Grouping of sections for a physical cell phone store.

Business information

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1. Problem

The cell phone industry is nowadays one of the most active markets in the economy of almost every region around the world. According to Newzoo just in Mexico, around 70 million cell phones were marketed in 2020. Everybody has their own cell phone, from little kids to the oldest people. A large part of these sales are still conducted through physical space; which is the most expensive form of sales because of the expense of personnel, services and the use of space; this is why all departmental stores should have an optimal system of sales that allows customers had a better experience buying these products.

We can understand an 'optimal system' such as one where we can increase sales, avoid losing money on damaged equipment, have a system of recommendations for a client with certain needs, and get better the distribution of the equipment at the store. All of the above, our main goal is to make a clusterization for cell phones according to their characteristics by hardware and software, and from this create solutions to the previous issues, for example, using this clustering to recommend the best cell phones close to the one a customer is looking for.

What Our job is create groups of similar cell phones using advanced clusterization algorithms and powerful tools of AI.

Why Cell phones segmented by their characteristics will be helpful to the business in two ways: better distribution of the products among the stores and minimization of sales times. We hold that if a client is looking for a specific cell phone, we can offer a similar one, and they will still buy it. Then sale time will be reduced as well because the salesperson won't have to think about the recommendations and instantly cell phones will be suggested. This way, less staff will be needed to serve clients or clients won't be lost due to lack of staff.

2. MVP

The minimum viable product consists of a system of unsupervised classification, specialized in the clusterization of mobile devices by hardware and software characteristics.

The system has two main functions, *classification* and *recommendation*. For the recommendation function the system take some properties given by the client like Brand, Operative System, Memory size, Battery Size or quoted price, and returns the most suitable group of cell phones based on those properties sorted by any characteristic.

On the other hand, the classification function requires all the characteristics of each new equipment that arrives

to the store, the system will apply the algorithm to determine in which group it's better to place it. It will be required to calibrate the model every year according to the inventory update.

3. Business Model

- **Key Partners.** Data Scientists, Data Engineers, and Strategic Vendors to have direct contact with the companies, Accounting and Marketing team.
- **Key Activities.** Data processin and analysis. Generation of the optimal algorithm. Implementation to the experimental group. Comparison with the control group. Sale of the final algorithm with the results. Follow up the system behaviour and update it every trimester.
- **Values Propositions.** The use of data science to optimize the internal distribution of physical stores, going beyond just brand and price, avoiding the loose of money due to the large number of options, lack of personnel, and people's lack of knowledge about technology that retards a quick decision making when buying a cell phone. Because of the long flow of smartphone sales in the country this happens with high probability on a daily basis.
- **Costumer Relationship.** The interaction with the customer will be personal, through assistance and training for the use of the software, and inventory updating.
- **Key Resources.** Data on supply-demand, software and hardware characteristics, and customer profiles. A control group and an experimental group of the same amount of equipment per store. Personal trained for the use of the system
- **Channels.** Direct contact with companies, especially in the sales area; and once the product is acquired, generate follow-up reports for the correct implementation and operation.
- **Customer Segments.** Companies that distribute and sell cell phones, and that have physical points of sale. Specifically department stores. In Mexico there are approximately 2,400 department stores, and 37 strings self-services (supermarkets) with 4,592 stores throughout the country, located mainly in urbanized areas. The logistic and distribution manager is who's going to buy our product, and has to had knowledge about administration of companies and skills on logistical software.
- **Cost Structure.** The main expenses of the company will be based on the salaries of sales people and data scientists for the constant improvement of the algorithm. As well as the monthly rent of the headquarters, furniture, and software.
- **Revenue Streams.** The revenue stream will be based on the sale of product subscriptions to companies on an monthly renewal basis, allowing the company to be able to reorganize the store as new inventory comes in.

4. Financial Model

The planned monthly expenses are, the payment of 3 Data Scientists (us), a software developer, Accounting, and Marketing team. Finally the hiring (not direct) of a lawyer to advise on contracts. In addition, office rent, business email plans, and a promotional plan to raise brand awareness. The one-time costs to be incurred are for computers for the team members, with special emphasis on the computing power of the developers. There are also expenses that must be paid annually such as the payment of servers and domain of the web page.

Initially, the hiring of people for the sales process is not planned. So the rental income goes directly to the company's profits. Considering an initial rent of 20, 999.00 pesos per month, and charging a rent for each store where the program is used, and also with the acquisition of 1 new store each month, and acquiring our first customer in July 2022, one month after the company's activities started. We are projecting a break-even point in February 2024, and after two years of activities we are projecting a total of 23 clients (stores) with a total profit of 1, 658, 798.00 with a net margin before taxes of 39.33 %. The financial model can be consulted at the following link. To carry out this project, an initial investment of 1,200,000 pesos is required.