

Summary of the company

Flourish Food Company

Flourish Food Company, founded in 2005, which is located at Tianjin industrial park in China.

The company is a modern flour enterprise with its own independent research and development, production sales as the whole. Due to its experience, high quality service and products, the company has passed a series of food safety and management certificate such as ISO22000, BRC and won the Well-known Tianjin Trademark since April,2010 as well.

For their product lines, as represented by the series of products named “Korean flavor “packet and cup noodles are well accepted and satisfied by domestic and foreign merchants and consumers. In recent years, their main product is the creative instant pasta which is the most competitive in China or even all over the world for its unique fabrication and needless refrigerated storage, peerless delicious taste, the lowest storage and logistics cost, the attractive well-designed packages. After placed on the market, the it quickly won the younger generations’ love and become their flagship of the products among all the products.

Over the years, the company is cooperating with both worldwide distribution dealers and a few of large supermarket chain such as the world's first brand of retail corporation "Walmart", "Spar", etc. through custom processing or OEM (OEM is a term used when one company makes a part or subsystem that is used in another company's end product.) Until now, the products have been exported to Mongolia, Canada, the United States, Britain, South Korea, Malaysia, South Africa and so on more than 60 countries around the world.

Competitive Analysis

Pastas and noodles have existed for over thousands of years and are an important part of the diet and culture of Asian countries such as China and Japan. Instant noodles were invented in 1958 by Nissin Foods Group. Pastas and noodles are made from wheat semolina, water, and other ingredients such as flour, corn, rice, eggs, and spices. Through our research, the key competitors operating in this market are Barilla, Nissin Foods and TingHsin International Group.

Market Share

The total revenue of 2015 is \$7.28 million which take up market share of 1% in China Market.

As the whole pasta industry is in a depression era, it is not easy for the Flourish food Co, a new startup company to invert the recessive trends and further earned sales growth of 1.3% in 2016

As the statistics shown, the whole industry downgraded by 8.54% and the main competitors like TingHsin whose sales declined by 10.4% in 2015.

Competitive Objectives and Strategies

The competitive objectives of the industry focus on much healthier home-cooked food.

Recently, the health concerns affecting the whole instant pasta industry. Health-and-wellness varieties of pastas and noodles include gluten-free, organic, high-fiber, fortified, and reduced-carbohydrate.

Company now offers a wide array of products that cater to this growing demand. Increasing health awareness and growing concerns about the hygiene and quality of food bought outside

have led to the increased preference for home-cooked food. Consumers now look at convenient options such as pasta and noodles that can be cooked with minimal time and effort. The growing number of working women globally has also led to an increase in demand for convenient food such as instant noodles, which can be cooked easily.

Strengths and Weaknesses of products

The strengths of the main competitors are the high level of market share and the well-known brand in the instant noodles industry. However, for the Instant pasta products with same level flavor and feelings, the flourish food company outperforms than others by its low cost of logistics and storage. The Italian pasta can be eaten at home, on-campus, at workplace or even travel around world also with it because there is no need for us to store it in refrigerator.

What's more, the best before dates is half a year, so we do not need to worry it will go bad in a short time. In contrast, some of the competitors' instant pastas need to be frozen in the fridge and eaten within a short time. As a consequence, the cost of cold-chain logistics will be much higher than ordinary way and it must be sold and eaten within in a very limited time.

Competitive Position in the Marketplace

The flourish food company stands in the medium place for the instant noodle products, but for the creative instant Italian pasta, it stands at the first position in the China Italian pasta market. However, around the world, it stands the second position after the Barilla, the traditional Italian pasta company.

Data warehouse strategy

In traditional operation system, data are stored as the Third Normal Form structure which further divided data into discrete entities, in the forms of many relational tables. Excessive relational tables will turn into a complex spider web diagrams perhaps consisting of hundreds of normalized tables which make us low efficient in BI queries. In order to improve the efficiency of queries, analysis and making decision for our stakeholders, it is necessary for us to build a data warehouse or a data mart based on dimensional models in an analytical system. However, for our business case, the Flourishing Company are a manufacturing company which has its own ERP system to store the metadata of the enterprise. Therefore, we have to build a data warehouse based on the ERP system.

Bill Inmon's and Kimball's data warehouse strategy are the two most commonly used approaches for us to apply.

