Digital Transformation – Case Study

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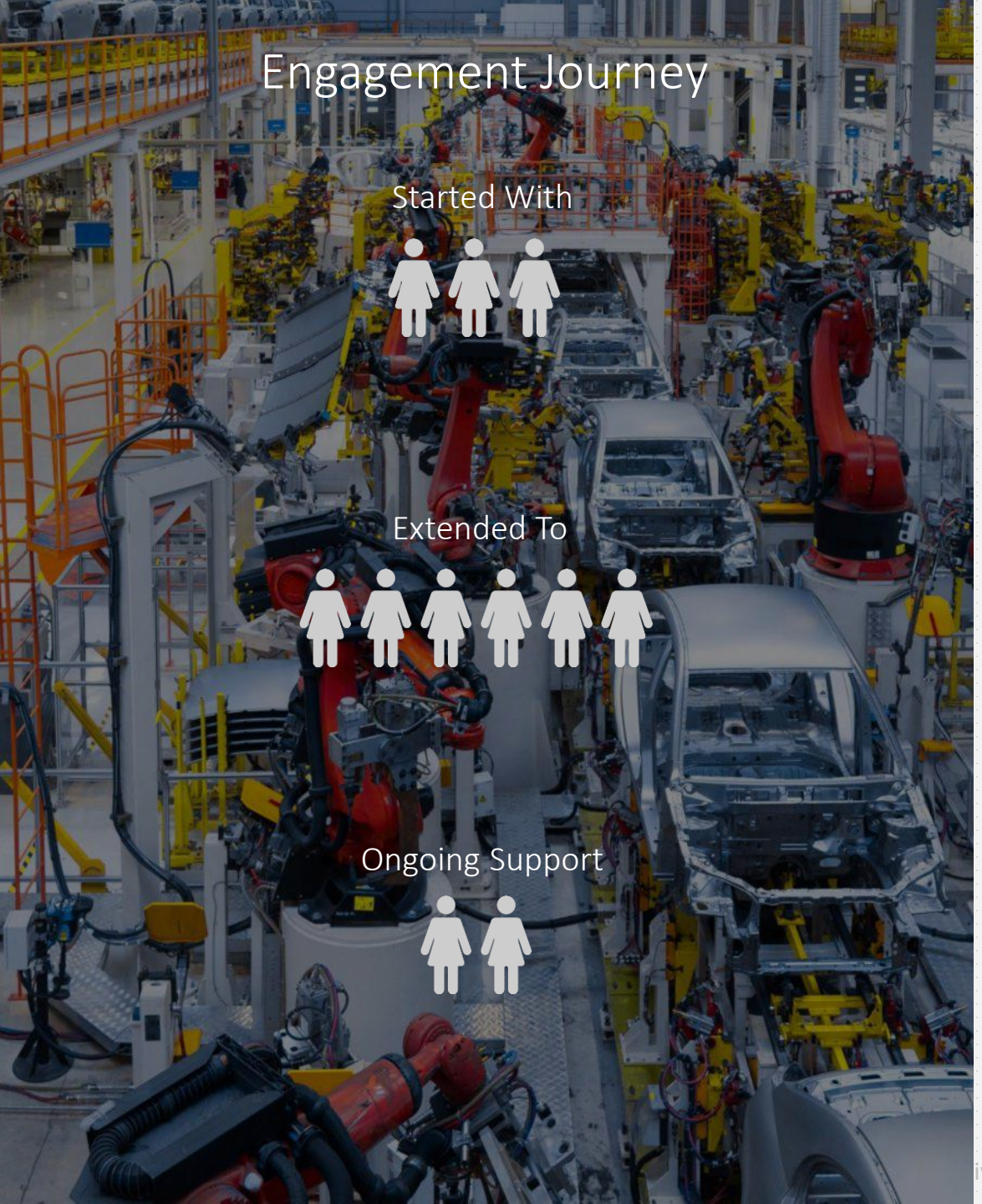
Optimized Solutions

DENSO

Smart production line inventory solution with third party intergrations (Automobile Industry)



OS Relationship with Client

On a day-to-day basis, the whole manufacturing process requires a lot of time and effort, and continuous monitoring.

The task of monitoring and managing the product inventory data is done manually using a pen-and-paper model.

This whole task requires continuous manual monitoring at the location which makes the whole process very tedious.

Therefore, the idea is to digitize the production line & production inventory process along with control & management.

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Background

The client is a global company focused on advanced mobility that positively changes how the world moves and contributes to greater well-being. They provide automotive service parts and are leading global supplier to all major automakers in India.

The client owns an Automobile manufacturing facility. The client's customers include Tata and Toyota among others.

The client has a production line in place which they want to monitor as well as manage on a real-time basis

Therefore, a solution is proposed where they will be able to monitor all the production line and production inventory data using real-time production line data and production inventory data visualization, real-time notification, and tracking of the production process.

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Challenges

The whole process of production data communication and fulfillment of the requirement of production is done by pen paper-based model and due to this manual process, it resulted in the information of slow data flow and an increase in dead stock, so a monetary loss is seen.

Therefore, this whole system needs to be modified to smoothen the whole process of manufacturing where OS provided a solution by developing a digitalized process of managing and controlling the production line & production inventory data to act accordingly.

