

# Equipment Incident Management

## Story

A core engineering installation like a power plant, oilrig, textile mills, airport or railway stations, etc. have innumerable equipments at work. Given the nature of their use - which is typically 24x7 - they require regular maintenance. In addition, they experience breakdown. Most of these installations have some sort of electronic nervous system that updates the control centre about equipments' health. It can either be poll based - the control centre shift-incharge keeps taking stock of the equipments - or it can be self-aware - the equipments intimate the control centre about their health. Both of these need to happen periodically.

In case of breakdown, the control centre shift-incharge needs to mobilise the nearest lineman to cross verify the malfunction. The action to be taken depends on the ground situation. For instance, in case of false alarm, the lineman is supposed to reset the equipment, after logging the status. In case of genuine fault, however, the lineman would need to relay the equipment condition, note his observations and may be to disconnect the equipment. Based upon these inputs, the shift-incharge would order a replacement from the store or arrange for onsite repair. The store, in turn, might need to place an order the equipment if it is out of stock. In case of repair, a call would need to be lodged with the corresponding vendor. Depending upon the chosen activity, a estimate of restoration of services would need to be presented to the plant-incharge.

Streamlining of this activity would result in many benefits. Immediate ones are speedier registration of faults. Next benefit is equipment wise history of downtime, outage frequency, replacement time, costing, etc. This would then help the management to have a crisp view of equipments: their quality, durability, reliability; of vendors: accessibility, response time, honouring of SLA; of lifetime cost of an equipment: answer to questions like cheaper initial cost be higher maintenance cost, higher acquisition cost be practically free maintenance, etc. Thus getting a better return of capital invested.

## Personas

**Name:** Mohan Kumar

**Background:** 30 years. Married. Bachelor of Engineering (Electrical).

**Job Title / Role:** Shift In charge

**Quote:** "For me, I would like to ..." respond to the alerts ASAP so that there is no major breakdown under my watch!

**JOB RESPONSIBILITIES**  
Main tasks and frequency:  
**Monitor** control room, Supervise team of 4, **Act** on notes from previous shift, **Take** notes during shift, prepare activity log, **Set** targets for & evaluate at year end

**MAIN GOALS**  
**Minimise** outage by taking preventive actions, **Optimise** downtime by ordering speedier replacement of equipment, **Employ** previous experience to judge situation

**PAIN POINTS**  
**Current** procedure involves juggling many disparate systems simultaneously, **Lots** of valuable time spent in noting down issues and filing them.

**NEEDS**  
Everything about an equipment, in a go, yet well organised manner and fast!

**STAKEHOLDERS**  
Plant incharge, Subordinate, Lineman, Stores, Vendor

**COMPETENCIES**

Casual User	Proactive	Power User	Reactive
Work in team	Global focus	Lone Fighter	Local focus
Innovative		Conservative	

### Background

8 years work experience. 4 years on the field. 2 years in design. 2 years in the control room. Thorough on fundamentals. Doesn't panic easily.

### Job Responsibility

Report equipment breakdown: to vendor, if under AMC; Order replacement from store, if a consumable.