- Bill Inmon's enterprise data warehouse approach is the top-down: Normalized data warehouse is designed first, and then dimensional data marts which contain data recording the business processes for each department. Its data warehouse is a centralized repository for the whole enterprise level and also at the center of the Corporate Information Factory(CIF),which provides a logical framework for delivering business intelligence.
- Ralph Kimball's dimensional design approach is the bottom-up: The dimensional data marts are built at first and then combining them together to create a larger data warehouse for query and analysis

1. As manufacture industry is concerned, our company is a stable business which can afford the time and cost taken for design a Inmon's strategy. With every changing business condition, we do not need to change the design, instead to accommodate these into the existing model.
- Third, as manufacture industry is always does not focus on quick win, but concentrate on the long-term effect. For example, there exists time-lag effect for us to see the result of promotion of a specific product, because it takes a long-term for a manufacture company to enhance and maintain their brand image, convince more customers and boost the sales in the end.
- The last reason is that there are multiple functions are involved in the manufacture industry, like production, sales, procurement, accounting system, etc. And it is required for us to build a enterprise model if there exist a systemic dependency between each systems in the enterprise, Hence Inmon's method is ideal.

Business Problems

- Financial analysis

Revenues growth rate is 1.3% and the revenue concentration for distribution dealer c184 and c265 takes up about 1/3 of s revenues which means that the sales of the enterprise really rely on these two customers. And if these two customers stop buying, the company will suffer from the financial difficulty.

The revenue per employee is \$0.2 million which is lower than the level of common successful companies \$1 million in annual revenue per employee. Therefore, the flourish company should monitor the production process and record the production time in order to improve workers' productivity. Consequently, it is increasingly necessary for the enterprise to build a data warehouse to improve the efficiency of the daily analysis and assist boss in management and decision making.

As the flourish company made investment into TV ads at the beginning of 2016, the net profit is decreasing sharply by 68%. In the meanwhile, the revenue growth rate only increased by 1.3%. The obvious disparity of the two ratios are worthy of reflections that whether the TV media is a suitable choice to expand product market and attract more customers. In addition, how much increase of sales it will bring to us after each promotion activity will also help the manager decide the promotion investment in the next step. Therefore, a timely data mart for promotion and sales transactions is so essential that we could query everyday sales after each promotion rather than waiting for a long time until the end of the year to see how the promotion or advertisements works.

The financial resources are only from the three main stakeholders which shows a conservative financial strategy of the company, however it conceals a high risk that if one of them gives up making investment and decide to retreat from investment, then the company will burden a risk of go bankruptcy.

For the flourish food company, a new startup, needs a business plan and a financial budget to guide how they raise and spend money, and how it handles financial surpluses and shortfalls. Companies that fail to properly research their markets, underestimate competition or overspend wildly will have problems meeting their revenue goals, and may risk the overall health and viability of the business. There are five ways to overcome short-term business financing problems.

- Cut unnecessary expenses

It doesn't do any good if your business is routinely overspending or unable to stick to budgets.

While it's certainly difficult to keep every project on the straight and narrow, sometimes it takes a little more financial savviness to make up for increased expenses.

- Work with what you have

At the end of the day, the only way your company is going to survive is if you are able to solidify your current position, even if it means taking on more debt for the time being. To get around this, you can negotiate your contracts with other companies and refinance your debt obligations. This strategy will help you get through in the short term while making your business more lean for the long term in the process.

- Look for new sources of revenue

You don't always need the best equipment to do the job right. In fact, adding a few new services on a small scale can lead to real-world streams of revenue immediately. For example, if you provide maintenance services in homes, you can also expand to include some commercial buildings as well. Also, finding new clients and customers should be a continuous process, and because seasonality affects many sectors, brighter prospects may be just around the corner. Tailoring your services to meet the needs of the changing weather pattern can help bring in new revenue and create a year-round business model that works.

- Adjust business plan

You probably have a definite business plan in place, but it does little good if it is effectively holding you back. Sticking with numbers that worked the previous month but might not work now isn't a forward-looking strategy. If you have to cut investments in some areas to make money elsewhere, then you should revise your business plan accordingly. Without the financing available to accomplish all things at once, you have to focus on a few guaranteed sources of revenue, even if they throw your initial strategy by the wayside. Remaining flexible and speaking with creditors can help ease worries for the time being, as you look for new financing options.

- Find alternative lenders

A small business loan from a traditional lender isn't for everyone, and realizing the benefits of alternative lending could be the key to finally obtaining the capital you need. With a merchant cash advance from National Funding, you can acquire a short-term business loan, which could be the boost you needed to get you out of a slump.

Supply Chain analysis-----lack of respective logistic administration system

The main supply chain problem of flourish company is to update enterprise system in order to provide customers with the timely logistics information which could increase the customer satisfaction as much as possible. Based on the ERP system which the Flourish company already possessed, it is beneficial for the whole enterprise to deploy a specialized logistic administrative management system which is able to connect all the distributors or big supermarkets around the countries to the corporation. Moreover, establishing the logistic administration system not only improve the effectiveness of shipment but also contribute to a lower level of stock which enable the company to utilize shipping capacity fully and further decrease the total logistic cost.