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Solution

- If the actual existing production inventory stock of a specific product/model is less than the target value or threshold value at production storage stock, then a **production request** will open and will be sent to the production line for production of that specific model to fulfill the product/model requirement.
- **Digital production orders** placed will be shown as a pop-up at the production line in the production area to the specific user.
- Order placing for the specific model/product.
- Customizable lot size selection.
- **Digital chute** formation and reflection at the production line (priority-wise).
- Digital chute request will travel with the requested model/product from step one (start of manufacturing) till the final last step (completion of manufacturing).
- The request will travel through all the steps with the required model/product so that the specific user can **track the process**, also another user can work on the manufacturing process of the model/product.
- After the completion of the manufacturing of the requested product/model the manufacturing will be turned down and shown as completed and the final product/model will be then sent to the product inventory and the database of inventory will be updated accordingly.
- The model/product will be scanned and updated in the inventory database.
- The sequence of **lot selection for production** will be done using a first in first out **(FIFO) system**.
- Production process of each lot will be updated, and the data can be visualized.

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Solution

Digitization of production line and production inventory using real-time production line data and production inventory data visualization, real-time notification, tracking of the production process, and using a first in first out (FIFO) system for production process priority.

1. In/out scanning of model/product
    - QR code scanning for each individual product/model.
    - Scanning of product/model while moving in/out from production inventory location.
    - Product/model QR generation.

2. Centralized dashboard and database
    - Log-in credentials for different users.
    - Hierarchy and department-wise reading and writing permission.

3. Responsive web application
    - Log in based software access to the user, based on hierarchy.
    - Scanning of model/product using QR code while incoming of material or outgoing of material at production inventory for storage or usage.
    - Inventory of production stock will be updated with respect to scanning of incoming models/products at production inventory

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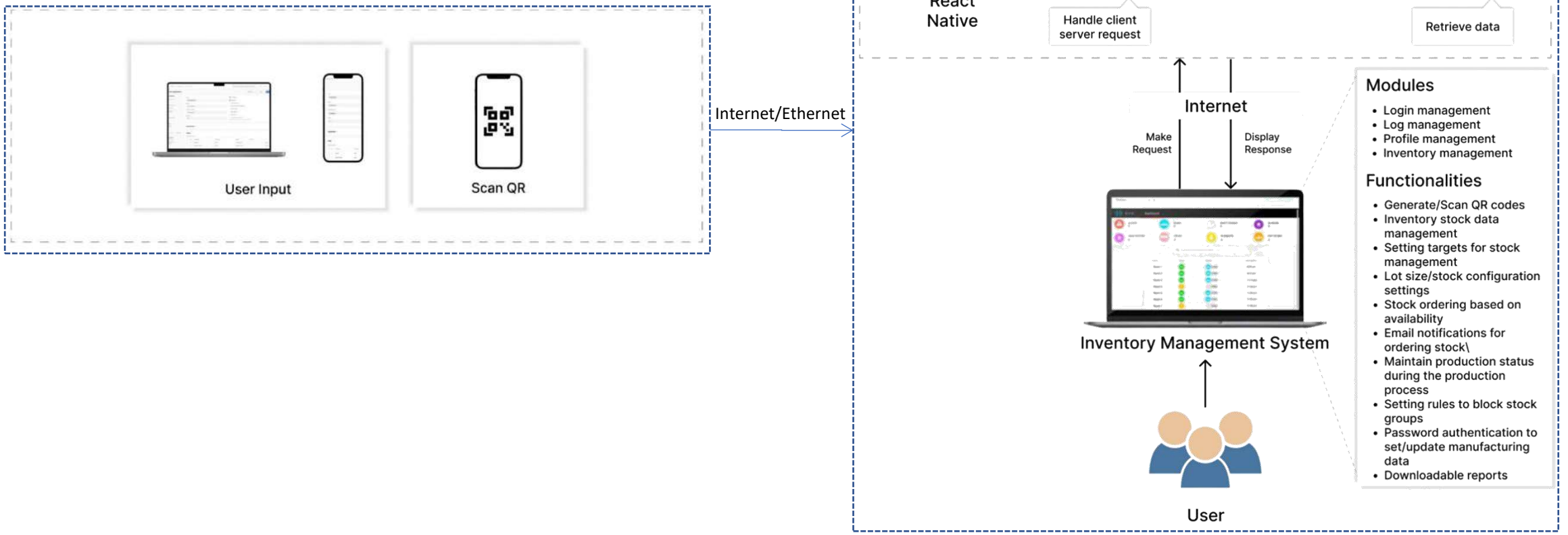
Solution Technical Architecture



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Solution

- After completion of manufacturing of a specific lot, the request of that lot will be removed or deleted from the system.
- The products/models can be locked if required to stop sending the **request of production** of that specific product/model by mistake also. These models/products are not required and the production of the same is not required so there is a provision to lock that model/product so that the request for manufacturing does not move forward.
- The updating in the manufacturing can be done by inserting the set password and then after entering the password the process can be updated. Also, models and lot selection for manufacturing will be **password protected**.

