrated resource and personnel planning into one simulation model.

IMPACT

-50%

reduction in resource planning

+10%

increase in assembly line worker efficiency

-67%

no. of production lines (from 3 to 1) for same volume