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**Facebook as a Strategic Marketing Tools for Understanding the
Consumer Behavior of Coca-Cola by using K-Mean Cluster Analysis
and Competitive Profile Matrix Model**

by

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ABSTRACT

Over the last few years, many companies have integrated social media and social networking sites leading to a deep transformation of the organizational models and changing the companies' marketing dynamics. This study aims to recognize the consumer behavior of Coca-Cola, categorize the respondents by using K-Mean clustering and to perform competitive profile matrix of Coca-Cola brand.

Firm's social media effort in Facebook between April, 2019 and March, 2020 is analyzed through SPSS version 16.0 software. It is found that firm has average of 0.296 post per day, 118.5 number of likes per post per day, 1.384 number of comments per post per day and 1.558 number of shares per post per day in its official Facebook page.

Sample of 385 respondents are categorized into four clusters by K-Mean clustering using two variables: usage rate and preference. Cluster 1 is labelled consumers with high usage rate and high preference of Coca-Cola, whereas cluster 2 is labelled consumers with high usage rate and low preference of Coca-Cola. Cluster 3 is labelled consumers with low usage rate and high preference of Coca-Cola and cluster 4 is labelled with low usage rate and low preference of Coca-Cola. Majority of respondents are categorized under cluster 3 while minority of respondents are categorized under cluster 2. It is found that net promotion score of these respondents is 159. K-Mean clustering shows that there is strong association between usage rate and cluster membership with Chi-Square of 269.2565 and Phi Coefficient of 0.8363 respectively.

Taste, color and ingredient, branding, availability of product and product and size variety are the five critical success factors for evaluating Competitive Profile Matrix of Coca-Cola product. It is found that the taste has the highest weightage of 22.77% amongst these factors whereas the product and size variety have the least weightage of 16.12%. Competitors chosen for analysis are Fanta, Sprite, Pepsi, Miranda and Dew. Participants evaluate each brand scoring from 1(low) to 5(high). The ranking of these products from first to last are Coca-Cola, Dew, Sprite, Fanta, Pepsi and Miranda.

This study has both theoretical and managerial implications. From theoretical point of view, this study helps to bridge the gap related to measure companies' social media efforts. From a managerial perspective, this study is useful to compare the Coca-Cola with key competitors and helps to expand consumer awareness and brand loyalty.

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LIST OF ABBREVIATIONS

BMC	=	Business Model Canvas
C_j	=	Centroids
CLIQUE	=	Clustering in Quest
CPM	=	Competitive Profile Matrix
CSF	=	Critical Success Factor
DBSCAN	=	Density Based Spatial Clustering of Applications with Noise
e	=	Margin of Error
EPS	=	Earning per Share
f_e	=	Estimated Frequency
f_o	=	Observed Frequency
FY	=	Fiscal Year
NPAT	=	Net Profit after Tax
NPS	=	Net Promoter Score
NRs.	=	Nepalese Rupees
NWPS	=	Net Worth per Share
PBT	=	Profit Before Tax
$S_{average}$	=	Average Score
SPSS	=	Statistical Package for the Social Sciences
TCO	=	Total Cost of Ownership
TV	=	Television
US	=	United State
WCSS	=	Within Cluster Sum of Square
X_i	=	Data Vector

Z_{α}	=	Critical value of Z-score at level of significance
\$	=	Dollar
χ^2	=	Chi-Square
ϕ	=	Phi-Coefficient
λ	=	Membership Grades

CHAPTER ONE: INTRODUCTION

1.1 Background

Social media is an internet-based communication tool which had shown a wide progress to industry and each people to communicate on the platform of web technology. Social media has made easy for consumer behavior to establish relation with the organizations and to know the product made by the company from information sharing platform to post buying behavior. (Mangold and Faulds, 2009). To help and interact with potential consumers social media online sites provide an encouragement to an added sense of understanding with consumers thereby building all important attachment with potential buying consumers (Mersey et al., 2010). In order to succeed in online environments, organization have to participate in social media like Facebook, Myspace, Twitter and others (Kaplan and Haenlein, 2010). Amongst the registered online social network, Facebook is the biggest social network platform in the world with about 2.49 billion active users, followed by Youtube (about 2 billion active users) and WhatsApp (about 1.92 billion active users) (Facebook, 2020). Hence, the platform acquired by Facebook provides the interconnection of sharing useful information and communication as fast as possible, flexibility and very easily. (Mozas-Moral et al., 2016).

