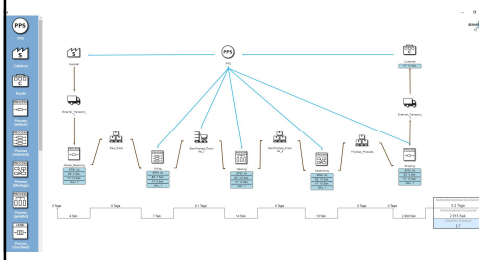
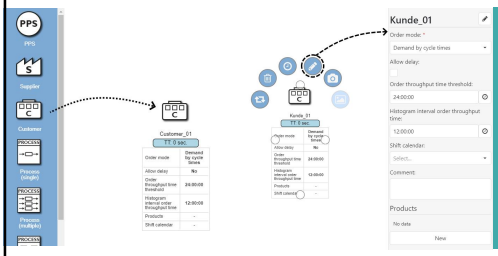
App based Value Stream Simulation in a Cloud Solution based on the Plant Simulation VSM Library



- SimPlan AG
- Stephan Stauber, Robert Forstner
- **Stephan Stauber**, born in 1968, finished his studies in mathematics at university of Bayreuth in 1994. He started his professional career as software developer of material handling and warehouse management systems for automatic warehouses in the US. He changed to SimPlan in 1999. Since 2002 he is in charge of the SimPlan office as branch manager in Regensburg. In addition to simulation and emulation projects, he has been participating in several research projects and was the technical project manager of the App based Value Stream Simulation Concept. His email address is stephan.stauber@simplan.de.
- **ROBERT FORSTNER**, born in 1991, holds a bachelor's degree in business informatics and a master's degree in logistics, both from the technical university of applied sciences in Regensburg. He has been working for and at SimPlan since 2011, after graduating in 2016 as a consultant. Besides working in simulation projects within the field of intralogistics, he has been participating in several research projects regarding online simulation, integration of simulation into decision support platforms as well as value stream simulation. In recent years, developments for value stream mapping and value stream simulation have also grown into one of his main activity fields. His email address is robert.forstner@simplan.de.



Short description of the workshop:

Value stream simulation is used to assist value stream analysis and design. The workshop provides a first introduction to the app-based Value Stream Simulation Solution "SimVSM" which also uses the Plant Simulation "*Value Stream Mapping*" library. The participants will get an insight into the developed cloud base service concept and the automatic model generation based on XML Structures. Modelling a value stream, performing various simulation runs and comparing the KPI results will complete the workshop.

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Die Brücke zur Realität

SIMVSM Value Stream Mapping

Workshop

App based Value Stream Simulation in a Cloud Solution based on the Plant Simulation VSM Library

Stephan Stauber, Robert Forstner

2019 Plant Simulation Worldwide User Conference

October 17th 2019 - Stuttgart, Germany

SIMULATIONSLÖSUNGEN FÜR PRODUKTIONS- UND LOGISTIKPROZESSE

Content

THEORY
- Value Stream Mapping
- PLANT Simulation VSM library
- Concept of App-Based VSM Simulation

PRACTICE
- Overview
- Modelling
- Simulation
- Results

INFORMATION

THEORY

THEORY
value stream - overview

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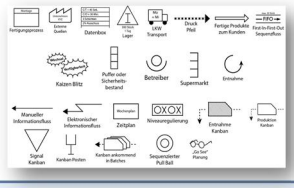
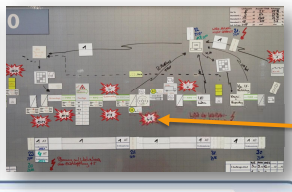
Aggregated Value Stream Objects/Icons

(see Rother & Shook 1999)





Example for a value stream white board (actual state)

with optimizing potential towards target state (à KAIZEN)

VSM-Analysis

- Visualization and Analysis of Actual State

VSM-Design

- Design of Target State for optimization of value stream

VSM-Planning

- Planning and Implementation of action plan

SIMVSM

Value Stream Simulation

Mapping of Value Streams with Simulation library objects directly in PLANT Simulation

