

Problem statement:

In the wake of the Coronavirus pandemic which is fast spreading. It is very important that Hospitals have the necessary medical devices and equipment to provide care to the increasing number of patients. These devices could be very expensive to purchase and maintain. So, it is very important that we devise a solution to effectively maintain the medical inventory across the network of hospitals of different capacity. Smaller hospitals can benefit with this approach without having to spend on purchasing the equipment. Our software aims to effectively use, purchase, lend, transport and maintain equipment across a network of hospitals and it can easily be ramped up in critical situations. This system will help in providing quality healthcare.

We also will have better visibility of the usage trends of medical devices within an enterprise, a network of enterprises and overall usage across networks. This will help in identifying shortages and mobilize resources wherever needed. The software also aims to consider special Covid-19 testing clinics or drive in centers as and when needed which can be part of a hospital network. They would need specialized testing devices from time to time. We aim to support multiple networks each comprising of several hospitals across the state. Each hospital will comprise of several department under them which will effectively coordinate medical device movement.

Application Key Functionalities:

Our Enterprise Model has below Departments

1. Operations-Medical Procedure Department:

Responsible for handling the in-hospital usage of machines and equipment for different processes to bring efficiency and order in the process. (*Within Hospital*)

Responsibilities of Actors:

Doctor	Operations Manager
Operation manager to schedule operation	Processes Doctor Operation request based on requirement
Cancel/Update request	Raises corresponding request with Inventory
	Operations manager is accountable for a hospital

2. Maintenance Department:

Takes care of maintenance and repairs of equipment and machines within Network of Hospitals.

Responsibilities of Actors:

Maintenance manager	Maintenance representative
Tracks maintenance schedule for network of hospitals	Fulfills service/repair request
Assigns service/repairs request to representative	

1. Business Department Responsibilities:

Duties involved are buying of new hospital equipment and lending equipment. (*Within Hospital*)

Responsibilities of Actors:

Manager	Sales Representative	Lender Representative
Approve/Rejects Sales Order (With Sales Representative)	Accepts equipment buy request from Manager	Accepts lending job (Communicates with the other hospital's Lender Representative)
Raises Equipment procurement request (with Sales Representative)	Access to in-house marketplace	Gets lending request, sends for approval
Raises/Approves/Rejects Lend Equipment Request (With Inventory and Lend representative)	Raise special equipment request to the Supplier	
	Quote/Requote order with the Supplier	

2. Suppliers Department:

Responsibilities of Actors:

a. Supplier

- i. Have an equipment catalog, and upload it in-house marketplace
- ii. Take in special equipment request (from Sales Representative)
- iii. Quote/Requote order with Sales Representative
- iv. Send invoice

3. Inventory Management

Duties involve managing equipment inventory within the hospital

Responsibilities of Actors:

a. Inventory manager

- i. Take requests from Operations-Medical team to block Medical equipment for the medical procedure.
- ii. Approve - Receive medical equipment from Suppliers
- iii. Review inventory within the Hospital and get it transferred if needed to the medical room by sending it to the Inventory personnel
- iv. Transfer 'Medical Device – Borrow/purchase requests' to the Business department
- v. Can view equipment across network from a common inventory pool

b. Inventory personnel

- i. Take requests from Inventory manager and transport the device from point A to B within the hospital

4. Transportation/Logistics Department

Duties involve transferring medical equipment inventory *Within the Hospital Network*

Responsibilities of Actors:

Transportation Manager	Transportation Personnel
Take transfer requests for transferring medical devices from one hospital to the other within network and assign it to his staff	Take requests from manager and transport device from point A to B and update the transfer order status.
Track transportation status	

Ecosystem Architecture Diagram