Harris and Rae (2011) depicts that due to social media networking every organization brand can be created personally and is established in the name of branding. Likewise, Harris and Rae mentioned that social media helps to build a personal brand or an image. Dutta (2010) studied that in his Harvard business review article the impact of web based social platform from a personal image. There is a very little aware of the advantages that can create by Social media for development of organization and also to know the buying decision of consumers to every individual. Therefore, this finding is to know about the impacts of the social media platform that has on brand awareness and the challenges made by its implementation process. As can be notified that the rise of Facebook has progressively made a knowing market value in terms of brand equity. The rise of Facebook's market value to \$3.71 billion depicts by a researcher analyst proves that Facebook was a major outcome of the social media popularity which has a made a huge increment in the revenue structure in balancing and hence establishes a greater relation between company's users and the client.

In this competitive market era, Facebook plays a very drastic and a powerful role to study consumer behavior and hence Nepal is also stepping into the shoes of western countries. It is therefore very important to study how people utilize or get touched in social media in their daily lives. In order to provide support, friendship and mutual understanding social media has made a greater relationship with its active social online client media (Utpal et al., 2004). Cultural value information shared by social media made an attraction on the preference for the consumers on social networks for a positive thought of purchasing or a buying decision. (Pookulangaran and Koesler, 2011). These allow users to facilitate communication among peer group by connecting them to web technology-based network of friends (Ahuja and Galvin, 2003). Therefore, in Nepal, many firms have started using these technologies for promoting their products and services, to communicate with their customers, to gain new business leads and even to do market research. Social media platforms offer many other things than just communication alone. That is the reason why it makes social media so important tool in today's environment.

The study is therefore to discuss and to understand the pros and cons of the social media on branding and hence to figure out whether the traditional advertising media have no longer existence and may already left out the outcome obtained from the social media. Since customer relationship is the core elements of business marketing, it is important to reach there, identify and collaborate with customers. Also, the growing interest of social media gives the opportunities and benefits in entering new niches of market and fostering the relationship between social media and business to customer relationship. Therefore, considering the above discussions, this research focused the problem on the lack of required information considering the effect of social media marketing soft drinks as a strategic tool on building consumer's relationship in Nepalese soft drinks industries from the point of customer's knowledge, brand awareness and purchase intention.

The most useful tool in business analytics is to know the analysis or a view of consumer behavior and the separation of ones need into common way is customer segmentation. By implementing clustering techniques, customers that contains similar means, end and behavior are group to each other into homogeneous cluster (Ghanzanfari et al., 2010). Therefore, Customer segmentation identifies company's in establishing distinct groups

of customers who thinks and deals uniquely and tackled out in a justified manner in approaching in their spending and purchasing habits. In this research, we propose a K-mean cluster for the business analysis in the study of segmentation of the consumers and customer behavior.

1.2 Rationale

Developed countries are the early adopters of social media due to two reasons. Firstly, there is high penetration of internet services and secondly, people are comfortable interacting over internet more often than personal interaction because of their tight schedules and busy life styles. Due to globalization, Nepal is also stepping into the shoes of western countries.

It is important to study how people utilizes social media in their daily lives. This usage study will also throw light on the most important area of study, i.e. Consumer Behavior. Consumer behavior has been studied because social media is being utilized not only by common people like us but also by the companies and businesses. Firms have started using these technologies for promoting or expanding their products and services, to communicate with their customers, to gain new business leads and even to do market research. Social media platforms offer many other things than just communication alone. That is the reason why it makes social media so important tool in today's environment.