### Needs

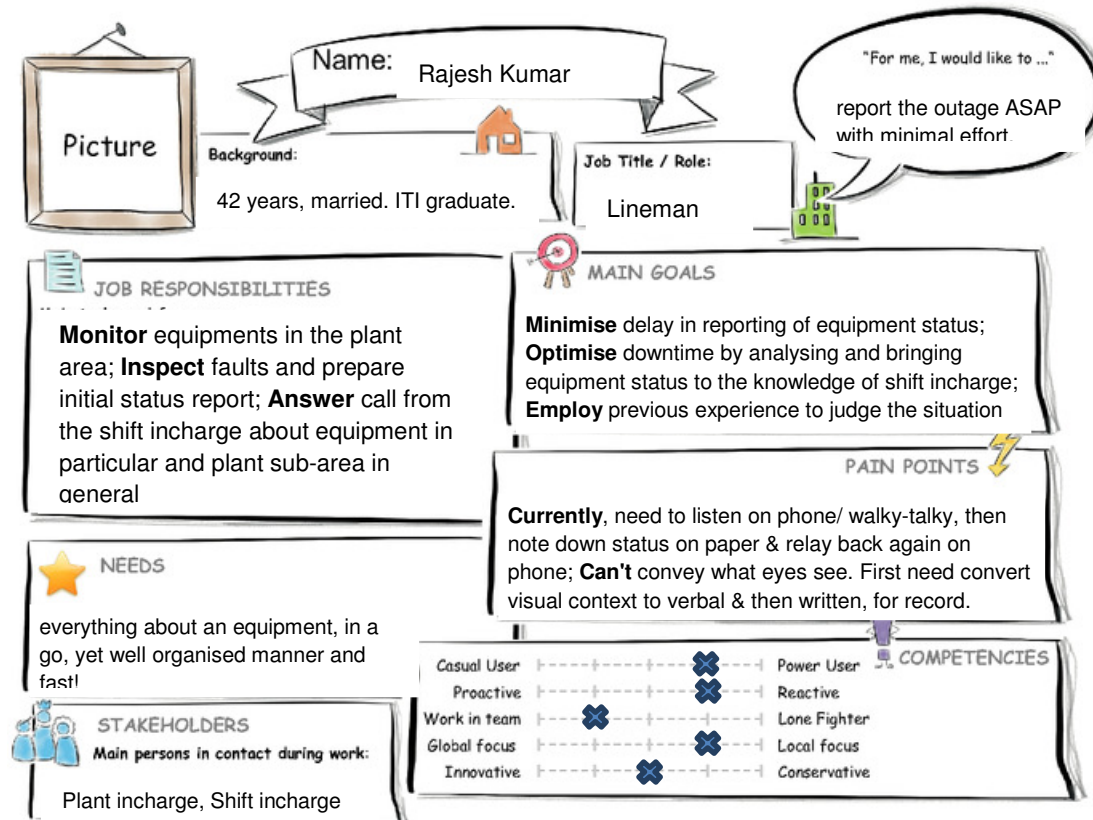
The interface need to be lean, crisp and quick; System should seamlessly take request and forward it concerned party; Need very precise condition of the equipment to determine future course of action, Action Taken Reports need to be automated.

### Pain Points

Delay in getting precise info from lineman; No holistic view - including vendor, make, model, location, outage-history, replacement / repair ordering - through single window; Circumstantial inputs - nearby equipments, temperature, humidity, exposure to hazards, serviceability - not known readily.

