 TOUCH IOT WITH SAP LEONARDO
PROTOTYPE CHALLENGE

MANUFACTURING FACTORY VISIBILITY AND AUTOMATION

(SAP LEONARDO ENABLED INFORMED MANUFACTURING FOR HIGHER MANUFACTURING OPERATING EFFICIENCY)

Template Description
This is a template that can be used for the Prototype Challenge included as part of the openSAP course “Touch IoT with SAP Leonardo.”
Story

Storyline:

A manufacturing company is facing challenges with their factory visibility. Manufacturing company has different production lines. The production manager would like to have complete transparency and visibility of what is happening on the factory floor to enterprise-based systems and decision makers. The real time and up-to-date information will provide the production manager on production line information and guide him to make decision on how to improve factory efficiency.

The production manager walking the production floor could also use augmented reality (like google glass) to access the efficiency of each machine, view production from any location, and reduce the time to decision and action.

The real-time shop floor visibility will help the production manager to connect with customer service representative in case the manufacturing running behind schedule to meet customer scheduled delivery date. In addition, the production machine component consumption and yield detail with real-time stock availability information will help production manager to collaborate with procurement and planning team to expedite raw materials and components scheduled receipts date to factory.
Shop Floor Visibility

- Expected to be completed today by 8:00 PM
- Raw materials receiving
- Batching and killing
- Machine breakdown
- Customer-critical order pending for next machine
- Packaging material over by 7:00 PM
- Order waiting for shipping will be delayed two days
- Current bottleneck machine
- Processing at slower rates
- Corporate Dashboard
  - Plant efficiency
  - Order compliance
  - Critical delivery
- Suppliers
  - Material requirement
  - Stock variations

Transport
- Requirement of load
- On-time delivery
- Delivery backlog
Persona

Peter Smith
Production Manager
I would like to have real time visibility and better understanding of the production line and manufacturing process information in real time to collaborate with Sales/ Customer, Planning, Procurement, Finance and HR to meet my production schedule without material and labor shortage, equipment failure and customer escalation.

About

• 45 years, married with two kids, live near production location
• Have 20 plus years of experience on manufacturing, production line and shop floor management
• Have deep understanding of manufacturing process, production workers and customer need
• Involved with the planning, coordination and control of manufacturing processes.
• Ability to communicate clearly and persuasively with your team, managers and customers, strong negotiation skills for getting materials within budget and at the right time, the ability to work under pressure and motivate others to meet tight deadlines, the ability to work in a logical, systematic manner.

Responsibilities

• Managed 10 production lines
• Reviews marketing/sales forecasts, and develops production plans accordingly.
• Oversee the production process, drawing up a production schedule;
• Monitor the production processes and adjust schedules as needed
• Directs all manufacturing operations for the facility ensuring business plans and customer service levels are met.
• I am responsible for goods are produced efficiently and that the correct amount is produced at the right cost and level of quality

Needs

• I need to know machine schedules in real time and show the machine availability in ERP Detail Scheduling
• I want automatic component back flushing, finished goods confirmation and yield calculation in ERP with machine integration.
• I need to system to proactively alert on potential delay on production schedule.
• I want system to provide me real time analytics on customer impact in case of production schedule delay
• I want system to provide me potential material shortage based on delay on supplier shipment and scrap and yield in production line.

Main Goals

• Increase manufacturing productivity by 10-25%
• visibility tools to access the efficiency of each machine, view production from any location, and reduce the time to decision and action
• Improve production planning accuracy based on machine availability
• Provide real-time feedback to planner for procurement or sales to inform customer in case of production delay

Pain Points

• Manual intensive work on production order component consumption, finished good confirmation and yield calculation
• No real-time data on production line status
• Manual verification of machine status
• Manual process to identify material shortage and impacted customer order
• Production planning is not accurate
• Planner will have to check data on production machine system and ERP to investigate the issue and understand status
• I am responsible for goods are produced efficiently and that the correct amount is produced at the right cost and level of quality
Point of View

As a Production Manager, I need a way to view comprehensive detail of what’s occurring at every point in the production process by connecting the production line machine with SAP S/4HANA (ERP System) so that I can make real-time adjustments to reduce manufacturing cycle, improve planning accuracy, identify issues before they happen, lower inventory costs and meet customer schedule.
UX Journey

Describe Actions, Mindset, Feelings and Touch points
<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>MINDSET</th>
<th>FEELING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find out Status of Production Order Line</td>
<td>What is going on?</td>
<td>😊</td>
</tr>
<tr>
<td>Identify Impacted Customer Order</td>
<td>Do I need to walk to Production Floor?</td>
<td>😊</td>
</tr>
<tr>
<td>Calculate Material Shortage</td>
<td>How do I find out Customer Sales Order linked to Shop Floor Production Order?</td>
<td>😊</td>
</tr>
<tr>
<td>Check Procurement Material Status</td>
<td>Shall I visit the store?</td>
<td>😊</td>
</tr>
<tr>
<td>Prepare Production Schedule</td>
<td>Shall I ask my production line operator?</td>
<td>😊</td>
</tr>
<tr>
<td>Calculate Line Efficiency</td>
<td>Do I need to call my buyer?</td>
<td>😊</td>
</tr>
<tr>
<td></td>
<td>How will I know what is actually scheduled on production line?</td>
<td>😊</td>
</tr>
<tr>
<td></td>
<td>Is there a single system where I can extract data? Do I need to consolidate all Shop floor Production paper?</td>
<td>😊</td>
</tr>
</tbody>
</table>

**TOUCH POINTS**

- **SAP S/4HANA (ERP), Production Machines, Manual Check on Production Line**
- **SAP S/4HANA (ERP), Production Machines, Production Schedule Paper**
- **SAP S/4HANA (ERP), Store Inventory Book, Production Line Operator**
- **SAP S/4HANA (ERP), Supplier, Advanced Shipping Notification**
- **SAP S/4HANA (ERP), Production Machines, Production Schedule Paper**
- **SAP S/4HANA (ERP), Production Machines, Production Schedule Paper**
Prototype
Prototype screens for an IoT application to solve your PoV

Planning Dashboard

Production Status

- Production Line
- Customer Order Status
- Material Shortage

Production Line

- Line Efficiency
- Current Schedule
- Yield Percentage
- Order Confirmation
Production Line Efficiency

Line Number: 1

Current Schedule
Yield Percentage

Yield Trend

Production Order Confirmation