A completely new world of social media marketing is opening up. Hence, it effectively assigned to study the influence of social media among Nepalese consumers. This study will therefore be taken a major positive significance to companies and organizations that are operating in Nepal and also make effort in analyzing the use of social media in there's own business and to the individuals. This will in turn develops theme to understand social media for their marketing efforts. It will therefore develop and manipulate to other studies carried out in technology of social media and the consumer differentiation and its behavior.

1.3 Problem Statement

Social networks are the communication media that contain understanding and interaction that happen within the internet- based platform gained by social media. According to the perspective made by marketing, these are the journey for marketers for interconnection between those interacting within the constructs. To explain the research objectives, it is clarified into the following listed research problem area:

- The important role of social media and the outcomes generated by it, in terms of branding.
- The problems that the companies are facing using social media in this today's era and the outcome generated by them in showing the major remedies on them to be managed or minimized.
- Point out the older version of advertising channels in the name of branding and hence determine is this the best method for today's generation too.
- Determine whether the internet- based social platform are the outstanding tools for understanding consumer behavior.

1.4 Objectives

1.4.1 Main Objective

The main objective of the research is to study how firm uses Facebook platform as a strategic marketing tools for understanding consumer behavior of Coca-Cola product.

1.4.2 Specific Objectives

- To study the consumer behavior of Coca-Cola product.
- To categorize the respondents based on their responses by using K-mean clustering.
- To validate the responses of respondents and evaluate correlation between the variables of consumer behavior.
- To evaluate firm's social media effort in Facebook platform.
- To study how Coca-Cola brand takes competitive advantage in cold drink industry by performing competitive profile matrix model.

1.5 Limitation

The study is done for the partial fulfillment of MSTIM program. However, there are some limitations, which narrowed the generalization, eg. inadequate coverage of the industries, time period taken, availability of data and other variations. The study is limited by following factors: -

- The research discussed here is particularly implemented on the data derived from the case company.
- Firm's social media efforts are taken for analysis. The study does not include firm's branding.
- Participants for the questionnaire survey are chosen for those who uses Facebook as social media and are familiar with the products.
- For categorizing the consumers, K-mean clustering is preferred rather than Hierarchical clustering.
- K-mean clustering is performed using two variables, i.e. usage rate and preference.
- Competitive profile matrix of Coca-Cola is compared only with soft-drinks products that are manufactured in Nepal.

CHAPTER TWO: LITERATURE REVIEW

2.1 Literature from Previous Studies

Many case studies suggest that companies implementing social media marketing strategies have a positive or a negative effect linked to direct contact with customers and thus strategies enable companies to obtain marketing information based on customer feedback and learn about current performance and predict future performance. (Gelb and Sundaram, 2002; Kim et al., 2015). In this regard, Paniagua and Sapena (2014) identified four channels by which social media affects the company's performance: the relationship between companies and society (social capital), awareness of consumer desires (revealed desires), the transformation of social-marketing tools into financial performance capabilities (social marketing), and the transformation of corporate social resources into financial performance capabilities (social networking).

Due to the difficulty of recognizing potential buyers from the members of the online community (Ang, 2011), it has been very hard to assess the efficiency of social media investment as regards return of investment and return on sales (Chung et al., 2014; Kim et al., 2015). In comparison, studies have shown that several businesses have implemented tactics in an integrated interconnection and media by media help (Kaplan and Haenlein, 2010) by changing the way the business is done. Companies use social platform such as Facebook and Twitter to raise brand recognition and thus encourage involvement through online tweets, posts, and other styles of interaction (Wallace et al., 2014). As suggested by Leigon (2011), social media is helping to fuel sales of soft drinks sales through social media platforms' and to recognize the consumer's decisions to others; Wilson and Quinton (2012) also puts his discussion that social media platforms helps to exchange and to share information and hence to try different wines.

