



SERVICE

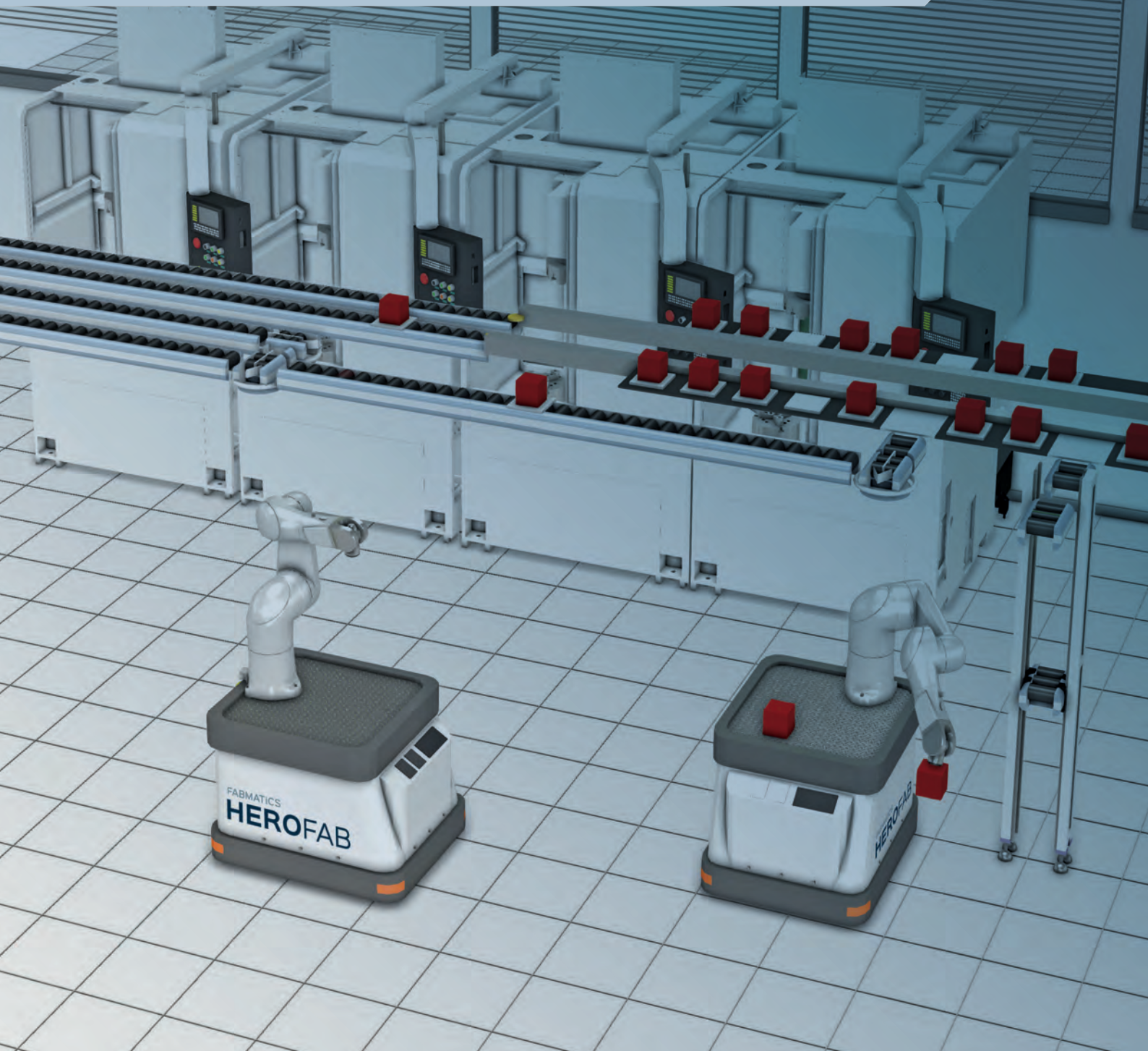


FABMATICS

Automate your success

# MATERIAL FLOW SIMULATION

Modeling, visualizing, and analyzing a semiconductor fab's handling, transportation, and storage processes



# MATERIAL FLOW SIMULATION

Modeling, visualizing, and analyzing a semiconductor fab's handling, transportation, and storage processes.