THEORY
value stream mapping – PLANT Simulation library

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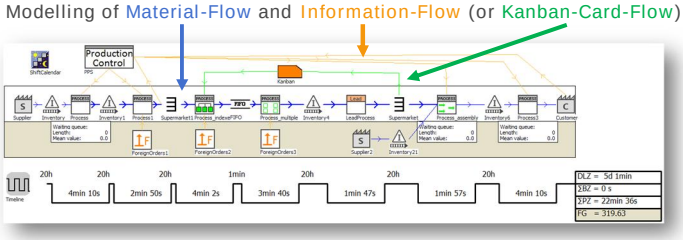
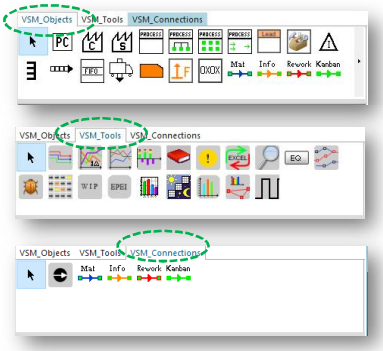
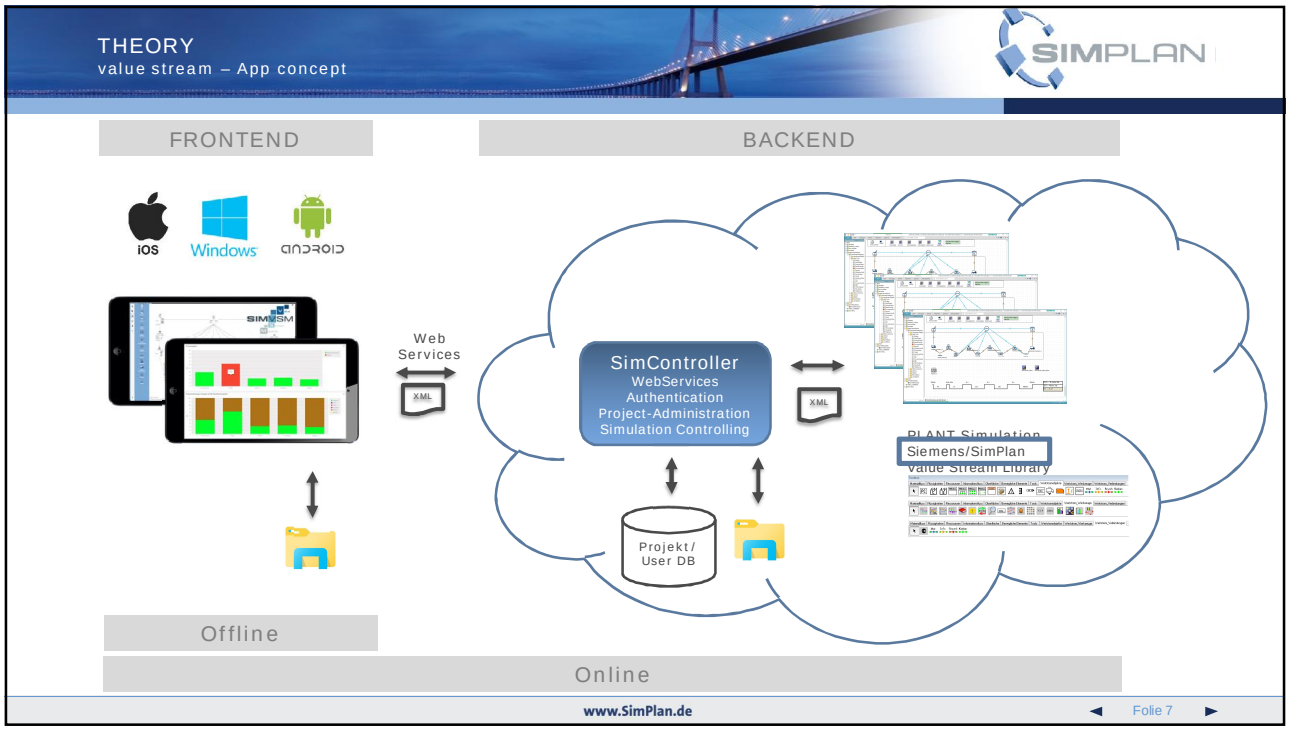
