PROFILE

S-PAC
We automate the PV world.

S-PAC
We automate the PV world.

Your competent partner for the planning and management of integrated production systems and factories

- Specialist in the field of computer-aided factory planning, modeling, data management, visualization and simulation

- Innovative partner for the realization of modern and integrated solutions for production and logistic systems as well as novel methods and tools for process monitoring

- Expert in the field of factory ecology, energy efficiency and sustainable production

- Specialist for the development and realization of flexible and changeable factories as well as highly responsive and robust production processes

- Partner for planning and planning assistance during reconstruction or restructuring of factories

- Development and consulting partner with regard to tools of the digital factory and intelligent control of business processes

- Training courses on methods of factory planning and control
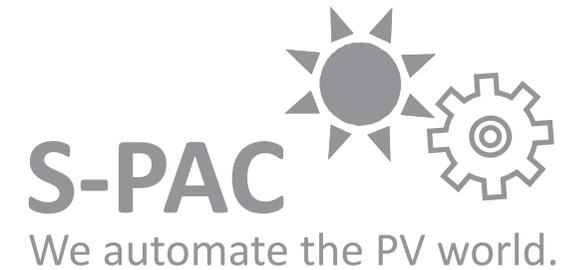
CONTACT

Department of Factory Planning and Factory Management (Chemnitz UT)

Erfenschlager Str. 73
09125 Chemnitz

Tel. +49 371-531-35306
Fax +49 371-531-835306

joerg.ackermann@mb.tu-chemnitz.de
www.tu-chemnitz.de/mb/FabrPlan/Englisch/index.php

S-PAC

Saxon Photovoltaic Automation Cluster

FPL

FPL

PRODUCTS

INNOVATIONS

Responsible for the simulation, modeling and planning of the holistic production process from wafer to module

Integrated concept for simulating and modeling PV-Factories by means of a component based approach

Modeling/visualization and optimization of factory layout by means of the tool visTABLE®

visTABLE® is a tool for structuring and layout planning of production systems. Its intuitive operating interface allows the easy import, creation, subsequent configuration and evaluation of layouts. The extensive component library comprises plenty of models of typical PV-equipment. A lot of different charts and analysis options enable the planer to optimize the layout for example with regard to the material flow.

Main functionalities of the tool are:

- participative planning by engaging all departments and stakeholders that are effected by the planning result
- parallel 2D- and 3D-view by means of a moveable camera
- calculation, analysis and comparison of material flow
- algorithms for finding the optimal alignment of the equipment
- checking of minimum clearance and collision possibilities
- easy modeling and import of new equipment models

visTABLE® and its application

## Simulation and optimization of production by means of plant simulation®

With it´s typical functionalities Plant Simulation (by Siemens PLM) allows the simulation, analysis, visualization and optimization of production processes. Beside the typical parameters like utilization, throughput and capacity or the detection of bottlenecks the project aims to consider also parameters like consumption of water, cooling, energy or chemicals in order to determine the total cost of ownership.

For reducing the effort of generating the simulation model, a PV-orientated component library, that can be enhanced, is available.

Standardized approach for planning PV-factories

As the process for planning PV factories is very complex, a standardized approach is developed during the project S-PAC. This approach combines the typical steps towards a factory with the afore mentioned tools for optimization, modeling and simulation. For making the process repeatable, components are implemented for each planning step. The components contain the following information:

- function (content) of the step
- necessary information (input, output)
- necessary knowledge
- goals
- methods
- resources
- documents
- concerned organizational unit
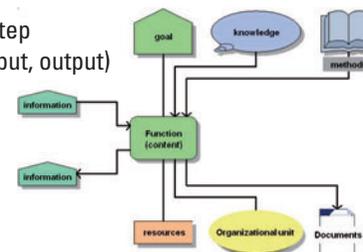
Examplery component of the planning process

Innovation

Innovation results from an integrated concept combining the advantages of simulation as well as modeling and simulation with focus on the photovoltaic industry. For both tools, component libraries are developed in order to simplify the generation of the simulation model and the configuration of PV-factory layouts. In addition, a comprehensive data model, including all data of the equipment as well as the interfaces, that are necessary for the exchange, will be implicated.
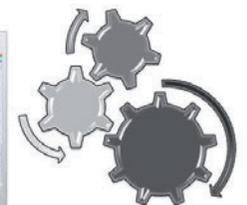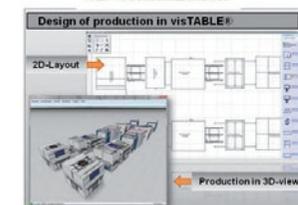
Integrated concept for simulation and modeling