Material flow simulation is a powerful tool for analyzing and assessing existing system conditions or for enabling well-founded decisions in automation projects. Using material flow simulation, all relevant logistical processes of a semiconductor fab can be integrated into a single

comprehensive and dynamic digital model. The in-depth experimental analysis of this model allows for detailed insights and holistic conclusions about the existing underlying real-world system or can even be used for envisioning the potential dynamics of a non-existing system.

## Benefits

### Reducing project risk

- Analyzing the effect of changing conditions
- Highlighting hidden dynamic material flow effects (traffic jam potential, temporary bottleneck situations)

### Support in decision making

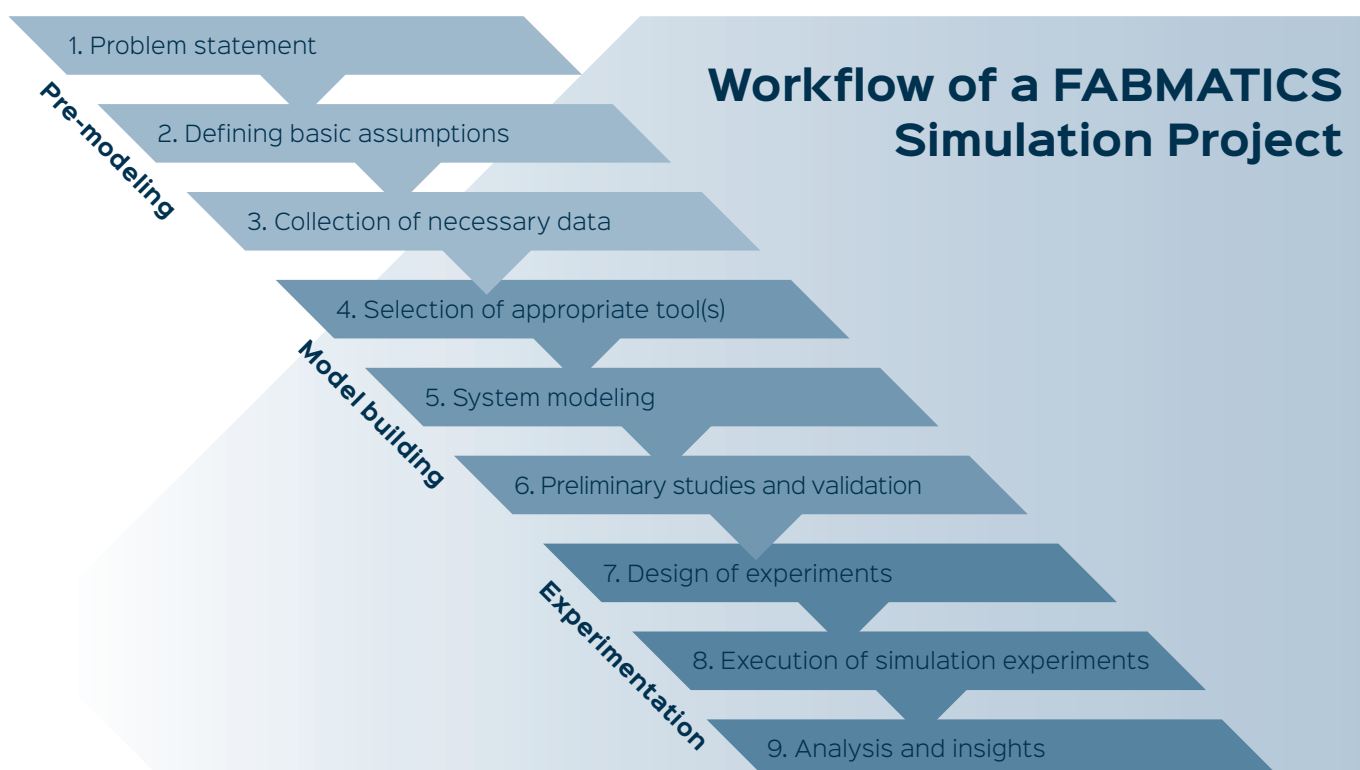
- Calculating key performance indicators
- Using predefined and customized diagram views
- Support of ROI calculation for automation projects
- Validating novel concepts and comparison of different automation solution scenarios, like usage of AGVs vs. stationary robot cells