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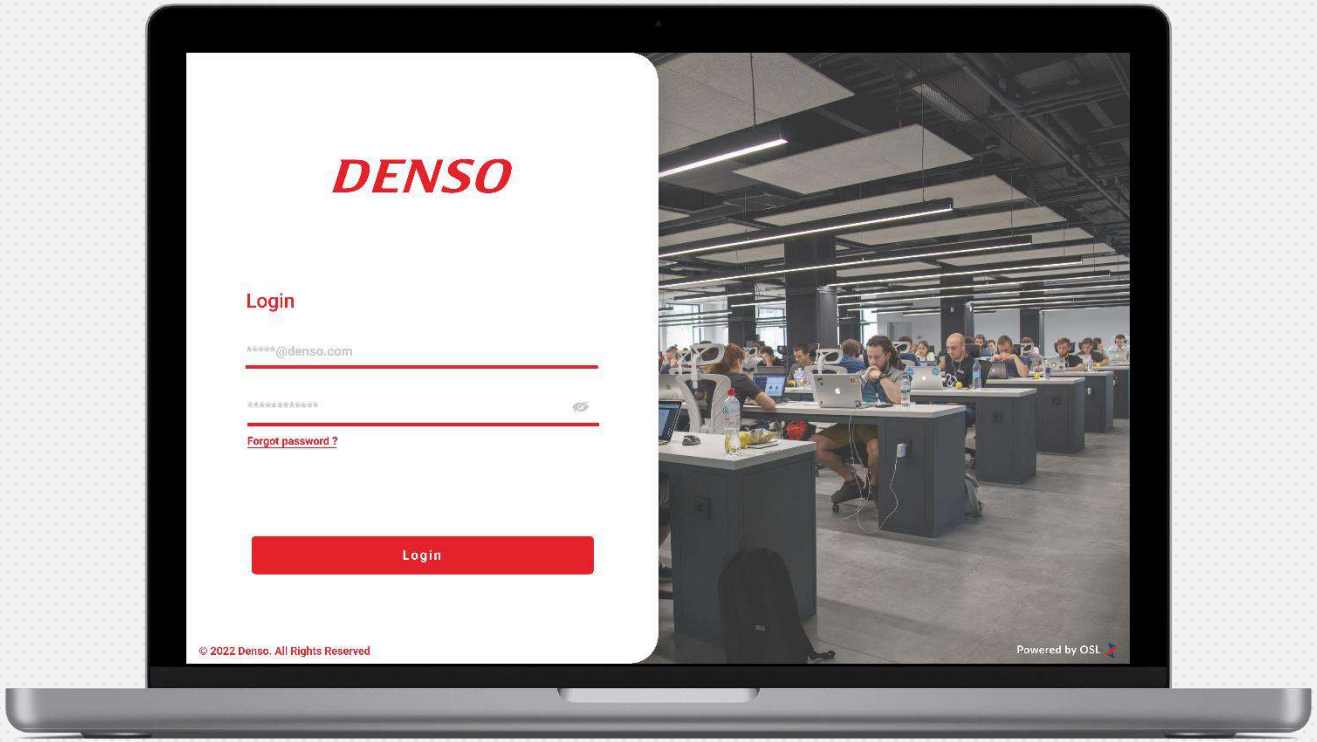
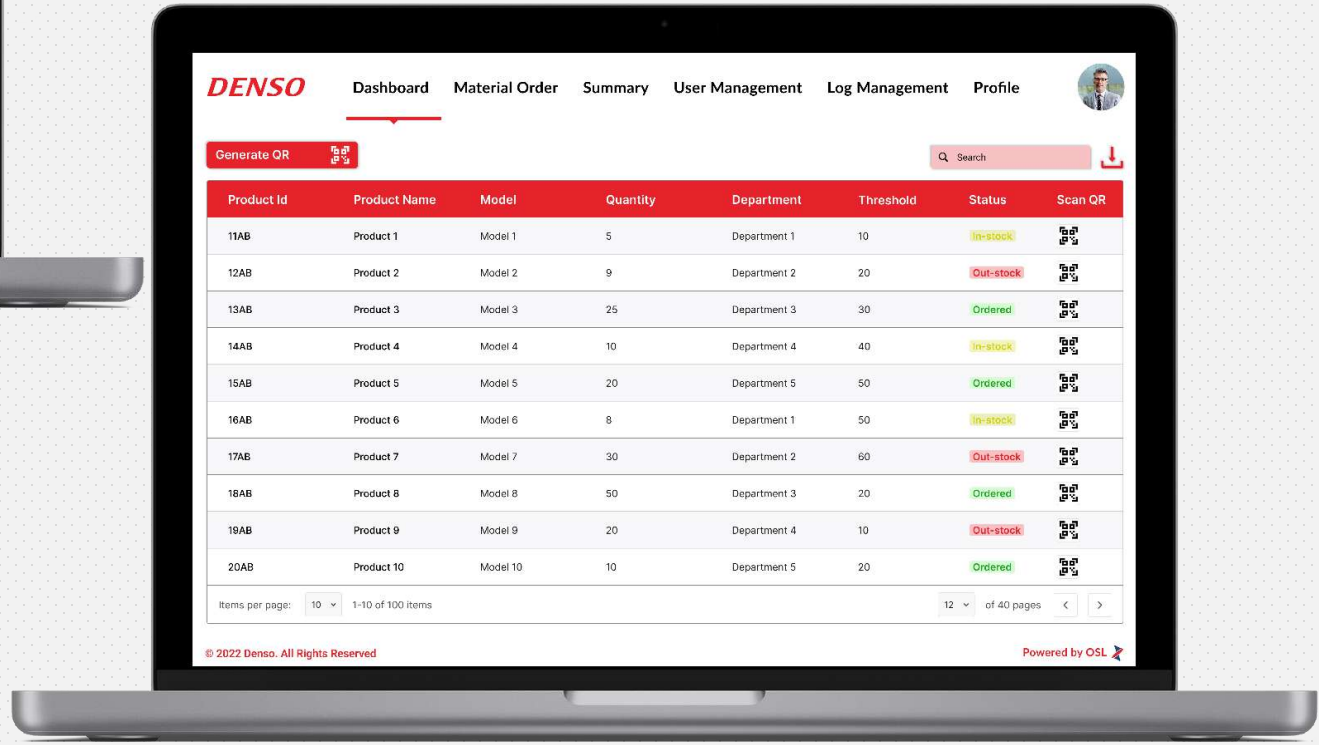
Solution – Web Interface





