Application area:
Logistics

Modern logistics processes are characterized by their high dynamics and complexity.

Issues regarding the optimal design of conveyor technology, for example, cannot be considered in isolation from sequencing and consolidation strategies. For these reasons, simulation-based methods and tools are increasingly used in the various planning phases of a logistics project.

The fields of application here range from feasibility studies at a very early stage, through support for rough and detailed planning, to the realization and start-up phase of the logistics system.

In the ever shorter implementation periods of logistics projects, simulation is a tool that makes a lasting contribution to planning reliability and thus to the success of a project. The key factor in the successful use of simulation is fast and qualified modeling.

By using simulation technology, additional safety can be gained and commissioning time can be saved, especially in logistics projects, because all relevant processes can be evaluated in their inter-action at an early stage and optimally coordinated with each other.

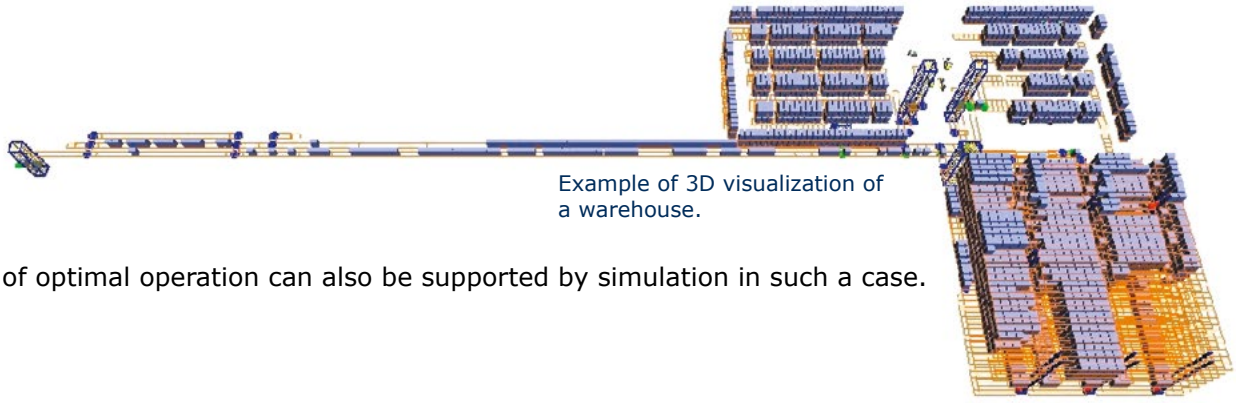
From planning to operation

SimPlan consistently uses libraries and reference models that cover all common logistics elements and strategies for this task area. Complementary tools support efficient modeling, experiment execution and evaluation. Database connections for the acquisition of planning, result and online data during project execution are just as natural as meaningful visualizations with 2D or 3D animation.

The consistent and largely tool-independent information management also contributes to greater transparency of the results. With the help of simulation runs, the influence of upstream or downstream systems, such as production, assembly, etc., on the overall system can be examined from an early project phase.

A modular structure allows the simulation model to be quickly adapted to the planning status, thus actively contributing to the design and further development of the logistics system.

As an example, the current developments in e-commerce can be mentioned, where more orders with fewer order items and lower order quantities are to be expected.



Example of 3D visualization of a warehouse.

The proof of optimal operation can also be supported by simulation in such a case.

Goals and benefits

- Evaluation of different conveyor technology variants
- Comparison of different storage/retrieval strategies
- Investigation of disruption scenarios
- Minimization of throughput times
- Planning reliability
- Optimization of individual areas
- Effective resource allocation

Project examples

- Planning simulation
- Performance evaluation, e.g. automated small parts warehouse, high-bay warehouse
- Evaluation of different conveyor variants
- Determination of the optimum number of vehicles of electric overhead conveyor or AGV
- Determination of storage capacity
- Investigation of special failure scenarios
- Determination of the max. system perfor mance with changed order structure
- Minimisation of throughput times
- Evaluation of different material flow computer strategies

References

SSI Schäfer, TGW, VanderLande, Knapp, Nobilia, Körber Supply Chain Automation, NewCold, Geberit Viastore, Interroll, Jungheinrich, Schwarz Gruppe, Zalando, ZooPlus, Digitec Galaxus, Engelbert Strauss, Accenture Industry X, Continental

SimPlan AG was founded 1992 as a service provider for the simulation of operational processes. Today, with more than 120 employees, it is one of the leading German providers of simulation services.

Why SimPlan?

We are cross-industry full-service provider for simulation, supporting companies in all industries with extensive expertise in the analysis and optimi-zation of their business processes.

- Objective and independent analysis
- Detailed knowledge in logistics and production from over 30 years of project work
  - → Development and use of standards
  - → Permanent advancement of simulation topics through research and development
- Excellent resources to respond quickly to your issues
- Close collaboration and project integration with a high level of on-site involvement
- Development of innovative solutions for the efficient handling of problems
- Neutral distributor for simulation software
  - → Support in software selection and implementation as well as training

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