The cost made to promotional options by social media is very inexpensive with a very low cost compared to the traditional broadband media like non-virtual medium in which greater cost is made for promotion of the firm. (Broekemier et al., 2015, Dehghani and Tumer, 2015). Chung et al. (2014) conceptualize the social media activities of the organization by taking into account three dimensions— intensity, richness, and responsiveness that defined the quantitative and qualitative use of social networks.

In his study, Ding and Beichner (2009) portrays five widely used methods for analyzing multiple-choice test results, such as classic test theory, factor analysis, cluster analysis, theory of item responses and model analysis and demonstrates and indicates that cluster analysis is a good method to point out how consumer's response patterns vary in order to classify consumer's behavior.

Bughin et al. (2011) describes the integration of social-media to minimize transaction costs (information, negotiation, and monitoring costs), which are not marginal components of overall company costs, in order to reduce internal communication and marketing costs as well as to increase the efficiency of their contact processes with external parties. (Galati et al., 2015). Karjaluoto et al., 2015 suggests that there is a strong connection between the amount of people talking about a business on Facebook and the company's net profit and number of employees, suggesting that people are thinking more about such bigger and more profitable. Chung et al. (2014) obtained similar findings, according to which, in qualitative terms, South Korean companies social media behavior on Facebook was positively and substantially related to an improvement in firm output calculated by financial returns. Furthermore, as Öztamur and Karakadilar (2014) have noted, metrics such as the number of page views, visitors, friends, or followers don't automatically translate into higher conversions, orders, or sales. Comparing US and Turkish corporations' social media practices on Facebook and Twitter, these writers say that to draw consumer interest.

2.2 Social Media

Social media is an online communication channel for social interactions, which is associated or linked through internet. It is a two-way communication medium which allows user generated content to be produced and exchanged. (Kaplan and Haenlein, 2010). It is internet-based technology of web-based services like Facebook, Twitter, blogs, social gaming, social bookmarking, etc. Social media is based on Web 2.0 platform, using easily open and scalable social interaction publishing techniques. (Carlsson, 2010).

Social networking is a shift in how people are finding, studying, reading and exchanging news, information and content. Within the social network comes the convergence of sociology and technology and the transformation of monologues i.e.

one-to-many into dialogue with many-to-many. In recent years, social media, in the form of social networking sites, has emerged prevalent for online communication. Therefore, social media is the platform for the communication and distribution of content and knowledge and the change in the role that people play in the reading and disseminating information.

Characteristics of Social Media

- ***Participation***: Social media offers feedback and ideas from those interested in it, therefore blurring the media-audience divide.
- ***Openness***: To get suggestions and participation many social media are opened for it which encourages voting, posting and commenting the ideas and therefore there are no disturbance to access to it.
- ***Conversation***: Social platform is designed for communicating in a two-way conversation rather than the broadcast features like content transmission which is distributed finally to an audience.
- ***Community***: Social media platform helps the society to form rapidly and communicate in a efficient way and hence share the information on product or services.
- ***Connectedness***: Social media helps to maintain connectedness by communication with other links and sites to get information from the people.

In a network space Social media gains value when used to allow content sharing over other online communication firms. This capacity to facilitate content sharing and interaction defines and distinguishes social media from other communication platforms. Brands enable the sharing of content that need to add the additional structure to an online platform (Powell, 2009). Social media therefore, plays a significant role to know the consumer's behavior and to know the segmentation of the groups.

2.3 Consumer Behavior

Philip Kotler (1994) depicts that “The study of buying behavior of consumer on how, what, when and why they want the product with them is known to be a consumer behavior”. Schiffman and Kanuk (2007) depicts that “The study of what are the useful product they buy, why the product is bought, when the product is to be made and from where the consumers get the product from is termed to be a consumer behavior”.