### Generating better system understanding

- Identifying system thresholds, limits, and bottlenecks
- Visualization of processes and process interactions

### Replication of existing system conditions

- Simulating arbitrary tool layouts
- Simulating diverse material flows in quantity and characteristics
- What-If analyses for system upgrades or modifications



# Components



**Factory layout**  
Production tools  
Bays



**Transports**  
Conveyors  
Lifts  
Automated guided vehicles



**Storage systems**  
Stocker  
Zero footprint groups  
Racks



**Processes**  
Production times  
Tool utilizations



**Carrier handling**  
Robot cells  
Mobile robots



**Material flow**  
Historic transportation demands  
Integration of new production patterns  
Average transportation demands per tool

# Software Toolbox

Fabmatics offers a variety of complementary software tools for material flow simulation experiments that do justice to the manifold use cases, questions, and requirements.

## Level 1

1

### Analytical approximation

#### Visualization

- Statistics, charts

#### Applications

- Preliminary studies to generate system understanding

## Level 2

2

### Standard material flow simulation

#### Visualization

- Detailed 3D, statistics, charts

#### Applications

- Feasibility studies, system design

## Level 3

3

### Emulation

#### Visualization

- Case-dependent

#### Applications

- Exact replication of productive elements (digital twin), virtual commissioning



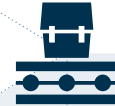
**STORAGE**  
ZERO FOOTPRINT STOCKER  
PURGE SYSTEMS  
RFID RACKS



**HANDLING**  
MOBILE ROBOTS  
ROBOT CELLS  
EFEMS



**TRANSPORT**  
CONVEYOR SYSTEMS  
AGVS / RGVS  
PGVS



# UNIQUE PRODUCT PORTFOLIO FOR THE **COMPLETE MATERIAL HANDLING AUTOMATION**



**IDENTIFICATION**  
RFID SYSTEMS  
RFID RETROFITTING  
RFID BASED LOGISTICS SYSTEMS



**SOFTWARE**  
FLEET MANAGER FOR MOBILE ROBOTS  
SOFTWARE INTEGRATION  
WEB GUIs



**SERVICE**  
CONSULTING & FEASIBILITY STUDIES  
TECHNICAL SERVICES  
THIRD PARTY SUPPORT

 **FABMATICS**



Member of  
**SCIO**  
AUTOMATION

## Europe

HQ: Dresden, Germany  
Phone: +49 351 65237-0  
E-mail: [info@fabmatics.com](mailto:info@fabmatics.com)

## USA

Location Utica, NY  
Phone: +1 315 316 1480  
E-mail: [info.usa@fabmatics.com](mailto:info.usa@fabmatics.com)

[www.fabmatics.com](http://www.fabmatics.com)

## Partners in Asia

Singapore & Malaysia  
Phone: +65 9106 2386  
E-mail: [joseph.soo@micro-optics.com.sg](mailto:joseph.soo@micro-optics.com.sg)

## Taiwan & China

Phone: +886 912531863  
E-mail: [jeff.chen@gbgtek.com.tw](mailto:jeff.chen@gbgtek.com.tw)

## Japan

Phone: +81 92 473 6455  
E-mail: [info@brux.jp](mailto:info@brux.jp)