**Introduction**

Sony wants to invest in the curved TV technology which is a small but growing sector in the TV market, mostly dominated by large players like LG and Samsung. Sony is planning on acquiring a good amount of market share in this promising sector at the same time earn profits in this TV market. The product is in its early stages and to predict the most successful product profile Sony conducted a Survey. The report makes use of this survey and helps in recommending the best possible combination for the TV to achieve profit.

**Methodology**

Sony aims to introduce a curved TV and get a good amount of market share, to do so Sony has to choose from a variety of products depending on a few attributes. The different attributes have different specifications and each specification leads to changes in the market share and therefore change in overall profits earned. Sony needs information before releasing a new product combination especially considering a lot of features have not been offered.

The report aims at comparing the different combination of these attributes, calculate market shares and profit earned from these attributes and in the end recommend the best possible combination from these attributes to be most successful.

There are five different attributes with each having different levels which Sony has to choose from to form a product profile. The attributes and levels are as given below

|  |  |
| --- | --- |
| **Attribute** | **Levels** |
| Brand | Sony, Samsung, LG |
| Screen size | 75, 65, 85 inches |
| Refresh rate | 240, 120 Hz |
| Resolution | 4000, 2160 pixels |
| Price | $6000, $4000, $9000 |

Table 1

Sony conducted Fractional factorial experiment offering 18 possible product profile to a sample of 20 customers and these customers were asked to rank these different product profile based on the 5 attributes and rank each profile from 1-7 according to their preferences where 7 represents Most likely to purchase and 1 represents Least likely to purchase. This survey helps in understanding different customer needs and preference.

The experiment also ranks the existing two products in the market which are

1. LG 65in 120HZ 4000 pixels at $4000
2. Samsung 85in 120HZ 4000 pixels at $9000

A conjoint analysis is then done on this survey to get a better grasp. In Conjoint Analysis we are going to drop one level of each attribute and based on this a dummy coding is done. A conjoint analysis makes use of dummy variables to code the data and this coded data is then processed using multiple regressions to calculate the part-worths.

Dummy coding uses ‘1’ to show the presence of a feature, and ‘0’ to signify the lack of it and the features used as a reference for the dummy coding are marked as ‘-1’. Such dummy coding is done for the attributes and based on this coding all the product profiles are coded accordingly.

The part-worth is calculated using multiple regression analysis for all the coded profiles. The Multiple Regression model helps in calculating the overall preference of customers, ‘Y’ (dependent variable) based on the different attributes, ‘Xs’ (Independent Variable) through coefficients, ‘β’ who captures the strength of relationship. (Rao, 2010) Mathematically the model is shown below

Y = β0 + β1X1 + β2X2 + … + βnXn

The coefficients ‘βs’ are called part-worths and the range of the part-worths gives the worth of the attribute to customers.

The importance of each attribute is calculated using the range of part-worths and dividing it the sum of part-worths range for all attributes. This importance will show which attribute is given the most important and can help in understanding which attributes are more or less important while making a product decision.

The part-worths of a product profile is known as product utility gives an idea of how the customers will react to the product, the higher this value is the better the product is going to perform when launched. The utility value when compared to the products already present in the market will give purchase probabilities of the product. This comparison is done by taking the exponential value of the utility of product profile divided by the sum of the currently present product profiles as well as the product being compared. The average of these product profiles for all the customers gives the predicted market share. The market share helps in analysing the consumer choice for new products and models that may not be present yet.

To calculate the profits earned the report makes use of market share and calculates the sale by a particular product. The cost of each product is dependent on the attributes and these attributes can result in an increase or decrease in cost price for the product. The selling price and total sales are multiplied to get the revenue generated, profits are calculated by subtracting the revenue generated by each product profile with fixed cost. The report recommends the profile earning more profit as the model that Sony needs to launch.

**Interpretation**

Importance of different TV Attributes for determining consumer’s preference

Figure 1.

Customers have different opinions when it comes to attributes. Some people prefer one attribute while others prefer other. The Survey suggests, most people consider the price of the TV as the most important attribute of a TV. On average, the importance given by the customer for Price is around 38%. The second most important attribute which customers prefer while purchasing a new TV is the refresh rate, some customers even consider refresh rate as their top priority. Refresh rate is given 20% importance while buying a TV. Attributes like Brand and Screen Size have almost Importance when it comes to choosing a TV, Brand has importance of 17 followed by screen size which is 16% important. The resolution is the least important attribute of all with only 9% importance.

