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CS 255

**Module Three Assignment**

**Interpretation of Data Flow Diagram**

The diagram shows the step-by-step flow of how Hamp Crafts receives and fulfills customer orders. Here’s a summary of each step:

**STEP 1:**

* The customer places an order, which is received by an employee (Receive Customer Order).
* The customer then proceeds to the checkout process (Check Out).

**STEP 2:**

* During checkout, payment is processed.
* The order details and shipping plan data are sent to the internal order fulfillment team (Fullfill Order) and to the carrier service via the Shipping Plan data flow.
* The carrier then coordinates with the shipper service through the Carrier Planning data flow to arrange delivery.

**STEP 3:**

* The order fulfillment team sends a delivery plan to the choose supplier process if additional inventory is needed.
* The fulfillment team also communicates with the shipper to coordinate shipment of the order.

**STEP 4:**

* The choose supplier process negotiates contracts with the supplier (Contract Negotiations).
* The supplier sends shipment schedules back to both the shipper and the order fulfillment team, coordinating delivery of goods.

**Data Sources Involved in Current Process**

* Customer Order Data:- When a customer places an order, data is logged by an employee in the Receive Customer Order step. This data may be product details, quantities, and customer information.
* Payment Processing System:  
  - During the Check Out step, payment details are processed through a local merchant account system. This system collects payment from the customer and transfers funds to the company’s business account.
* Internal Order Fulfillment Database:  
  - The fulfillment team accesses and updates order status, inventory availability, and delivery plans in an internal database during the Fullfill Order step.
* Shipping Plan Data:  
  - This data is shared with the carrier service and contains shipping details, such as destination, timing, and instructions for delivery.
* Carrier Planning Data:  
  - Used by the Carrier and Shipper to plan and carry out the physical transportation of orders. This data may include routing, scheduling, and carrier assignment information.
* Supplier Data:  
  - This data is accessed during the Choose Supplier process, and includes contract negotiation details and shipment schedules to ensure timely replacement of inventory.
* Shipment Schedule Data:  
  - Shared between the Supplier, Order Fulfillment team, and Shipper, this data outlines expected delivery dates and shipment tracking to manage inventory.
* Manual Communication Channels:  
  - For handling inventory shortages, delivery delays, or unexpected situations, employees may communicate manually by phone or email.

**Additional Processes Necessary to Integrate an Online Storefront**

* Online Inventory Search:  
  - Customers need to have the ability to view and search inventory listings through a web interface.
* Customer Accounts:  
  - This enables customers to create accounts, log in, update personal details, view order history, and manage their preferences.
* Online Shopping Cart & Checkout:  
  - A digital shopping cart for selected items is necessary, with a secure online checkout process for payments.
* Online Payment Processing:  
  - The online storefront would benefit from integration with secure payment options (like PayPal) to handle online purchases.
* Order Confirmation & Shipping Notifications:  
  - Automatically send emails and/or SMS messages to customers confirming their orders, shipping status, and provides delivery tracking information.
* Real-Time Inventory Management:  
  - Synchronizes online orders with physical inventory in real time to prevent inventory confusion.
* Automatic Order Fulfillment:  
  - Automatically sends online order details to the internal fulfillment system and coordinates with carriers for shipping.
* Customer Support:  
  - Provide (real and/or VI) customer service representatives to address customer questions and concerns.
* Website Management:  
  Administrative tools for updating product descriptions, images, pricing, promotions, and other website content.

**Additional Data Sources Needed for Inventory Management & Online Storefront Support**

* Product Database:  
  - Contains detailed product information such as descriptions, images, prices, availability, that can be updated online.
* Customer Database:  
  - Stores customer profiles, login details, preferences, and purchase history.
* Payment Gateway API:  
  - To externally handle online payment interactions.
* Inventory Management System:  
  - A system of current inventory levels synchronized between activity in physical store and online storefront.
* Order Management System:  
  Tracks all online orders, including status updates from processing to fulfillment and shipping.
* Shipping/Carrier Integration APIs:  
  - Integration of carrier services allows for easy generating of shipping labels, tracking shipments, and updating delivery status.
* Notification System:  
  - An automated communication channel for sending order confirmations and status updates via email or text message.
* Online Order Database:  
  - A database dedicated to exclusively storing and managing online orders.
* Content Management System Database:  
  - For managing and updating website content.
* Payment Transactions Database:  
  - Stores details of financial interactions with customers.
* Shipping & Tracking Database:  
  - Contains shipment status, tracking numbers, and carrier information for online orders.

**Determining How to Integrate the New Online Storefront**

I’d recommend that Hamp Crafts integrate the online storefront as an extension of their current system instead of creating a completely separate system. By connecting the online store to the existing inventory, order fulfillment, and payment processes, everything will remain in sync, whether someone buys in-store or online. This makes it easier to track inventory in real time electronically, manage orders efficiently, and keep all payments flowing through the same business account. In addition, it reduces the amount of manual work for employees.

Setting up a completely separate system for the online storefront might sound simpler than integration, but it would create more issues. You’d have to manage duplicate data for products, inventory, and customers, which can lead to mistakes and make the system harder to maintain. By integrating the online storefront into the current model, Hamp Crafts can still keep the online tools flexible while easily accounting for the connection to their established backend systems. It’s a more efficient and scalable way to grow the business without doubling the workload for their employees.