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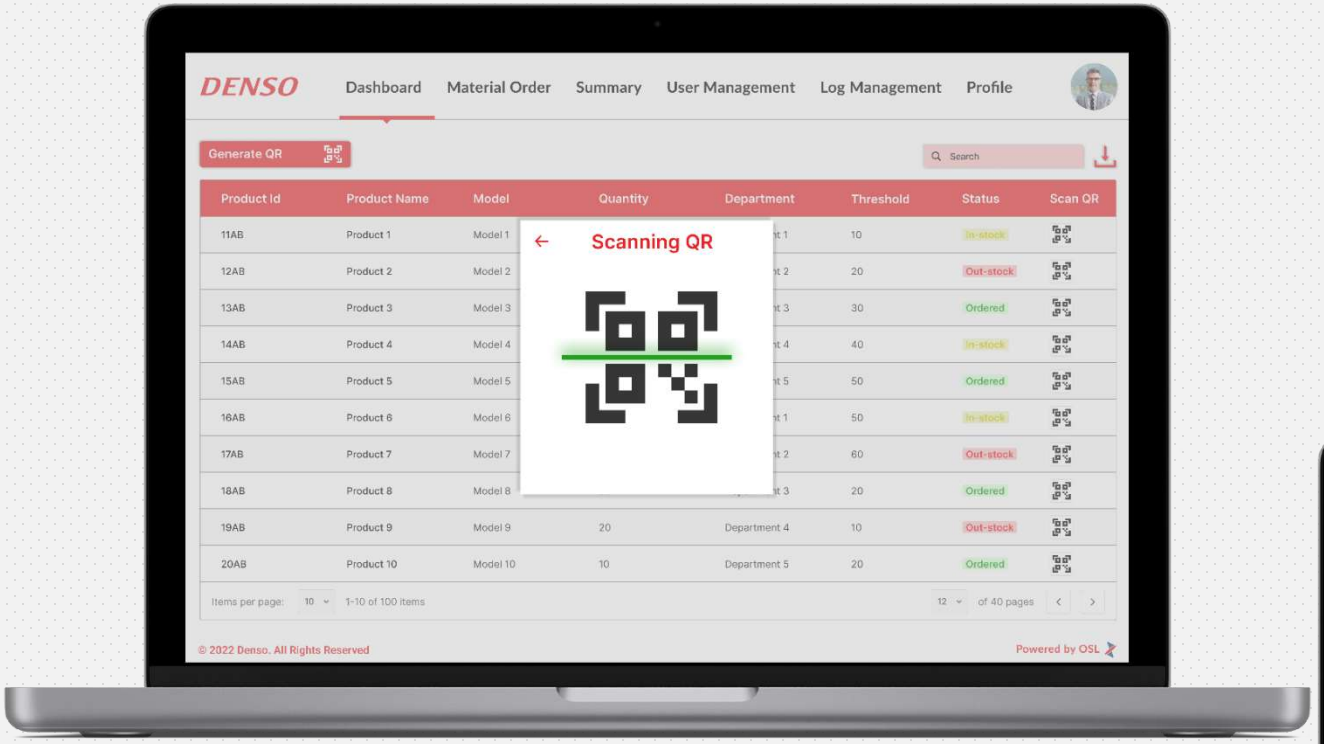

