

## Group 12

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### Project Proposal Instruction:

- Attach the link to your Google Doc project proposal to the Group Signup Sheet.
- Ensure the document includes
  - Problem statement
  - Solution
  - High-level component diagram
  - A clear outline of the ecosystems hierarchy, identifying relevant networks, organizations, roles, and use cases.

### Problem statement:

Nowadays, when an enterprise develops and sells new products, it is necessary to collaborate with different organizations. Without a comprehensive workflow system, employees across organizations have to spend a lot of time on communication and task assignment. It delays the time-to-market for products and leads to negative impacts on the company's revenue performance.

A high-tech company is planning to develop and launch their latest technology laptop. To complete their product manufacturing, production, and marketing, they have to collaborate with different enterprises. Thus, they need a system which can optimize the collaboration processes among employees from different organizations.

### Solution:

We have designed a workflow system that facilitates cross-company and cross-organization collaboration, implementing an ecosystem design architecture. Roles from different organizations can send work requests to other organizations based on their business needs and track the progress status and feedback of the work. This system aims to enhance communication efficiency, workflow collaboration processes, and accelerate the time-to-market for products.

## UML

link: [https://lucid.app/lucidchart/da55d442-9817-4bfa-a01e-7190b9c95081/edit?viewport\\_loc=-1772%2C-498%2C4039%2C1959%2C0\\_0&invitationId=inv\\_f5a99e10-8fdb-42c1-8b57-843b8d279643](https://lucid.app/lucidchart/da55d442-9817-4bfa-a01e-7190b9c95081/edit?viewport_loc=-1772%2C-498%2C4039%2C1959%2C0_0&invitationId=inv_f5a99e10-8fdb-42c1-8b57-843b8d279643)

## WorkRequest Relation:

### Development

A high-tech product launch begins from DevelopmentWorkReqeust. The Product Manager Organization collaborates with ResearchAndDesign(RD) Organization.

1. The Product Manager Role creates a WorkRequest and a Development WorkRequest.
2. The RD Role updates the DevelopmentWorkRequest with a devStatus of completed.
3. The Product Manager Role sets the DevelopmentWorkRequest's Verified status to true.

### Order Placement

After development is completed, the product manufacturing process is managed within the PurchaseWorkRequest. PurchaseManager creates PurchaseWorkReqeust to inform ManufacturingManager of the target production quantity and request a manufacturing quote.

1. Role has already Verified the DevelopmentWorkRequest.
2. The Purchase Manager Role can access the WorkRequest.
3. The Purchase Manager Role creates a PurchaseWorkRequest.
4. The Manufacturing Manager Role can access the WorkRequest.
5. The Manufacturing Manager Role sets the productPerPrice in the PurchaseWorkRequest.
6. The Purchase Manager Role updates the PurchaseWorkRequest by setting Signed to true.

### Product Manufacturing

During the production phase, the ProductionLine Organization reports the current manufactured quantity, while the Manufacturing Manager controls the production process. Once manufacturing is completed, the Purchase Manager verifies the PurchaseWorkRequest.

1. The Manufacturing Worker Role can access the WorkRequest and operate on the PurchaseWorkRequest.
2. The Manufacturing Worker Role updates the productionStatus in the PurchaseWorkRequest to completed.
3. The Purchase Manager Role updates the PurchaseWorkRequest by setting Verified to true.
4. The Purchase Manager Role has Verified the PurchaseWorkRequest.

## Delivery

Once the Production is completed, the DeliverWorkReqeust begins. The Manufacturing Manager provides shipping information, and the Delivery Manager offers a shipping quote. Once the order is signed, the Delivery Role handles the delivery to the retailer and manages the Shipping status. After the Retail Manager confirms receipt of the goods, the DeliverWorkRequest is verified.

1. The Manufacturing Manager Role creates a DeliveryWorkRequest.
2. The WorkRequest is added to the DeliveryManager Organization.
3. Delivery Manager Role can access the WorkRequest.
4. Delivery Manager Role updates the DeliveryWorkRequest by setting the shippingPrice.
5. Manufacturing Manager Role updates the DeliveryWorkRequest by setting Signed to true.
6. The WorkRequest is added to the Delivery Organization.
7. Delivery Role can access the WorkRequest and update the DeliveryWorkRequest by setting the Shipping status to delivered.
8. Retail Manager Role updates the DeliveryWorkRequest by setting shipConfirmed to true.

## Marketing

Once DeliverWorkReqeust is completed, the MarketingWorkRequest begins. The Marketing Manager initiates the MarketingWorkRequest and contacts the Advertising Manager. After deciding the budget and marketing plan, the Digital Strategist takes responsibility for executing the advertisements and reporting on their performance. Once the advertisement execution is marked as completed, the Marketing Manager verifies the MarketingWorkRequest.

1. MarketingManager Role creates a MarketingWorkRequest.
2. MarketingManager Role updates the MarketingWorkRequest by setting signed to true.
3. The WorkRequest is added to the DigitalAdsStrategist Organization.
4. DigitalAdsStrategist Role can access the WorkRequest.
5. DigitalAdsStrategist Role updates the MarketingWorkRequest by setting AdsExecution Status to completed.
6. MarketingManager Role updates the MarketingWorkRequest by setting verified to true.

## Use Scenario

For a laptop development scenario, the process typically begins when the Product Manager from the Technology Product Enterprise initiates a Product Development WorkRequest to the R&D team. For instance, they might specify requirements for a new high-performance gaming laptop with an RTX 4070 GPU, 32GB RAM, and

advanced cooling system. Once R&D completes the design, the Purchasing Manager creates a Purchase Order WorkRequest to procure essential components like processors, display panels, and keyboard mechanisms. The Manufacturing team then receives these components and sends this WorkRequest to the Production Line Organization, where the laptops are assembled and undergo quality testing. After production, a Delivery WorkRequest is created to the Delivery Manager Organization, who coordinates with the Delivery Organization to distribute the laptops to retail stores. The Retail Sale Organization confirms delivery through a Delivery Confirmation on DeliverWorkRequest. Simultaneously, the Marketing Organization collaborates with the Planner Organization through a Marketing WorkRequest to develop a campaign strategy targeting gaming enthusiasts. The Planner Organization then works with the Digital Strategy Organization Marketing WorkRequest to launch campaigns highlighting the laptop's gaming performance and innovative features.

For a phone development scenario, the workflow follows a similar pattern but with different specifications and focus areas. The Product Manager initiates development for a premium smartphone featuring a 108MP camera system and AI capabilities. The R&D team focuses on camera technology, 5G integration, and battery optimization. The Purchasing Manager's WorkRequest includes components like mobile SoCs, camera modules, and OLED displays. The Manufacturing Organization handles the intricate assembly of these smaller components, with special attention to waterproofing and durability testing. The shipping and delivery process requires careful handling of the more compact but delicate devices. The marketing campaign, coordinated between Marketing, Planner, and Digital Strategy Organizations, emphasizes camera capabilities, AI features, and 5G connectivity, targeting photography enthusiasts and tech-savvy consumers. Throughout both scenarios, each WorkRequest enables clear communication and tracking between organizations, ensuring efficient collaboration and timely product delivery to market.