The consumer behavior is basically based on following aspects by the above definitions:

- Who will Buy? - It enlists to the actual buyer and their position during the procurement process.
- How will he Buy? - This enlists the buying process because it would be in cash or on credit, individually or collectively.
- Why will he Buy? – This shows the factors and motivations behind the buying decisions.
- When will he Buy? -This shows product buying hours, weekdays or weekends mornings, afternoon or evenings.
- Where will he Buy? -There are two different aspects about it.
 - Where does the customer want to buy?
 - What does customer actually buy?

Market behavior is often based upon the consumer's buying decisions. So, the marketer also figures out the answer of these questions: -

- Who drives the buying decisions?
- Who takes the purchase decisions?
- Who would actually buy?
- In the end, who uses the product?

The ultimate goal of corporate engineering is to define, develop and deliver value to customers at a profit. (Webster, 1997). Superior customer value is a function of management business philosophy and its perception of consumers of its products which is reflected on the choice of alternative business orientations like sales orientation, market orientation, societal orientation and production (Payne, 1988; Liu, 1996 and Fritz, 1996). Success of a business is directly related to the extent to which consumers perceive the offers of the enterprise as satisfactory which invariably leads to exchange and patronage of the goods and services offered for sale.

Thus, the consumer behavior models help us to understand the consumer in his varied contexts and perspectives. This was the case with Procter and Gamble, who's success with Lenor (its product) was largely attributable to its understanding of consumer behavior. The company's analysis of how, whether, how much, and why consumers bought, used, and disposed of products and how it fits into consumer's culture,

generated insights that led to the development of a successful marketing program (Hoyer and McInnis, 2007). In this, it will be pertinent to first define and put into context, consumer behavior.

The keys related to understand the behavior of consumer are: -

A. Consumer Behavior Is Based on Incentives and Motives: Motives are internal factors and hence it urges the consumers to behave well while incentives are external factors that reflect the customer that every customer who wants benefits from the purchase of the product from every customer.

B. Consumer Behavior Includes Several Activities: The activities which involve consumer actions are described below:

- Product or service required.
- Material by advertising to be tested
- Talk with his family and friends about the drug.
- Brand review at stores.
- Includes merchandise in store.
- Finish the drug

C. Consumer Behavior goes through different Successive Steps: Consumer behavior consists of three distinct stages:

- Judgment before purchase
- Buy Decision
- Post-Buy Decision

D. Consumer Behavior differs from Time to Time: The time taken by the customer in any transaction is different. A time factor is influenced by the number of variables and often even varies.

E. Consumer Behavior includes different Roles: Market conduct requires the use of product pre-purchase decision, purchase decision and post-purchase process. Market place, time and position are required to understand consumer behavior.

F. Consumer Behavior also influenced by External Factors: There is every user in the world and each of them interacts with it naturally. Therefore, the environmental factors also have a greater effect on the consumer 's actions. Therefore, it includes in

all aspects such as society, social class, reference community, family, colleagues, methods of marketing and situational factors etc.

2.4 Cluster Analysis

Analysis of clusters is one of the most popular techniques in exploratory data analysis which partitioned given dataset into the subset of similarity data points in each subset and dissimilar to data from other clusters (Jiawei et al., 2012). It is based on various kinds of object's differences and uses distance functions' regulations to make model classification (Zhaoqi and Xuegong, 2000). The aim of clustering is descriptive and classification is predictive.

The purposes of clustering are: -

- Discovering High-Dimensional Data structures and patterns
- Grouping combined data with identical pattern.
- Reducing complexity, and perception facilitation.
- Partitioning the data into a predefined number of clusters.

The clustering methods have been very useful also in social media such as Facebook and Twitter for massive datasets (Joseph, 2013). Fahad et al. (2014) classified five types of clustering techniques: partitioning methods (K-mean method and K-medoids method), hierarchical methods (agglomerative approach and divisive clustering), density-based methods (DBSCAN algorithm), and grid-based methods (CLIQUE algorithm). All the clustering methods are used to locate the center of the cluster, representing each cluster. The cluster center must represent with the input vector so that the researcher may classify vector belonging to the cluster vector in order to quantify similarity between the input vector and all cluster centers and to determine which cluster is nearest or most similar.