The above analysis shows that the customers are will choose a product if it's cheap or within their budget. Having a bigger screen or having a screen with high resolution but at a high price will adversely affect the sales of the TV. The top attributes account for more than half the importance since the refresh rate is already set at 120Hz, Sony should aim at pricing their products appropriately keeping in mind the consumer preference as well as the company’s goals. Brand being of less importance can be considered as an added advantage in a field where other giants are already present since people already using brands like LG or Samsung will be willing to migrate to a relatively newer brand.

Product Profile likely to get the highest market share

Figure 2.

The Above figure shows the result for market share for different product profiles based on the conjoint analysis conducted. The analysis on importance showed customers prefer buying products if they at priced appropriately, therefore the first thing the company needs to do to have a good amount of market share is, decide the price of the product, the cheaper the TV the more likely it is to be liked and sold in the market. As seen in figure 2 the TVs which with price $4000 have the highest market share. Therefore $4000 can be considered as the best option for the price. Since the importance of Screen Size is low, it effects on market share is also very low, there is not much difference for market share for different screen size in the same price range, although the 75 inches of screen size perform much better compared to other screen size in their respective price ranges. Since the refresh rate and resolution are already fixed at 120Hz and 4000 pixels respectively, the ideal Curved Sony TV which is most likely to get highest market share is a TV with 75 inches screen, with a refresh rate of 120Hz and resolution of 4000 pixels and priced at $4000. The expected market share for this profile is around 50%.

For an estimated 100,000 customers who are willing to buy a curved TV, the number of TV sold by Sony will be different for each product profile and will depend on the predicted market share for that particular product profile. The profits for each product profile depend on the variable cost for each product profile depending on the screen size.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Product profile** | **Market share** | **Total variable cost** | **Sales** | **Price** | **Profit** |
| 65” 120 HZ 4000 Pixels $4000 | 39.64% | $800 | 39637 | $4,000 | $124,836,864.02 |
| 65” 120 HZ 4000 Pixels $6000 | 21.16% | $800 | 21160 | $6,000 | $108,030,504.67 |
| 65” 120 HZ 4000 Pixels $9000 | 8.90% | $800 | 8896 | $9,000 | $70,946,707.76 |
| 75” 120 HZ 4000 Pixels $4000 | 49.77% | $1,400 | 49769 | $4,000 | $127,399,753.87 |
| 75” 120 HZ 4000 Pixels $6000 | 30.55% | $1,400 | 30548 | $6,000 | $138,518,556.75 |
| 75” 120 HZ 4000 Pixels $9000 | 14.52% | $1,400 | 14521 | $9,000 | $108,360,396.56 |
| 85” 120 HZ 4000 Pixels $4000 | 46.22% | $1,800 | 46224 | $4,000 | $99,692,743.75 |
| 85” 120 HZ 4000 Pixels $6000 | 26.19% | $1,800 | 26186 | $6,000 | $107,981,014.70 |
| 85” 120 HZ 4000 Pixels $9000 | 10.84% | $1,800 | 10836 | $9,000 | $76,022,522.09 |

Table 2

The above table shows the calculated profits for all the products profiles after subtracting the fixed costs of $2,000,000. From the above table we can see that the most profit is generated by using the 75 inches screen size wits a resolution of 4000 pixels and refresh rate of 120 Hz priced at $6000 generating a profit of $138,518,556.75 in total despite having a relatively low market share.

**Recommendation**

Sony being a relatively new company in the field, initially it needs to focus primarily on acquiring more customers than focus on profits, with the products being priced competitively. Sony has a major opportunity in becoming the leader in this segment.

Since Samsung is selling its 85 inches TV at $9000 it is highly overpriced and it is less of a competition for Sony and should not be worried about them but since LG is already selling its 65 inches TV at $4000 and Sony can introduce its new model with 75 inches screen with similar specifications as LG and could price it at around $4000. Such competitive pricing and bigger screen size can entice newer customers into buying their product and since very few customers consider the brand as a priority, Sony even acquires a few LG's customers. After establishing themselves as a good brand in the sector, the company can then focus on the profits and therefore increase the prices slightly such that the market share does not get affected much. The above-mentioned strategy could help Sony in achieving their targets at the same time satisfying customer Needs.

The report aims at providing recommendation for the best strategy for a company’s growth by assuming a few things. The report assumes no change in the competition and no external factor has affected the outcome of the sales. If the above assumptions do not hold the strategy to be applied might change.

The report uses conjoint analysis which help in understanding the brand value and the implication of other attributes on market share but there is no way to explicitly verify the correctness of the achieved result. (Hundert, 2009)

# **References**

Hundert, M. (2009). Advantages and disadvantages of theuse of conjoint analysis in consumer preferences research*.* faculty of Quantitative Methods, University of Szczecin.

Rao, V. (2010). Conjoint Analysis. Wiley International Encyclopaedia of Marketing.