Persona 1 - Shift Incharge

CCCCC



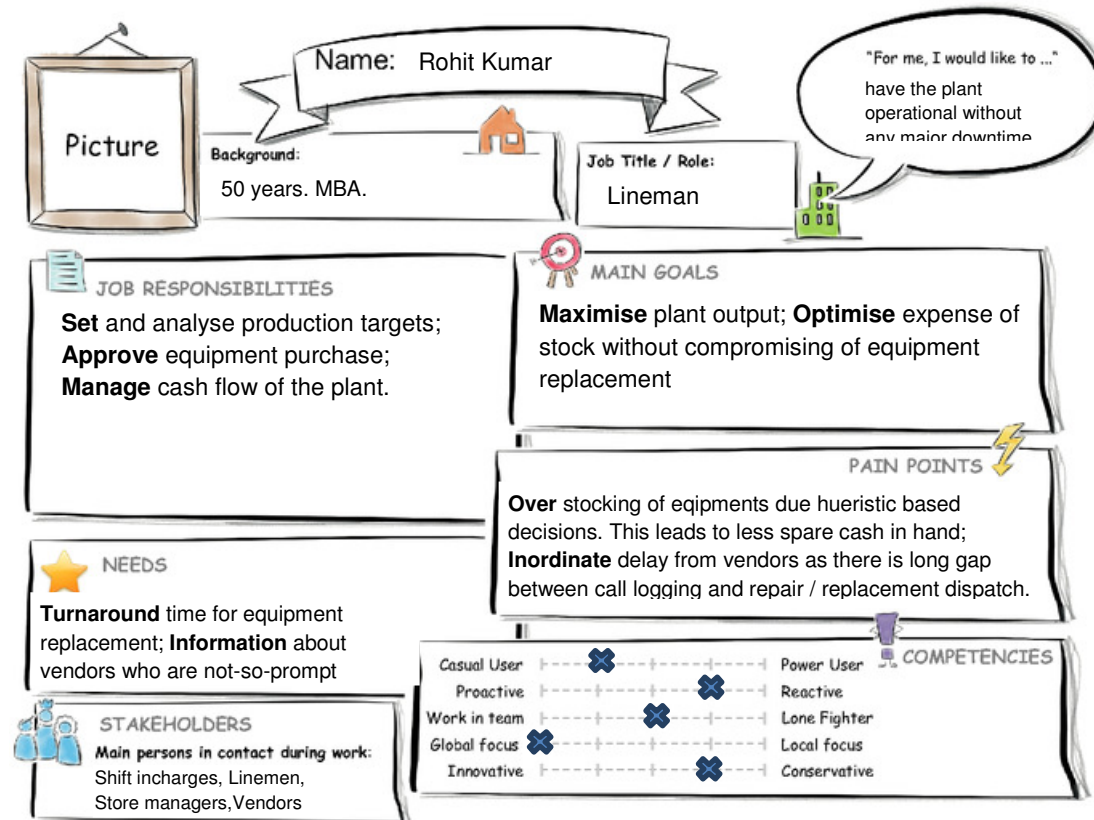
Persona 2 - Lineman

**Background**

20 years of experience, mostly as a utility person. Has good aptitude for IT systems and basic gadget functions.

**Needs**

The interface should be simple, intuitive, with minimal manual inputs yet maximum information about an equipments; Should be able to report the condition of the equipment as is, without introducing error of observation.



Persona 3 - Plant Incharge

**Background**

Married with kids in higher studies. Work experience of 25 years. Worked as consultant engineer initially. Then setup his own entrepreneurial venture.

**Needs**

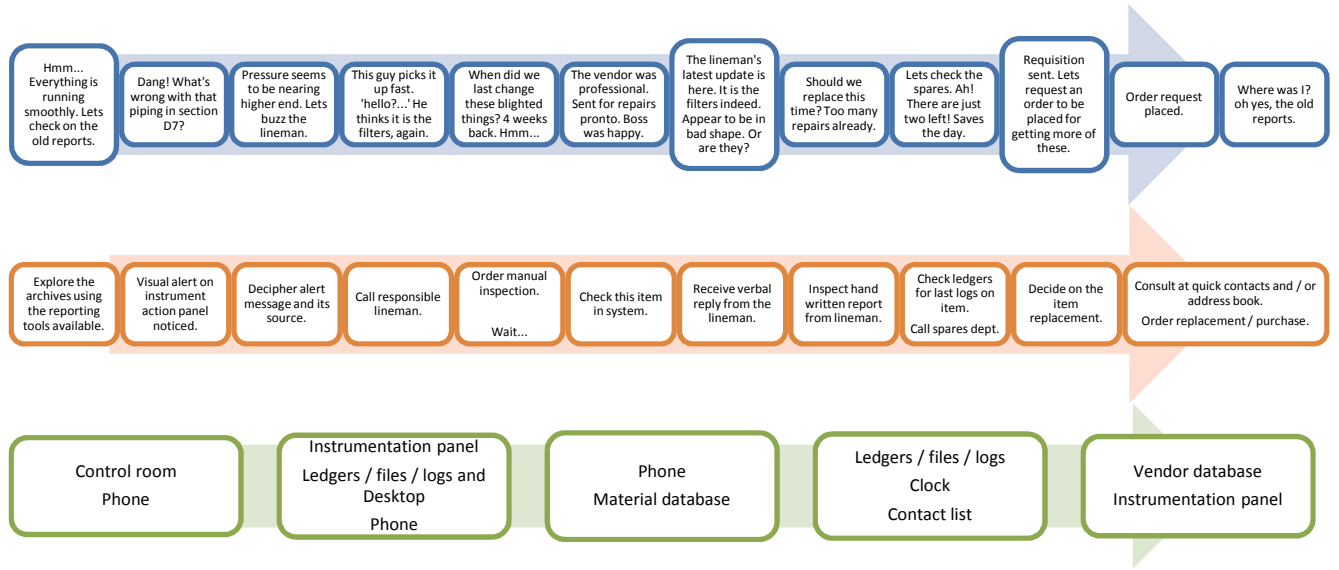
A inventory report listing equipments having high frequency replacements or demanding frequent maintenance; What-if analysis with equipment, manpower and cost as factors.