2.4.1 K-Mean Clustering

K-mean clustering technique is a centroid-based iteration method and is mostly used algorithms for clustering (Jain, 2009) where it is applied in large data sets (Agrawal et al., 1998). In K-means, 'k' clusters have been implemented by using 'n' clusters where the clusters viewed are closest. The distance between clusters is calculated to measure

the highest value which gives the similar of repetition of data. K- mean clustering is usually more efficient runtime and is very scalable.

To determine the k-centroid obtained measure of each cluster, the information in K-means are categorized into k clusters. Centroid position is of utmost importance as it can produce different outcomes and the higher it is the further. The data points belonging to a set are shifted in subsequent steps towards the nearest centroid, so that no point remains unmoved (Madhulatha, 2012). The new k centroids are calculated again several times, so that at the time of new clustering the dataset belonging to one cluster will migrate to another cluster. When repeated, the cycle is the same before the preceding and subsequent clusters.

Properties of K-Mean Clustering

- Clusters will have 'K'.
- Each cluster must contain at least one element.
- The clusters created are non-hierarchical and are not found in the common section.
- Each cluster member is closer to their cluster than any other cluster.

Strengths of K-Mean Clustering

- Understanding and implementation of K-Mean Cluster is very easy.
- It is very easy to calculate large data sets hence it is efficient with no time complexity.
- K-mean is considered as a linear algorithm because 'K' and 't' are both small.
- K- mean clustering is usually more efficient runtime and is scalable.

Weakness of K-Mean Clustering

- After the mean is defined then only the algorithm is applicable.
- The major problem of K- Mean clustering is that you need to mention 'K'.
- The algorithm is prone to outliers and could therefore be mistake in the data collection or in the other special data points with very different values.
- To discover non-hyper-ellipsoid (or hyper-sphere) clusters, K- Mean algorithm is not suitable.

Test Statistics for K-Mean Clustering

A. Chi-Square

Chi-square statistics are used to measure relations on categorical variables and are most widely used to assess independence tests. It is used to measure goodness of fit of data. This statistical approach identifies different conditions between actual and ideal environment. It can be used to find the relation between two variables, i.e., observed value and expected value, and then it can be implemented for cluster labeling in numeric data. This is a tool that can be used in the formulation to conduct the difference analysis;

$$\text{Chi-square } (\chi^2) = \sum \frac{(f_o - f_e)^2}{f_e} \quad (\text{Liu, 1980})$$

where, f_o = observed frequency and f_e = estimated frequency

B. Phi Coefficient

Phi coefficient is a tool used to evaluate the correlation intensity between two categorical variables, each of which is or is calculated as binary. This test is designed to help us decide whether the difference from zero-association in the sample is sufficiently high to consider the association statistically significant as non-zero. It is a symmetrical statistic where the independent variable and dependent variables are interchangeable.

$$\text{Phi coefficient } (\phi) = \frac{\chi}{\sqrt{n}} \quad (\text{Liu, 1980})$$

2.5 Competitive Profile Matrix

Competitive Profile Matrix (CPM) is a statistical and analytical method that offers CSF-based information on the competitive advantage and the basis for the strategy of a firm. This helps the owners of the company to compare their businesses to their main rivals using important performance factors (Zimmerer et al., 2008). CPM describes the main rivals in a business and their specific strengths and weaknesses (David, 2011). Bergen and Peteraf (2002) encouraged the recognition and classification of rivals, based on resource endowment similarities. Bygrave and Zacharakis (2011) propose using the

company's network consisting mostly of current and prospective customers that can help businesses collect information about competitors.

