

Miles Shinsato

Nardos Gebremedhin

Jessica Long-Heinicke

Joseph Ayo

Adrian Marquez

12/7/24

# CSD 310 – Group 1

## Case Study: Bacchus Winery

# **Deliverable #1 – Business Rules**

## **1. Supply Chain Management**

### **1.1 Supplier Monitoring**

- All suppliers must provide detailed delivery schedules and update them in real-time if there are changes
- Delivery performance must be reviewed monthly, with no more than 5% variance allowed between expected and actual delivery dates

### **1.2 Inventory Levels**

- Critical Inventory (bottles, corks, labels, etc.) must be maintained at a minimum of 30 days' supply, based on average monthly usage
- Low inventory alerts must automatically trigger purchase orders to approved suppliers for restocking

### **1.3 Supplier Agreements**

- Supplier agreements must include penalties for late deliveries (beyond a 3-day grace period)
- All suppliers must be onboarded into an online procurement system for real-time order placement, shipping tracking, and communication

### **Assumptions**

- Current suppliers are willing to adopt digital processes for tracking and order management
- Inventory restocking frequency will remain monthly unless production increases

## **2. Distribution and Sales**

### **2.1 Distributor Ordering**

- All distributors must use an online portal to place orders, eliminating manual order processes

- Orders must include tracking details (e.g., estimated delivery date, shipment stages) must be visible to both distributors and winery staff in real-time

## **2.2 Sales Analysis**

- Sales data must be reviewed monthly to identify underperforming wines (e.g., those selling less than 50% of their expected sales targets) or high demand products (e.g., those selling out with retailers)
- Discounts and targeted marketing campaigns must be implemented for wines that are underperforming

## **2.3 Wine Allocation**

- Each distributor must be assigned a sales quota per wine type with adjustments made quarterly based on past sales performance and trends

## **Assumptions**

- All distributors have access to internet enabled devices for online order placement and tracking
- Existing marketing strategies can be adapted to focus on underperforming wines

# **3. Employee Management**

## **3.1 Time Tracking**

- All employees must clock in and out through a digital time tracking system ensuring accurate labor hour records
- Any employee working more than 40 hours per week must be flagged for overtime review

## **3.2 Quarterly Employee Reports**

- Quarterly reports on employee hours worked must be generated and shared with department heads for workforce review and planning

## **3.3 Performance Reviews**

- Employee productivity must be evaluated quarterly using tracked hours and output metrics as benchmarks
- Employees with performance issues must participate in performance improvement programs

### **3.4 Employee Management**

- Employees are to be grouped into departments (Finance, Marketing, Production, Supply Chain)
- Departments are to be managed by one employee. No employee can manage more than one department

### **Assumptions**

- Employees will adapt to the new time tracking system with minimal training
- Current labor laws regarding overtime and working hours are adhered to

## **4. Reporting and Decision Making**

### **4.1 Supplier Reports**

- Monthly supplier performance reports must highlight delivery times, delays and order accuracy

### **4.2 Sales Reports**

- Monthly wine sales reports must include data by product and distributor, along with historical trends and performance metrics

### **4.3 Employee Reports**

- Quarterly reports must include detailed breakdowns of hours worked per employee, department productivity, and overtime incurred

### **Assumptions**

- Stan and Davis will review reports monthly and make decisions based on insights provided by these reports

## **5. Technology Implementation**

### **5.1 System Integration**

- All new systems (inventory management, online ordering, time tracking) must integrate into a central dashboard accessible to management

### **5.2 System Training**

- All employees and distributors must undergo training sessions for all new systems to ensure proper adoption and usage

### **5.3 Data Security**

- All digital systems must comply with standard data security standards to protect sensitive information (e.g., customer, supplier, and employee data)

### **Assumptions**

- The winery has the budget and technical capability to implement and maintain these systems
- Employees and distributors will embrace the use of new technology after training

## **6. Inventory and Supplier Management**

### **6.1 Real-Time Shipment Updates**

- Suppliers must provide real-time shipment tracking and notify the winery of any delays exceeding 24 hours

### **6.2 Seasonal Restocking Adjustments**

- Restocking thresholds must account for seasonal demand surges, with a 50% increase in buffer stock during peak periods (e.g., holidays or wine festivals)

### **6.3 Quality Assurance**

- All deliveries must be inspected within 48 hours. Defective or non-compliant items must be reported immediately, with replacements arranged within 7 days

### **6.4 Automated Reordering**

- Inventory levels must trigger automated purchase orders when stock falls below 30 days' supply, based on average monthly usage