**Pain Points**

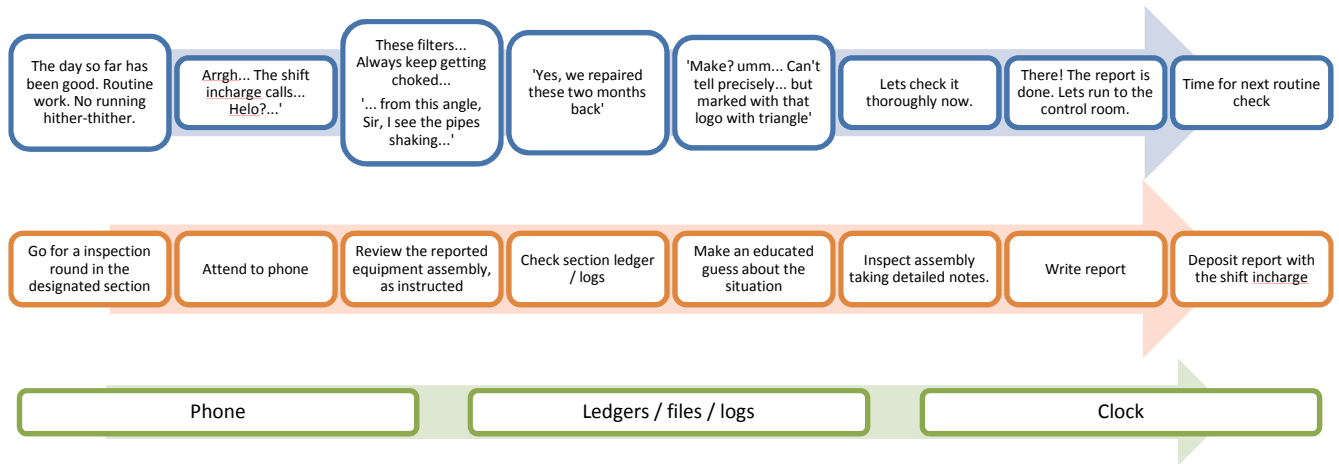
Imperfect capture of equipment breakdown situation. Only written records. No visual records.