Steps in developing CPM are: -

1. Critical Success Factor: The most critical factors impacting the performance of a product or service on the market are the Critical Success Factors (CSF). This helps a corporation to compete with that of other rivals in a particular industry (Capps and Glissmeyer, 2012). Those factors are termed as critical success factor which are either considered as best by the consumers or which provide the companies with a substantial cost benefits and those factors vary from one's industry to industry or even in some cases within an industry (Johnson et al., 2011). The factors are decided after an in-depth review of the factors that the customer considers important; hence, the customer chooses the goods or services provided.

2. Rating: Rating in CPM is the responses of products or services given by respondents to the critical success factors. Based on the company's relative strengths and weaknesses and its rivals, allocating 1 to major weaknesses and 5 to major strengths (Zimmerer et al., 2008)

3. Weight: - The weight in CPM is the relative value of a factor as the determinant of a product or service offered 's performance. The weight ranged from 0.0 which means unimportant, to 1.0 which means relevant. The cumulative weight of all the variables will equal 1.0.

4. Weighted Score: - It is outcome or a result obtained after the weight of every factor is multiplied by the ranking score (Zimmerer et al., 2008).

5. Weighted Score Sum: - The number of all weighted scores is equal with the overall weighted score. The mean weighted total score for CPM is 3, where each product or service with a weighted total score below 3 can be considered in a poor position. Goods or services above 3 with total weighted score are considered to be in a good spot.

In CPM, the product or service with the highest weighted total score is considered the winner among competitors. Nevertheless, the total number of weighted scores reflects just a relative strength of the goods and services being measured

2.6 Business Model Canvas

The Business Model Canvas (BMC) is a strategic management and lean startup template for developing new or documenting existing business models. It describes how an organization creates, delivers and captures value. It is a visual chart with elements describing firms or product's value proposition, infrastructure, customers, and finances. Nabavi (2005) uses business model canvas for understanding the challenges and difficulties faced by knowledge driven Turkish entrepreneurs. This analysis helped entrepreneurs to formulate their business models based on Business Model Canvas.

The Business Model Canvas was proposed by Alexander Osterwalder. Osterwalder and Pigneur (2010) define a business model as the rationale of how an organization creates, delivers and capture value. The Business Model Canvas theory was developed to help companies see their business model as a whole to facilitate tactical thinking. It brings out the whole business model in a transparent way. It is a graphical approach that describes nine elements needed to create and deliver value to the customers and society.

A. *Creating Value to Customers:* Value proposition is at the core of the concept of business model. Since the objective of any business model is to solve certain problems for certain customers in a profitable way, a deep understanding of the contexts and needs of the target customer groups is critical. Streman and Berglund (2012) and Zott and Amit (2010) argue that the choice of business model will automatically determines the target customers of the business.

B. *Delivering Value to Customers:* In order to deliver the economic value created to the relevant customer segment, certain activities must be performed. A business model outlines the necessary activities that need to be performed and how they should be performed. It also details who is responsible at various times and what resources are needed (Streman and Berglund, 2012).

C. *Capturing Value:* This describes how an organization generates revenues whilst it creates economic value to its customers. All aspects of the organization's business model-ranging from its choice of a customer segment, strategic partnerships as well as its key resources- have potential impacts on its profitability (Streman and Berglund, 2012).

2.6.1 Building Blocks (Dimensions) of a Business Model

Osterwalder et al. (2010) proposed nine different dimensions on Business Model Canvas.

A. Customer Segments

The primary guideline for building up customer segments is to know your customers. The customers are grouped in distinct segments with common needs, behavior, or other attributes.

This building block helps an organization to answer the following question:

- For whom are we creating value?
- Who are our most important customers?

B. Value Proposition

Value proposition provides an approach to understanding the target customer's product perspective (Hudadoff, 2009). It includes all the products and services that create value for customer segment. The value propositions help a firm to reflect on the following questions:

- What value do we deliver to the customer?
- Which one of our customer's problems are we helping to solve?

