Optimize resources utilization in Automotive Industries
Advanced Scheduling system for Automotive Market
Agenda

• Why scheduling is so important
• SIMATIC IT Preactor APS
  • Values and Benefits
  • Functional overview
• Live Demo
• Question & Answer

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Why scheduling is so important?
The automotive industry is on the move!

- Individualized mass production
- Volatile and diverging markets
- Profit per vehicle reduction
- Emerging markets share increase
- Environmental regulations and safety standards
- Disruptive technologies
Prioritize agility!
Launch, learn, and adapt

Focus on capacity management

Analyze production output on a day-to-day basis
120

5! = 5 \times 4 \times 3 \times 2 \times 1

different combinations
14400 different combinations
What a complex supply chain!

Push
Standardization
Make To Stock

Decoupling Point

Pull
Customization
Make To Order

2nd Tier

1st Tier

OEM
CHALLENGE
SIMATIC IT Preactor APS
Values and Benefits
Production Planning & Scheduling

- Mid to long Term
- Often Aggregated
- Bucketed
- More Abstract

- Short Term
- Real World Resources
- Multiple constraints
- Sequencing

Planning

- **What** to make
- **When** to make it
- **How much** to make
- **Where** to make it
- Materials Required
- Resources Required

Scheduling

- **How best** to make it
  - Execute against plan
  - Sequencing
  - Synchronization
  - Priorities, constraints and conflicts
  - Monitoring execution
  - Managing change
Preactor is a range of finite capacity advanced planning and scheduling (APS) software for the manufacturing industry.

SIMATIC IT Preactor APS uses algorithms to analyse and calculate achievable production schedules, taking into account a range of constraints and business rules, allowing the planner to generate and evaluate multiple possible scenarios.
Digital Enterprise Suite – Siemens’ answer to customer requirements

MindSphere

Product Lifecycle Management

Teamcenter

Manufacturing Operations Management

Totally Integrated Automation

Cloud-based, open IoT operating system: MindSphere
SIMATIC IT Preactor APS Value Proposition

- Faster
- Smarter
- Effective
- Scalable

- Competitively priced
- Mature and Stable
- Customizable
- Worldwide adopted
SIMATIC IT Preactor APS Value Proposition

- Schedules in minutes
- Frequent reschedule
- Deviation management
- Quick problem detection

Faster
Graphical tool

Cause & effect analysis

Identify problems

Fix before happen

Heuristic approach

Smarter
Systematic results

Improved Customer Service

+ 90% Inventory Reduction
- 50% Cycle Time Reduction
- 25% Productivity Increases
SIMATIC IT Preactor APS Value Proposition

Family of products

From SMB to Fortune500

Product evolves with your

Scalable
Various License Level
You Pay What You Need
Read Only User
Pack Of Licensed User
Concurrent users available

Competitively priced
Technically superior

Multi-language

Easily integration

Native integration to Siemens products

Mature and Stable
SIMATIC IT Preactor APS Value Proposition

Confiurable
Adjustable User Interface
Task automation scripting
API programming interface
Integrated Reporting tool

Customizable
SIMATIC IT Preactor APS Value Proposition

Widely adopted

Local support

Global support 24/7

Worldwide adopted
Why an Advanced Planning and Scheduling System?

SIMATIC IT Preactor APS brings tangible benefits to your value drivers

- Improvement in customer service
- Improvement in productivity
- Bottleneck detection

Value Drivers:
- Quality
- Time to market
- Supply/demand match
- Inventories
- Asset utilization
- Labor
- Service/Aftersales

- Fast and frequent reschedule to meet production deviation
- Resource allocation and tool utilization increase
- WIP reduction
- Raw Material Inventory Reduction
- Knowledge sharing collaborative environment

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Customer success story: RUDOLPH USINADOS (BR)

Rudolph Usinados is machining solution provider for automotive industry, household appliances and other industrial segments.

**CHALLENGE:**
Sequence production minimizing setup times, without compromising delivery dates; Plan needs for labor and raw materials; React quickly to any unexpected event.

**BENEFITS:**
- 10% reduction of stocks of finished goods
- 36% reduction of stocks of raw material
- 6% increase of productivity
- 4% increase of delivery performance
Customer success story: METALURGICA FEY (BR)

Metalúrgica Fey is one of the largest manufacturers of fasteners in Brazil.

**CHALLENGE:**
Balance finished stock while increasing service level. Increase visibility and ability for rescheduling. Replace the spreadsheets to gain agility.

**BENEFITS:**
- Enablement of a preventive and corrective action process
- Improved decision making process
- 40% reduction on WIP
- Delivery punctuality moved from 25% to 75% (+275% increase)
Customer Base & Discrete Industry customer composition

- Large installed base serving the manufacturing sector

- Over 10,000 licenses supplied to more than 4,500 companies in 88 countries across 5 continents

- Customer base ranges from mid-size to some of the largest multinational blue chip companies in the world

- Operates across multiple sectors, this shows the flexibility to solve any scheduling requirement.
Accurate Models Produce Feasible Schedules

- Finite scheduling is based on a detailed model of the plant
- This leads to two very important benefits over other planning tools

- Improved utilization of resources
- Truly feasible schedules

It can increase throughput, reduce work in process and raw material inventory. It provides a ‘crystal ball’ for the planner to use at shop floor level.
Scheduling Board – Resources and Orders (w dependencies)

- Electronic Gantt Chart
- Supply & demand
- Orders and Operations
- Calendars
- Dependencies

Orders and Operations (included Pegging)
Preactor Advanced Scheduling
Multiple Constraints

- Equipment Availability
- Labor Availability
- Tooling Constraints
- Power Constraints
Simulation

- FWD/BWD/Bi-directional algorithms
- Manual sequencing
- Configure rules using scripting or API
- What if? And Scenarios comparison
Analysis support

Colour code for:

• easy scheduling visualization and analysis
• Highlight of late, early work orders
Material Control and The Material Explorer

- Material requirements
- Visibility of Shortages
- Inventory plots
Impact Analysis and Schedule Repair

When things change, the tools are there to provide clear visibility of the impact.

Planners can manually interact with the Gantt chart, run automated schedule repairs or even rerun entire scheduling rules.
Preactor Advanced Scheduling
Due date and sequence dependent setup times

Day 1 | Day 2 | Day 3 | Day 4

No Setup Reduction

| 1 | 2 | 3 | 2 | 2 | 3 | 4 |

Some Setup Reduction

| 1 | 2 | 2 | 2 | 3 | 3 | 4 |

Full Setup Reduction

| 1 | 2 | 4 | 2 | 2 | 3 | 3 |
A totally configurable visual decision supporting tool

Specific work area can be configured for each user

Quick and effective decisions means precise and relevant information brought to you by the system

Preactor provides a workplace configuration to build your own production board having the information you need, in the way you need:

- Schedules
- Material availability
- Reports
- Resource allocation diagrams
- Supply, demand and work orders details
Reports & Integration

- Local reports
- Reporting Service
- External data mapping
- Import-export scripts
- Event Scripts
Enhancing collaboration, synergy at work!

Several collaboration scenarios are supported
Live Demo
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Realize innovation.