- Demand analysis-----fail to make full use of data to analyze customer's need

Demand analysis of the customer plays a significant role on satisfying customers' need and improving the business performance. Thus, getting across customer's need quickly is the key point to grab market share. Furthermore, since there exists regional difference, we had to make market segment in terms of customers' demand. However, both of those two points above must rely on analyzing the customer's current data and historical data to predict customer's future behavior. To achieve this aim, we need to create the data warehouse of dimensional models structure to speed up the query and analysis process. Dimensional models are generally used for data warehouse, and are particularly useful where super-fast query results are required for computed numbers such as "monthly sales by region" or "by salesperson". If we discover that the sales of a certain region increase steadily and gradually, then we realized that the promotion makes a difference in it then we should further explore a new market.

- Ineffectiveness of current performance management

The flourish company is still applying the traditional performance management method, in a consequence, it causes the ineffectiveness of annual performance and the poor merit pay these years which made the employees kind of unmotivated and dispassionate about their position. For the Flourish company, employees may wait a long time to give performance feedback which may causes the situation that either the boss or the employee couldn't recall some specific point in their mind. This is the reason why employees should know how they perform and get feedback from their boss on a regular basis. If the boss does not address performance issues as they occur, poor performers may assume they are fine and not make efforts to improve. The second problem is that there is no regular conversation between boss and employees. As a consequence, both boss and the employees lost months of opportunities to take action or improve themselves before the annual view. To solve these problem, the managers should use performance reviews to help employees perform better and make full of time of between each other. Managers and employees should be having regular conversations around career goals, developing new skillsets in order to reach a win-win situation. The Third problem is that the merit pay may demotivate the employers which occurs maybe because there is little difference between merit pay of poor performers and top performers, such to rate a person's performance by scale number (1-3) may cause the employees create an anxiety-inducing feeling.

- The deficiency of product diversity

Compared with Barilla, the traditional manufacturing company which is known for selling Italian pasta, we could realize that the Italian pasta is lack of diversity not only for its flavor but also for

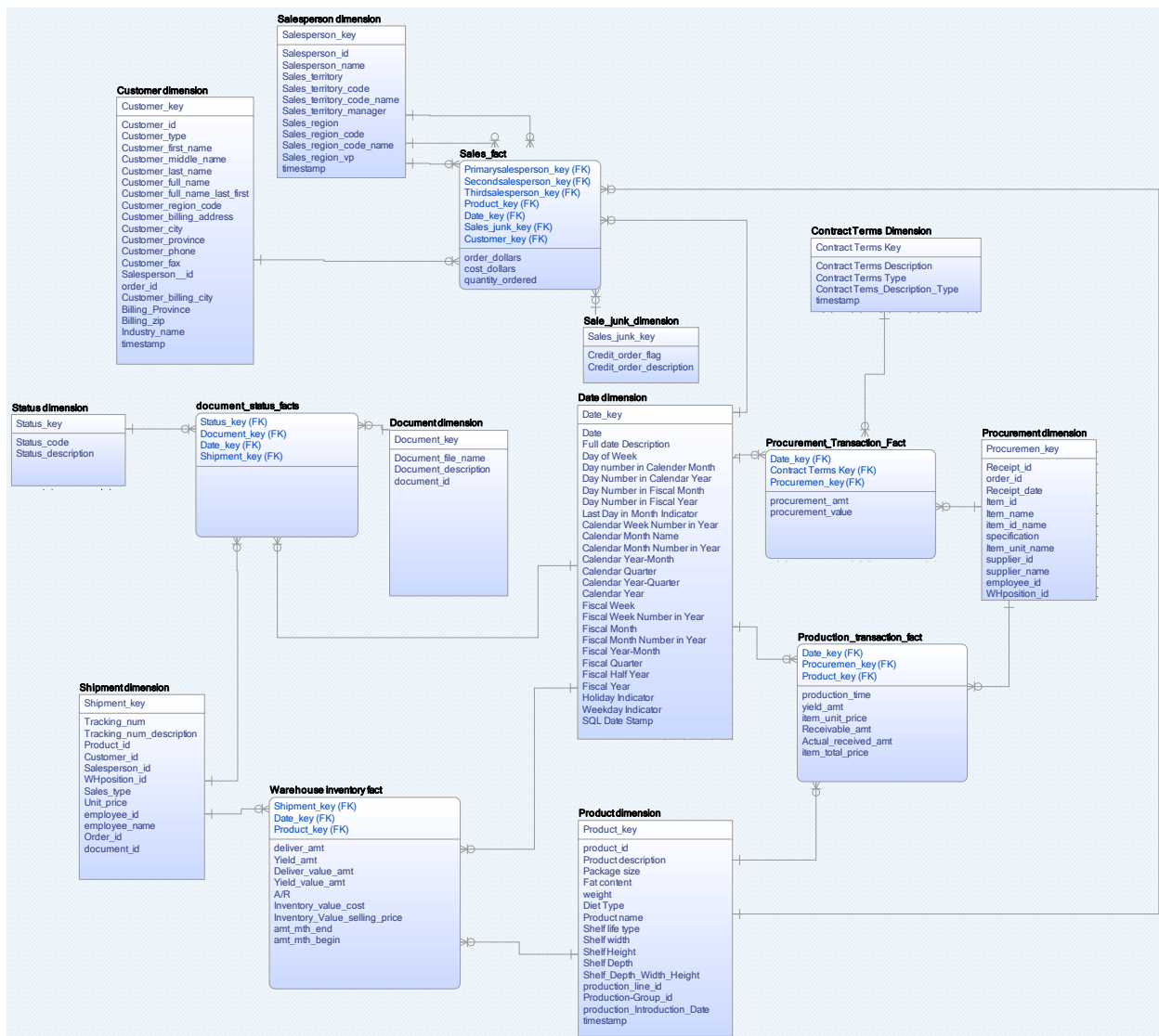
its type of pasta itself. The customers will lose interest and feel bored about the same or similar products. To increase the product diversity, it is highly recommended for the company to invest more money in the research and development, hiring the seasoning expert in order to diversify their product lines. Further, diverse product line will reduce the potential environmental risk. For example, the political resistance to some countries will make the products which related with these countries suffer from the depressed selling period.