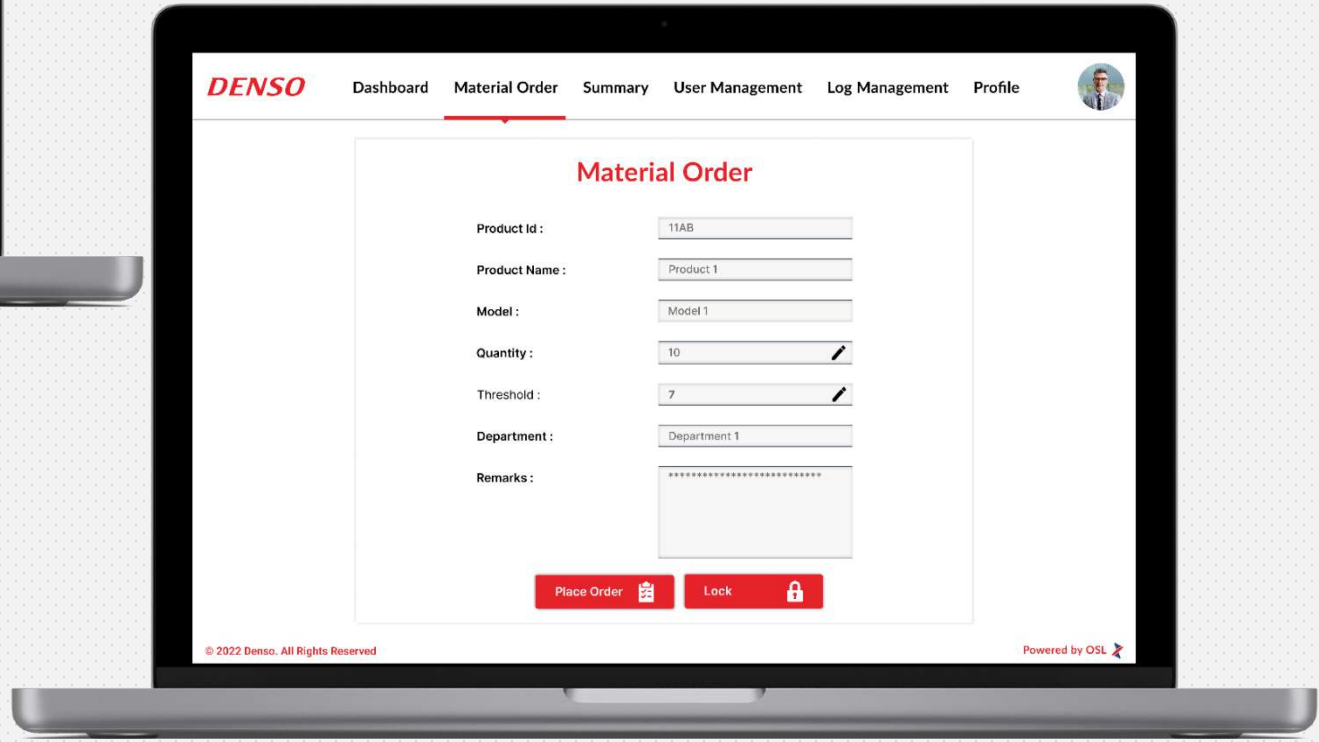

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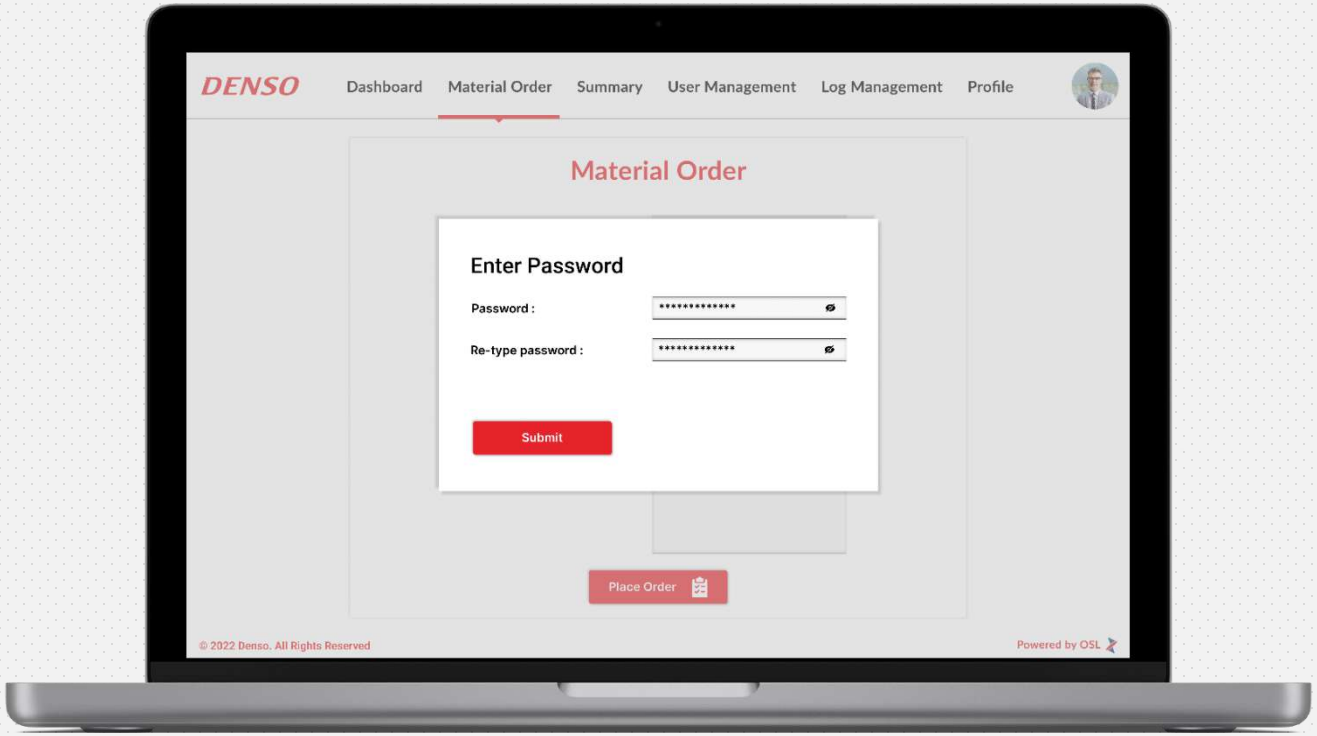