User Experience Journey

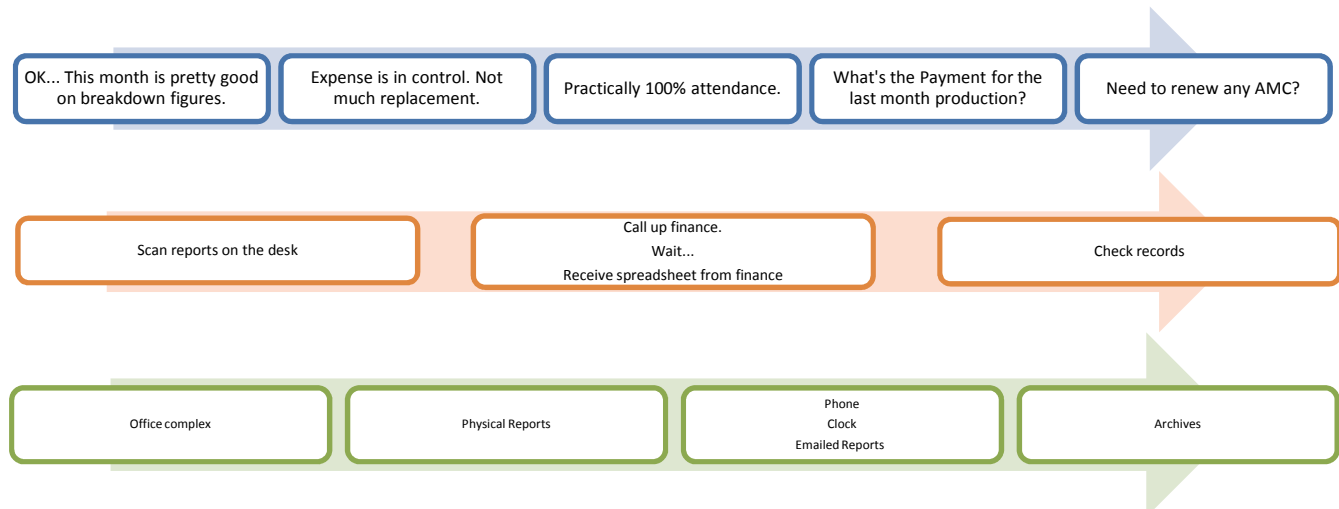
**SHIFT INCHARGE**



**LINEMAN**



**PLANT INCHARGE**



Mock up



- View Equipment Basics**
- Shift Incharge will use it to check the details of the equipment reported by the instrumentation panel
  - Master / Detail layout
  - Master View has the list of equipments that can be filtered
  - Detail View embeds two 'sub' views under Icon Tab Bar
  - First sub view has a simple form and gives basic details of the equipment

Mockup - Incident Manager 1 - View Equipments



- View Incident List**
- Second sub view has a table and gives the list of incidents raised on this equipment
  - The line item has drill down feature to see further details of the incident

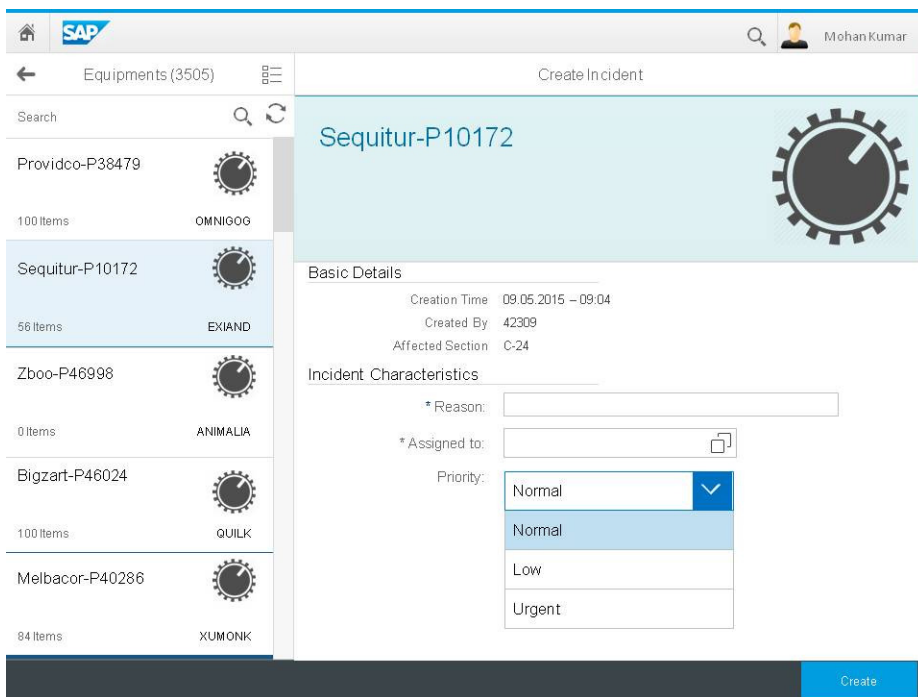
Mockup - Incident Manager 2 - View Incident History for the selected equipment