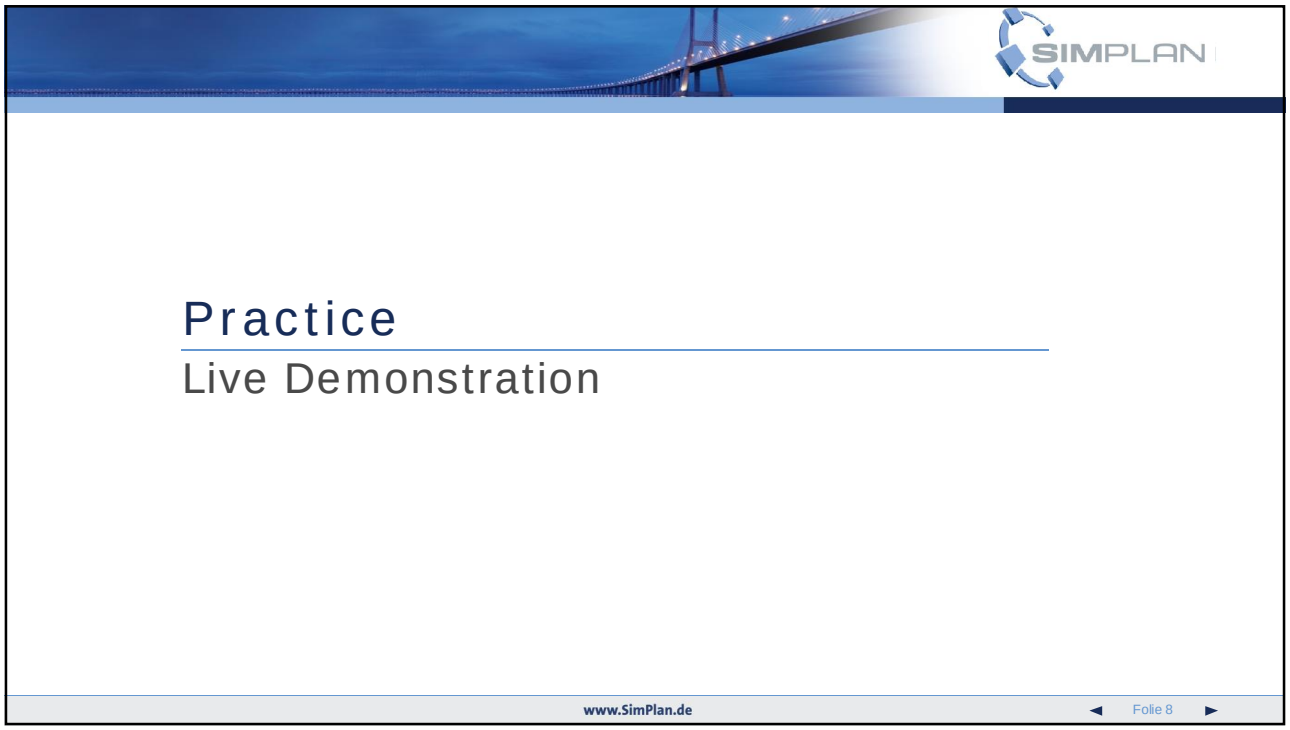
- Value Stream Modelling Objects
  - Modelling of Process-, Transport- and Storage-Steps
  - Modelling of Material-Flow and Information-Flow (or Kanban-Card-Flow)