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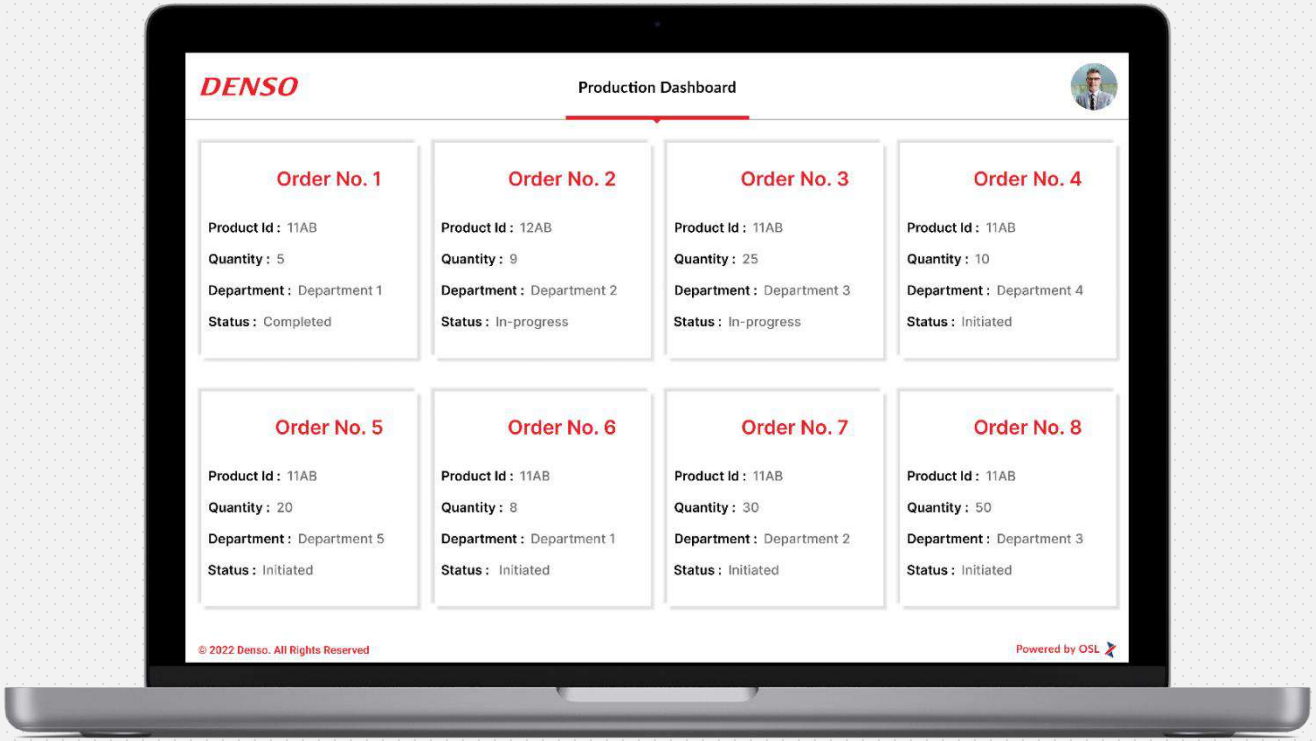