**View Incident Details**

- Line item drill down brings to a new view
- The view has three parts
- First shows all details of the equipment
- Second shows the remarks, which typically has long text
- Third shows the picture of the equipment as taken by the lineman

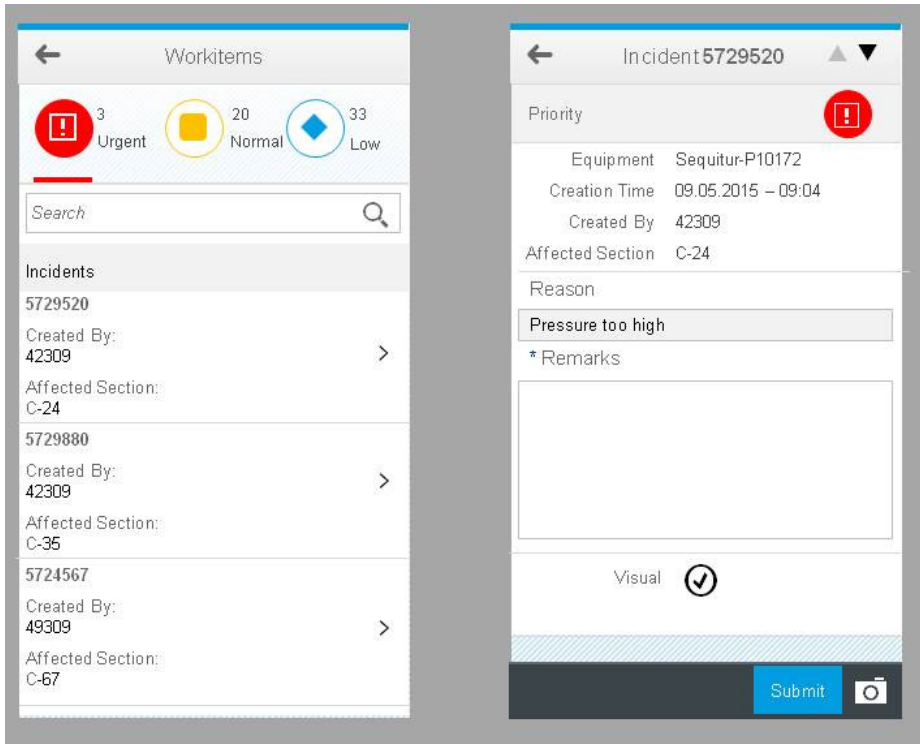
Mockup - Incident Manager 3 - View Details of chosen Incident



**Raise an Incident**

- If the Shift Incharge wants to initiate an inquiry, he would raise an incident for the concerned equipment
- The basic details are pre-filled in the simple form
- Shift Incharge will choose a lineman from value help and set priority
- The incident would then reflect in the incident worklist of the appointed lineman under appropriate tab for the given priority