- Value Stream Tool Objects
  - Analysis of static value stream KPIs
    - *Timeline, FlowGrade, EPEI, …*
  - Analysis of dynamic value stream KPIs
    - *Utilization of Processes and Stock-Level, Stock-Plotter, …*


THEORY
value stream – App concept
SIMPLAN
FRONTEND
BACKEND
iOS
Windows
android
Web Services
XML
SimController
WebServices
Authentication
Project-Administration
Simulation Controlling
XML
Siemens/SimPlan
Projekt/
User DB
Offline
Online
www.SimPlan.de
Folie 7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Practice
Live Demonstration
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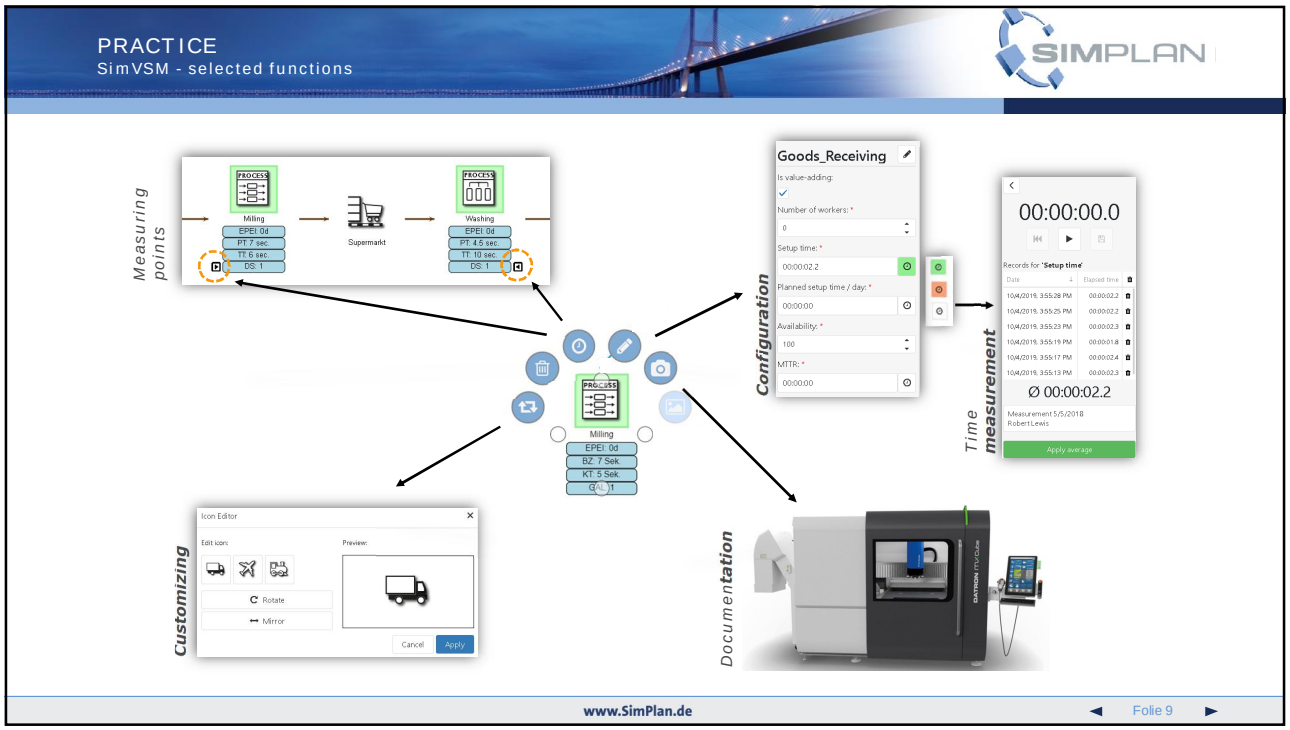
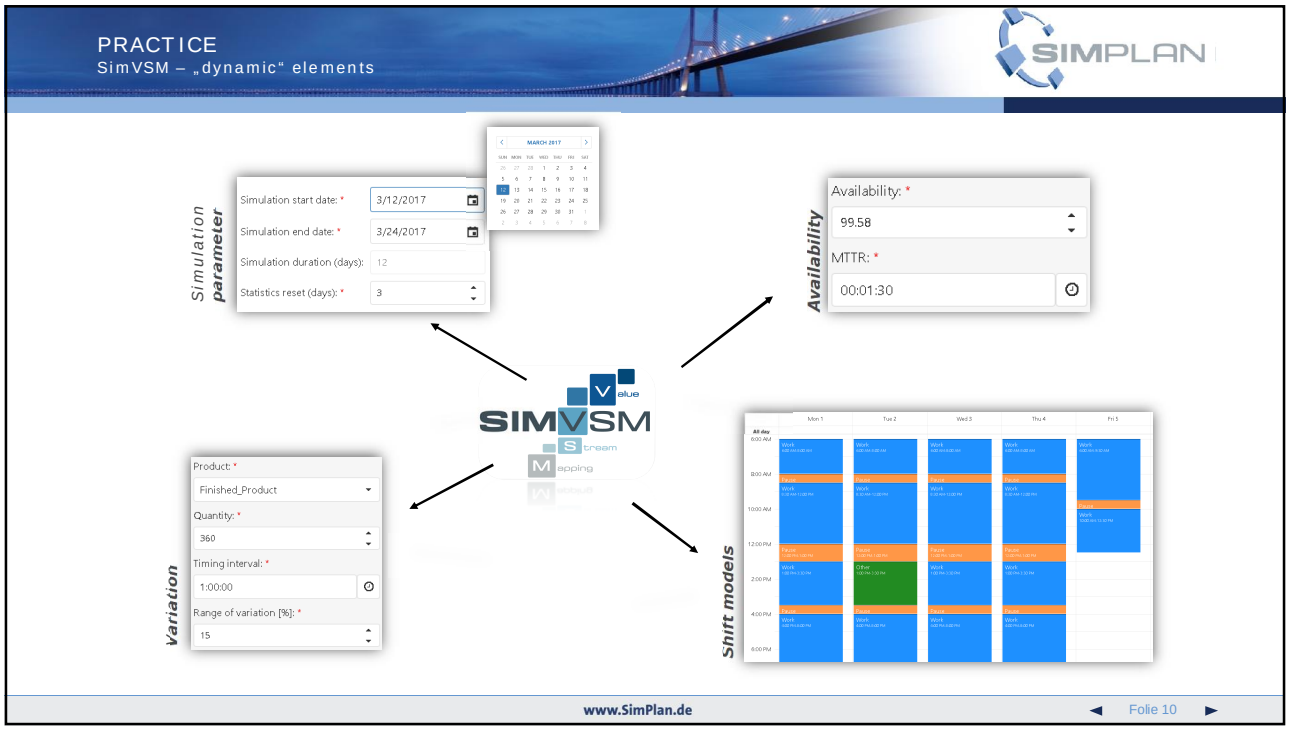
Folie 8


