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**Executive Report**

**Amazon Case Study**

Introduction to Business Analytics – Professor Nabanita Talukdar

**Created by:**

Team 4

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**Motivation/Introduction:**

Having conducted the research and analyses on the case of “Amazon: facing low customer satisfaction in Singapore”, we have prepared this executive report, which is aimed at answering the following questions:

* How does Amazon perform compared to its main competitors in Singapore - Carousell, eBay, Fave, QOO10, Taobao/TMALL, Zalora in terms of key indicators such as customer satisfaction, willingness to recommend, average customer spend, frequency of visit
* What Amazon should focus on in order to improve its customer satisfaction, by looking at the regression model and correlation matrix among given variables from the dataset
* Conduct the same analysis as in Q2 for company QOO10 and compare it with those of Amazon, what should Amazon need to improve in order to better compete with QOO10

In this report, we are going to implement the 4 M methodology (Motivation, Method, Mechanics, Message), which includes the following sections: Introduction (Motivation), Main Body part which includes: Modifying the raw data (Method), implementing relevant test statistics and analyses (Mechanics), and Interpreting the results (Message). Following that, Conclusion with specific recommendations for the case, Reference and, Appendix part with relevant graphs and tables.

**Method/Data Cleanup:**

The Data for this case is a subset of survey data collected by the Customer Satisfaction Index of Singapore (CSISG) from Residents of Singapore during the period of January to April of 2018. The data of the e-commerce giants were collected by using door to door methodology interviewing respondents, who were asked about their customer experience with the e-commerce platform they have used over the past 3 months. The original dataset consisted of 1,600 rows of observations and accounted for a total of 21 companies. Out of these 1,600 line items, 1,400 were responsible for the 7 most used websites with N=200 including Amazon, Carousell, eBay, Qoo10, Taobao/Tmall, Zalora, Fave. Before performing any work with the original dataset, our group performed a data cleanup as we noticed that there are several missing or incorrect values in the dataset. Therefore, the dataset was modified to account for missing values.

Any row in the "Raw Data" sheet that had missing and/or incorrect values in columns "Customer Satisfaction", "Willingness to Recommend", "Avg. Amount Spent", "Number of Times Purchased", and variable columns "VN\_1009\_TP01" to "VN\_1009\_TP16”) was deleted. This accounts for 441 rows taken out, which decreased the total number of observations from 1600 to 1159. Missing or incorrect values in other columns were not accounted for as they are not part of the analysis ***(Figure 1)***.

**Mechanics:**

In order to conduct analysis on the now slimmed down but complete dataset and identify any significant correlation between variables, our team performed various statistical analyses.

First, Team 4 analyzed Amazon’s key performance indicators and compared these values to its main competitors in the e-commerce marketplace ***(Figure 2).*** We used descriptive statistics, more specifically the average of values, in key metrics such as “Customer Satisfaction”, “Willingness to Recommend”, “Avg. Customer Spend”, and “Frequency of Visit”. This analysis is important to get a grasp on how Amazon is ranking in the marketplace of Singapore and also to identify areas where they are lacking. Visualization of these data was performed with the help of bar charts ***(Figure 3,4,5,6)***.

Secondly, an in-depth regression analysis was performed on Amazon’s metrics where “Customer Satisfaction” served as a dependent variable (Y) and was compared to independent variables "VN\_1009\_TP01" to "VN\_1009\_TP16”. Linear regression analysis in statistical modeling is used to estimate the relationship between the Y dependent variable and multiple X independent variables. A correlation matrix was also added to look at the correlation coefficient of every variable pair. Interpretation of these data can be used to predict and forecast business processes ***(Figure 7,8)***.

Lastly, we conducted the same type of regression analysis on one of Amazon’s main competitor in this marketplace, QOO10, so we can look at similarities and differences between the two companies and explore areas for improvement for Amazon ***(Figure 9,10,11,12,13,14)***.

**Message:**

For benchmarking Amazon’s performance compared to its competitors, Carousell, eBay, Fave, QOO10, Taobao/TMALL, Zalora, we used key metrics; customer satisfaction, willingness to recommend, average customer spend, and frequency of visit. It is important to note Amazon ranks lowest in “Customer Satisfaction” in this marketplace ***(Figure 3)*** so it is important to dig deeper to see what is making Amazon score this low in comparison to other companies.

For the key performance metric “Willingness to Recommend”, Amazon’s average value is relatively not that low. This means that even though customers are not satisfied with the product or service they received; they still show a willingness to recommend. Based on these figures, our recommendation for the management of Amazon is to conduct a survey to identify the key factors why customers are still willing to recommend the company. Furthermore, to identify the weaknesses to compete with “Carousel, eBay” as those two companies scored higher in this category ***(Figure 4)***.

To see what the most important variables that are affecting customer satisfaction, we conducted a regression analysis for 16 independent variables. Our messages and suggestions in this section are based on the results of the regression analysis conducted for QOO10 and Amazon.

How to read data of P-values example? For example, the P5 variable for QOO10 is significant as its P-value is less than 0.05. This means changes in this category has a significant effect on the changes in the dependent variable Y, in our case, “Customer Satisfaction”.

For the independent variable "Variety of Products that interest me", Amazon has a somewhat high coefficient compared to other variables’ coefficients; however, it still scoring lower in this category in terms of mean values compared to QOO10. Our recommendation for the management of Amazon is to invest resources in creating more variety of products that may be of interest to customers and thus increase overall customer satisfaction.

The independent variable "Ease of Comparing Products" is a significant variable for Amazon as its P-value is less than 0.05. Moreover, this category's coefficient is the highest out of all the other independent variables ***(Figure 12)***. Thus, we can conclude the best and most efficient way for the management of Amazon to increase customer satisfaction is by allocating more resources into methods where customers have an easier time comparing products.

**Potential Lurking Variables:**

The quality of products and services Amazon was initially providing to its customers may not have met the standards of what people in the market of Singapore were used to previous to the E-Commerce giant’s arrival. Additionally, Amazon is a foreign company and customers may prefer choosing the service of e-commerce service providers from the general geographic area around Singapore and thus be biased in the answers given when surveyed.

**Conclusion:**

To improve Amazon’s customer satisfaction in Singapore, the company needs to establish a set of scientific customer satisfaction evaluation indicators for the Singapore market. It should conduct research on the structure of customer demand and then conduct research and analysis. The indicators of customer demand include product quality, function, extension, and price. Amazon should comprehensively consider these four aspects of customer needs in providing products and services. Because Singaporean customers are in different environments and age levels, they have different demand intensities for these needs, and their level of satisfaction after consumption is also different. Under normal circumstances, when the intensity of customer demand is high, they will be dissatisfied or even strongly dissatisfied with a little carelessness. When the intensity of customer demand is low, only a low level of satisfaction is required.

**APPENDIX:**

***Figure 1:***

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***Figure 2 (Question 1):***

Table

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***Figure 3 (Question 1):***

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***Figure 4 (Question 1):***

Chart, bar chart

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***Figure 5 (Question 1):***

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***Figure 6 (Question 1):***

Chart, bar chart

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***Figure 7 (Question 2):***

**Graphical user interface, application, table, Excel

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***A picture containing whiteboard

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***Figure 9 (Question 3):***

***Table

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***Calendar

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***Figure 12 (Question 3):***

***Figure 13 (Question 3):***

***Table

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***Figure 14 (Question 3):***

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