Mockup - Incident Manager 4 - Raise a new Incident

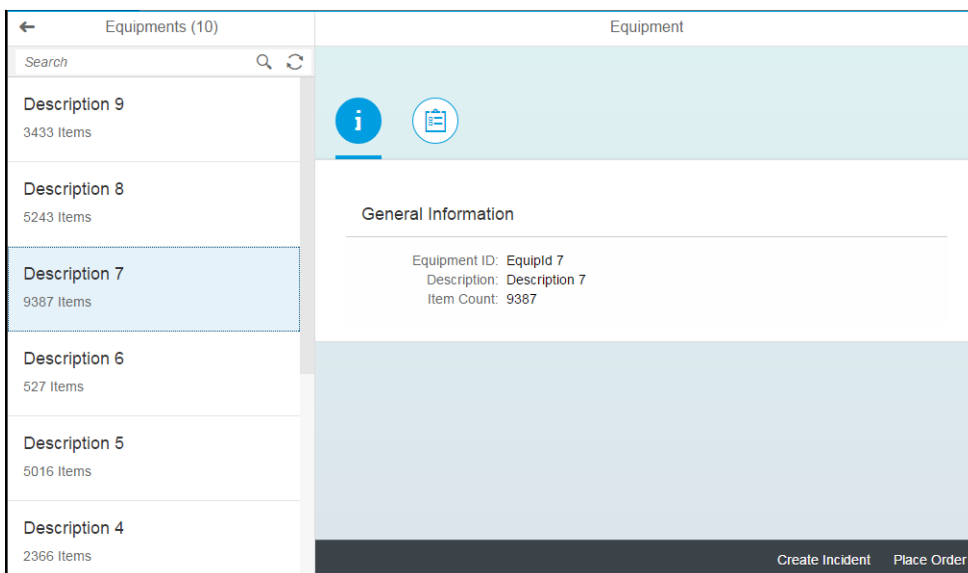


**Resolve Incidents**

- The lineman would get a priority wise segregated list of incidents
- Each incident can be seen in detail by click on it
- In the details view, remarks can be added
- The footer has a button to take a picture of the equipment using device camera
- Next incident can be viewed using iterator button
- Full Screen layout with (category) worklist floorplan
- Optimised for phone