Five narrow business problems

1. How many sales that the primary salesperson achieve in January?
2. Which territory is the one which contributed the maximum amount of sales in 2016?
3. How could we get to know the full description of our procurement contract whose payment is \$10,000 occurring on the Jan,1st, 2017.
4. How can we get to know the production time of product_1 in January ?
- 5.What is the shipment 's status_code of the batch of products whose order_id of Order is 1234 ?

Dimensional Model

The subset of our data mart as above shown is associated with the procurement, production, sales and inventory transactions in the enterprise.



Detailed Description of Design

The dimensional model consists of five fact tables:

1. Sales fact:

- It holds the sales revenue, cost of product and the quantity of product for each order.
- The grain is based on each sale transaction
- All nature attributes order_dollars, cost_dollars, and quantity_ordered are additive.

2. Procurement fact:

- It holds the amount and money value for each procurement
- The grain is based on each procurement transaction
- All nature attributes procurement_amt and procurement_value are additive.

3. Production transaction fact:

- It holds the details about production, such as production time, product price, yield amount, unit price of raw material that we have applied into produce
- The grain is based on each order
- The item_unit_price is non-additive, production_time, yield_amt, receivable_amt, actual_received_amt, item_total_cost are additive.

4. Warehouse Inventory fact:

- It holds the transaction data of warehouse inventory, we could get to know the amount of product that we have shipped out to customer, how many products have been yielded and then store in our warehouse, the selling price and cost of product, the inventory amount at the beginning of every month, the inventory amount at the end of

every month, and the receivable(A/R) of the product that the customer need to pay in the future.

- The grain is based on each order.
- The amt_mth_end, amt_mth_begin are non-additive, deliver_amt, yield_amt, Deliver_value_amt, Yield_value_amt, A/R,inventory_value_cost,inventory_value_selling price are additive.

5.Document status fact

- This is a factless fact table which is used to record the checking or approval status of document.

The dimension table possess the following dimensions:

1.Customer dimension:

- It is an affinity dimension which shows the customers' contact information.
- It follows the time-stamped type of change in order to store the whole current and historical data of customer.
- Its rich attributes are customer_full_name and customer_full_name_last_first by combining customer_first_name,customer_last_name and customer_middle_name together.

2. Salesperson dimension:

- It is an affinity dimension which shows the salespersons' information.
- It follows the time-stamped type of change in order to store the whole current and historical data of salesperson.

- Its rich attributes are sales_territory_code and sales_territory_code_name by giving a code attributes and pull the description.
- Sales_territory refers to the territory which the salesperson is responsible for.

