ISDS 556

Puglia Winery Case Study

Introduction

Puglia Winery is a medium sized boutique winery located in Temecula, California, about 85 miles southeast of Los Angeles. The wines produced are sold locally in California, interstate in the US and internationally in the United Kingdom. They specialize in hot climate wines and produce three varieties, pinot noir and merlot (red) and pinot grigio (white). Puglia Winery production and sales have grown dramatically in the last 3 years, and the managing director, Jack Gillespie, believes that any future growth needs to be better managed, and based on a better understanding of sales trends. He has heard from vendors that data warehousing and business intelligence will provide him with the capability to make more informed decisions. Your team has been hired as a consultant to propose a data warehousing solution to Jack.

The operations of Puglia Winery include growing the grapes, producing the wine and selling it. Currently there are 50 acres of the pinot noir, 50 acres of merlot and 35 acres of the pinot grigio. Additional planting is possible but involves a long lead-time. Wine is produced by the winemaker, Tommy Siragusa, who focuses particularly on quality. Puglia Winery wines can therefore be sold at premium prices. Three types of pinot noir are bottled and sold under separate brand names. Two types of pinot grigio, and two types of merlot are similarly produced. To increase production volume, Tommy purchases additional high-quality grapes from surrounding vineyards. Stacie Giano is the sales manager. A small amount of wine is sold directly through the cellar door, but almost most all sales are to customers (wine merchants) in California, interstate and increasingly to the United Kingdom. Sales to wine merchants are in cases of 12 bottles.

The winery has two separate information systems to help manage production and sales to wine merchants. Information from these systems is difficult to aggregate as they have different data formats and use different database management systems.

The Business Problems

Decisions about the growth of the business, in terms of the production volumes of the red and white wine, which customers are important and which markets to focus on have been made by Jack, with input from Stacie and Tommy. The decisions have been made based on experience and "gut feel". This has been effective previously but now that the business has grown, Jack wants evidence based on data to better inform decisions concerning three important business problems, about customers, products and markets.

1. Which products are the most profitable?

The data warehouse should provide information about unit sales and dollar sales, cost and margin for each product (base product and wine type), for various time periods (including year, season and month).

2. Who are the key customers?

The data warehouse should provide information about unit sales, dollar sales, cost and margin for each customer (only merchants), for each product (base product and wine type), for various time periods (including year and season – Autumn, Winter, Spring, Summer).

[Cost = average cost of production of a carton of wine]

[Margin = Dollar sales – Cost]

3. Which market is the most profitable?

The data warehouse should provide information about unit sales and dollar sales for each market for each month of the previous year. Currently there are three markets (California, the rest of the US, International) but this may change in the future.

The Current Information Systems

Data for the data warehouse will be sourced from two of the existing operational systems, the production system and the merchant sales system. Direct sales have low volumes and will not be included in the data warehouse.

1. The Production System

The production system is a package based on an Oracle database and runs of a windows-based computer. A product code is used to identify base level products. Product groups may also be defined. The system also supports product cost history. Examples of data in relevant Oracle tables are shown below.

PRODUCT (sample data)

Code	***Description***	***Group***
1	Bellarine Pinot Grigio	White
2	Bellarine Pinot Noir	Red
3	Downunder Merlot	Red
4	Downunder Pinot Grigio	White
5	Downunder Pinot Noir	Red
6	Overhill Merlot	Red
7	Overhill Pinot Noir	Red

PRODUCTION HISTORY (sample data, incomplete)

Code	***Product***	***Year***	***Production Volume***	***$Cost per Dozen***
1	1	2020	1120	80
2	2	2020	1090	45
3	3	2020	1349	65
4	4	2020	423	41
5	5	2020	1422	60
6	6	2020	1187	58
7	7	2020	700	50
8	1	2021	3700	84
9	2	2021	3243	51
10	3	2021	4655	63

2. The Merchant Sales System

The merchant sales system is a package based on an SQL-Server database also running on a windows-based computer. Sales order, Product and Customer data are included in the system. Examples of data in relevant SQL-Server tables are shown below.

CUSTOMER (sample data, incomplete)

Customer ID	***Name***	***Address***	***Mkt***
1	Tasty Wines	205 Soscol Ave, Napa, CA 94559-400, USA	CA
2	Cali Wines	4000 Bel Aire Plz, Napa, CA 94558-2835, USA	CA
3	London Wines	Queen Avenue, The Stratford, London, SW1A 1LZ, UK	Int
4	The Sussex Wine Company	Wolf Road, Chichester, West Sussex, PO20 7DU, UK	Int
5	Merchant's Corner	2241 Willow Rd, Glenview, IL 60025-7636, US	US
6	US Wines Direct	115 N Randall Rd, Batavia, IL 60510-9209, US	US

PRODUCT (sample data, incomplete)

Product ID	***Description***	***Group***	***Year***	***Unit Price (Doz)***
18	Downunder Pinot Grigio	White	2020	87
21	Overhill Pinot Noir	Red	2020	125
22	Bellarine Pinot Grigio	White	2020	151
28	Overhill Pinot Noir	Red	2020	114
29	Bellarine Pinot Grigio	White	2020	167
36	Bellarine Pinot Grigio	White	2020	164

SALES ORDER (sample data, incomplete)

Sales Order	***Customer***	***Date***
1	2	2/01/2020
2	3	2/01/2020
3	8	2/01/2020
4	11	2/01/2020

SALES ORDER LINE (sample data, incomplete)

Sales Order	***Line***	***Product***	***Qty (Doz)***	***Price (Doz)***
227	1	19	50	$160
228	1	13	82	$110
229	1	19	29	$110
230	1	10	69	$100
231	1	8	96	$150
231	2	20	94	$100
232	1	15	40	$100