Industry 4.0 and its Challenges for Flexible Production Planning

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Digitalization

Smart Factory  Customer added value  Changing market demands

- customization
- quality
- lead-time
- punctuality
- resources
- stocks

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X-Pact® MES 4.0

Planning
- Technical Order Generator
- Production sequencer
- Capacity Planner
- Short Rescheduler
- Meltshop Pacer

Support & Optimization
- Plant Condition Manager
- Delay Manager
- Master Data Manager
- Energy Manager
- Quality Manager
- Warehouse Manager

Supply & Dispatch
- Inventory Manager
- Resource Manager
- Information Dispatch Manager

Reporting
- Business Intelligence - Mobile
- Business Intelligence - Analysis
- Business Intelligence - Reporting

Basis
- Security Shield
- Production Controller
- X-Pact® Cloud
Planning

**Technical Order Generation**
Automatic generation of production order

**Capacity Planner**
Capacity and time planning

**Production Sequencer**
Semi-automatic advance planning of the production sequence

**Short Rescheduler**
Semi-automatic rescheduling shortly before execution of production sequence

- From customer order to technical order
- Utilization of plant
- Optimum sequence
- Online modification

- weeks
- days
- minutes
Support & Optimization

Master Data Manager
Management and distribution of master data and process instructions

Energy Manager
Ensures efficient use of energy

Plant Condition Manager
Monitoring of plant condition
Support & Optimization

Quality Manager
Central management of quality aspects during production

Warehouse Manager
Warehouse Management System tailored for steel and aluminum

Delay Manager
Management of standstill times
Warehouse Management System

Warehouse Manager

Warehouse Management System tailored for steel and aluminum
Supply & Dispatch

**Inventory Manager**
Management of relevant production equipment

**Resource Manager**
Management of relevant charge materials

**Information & Dispatch Manager**
Management of communication with the customer and dispatch
Reporting

Business Intelligence – Analysis
Interactive analysis of production for identification of improvement potentials

Business Intelligence – Mobile
Display of web-based reports on tablet or smartphone

Business Intelligence – Reporting
Web-based production reports
Dashboards for various user roles

Management

HR department

Planner

Production
BI report at Big River Steel USA

- Customer defined KPI-reports

Material property

Productivity

HSM, coil weight since startup

Quality Yield

Product in stock

Order status

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Summary

◆ X-Pact® MES 4.0 is an important step towards Industry 4.0

◆ For optimum production scheduling and efficient energy consumption

◆ For the highest quality with optimum use of material and plant resources

◆ For intelligent alternative measures in cases of malfunctions

◆ And for meaningful analyses as a sound basis for possible improvements

Make your factory smart ... with X-Pact® MES 4.0!
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