Mockup - Incident Worklist 1 - View Incidents and Act on a Incident

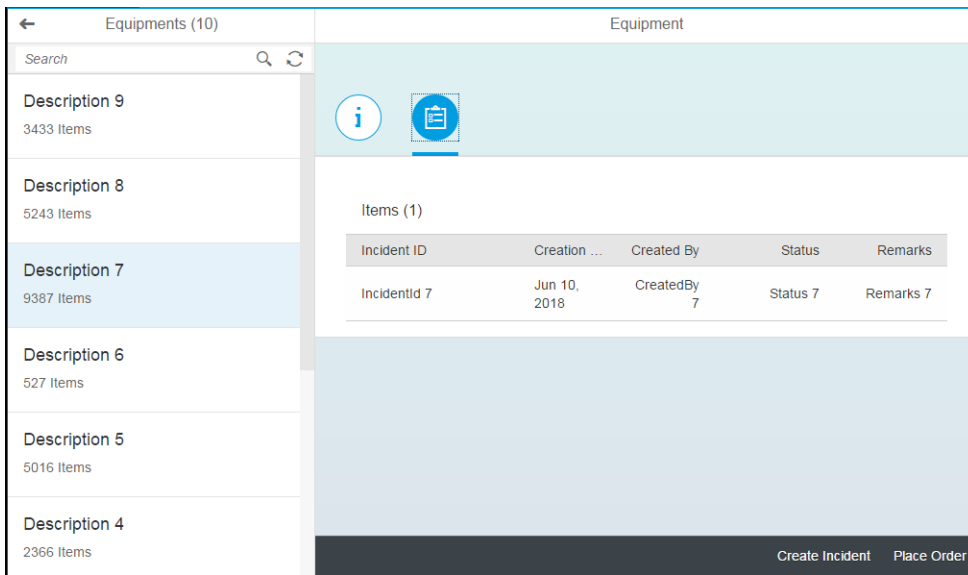
SAP Web IDE App



**Incident Manager**

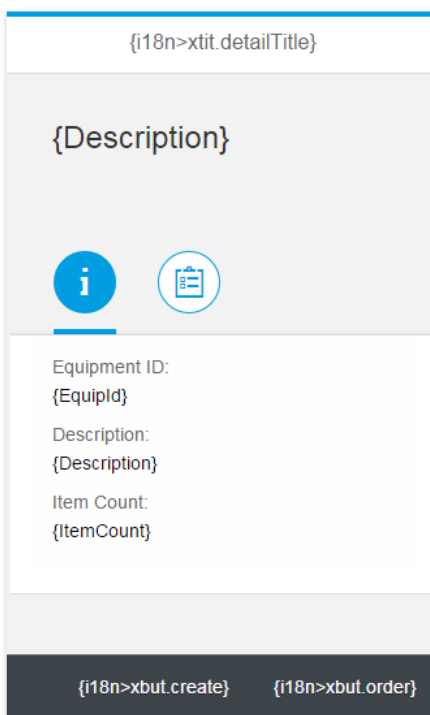
- The Incident Manager app - to be used by Shift Incharge
- Maps to 'Mockup - Incident Manager 1 - View Equipments'

WEB IDE App - Incident Manager 1 – Application – First Tab



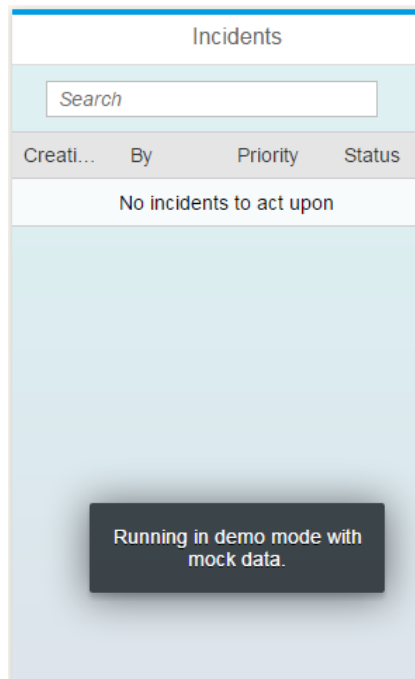
**Incident Manager**  
 Maps to 'Mockup - Incident Manager 2 - View Incident History for the selected equipment'

WEB IDE App - Incident Manager 2 - Application – Second Tab



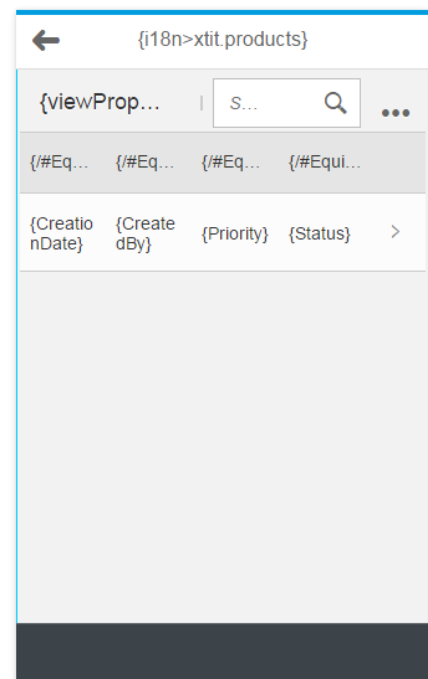
WEB IDE App - Incident Manager 2 - XML view in Layout Editor

**Incident Manager**  
 Layout Editor, shows binding to the Entity `Equipments`



Web IDE App - Incident Worklist 1 - Application

**Incident Worklist**  
 Maps to 'Mockup - Incident Worklist 1 - View Incidents and Act on a Incident'



Web IDE App - Incident Worklist 2 - XML View in Layout Editor

**Incident Worklist**  
 Layout Editor, shows binding to the Entity `EquipmentIncidents`