

Group 4

Final Project Proposal

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Organ Donation Management and Collaboration Platform

Problem Statement

Organ donation is a complex process requiring efficient coordination between various stakeholders such as hospitals, organ banks, donor families, and recipients. Challenges like organ scarcity, logistical inefficiencies, lack of communication, and insufficient public awareness exacerbate the issue. Moreover, ensuring ethical standards and minimising organ wastage requires a centralised system.

The lack of a robust platform for cross-organizational coordination results in delayed transplants, reduced organ viability, and missed opportunities to save lives. An effective ecosystem is needed to connect donors, recipients, and organisations seamlessly while ensuring transparency, compliance, and efficient decision-making.

Solution

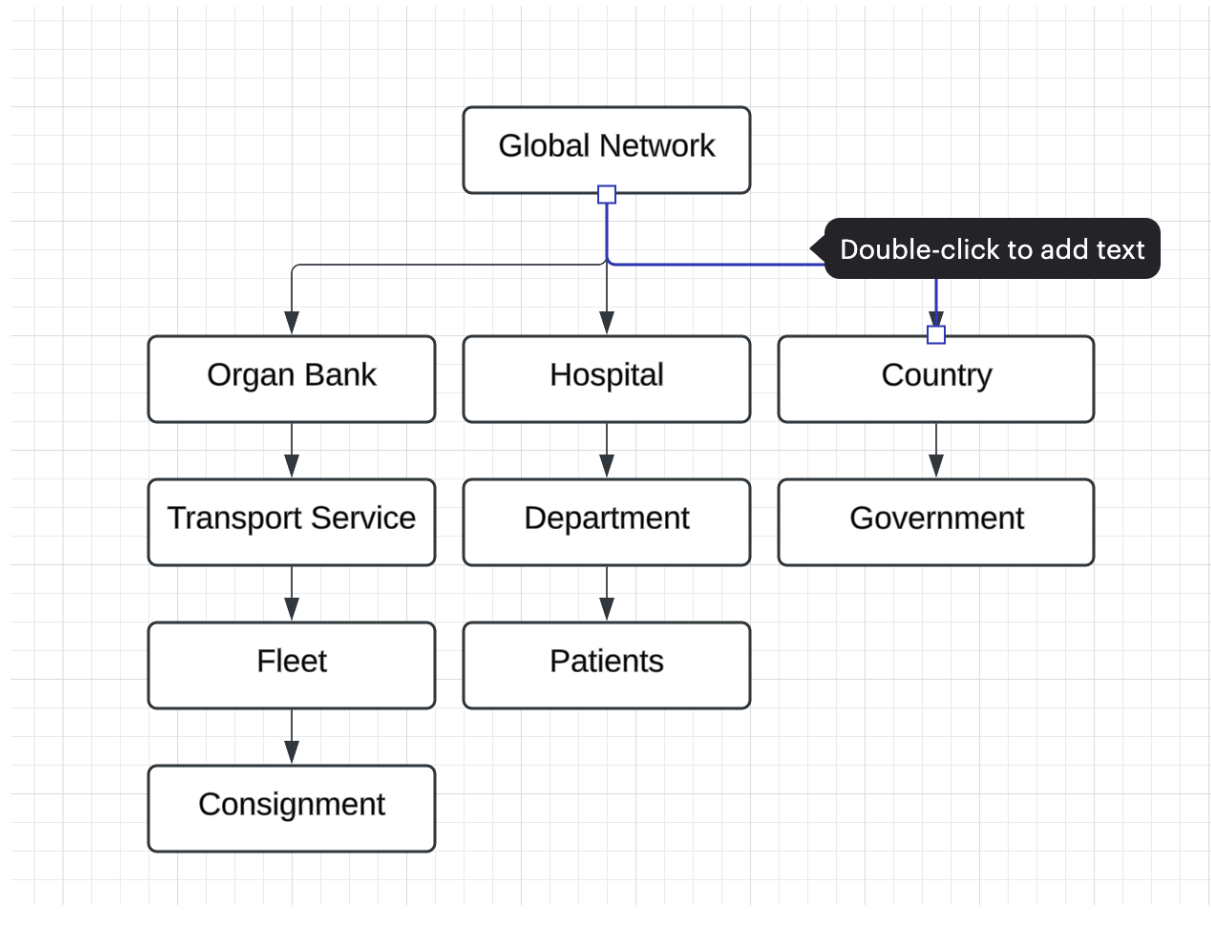
The Organ Donation Management and Collaboration Platform is a comprehensive software system designed to streamline organ donation and transplantation processes. This platform connects all stakeholders, enabling real-time updates, role-based access, and efficient communication.