PRACTICE
SimVSM - selected functions
SIMPLAN
Measuring points
Milling
EPEI: 0d
PT: 7 sec.
TT: 6 sec.
DS: 1
Supermarkt
Washing
EPEI: 0d
PT: 4.5 sec.
TT: 10 sec.
DS: 1
Goods_Receiving
Is value-adding:
Number of workers: *
Setup time: *
00:00:02.2
Planned setup time / day: *
00:00:00
Availability: *
100
MTTR: *
00:00:00
Configuration
00:00:00.0
Ø 00:00:02.2
Time measurement
Milling
EPEI: 0d
BZ: 7 Sek
KT: 5 Sek
QAL: 1
Icon Editor
Edit icons
Preview:
Rotate
Mirror
Cancel
Apply
Customizing
Documentation
www.SimPlan.de
Folie 9


PRACTICE
SimVSM – „dynamic“ elements
SIMPLAN
Simulation parameter
Simulation start date: *
3/12/2017
Simulation end date: *
3/24/2017
Simulation duration (days):
12
Statistics reset (days): *
3
Availability: *
99.58
MTTR: *
00:01:30
Availability
SIMVSM
Product: *
Finished_Product
Quantity: *
360
Timing interval: *
1:00:00
Range of variation [%]: *
15
Variation
Shift models
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Folie 10

PRACTICE
SimVSM – simulation workflow

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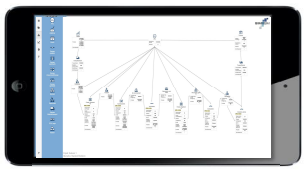
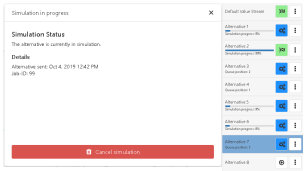
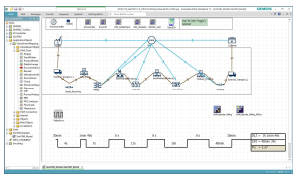


- Administration within modelling area of one project for different value stream alternatives
- System guided modelling and parametrization
- Plausibility checks



- Controlling of simulation jobs
- Asynchronous, parallel execution of simulation jobs
- Visualization of progress
- Detail information to simulation jobs
- *Access to simulation data (incl. Plant Simulation Model)*



- Automatic start and interconnection with model
- Automatic model generation
- Plausibility checks and error handling
- Generic preparation of result data
- Forwarding of results to the frontend

PRACTICE
SimVSM – results

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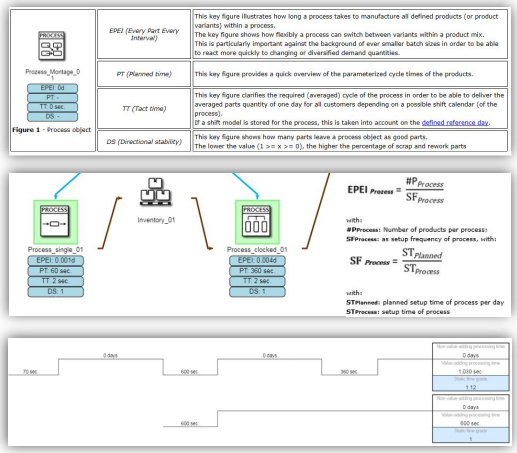
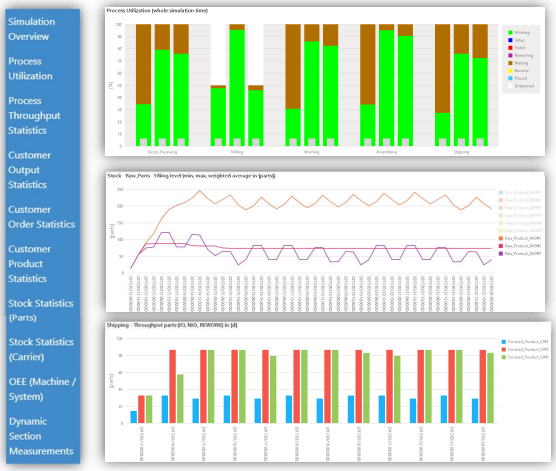
static



dynamic



INFORMATION

INFORMATION
www.simvsm.de

Web page	www.simvsm.de
E-Mail	simvsm@simplan.de
Online Help	http://www.simvsm.info/de/ http://www.simvsm.info/en/
YouTube Channel	https://www.youtube.com/user/SimPlanAG
App Stores (free download)	Apple Scan me · Microsoft Scan me · Android Scan me
SimVSM Pro (with simulation)	on demand, time-restricted test versions possible

SERVICE SOLUTIONS SOFTWARE SUPPORT

Thank you very much
for your attention!

Stephan Stauber, Robert Forstner
Niederlassungsleiter, Consultant

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