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|  | Customer Problem Identification Report |
|  | Word Count: 890 |
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**Introduction:**

Understanding consumer requirements and preferences is essential for business success in the competitive market. Thus, product reviews and feedback provide significant insights into customer sentiments, identifying areas of satisfaction and displeasure. Additionally, this report aims to identify and analyse customer problems using both an AI machine and manual labelling by humans to generate new product ideas.

**I. Product Review Categorization**

Using AI-generated intents and human categorisation, product reviews can be categorised into meaningful clusters. While the IBM AI provides initial insights, there are still some flaws and human categorisation is needed to add depth and context to the analysis. Thus, by grouping intents into specific categories such as product attributes and customer journey stages, we can gain a comprehensive understanding of customer feedback.

1.1. By AI:

An intent is a collection of user statements that have the same meaning. Chatbot’s intent captures the intent or goal of the user (IBM, 2023)

In this scenario, the total number of intents generated by AI Machine is 67.

Across all the intents, 178 review sentences was selected by the AI machine. Most intents contain more than 5 examples, indicating the sufficient input to train the chatbot model.

1.2. By human:

The number of intents changed to different categories is more than half (about 40) of the intents initially generated by AI as most of them are repetitive and meaningless.

Therefore, the final number of categories labelled by human is reduced to 20, as presented in the table below.

A graph of a number of categories

Description automatically generated

Table 1. Number of final categories labelled by human.

From the table, the majority of feedback is positive, indicating that the company is performing well.

Thus, the initial categories generated by the AI machine are too granular or repetitive. Nonetheless, there is a large number of intents relative to the limited review sentences. Therefore, I made the following changes and attempted to create more meaningful categories:

**Product Categories:** Grouping intents based on the type of product being reviewed (e.g., powder, foundation, concealer). This categorisation helps organize reviews based on the specific type of product being discussed, making it easier to analyse customer feedback for each product category and identifying the best-selling items.

**Product Attributes:** Grouping intents based on the specific attributes or features of the products mentioned in the reviews (e.g., longevity, lightweight). This categorisation allows a deeper understanding of customer preferences and pain points related to various product characteristics.

**Customer Journey Stages:** Grouping intents based on different stages of the customer journey (e.g., online shopping). This categorisation helps identify common issues or experiences that customers encounter at different stages of their shopping process.

**II.** **Importance-Satisfaction Plot**

In addition, an Importance-Satisfaction Plot is employed by using VADER (Valence Aware Dictionary and Sentiment Reasoner), a lexicon and rule-based sentiment analysis tool, as highlighted in the table below.

A graph with many dots

Description automatically generated with medium confidence

Table 2. The Importance-Satisfaction Plot using Python VADER library

2.1. Meaning of each quadrant.

In this quadrant system, the upper half signifies a relatively high level of satisfaction, while the bottom half indicates a relatively low level of satisfaction. On the other axis, the right half represents a relatively high importance, whereas the left half suggests a relatively low importance.

This setup allows a clear visualisation of the relationship between satisfaction and importance, helping prioritise and address issues accordingly.

2.2. Categories in each quadrant.

Upper left: products with colour feature, easy to use, gloss, brighten under eye, longevity feature.

Upper right: foundation, powder, lightweight feature.

Lower left: moisturize feature, bought online products, receive sample.

Lower right: skin-related issues, mascara.

**III. Customer Problem Identification & New Service Recommendation**

By using the importance-satisfaction plot, the company can develop a comprehensive strategy to capitalise on its strengths, address weaknesses, seize opportunities, and mitigate threats effectively.

3.1. Company Strengths:

The company appears to excel in make-up product categories related to colour features, ease of use, gloss, improve under the eye bags, and longevity features. Customers seem to be relatively satisfied with these aspects. Nonetheless, the best sellers are powder, foundation, and products with lightweight features. Thus, the findings also highlight a natural-looking make-up trend within the beauty community.

3.2. Primary Customer Problems:

The primary customer problems are observed in categories related to moisturizing features, samples, skin-related issues, bought online products, mascara and concealer. These areas reflect lower satisfaction levels among customers.

3.3. Areas for Improvement:

High Priority: The company should prioritize improving aspects related to skin issues and mascara, as they lie in the lower right quadrant where most customers are expressing dissatisfaction.

Low Priority: While moisturize feature, bought online products and sample received fall into the lower satisfaction quadrant, it may not be a top priority for improvement compared to other categories with more a significant number of customer complaints.

3.4. New Product or Service Ideas:

Based on the high priority for improvements, there are new service ideas for skin issues and mascara. For skin issues, several feedback has negative sentiment, such as: “It looks awful on my skin”, “As someone with combination skin, my oily areas get REALLY oily”. These are the feedback where customers express their skin issues and concerns. Moreover, we also have feedback of what skin products work for specific skin type from other customers. Hence, we can create a personalised recommendation system by asking for customer skin type, skin issues via a chatbot, then redirect them to the recommended product on the website. This new service would improve customer experience by recommending them the most suitable product for their skin and potentially reducing customer complaints.

In addition, sample products generate a neutral sentiment, such as “I received a sample of this eyebrow brush and cream with my last order”. Hence, skincare sample kits should be tailored to individual skin types and concerns to improve customer sentiments.

**Reference:**

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