3. Sales junk dimension:

- It is a junk dimension which stores the Credit_order_flag that is Y for credit_orders and N for non-credit orders.
- Its rich dimension are credit_order_flag and credit_order_description by giving a flag and pull a meaningful description
- It follows the type 1 method which only store the current data.

4. Contract term dimension:

- It is an affinity dimension which shows the detailed information of contract.
- It follows the time-stamped type of change in order to store the whole current and historical data of contract.
- Its rich dimension is Contract_Terms_descriptions_Type by combining Contract_Terms_description and Contract_Terms_Type together

5. Procurement dimension:

- It is an affinity dimension which shows the detailed information of procurement.
- It follows the time-stamped type of change in order to store the whole current and historical data of procurement.
- The WH_position attribute shows the position where goods store
- Its rich dimension is item_id_name which combines item_id and item_name together

6. Date dimension:

- It is an affinity dimension which shows when the facts happen.
- It follows the time-stamped type of change so that we can store the whole current and historical date of transaction.
- Its rich dimensions are Calendar Year-Month and Calendar Year-quarter which combine atomic date attributes together.

7. Production dimension:

- It is an affinity dimension which shows the characteristics of production.
- It follows the time-stamped type of change in order to store the whole current and historical data of production.
- Its rich dimension is Shelf_Depth_Width_Height which combines Shelf_Depth, Shelf_Width and Shelf_Height together.
- Shelf life type shows the quality guarantee period of the product.

8. Shipment dimension:

- It is an affinity dimension which shows the characteristics of shipment.
- It follows the type 1 method which only stores the current data of shipment.
- Its rich dimension is Tracking_num and Tracking_num_description by giving a Tracking_num and pull a description for it

9. Status dimension

- It is an affinity dimension concluding the status code and the status description of documents which demonstrate which step of document is going through.
- It follows the type 1 method which only stores the current status of document.

- Its rich dimension is status_code and status_description by giving a code and pull a description

10. Document dimension

- It is an affinity dimension which shows the name, id and description of document.
- It follows the time-stamped type of change to store the whole current and historical data of documents.
- Its rich name is Document_id and Document_description by giving a code and pulling a description.

The example of a highly browsable dimension

- The highly browsable dimension is a dimension table that we can get a lot of analytical value from a dimension table and the timestamped dimensions usually is highly dimensional.
- Therefore, one of the highly browsable dimension is the customer dimension in the dimensional model above.
- When we want to obtain all the new customer's region in 2016 in order to evaluate the coverage of promotion activities, we could just query on the customer dimension instead of joining other tables. For example, select all the customer's region where it is inserted in 2016. (Because we have timestamp attribute in it)

The example of Junk dimension

- Junk dimension are the dimension which combines all possible values of individual indicator attributes which do not belong together in a single dimension so as to decrease the amount of information in the fact table. This will result in a data warehousing environment that offer better performance as well as being easier to manage.
- As it is necessary to keep indicator (yes/no, code) in the fact table for analysis when there exist such information in source system, we have to build many small dimension tables and the amount of information stored in the fact table increases tremendously which lead to low efficiency when we analyze data. By using a junk dimension to replace the indicator attributes in the fact table, we can decrease the number of dimensions and also decreased the number of attributes in the fact table.

Description of query to answer the 5 narrow questions

1.How many sales that the primary salesperson achieve in January?

First, join the sales table with salesperson dimension table and salesperson, then join the star schema with the date dimension, after that aggregating all the date to the month basis, and select quantity_ordered from the sales fact table filter by the primary salesperson when month is January.

2.Which territory is the one which contributed the maximum amount of sales in 2016?

- Join the salesperson dimension with sales fact table, join the sales fact table with date dimension. Then we aggregate the salesperson's region to the territory, aggregate the

date to the year basis. After that, we select all the sales from sales fact table order by descending and group by the sales which occurring in 2016.

3.How could we get to know the full description of our procurement contract whose payment is \$10,000 occurring on the Jan,1st, 2017.

- Join the Contract terms dimension with procurement transaction fact table and join the procurement fact table with date dimension. Select the Contract_Terms_Description from the contract terms dimension when the procurement_value is \$10000 and the date is Jan,1st,2017

4.How can we get to know the production time of product_1 in January ?

- Join the production dimension table with production fact table, join production fact table with date dimension table, and then aggregate the date to the January in date dimension table, then select the production time from the production fact table when the product is product_1 in product dimension table.

5.What is the shipment 's status_code of the batch of products whose order_id of Order is 1234 ?

- Join the shipment dimension with document_status_fact table, and join the document_status_fact table with Status dimension. Select the status_code from the shipment dimension when the order_id is 1234 in the shipment dimension table.