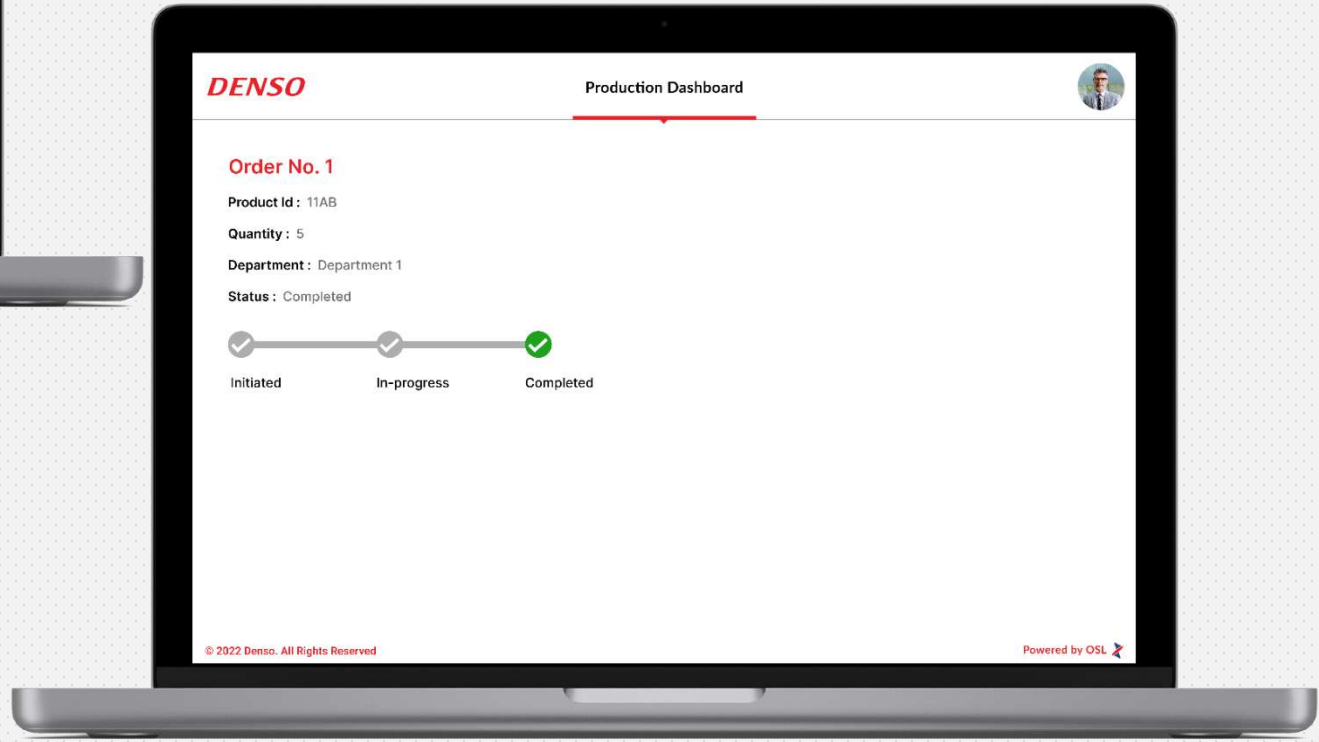

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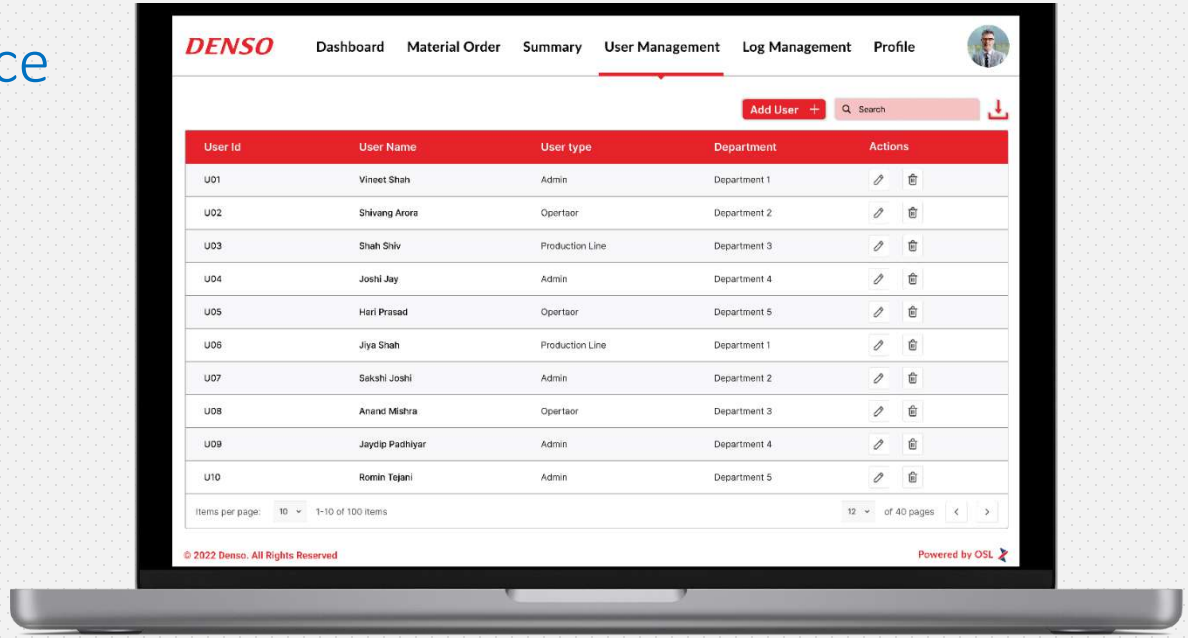