Key Features:

- Centralised database for managing donor, recipient, and organ information.
- Real-time organ availability tracking and logistics coordination.
- Role-based access for healthcare professionals, patients, NGOs, and government bodies.
- Cross-network collaboration between hospitals, organ banks, and transport services.
- Data visualisation and reporting tools for policy planning and public awareness campaigns.
- A module to integrate public registrations for organ donation campaigns.
- Secure handling of sensitive medical data, complying with global health regulations.

This platform not only ensures the timely and ethical allocation of organs but also enhances transparency and accountability in the organ donation ecosystem.

High-Level Component Diagram



Ecosystem Hierarchy

Network

- **Global Organ Donation Collaboration Network (GODCN):**
A global network fostering collaboration between healthcare institutions, NGOs, and governments for streamlined organ donation processes.

Enterprises

1. **Hospitals:**
 - Conduct transplants, coordinate with organ banks, and manage patient data.
2. **Organ Banks:**
 - Store and distribute organs for transplantation.
3. **NGOs and Advocacy Groups:**
 - Promote organ donation awareness and support patients and donor families.
4. **Transport Services:**

- Handle logistics for transporting organs between locations efficiently.
 - 5. **Government Agencies:**
 - Ensure compliance with regulations and manage national organ registries.
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Organisations

1. **Transplant Coordination Teams:**
 - Manage end-to-end organ transplant processes.
 2. **Public Health Campaigns:**
 - Educate and encourage citizens to register as organ donors.
 3. **Organ Quality Assurance Units:**
 - Ensure the organs meet medical standards before transplantation.
 4. **Policy and Regulatory Bodies:**
 - Establish guidelines and policies for ethical organ allocation.
 5. **Technology Partners:**
 - Provide digital infrastructure, secure databases, and analytics capabilities.
 6. **Recipient Support Networks:**
 - Assist transplant recipients with recovery and support systems.
 7. **Ethics Committees:**
 - Monitor ethical practices in organ donation and transplantation.
 8. **Public Outreach Teams:**
 - Organise awareness drives and campaigns to encourage organ donation.
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Roles

1. **Platform Administrator:**
 - Manage the platform infrastructure, user roles, and data security.
2. **Hospital Admin:**
 - Oversee organ transplantation processes within hospitals.
3. **Organ Bank Manager:**
 - Track organ inventory and coordinate organ allocation.
4. **Transport Coordinator:**
 - Ensure the efficient transport of organs while maintaining viability.
5. **NGO Representative:**
 - Promote awareness campaigns and donor registrations.
6. **Government Official:**
 - Monitor compliance and manage regulatory approvals.
7. **Recipient Support Specialist:**
 - Assist transplant recipients during recovery and follow-up care.
8. **Quality Assurance Expert:**
 - Ensure organs meet safety and quality standards.
9. **Public Outreach Coordinator:**
 - Design and execute public education campaigns.

Use Cases

1. **Real-Time Organ Tracking:**
 - Hospital admins and transport coordinators access a shared dashboard to monitor organ locations and ensure timely delivery.
2. **Cross-Network Collaboration:**
 - NGOs, hospitals, and government agencies work together on public awareness campaigns and organ allocation policies.
3. **Donor-Recipient Matching:**
 - The system uses advanced algorithms to match donor organs with suitable recipients based on medical criteria.
4. **Data Visualization and Reporting:**
 - Stakeholders generate reports on organ donation trends, regional needs, and logistic challenges for informed decision-making.
5. **Public Registration Campaigns:**
 - NGOs use the platform to register potential donors and provide updates on their campaigns.
6. **Policy Planning:**
 - Government agencies analyse platform data to draft policies for improving organ donation rates.