Introduction to Operation Management

PART TWO Design the operation

Co-funded by the European Union

1 Business Process Design

Exercises of Business Process Management

Exercise 1: Order Processing and Fulfillment

Scenario:
A European car manufacturer receives orders from dealerships across the continent. The process involves order verification, production scheduling, assembly, quality checks, and shipping.

Task:
Draw a BPMN diagram illustrating the order processing and fulfillment process, highlighting decision points and parallel tasks.

BPMN Diagram Structure:

- **Start Event:** Order received from dealership.

- **Tasks:**

    - Verify order details.

    - Schedule production.

    - Assemble vehicle.

    - Conduct quality checks.

- **Decision Point:** Is the vehicle ready for shipping?

    - If yes, proceed to shipping.

    - If no, return to assembly for adjustments.

- **End Event:** Vehicle shipped to dealership.

Exercise 2: Supply Chain Management

Scenario:
The manufacturer sources parts from various European suppliers. The process includes supplier selection, order placement, delivery tracking, and inventory management.

Task:
Create a flowchart to map the supply chain management process, focusing on the interactions between the manufacturer and suppliers.

BPMN Diagram Structure:

1. **Start Event:**

    - **Symbol:** Circle

    - **Label:** Order Received from Dealership

2. **Task 1: Verify Order Details**

    - **Symbol:** Rectangle

    - **Label:** Verify Order Details

3. **Task 2: Schedule Production**

    - **Symbol:** Rectangle

    - **Label:** Schedule Production

4. **Task 3: Assemble Vehicle**

    - **Symbol:** Rectangle

    - **Label:** Assemble Vehicle

5. **Task 4: Conduct Quality Checks**

    - **Symbol:** Rectangle

    - **Label:** Conduct Quality Checks

6. **Decision Point: Is the Vehicle Ready for Shipping?**

    - **Symbol:** Diamond

    - **Label:** Is Vehicle Ready for Shipping?

    - **Outgoing Flows:**

        - **Yes:** Proceed to Task 5

        - **No:** Return to Task 3 (Assemble Vehicle)

7. **Task 5: Ship Vehicle**

    - **Symbol:** Rectangle

    - **Label:** Ship Vehicle

8. **End Event:**

   - **Symbol:** Circle with a thick border

   - **Label:** Vehicle Shipped to Dealership

Exercise 3: Vehicle Assembly Line Optimization

Scenario:
The assembly line for a new electric vehicle model needs optimization. The process includes chassis assembly, electrical system installation, interior fitting, and final inspection.

Task:
Design a value stream map to identify bottlenecks and suggest improvements in the assembly line process.

BPMN Diagram for Vehicle Assembly Line Optimization

1. **Start Event:**

   - **Symbol:** Circle

   - **Label:** Start Assembly Line

2. **Task 1: Chassis Assembly**

   - **Symbol:** Rectangle

   - **Label:** Chassis Assembly

3. **Task 2: Electrical System Installation**

   - **Symbol:** Rectangle

   - **Label:** Electrical System Installation

4. **Task 3: Interior Fitting**

   - **Symbol:** Rectangle

   - **Label:** Interior Fitting

5. **Task 4: Final Inspection**

   - **Symbol:** Rectangle

   - **Label:** Final Inspection

6. **Sub-process: Identify Bottlenecks**

   - **Symbol:** Double-bordered Rectangle

   - **Label:** Identify Bottlenecks

   - **Description:** Analyze each task for delays or inefficiencies.

7. **Sub-process: Suggestions for Improvement**

- **Symbol:** Double-bordered Rectangle

- **Label:** Suggestions for Improvement

- **Description:** Propose changes to reduce bottlenecks.

8. **End Event:**

- **Symbol:** Circle with a thick border

- **Label:** Optimized Assembly Line

Exercise 4: Customer Service and Feedback Loop

Scenario:
The manufacturer has a customer service process for handling inquiries, complaints, and feedback from car owners. The process involves initial contact, issue resolution, and feedback analysis.

Task:
Develop a BPMN diagram to represent the customer service process, including escalation procedures and feedback loops.

BPMN Diagram Structure:

- **Start Event:** Customer inquiry received.

- **Tasks:**

  - Log inquiry.

  - Resolve issue or escalate.

  - Analyze feedback.

- **Decision Point:** Is the issue resolved?

  - If yes, close the case.

  - If no, escalate to higher support.

- **End Event:** Feedback recorded and analyzed.

References

https://camunda.com/bpmn/examples/

http://www.workflowpatterns.com/

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