Individual Case Assignment

Business Intelligence & Data Warehousing 2018. Prof **Josep Curto Díaz**

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Dashboard Design

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Introduction

In this fast paced ever-evolving world we are currently living in, companies are having to adapt and overcome core fundamentals upon which most of them are build. Big data has not only revolutionised the way companies make decisions, it has also impacted in how the customer-company relationship is built.

Companies who are willing to stay in the market – not only being competitive – but being able to breakeven have had to restructure their company structure allowing data to speak to them and in most cases see what customers were telling them but could have never imagined. This need to look into the data has driven developers to create tools like Tableau which are allowing companies not only to SEE but to dig deep into what their customers have being telling them over time in a time efficient manner and intuitive manner. Visualisations have allowed c-suit decision makers to have much more information condense into friendly and easy to follow graphs. This has allowed most managers to base their decisions in data rather than gut feelings or acquired expertise.

Company X is planning to perform campaign analysis for its stores in Spain and is considering implementing business intelligence to have a better insight into sales' data to develop better analysis and marketing decisions.

The company stores open 6 days a week and sell different number of products, there are impact points for each store which advertise for the products they sell, a well-designed data warehouse is essential to manage data from different points of stores.

Company X has defined their goals to be:

- Control the visits of each store.
- Clear analysis of sales patterns in products.
- Improve the accuracy of sales forecasts.
- Identify difference in sales within product categories.
- Analyse the impacts of the products.
- Analyse trends and product sales evolution over time.

Defining the Audience

The main users of the dashboard will be the sales division along with the marketing department. Considering the data captured, it is believed that both departments will have enough insights to increase sales and see which are the products which are mostly being sold, whilst the marketing department can have a look at how the advertisements have worked – this is, have they managed to increase sales -. Ad-hoc visualisations will be created in order to satisfy the plausible demands these departments will have regarding the data. However, in many occasions these reports and visualisations requested by the sales and marketing department are not exclusive for these departments, in certain occasions they trespass their initial audience and reach higher strata within the company, for this reason it is crucial to have simple, clear and interactive dashboards with whom the company decision makers can easily and freely decide upon which metrics are they willing to analyse.

Objective and Metrics.

The main objective of this dashboard will be to offer the targeted departments enough tools to act upon the company sale's in a quick and efficient manner. It is also the objective to create intuitive and easy to follow dashboards but without including too many graphs which could turn out to be unused or unhelpful. The main metrics that have been considered to be included are listed below:

- Aggregated level of sales by Market
- Average expenditure per visit
- Products sold per Market
- Sales per product category
- Monthly sales evolution

Determine the levels of data:

Data-level aggregation will be individually considered in each dashboard. The objective is to create a funnel view of the data, this is, going from the more generic cases into the specific details and granularities required by the purpose of the dashboard being represented. In an attempt to provide with the highest level of information while keeping the relevance of the information displayed, different date-levels will also be used – year, monthly, daily data – at the interlocutor's discretion.

Instructions

In many occasions there is a miss-use of most business intelligence tools. This is because in most cases companies hire external teams of experts which come the company and provide the solution which they have been hired for – in this case the elaboration of a dashboard design for the sales and marketing departments -. These external consults tend to deliver top-notch work but, in some occasions, they fail to transfer the knowledge they gained back into the company. For this reason, we will create a brief analysis of the main metrics and utilities in each of the dashboards created. Please check the dashboards using the presentation mode and adjust them to your specific screen dimensions if needed.

Visits Control Dashboard.

This dashboard represents the number of visits each Shopping centre has received in the selected date chosen. You can click on a month and date number and see how the values for the bar-graph and map refresh and show the specific data. You can also click on a specific location once filtered by date to see the number of visits the shopping centre received.

Sales Control Dashboard.

This dashboard represents the sales and quantity -select as appropriate in the drop-down option - of items sold across the year and shopping centre, having a map representation and bar-graph representation to help visualising any trends.

Category Sales Dashboard.

The first represents the sales value of the product by category as compared with the total of the year. By selecting a range of dates, you can compare the level of sales of the selected time range and easily compare it to the total yearly sales. The second graphs allow the viewer to compare the difference in sales -in monetary value – of the selected product category and comparing them with the rest of categories. This visualisation can also be analysed with the number of impacts.

Product Evolution Dashboard.

This dashboard represents the sales trend and the best-selling products during the year 2016. By clicking on a specific date on the first graph it can be seen how the send graph refreshes and shows the top 3 best-selling products for the date and category. When no selection has been made it shows the overall best-selling products for the year.

Sales Overview Dashboard.

This dashboard was intended to show quickly the level of sales for the dimensions available in the dropdown menu

Forecast Dashboard.

The first graph shows the weekly moving average sales computed using the last 7 days and the total daily sales. It is a very good graph to quickly spot trends. To the right of this graph you can see the time sales forecast which can be selected according to any given date of any sales forecast wanted. It shows the actual sales compared to the sales projection within the year. Finally, the bottom graph shows the daily actual sales and the forecasted sales for each of the product categories for the next 3 months.

Best Sold Dashboard.

The following dashboard represents the best-selling products as of the total products sold. It is an interactive graph, so you can choose the analyse the comparison of the desired products by selecting them in the adjacent click-through pane. Below this, you can find the product total sales by category.

Sale Comparison Dashboard.

The following dashboard is represented by three different graphs. The top graph represents the sale comparison of the products using the "Central" Zone as a baseline. This way it can be analysed which products are better sold in the different Catalonia Areas. Bottom left we find a Pareto Chart, this chart represents the sales value and total sales as per city. The pareto principle states that 20% of the variables normally represent 80% of the sales, in this case we see how this actually confirms the law since Barcelona has 21% of sales and more than 80% of total sales.