A DATAbase application for monitoring Feed Phosphates Sales

OCP’s SPSS Strategic Business Unit

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# introduction

OCP, or Office Cherifien des Phosphates, is a leading Moroccan company that specializes in the production and export of phosphates and its derivatives. OCP has several Strategic Business Units (SBUs), one of which is the SPSS SBU.

SPSS stands for Specialty Phosphates and Surfactants. The SPSS SBU is responsible for producing and commercializing specialty phosphates and surfactants for various industrial applications. These are used in a wide range of industries, including food and beverages, detergent and cleaning products, water treatment, and agriculture.

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| Problem |
| The current process for managing feed phosphates sales data at OCP's SPSS Strategic Business Unit (SBU) is inefficient and error prone. The sales data is stored in an Excel file, which makes it difficult to manage and track customer orders, product demand, pricing, shipment details, and other related information. Furthermore, there are many “users”  from different departments: sales, logistics and ADV (sales operations), who utilize this excel sheet on a daily basis. Consequently, the lack of a centralized system leads to delays, errors, and decreased productivity. |

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| project requirements |
| The requirements of this project can be summarized in the following :   * Provide an easy-access platform for users to store and retrieve data. * Each user has limited permissions over the database and can only fill the entries adequate to his department. * Provide ready-to-use commands for data visualization. * The fillable entries depend on the status of each transaction. |
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# OUR SOLUTION

To address these issues, we propose implementing a database management system that will efficiently manage the sales data for OCP's SPSS SBU.

The database management system will be developed using appropriate software tools such as MySQL and python. It will enable easy access to the data (store and retrieve information), generate reports (in Tableau or Power BI if time allows), and provide data analytics to help the company make informed decisions about its sales operations. By streamlining the sales operations and optimizing the supply chain process, the success of this project will help SPSS SBU improve its profitability by better managing pricing and customer demand.

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| DATABASE DEScription |
| The database will be designed to categorize the data into three sectors: sales data, logistics data, and sales operations data. Sales data will include customer information, product details, packaging information, incoterm, pricing, payment terms, and date of shipment. Logistics data will include stuffing date, loading date, shipping line, freight rate, transit time, and shipping date. Sales operations data will include SAP order number, PI number, contract number, and invoice number. The system will allow for the easy addition, removal, or updating of data. Each column of the raw excel sheet provided by the business unit is explained in the next pages. |

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| The following are the entities presented in the ER diagram, and the attributes of each entity. Delivery: Did : id of the delivery  Loading port: The port from where the delivery starts (either Casablanca or Safi)  Shipping line : Shipping companies who have ships and containers (responsible of transporting merchandise between ports)  Shipped via: intermediary companies who have international conventions and partnerships, they do not possess ships, but they help negotiate prices with shipping companies  Transit time : the time a container takes to reach its destination from Morocco (number of days)  Real freight : The real cost (in U.S dollars) of the sea shipping  Estimated freight : The estimated cost (in U.S dollars) of the sea shipping (calculated before the delivery expedition starts)  AC status : AC refers to “Avis de Chargement” which is an email sent by the sales administration (either sent or not).  Type TC : Type of the truck (if the delivery mode is truck)  Discharging port : Name of the final destination port  Region : Continent of the seller  Country : Country of the destination port  Status : status description of the shipment and delivery  Supplier : the main service provider (separating between the phosphate factories and the delivery (there are two suppliers in Casablanca and one in Safi)  Delivery mode : The type of delivery (vessel, truck, container etc....) Product: pid: The primary key (unique identifier) of a shipment.  Category: specifies the type of phosphate among MCP, MDCP and DCP.  Branding: specifies whether the product is phosfeed or neutral, the phosfeed type is a phosphate-based animal feed that records higher quality level compared to the neutral type.  Net quantity: it's the sold quantity of the product.  Price: price of the product. Shipment: Sid: The primary key (unique identifier) of a shipment.  Days of storage: the number of days that a shipment stays in the port before getting delivered.  Storage cost: the bill that is generated from the storage.  Pallets: the number of possible bags in a single pallet (depends on the power of the machinery used to carry it).  Inspection: a third-party company that does visual inspection of products right after they come out of the factory. This is necessary because once the container is closed, it cannot be opened until it reaches the client (unless by customs).  Loading date at plant: refers to the date in which the product exits the factory.  Quantity removed from the site: the actual quantity of the product that has been removed from the site (sometimes it differs from the quantity of the product).  Stuffing date: The date on which the product is put in the container. It can be used to calculate how long the product has been in the container.  Sequence date: The date on which the product should be in the port in order for the shipping company to organize it in the port. (Sequencing means defining which container will carry the product. This is due to the fact that a ship transports hundreds of containers)  Stuffing Invoice: The cost for which the product is loaded in port. CUSTOMER: cid: This attribute represents a unique identifier for each customer. It could be an auto-generated number.  BL date (bill of lading date): This attribute represents the date when the bill of lading, which is a legal document that specifies the details of a shipment, was issued to the customer. It could be stored as a date or timestamp data type.  contract status: This attribute represents the status of the contract between the customer and the company(OCP). It could have values such as "shipped", "canceled", "finalized", etc.  contractID: This attribute represents a unique identifier for each contract associated with the customer. It could be used to uniquely identify and manage contracts in the system.  BL no (bill of lading number): This attribute represents a unique identifier for each bill of lading associated with the customer. It could be used for tracking and identification throughout the transportation process.  **SALES TRANSACTIOn:**  Outbound Delivery : unique identifier for each transaction.  Date: date of transaction.  Invoiced amount: charged amount of transaction.  Estimated FOB: estimated cost of land transportation and loading process (seafaring not included).  Comment: is used to keep record if any anomaly happens in the order (product not yet available, the delivery process will be divided etc.)  Deadline Payment: it's the BL date (bill of lading date) added to the payment terms days.  Invoice: This attribute represents a unique identifier for each sales transaction invoice. It could be an auto-generated number.  Freight Invoices: This attribute represents the unique identifiers for the freight invoices associated with the sales transaction. It could be used to track and manage freight charges associated with the sales transaction.  Payment Terms: This attribute represents the payment terms agreed upon for the sales transaction. It could be a description or code that specifies the payment conditions, such as "Prepayment", "CAD", etc.  Payment Terms Days: This attribute represents the number of days associated with the payment terms, indicating the deadline for payment after the invoice date. It could determine the deadline by which payment should be made for goods or services rendered in a sales transaction.  Clearance Date: This attribute represents the date when the sales transaction was cleared, indicating that the goods or services associated with the transaction have been delivered or completed. It could be stored as a date or timestamp data type.  Incoterm: This attribute represents the International Commercial Terms associated with the sales transaction. Incoterms are standardized terms used in international trade to define the responsibilities, costs, and risks between buyers and sellers. Examples of Incoterms include "EXW" (Ex Works), "FOB" (Free on Board), "CIF" (Cost, Insurance, and Freight), etc.  n-day : an amount of money that the service provider get paid after being present for a specified number of days (n days). |