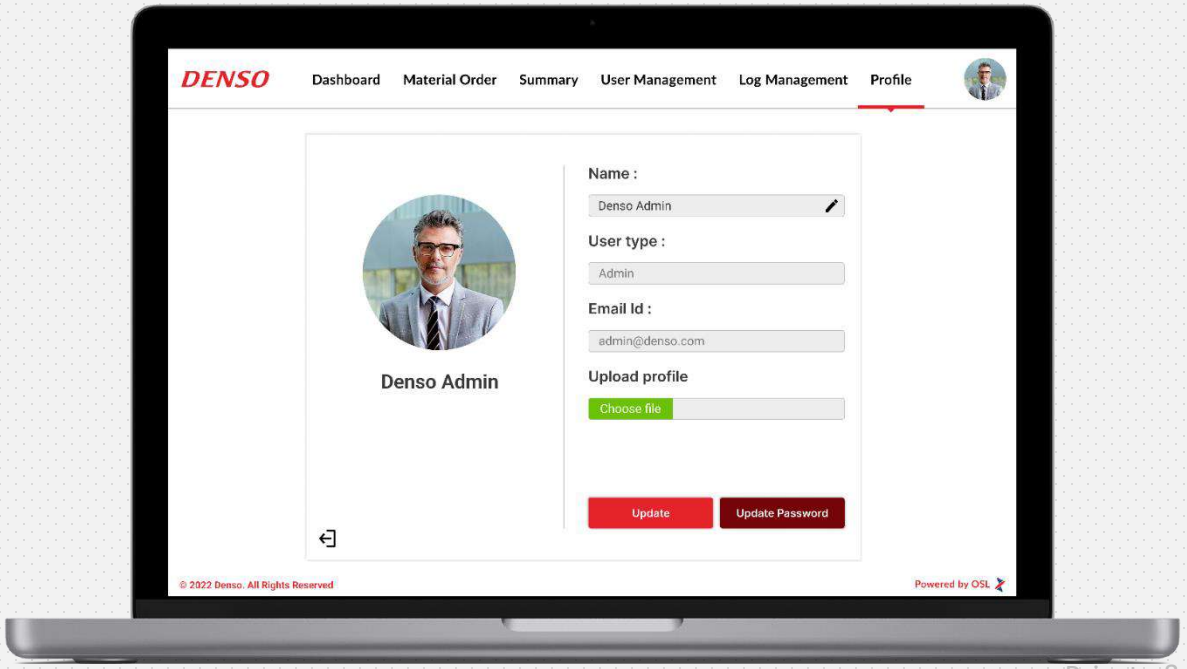

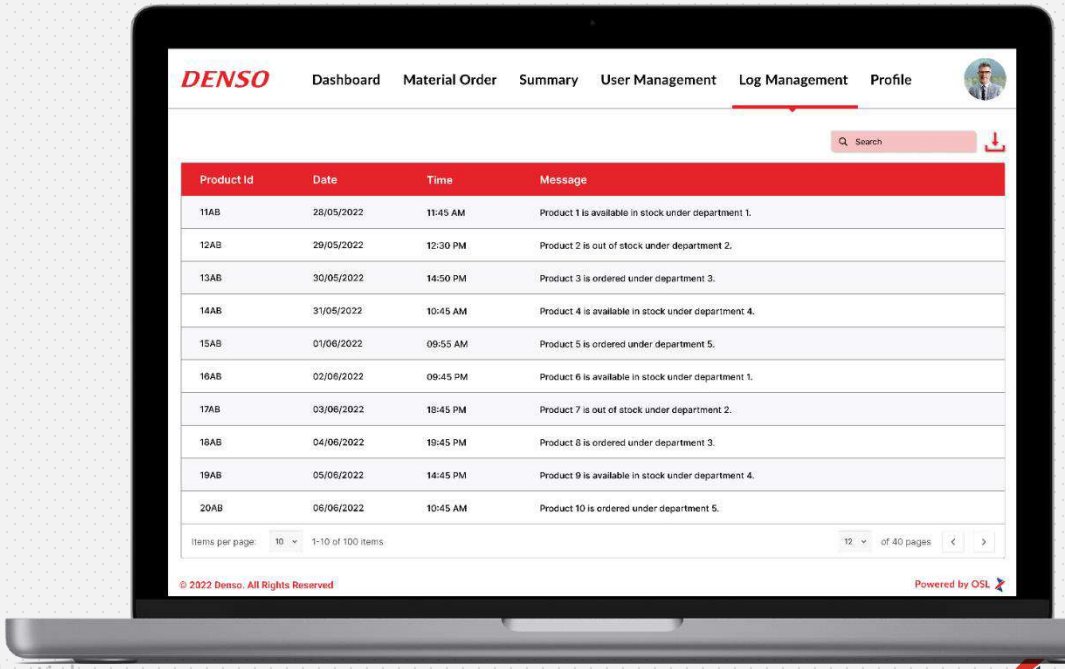

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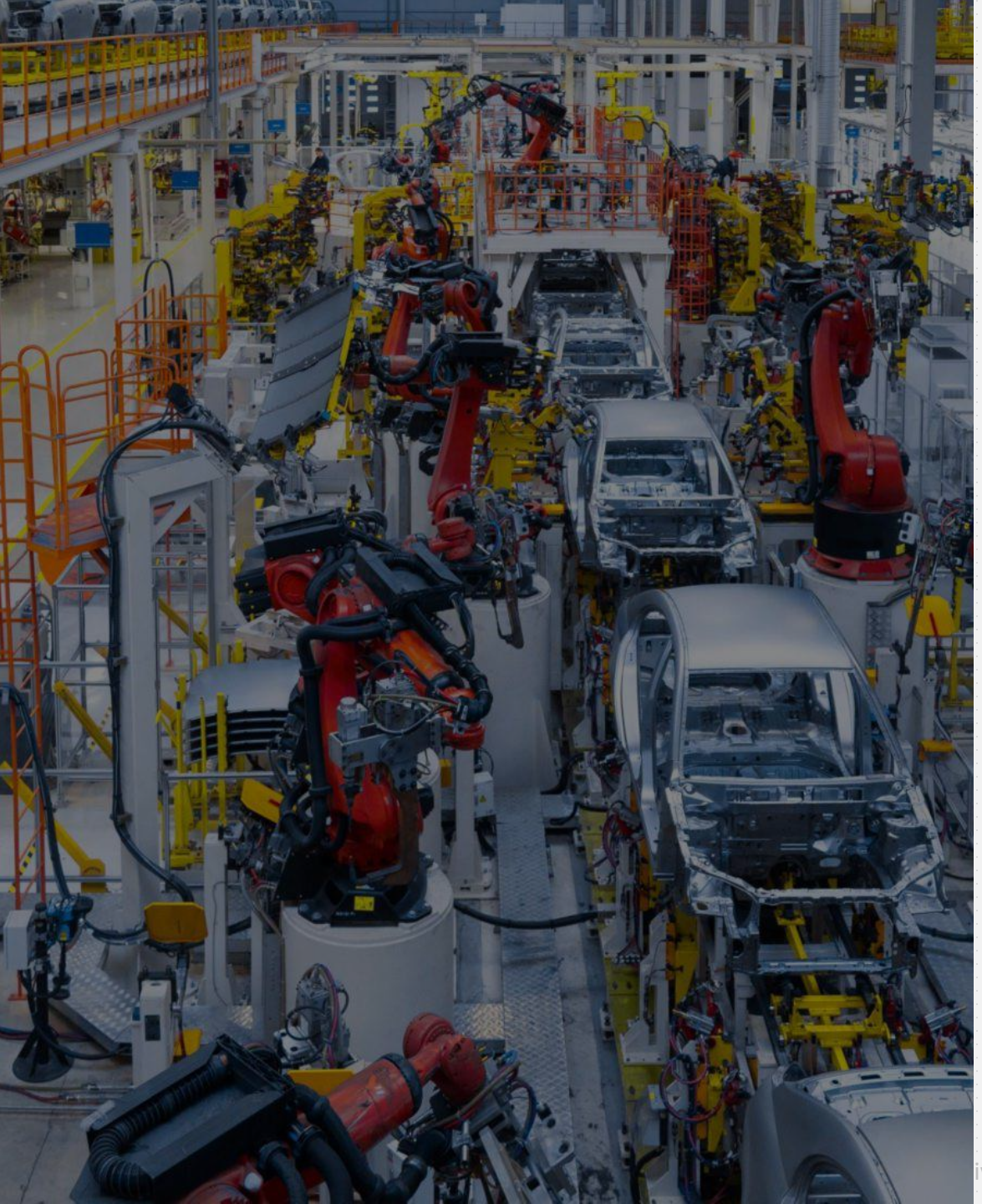

Value Proposition

Optimized Solutions has provided a system for production line & production inventory with control & management.

By transforming the whole process digitally, the client will be able to reduce the number of dead stock as well as fasten the whole process of production eliminating the manual process.

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Thank You

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