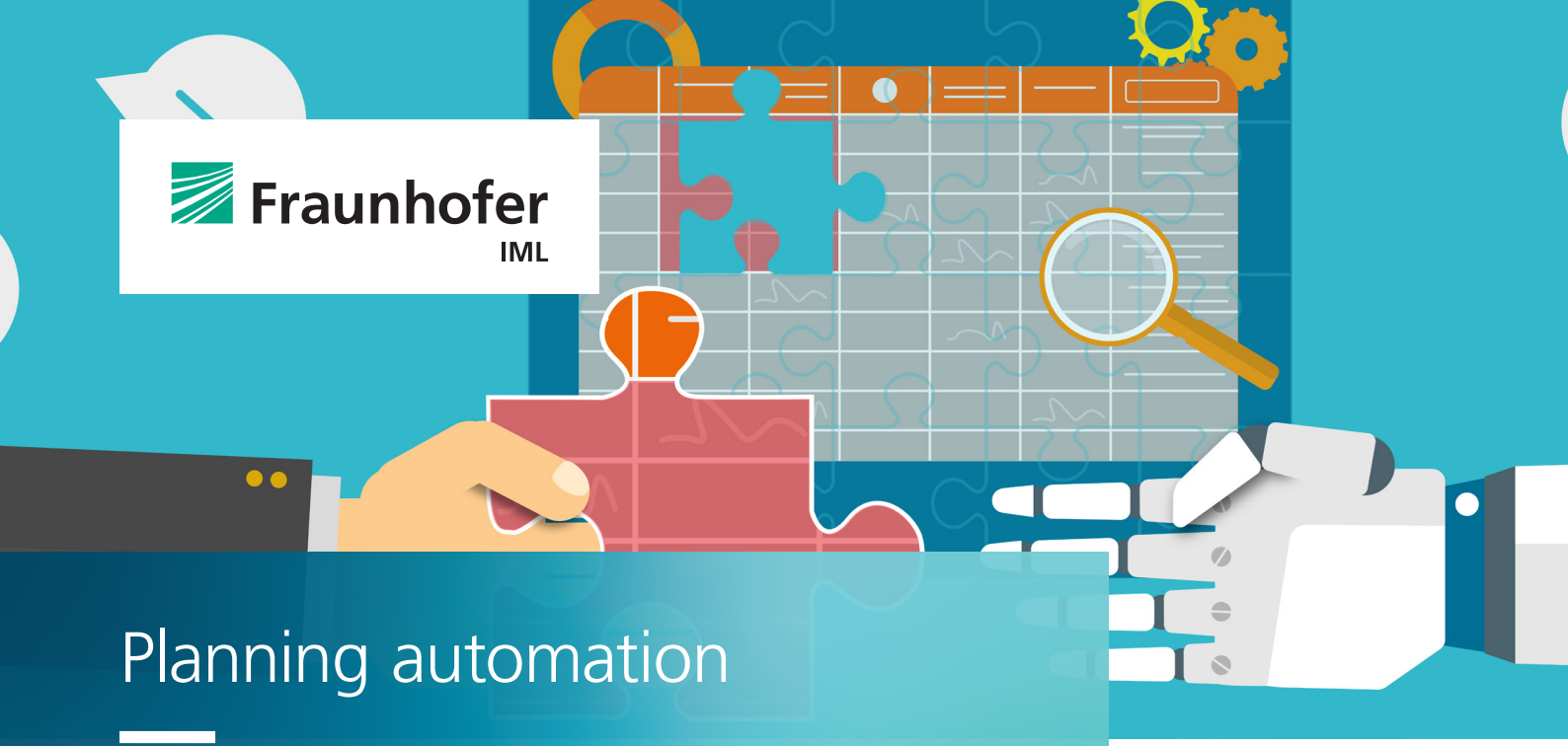

Fraunhofer IML

Planning automation

Good planning, optimal decision

Challenge

To prepare entrepreneurial decisions, sound and efficient planning is essential. In the industrial sector, however, planning results remain below their potential, although the amount of available data is increasing due to digitalization. This is due to the fact that planners still often rely on simple spreadsheets or monistic planning systems, into which individual mathematical methods for optimization can only be integrated at great expense. As a result, many planning steps have to be carried out manually and the quality of the results depends largely on the skills and experience of the planner. The problem is further exacerbated if several planning scenarios need to be examined.

Vision

Planning automation is intended to create decision support systems that automatically determine the optimal courses of action in scenarios. This provides the planner with optimized scenarios including target figures, forecasts and risk assessments at the push of a button, thus providing a firm basis for the actual decisions.

Research objectives

- target-oriented planning in automatically generated scenarios
- permanent or event-related optimization
- cross-departmental and cross-company planning
- consideration of opportunities and risks for scenario selection
- development of digital twins

Start »planning support« toady!

In addition to research on planning automation, we support companies in the digitalization of planning. The focus lies on tailor-made IT-supported optimization solutions. Despite the numerous generic optimization methods that exist in the academic world, e.g. operations research, statistics or artificial intelligence, the respective transfer to company-specific processes and requirements is not trivial. For this reason, the recording and analysis of logistics and planning processes is the first step in planning support solutions. In doing so, corporate goals, the existing database and required interfaces are also examined. On this basis, the performance of existing processes is then compared with the requirements of the company. Subsequently, a procedure is selected and

adapted for the individual problem definition. In addition, the evaluation and visualization of planning results play an important role so that a logistics planner can quickly and effectively record the planning results.

Our services

- development of planning support systems
- analysis of existing logistics and planning processes
- modelling of planning problems
- algorithm design and implementation of algorithms
- interface development e.g. to ERP systems, warehouse management systems or simulation tools
- key figure development for the evaluation of planning results

Your benefits

- effective planning through optimization algorithms
- externalization of planning knowledge
- enable rolling / permanent planning
- sound decision making
- optimized use of resources
- early detection of bottlenecks
- flexible reaction to unplanned events
- collaborative planning, also across companies

Selected references

- **Industry partner:** food producer
  Challenge: optimization of planning effort, leveling of daily delivery quantity
  Results: reduction of weekly program planning effort by **80 %**

- **Industry partner:** automotive OEM
  Challenge: optimization of the weekly program planning
  Result: increase oft program allocation / filling rate by **8-12 %**, reduction of capacity adjustments by **20 %**

- **Industry partner:** Schenker AG
  Challenge: decision support for per- sonnel allocation
  Result: labor saving of 10 %

- **Research project:** Industrie 4.0 Legal Testbed (legaltestbed.org)
  Challenge: conclusion of legally valid contracts conducted by machines
  Results: digital testbed (software) for automated business processes, recom- mendations for actions with regard to new legal standards

Contact

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