### **6.5 Supplier Accountability Agreements**

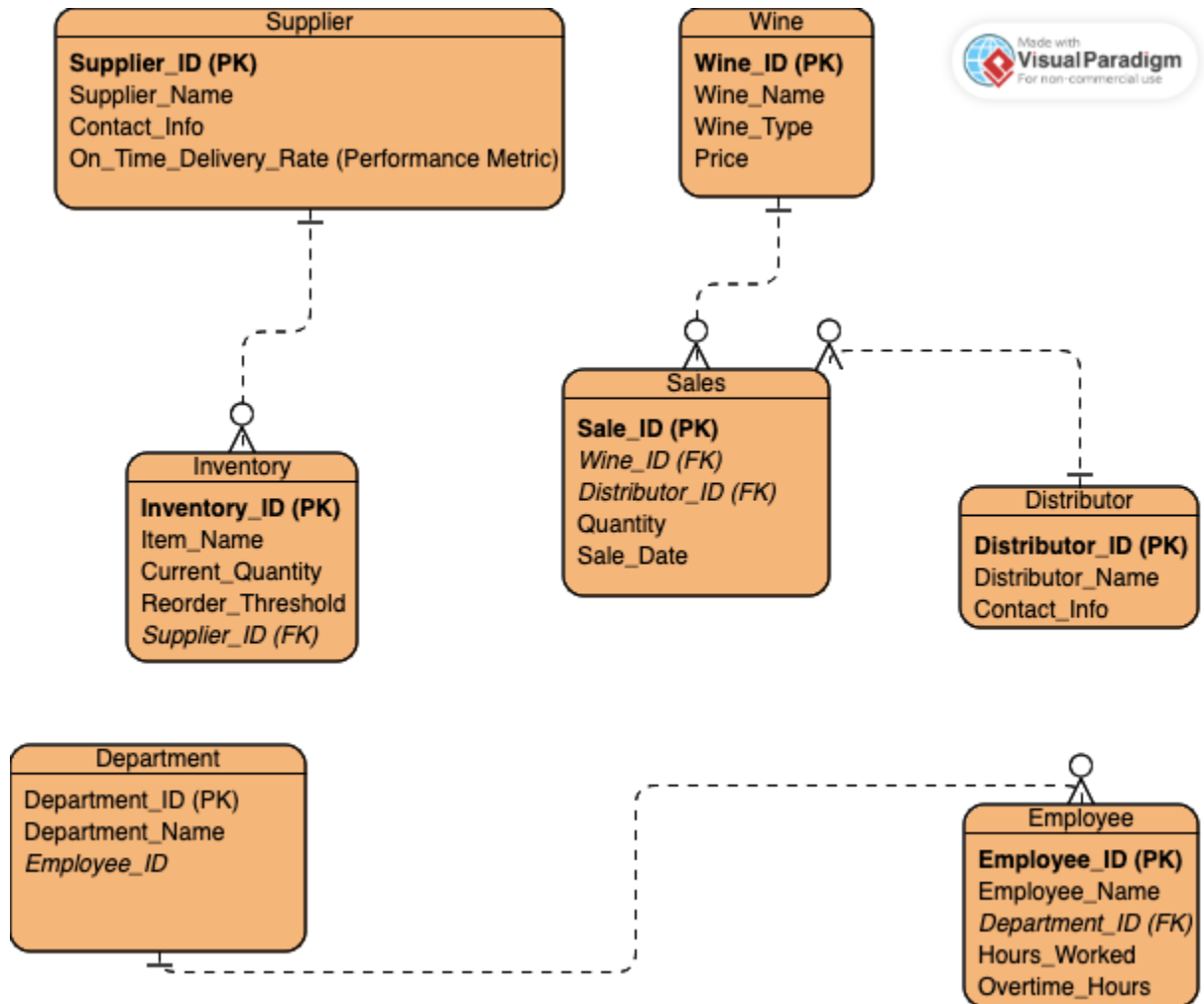
- All supplier agreements must include clear accountability measures such as penalties for delays beyond the 3-day grace period and incentives for consistent, on-time performance

### **Assumptions**

- Suppliers are willing and able to adopt digital systems for real-time tracking and communication
- Seasonal demand patterns are predictable based on historical data
- The winery has resources for automated systems and quality assurance processes
- Current storage facilities can handle increased buffer stock during high-demand periods

## Deliverable #2 - Entity Relationship Diagram

### Visualization:



### Text:

- **Supplier**
  - supplier\_id (Primary Key)
  - supplier\_name
  - contact\_info
  - on\_time\_delivery\_rate (aggregated performance metric)
- **Inventory**
  - inventory\_id (Primary Key)
  - item\_name (e.g., bottles, corks)

- current\_quantity
  - reorder\_threshold (minimum quantity triggering restock)
  - supplier\_id (Foreign Key to Supplier)
- **Distributor**
  - distributor\_id (Primary Key)
  - distributor\_name
  - contact\_info
- **Wine**
  - wine\_id (Primary Key)
  - wine\_name
  - wine\_type (e.g., red, white)
  - price
- **Sales**
  - sale\_id (Primary Key)
  - wine\_id (Foreign Key to Wine)
  - distributor\_id (Foreign Key to Distributor)
  - quantity
  - sale\_date
- **Employee**
  - employee\_id (Primary Key)
  - employee\_name
  - department (e.g., Finance, Marketing, Production)
  - hours\_worked (tracked quarterly)
  - overtime\_hours



### **Relationship breakdowns**

Supplier to inventory

One to many – Each supplier can provide multiple inventory items

Wine to Sales

One to many – Each wine can appear to multiple sales records

Distributor to Sales

One to many – Each distributor can purchase multiple wines

Employee to Department

Many to one – Each employee belongs to one department