C. Channels

Channel describes the interface between the company and the customer where the value propositions are delivered to customers through communication, distribution and sales channels. Thinking about this dimension helps decision makers to provide answers to the following:

- Through which channels do our customers want to be reached?
- How are we reaching them now?
- How are we integrating our channels with customer routines?

D. Customer Relationships

Customer relationships are established and maintained with each customer segment. The type of customer relationship depends on the customer segment characteristics. In

this building block, one of the most important exercises is to come up with an answer to the following question:

- What type of relationships do our customers expect us to establish and maintain with them?

E. Revenue Streams

Revenue stream is a description of how the cash is generated, which is a result of successfully bringing value to the customer. The revenue streams building block helps the firm to carefully answer the following questions:

- For what value are our customers willing to pay and how much?
- How much will each revenue stream contribute to overall revenues of the firm?

F. Key Resources

Key resources are required to create and deliver its value proposition, reach markets, maintain relationships with customer segments and most importantly earn revenues. It can be owned or leased from key partners (Osterwalder, 2009). In this dimension, managers need to ask themselves the questions below:

- What key resources are required for successful implementation of our ideas?

G Key Activities

These are the most important activities the company must do to make their model work. In this dimension, managers need to ask themselves the questions below:

- What key activities are required for successful implementation of our ideas?

H. Key Partnership

Key partnership is the network of suppliers and partners that make the business model applicable. The partnerships may take any of the following forms: strategic alliances between non-competitors, cooperation also known as the strategic partnerships between competitors, joint ventures to develop new businesses, buyer-supplier relationships to assure reliable supplies (Osterwalder, 2009). The following questions require answers from the firm's top management.

- Who are our key partners?
- What key resources are we acquiring from our key partners?
- What key activities do our key partners perform?

I. Cost Structure

Cost structure describes all the costs to operate a business model. Such cost can be calculated easily after defining key resources, key activities, and key partnerships. The following questions are critical:

- What are the most important costs inherent in our idea?

CHAPTER THREE: RESEARCH METHODOLOGY

The research methodology is a systematic process and is a way to solve and to know the research problem. It is the procedure by which the researchers set the work plan of research by describing, evaluating and predicting phenomenon. It mainly sketches the several topologies or all surface of the study in solving the problem and hence the methodologies adopted for the accomplishment of those objectives.

Collection of data through questionnaires were conducted for the problem identification and formulation of a research instrument. K-mean clustering and competitive profile matrix were found to be the most appropriate techniques for the identification of relationship amongst each of the variables in the study. The process that have to be followed for the collection of all useful information and required data and hence selection of the appropriate sample has been outlined. The problem faced on this chapter describes in selecting a proper or an effective sample size, sampling methods, and tools and formulation of effective technique used for collecting appropriate data thereby analyzing the analysis of data for the complete study.

3.1 Research Design

Research design for the study is descriptive and exploratory in nature. Exploratory research design involves setting up of the insights of the research topics and understanding of the problem situation which leads to the formulation of the problem of research, developing the objectives for the study, identifying the key components of the study and further discussing and making implementation on the forecast plan of the course of action. While the descriptive research is a fact-finding research and is conducted under participant's options. It attempts to describe the characteristic of the participants and the positive linked between the variables or relationship between the variables so as to make specific predictions. It helps the researcher to identify cause and effect relationships of variables.

3.2 Methodology

3.2.1 Methodology for Research

The research methodology starts with problem identification. Understanding the consumer behavior is the major problem of research. Literature review is done by going

through report and published journal from internet. The research is based on qualitative and quantitative methods derived from primary veruses secondary sources. Primary data is collected from questionnaire related to understand the external environment and the firm’s key competitors and to determine consumer behavior and their engagement in Facebook. Secondary data is collected from firm’s annual reports and firm’s official Facebook page. The set of closed questions are developed and forwarded to the respondents. Sample of 385 respondents were taken for analysis.

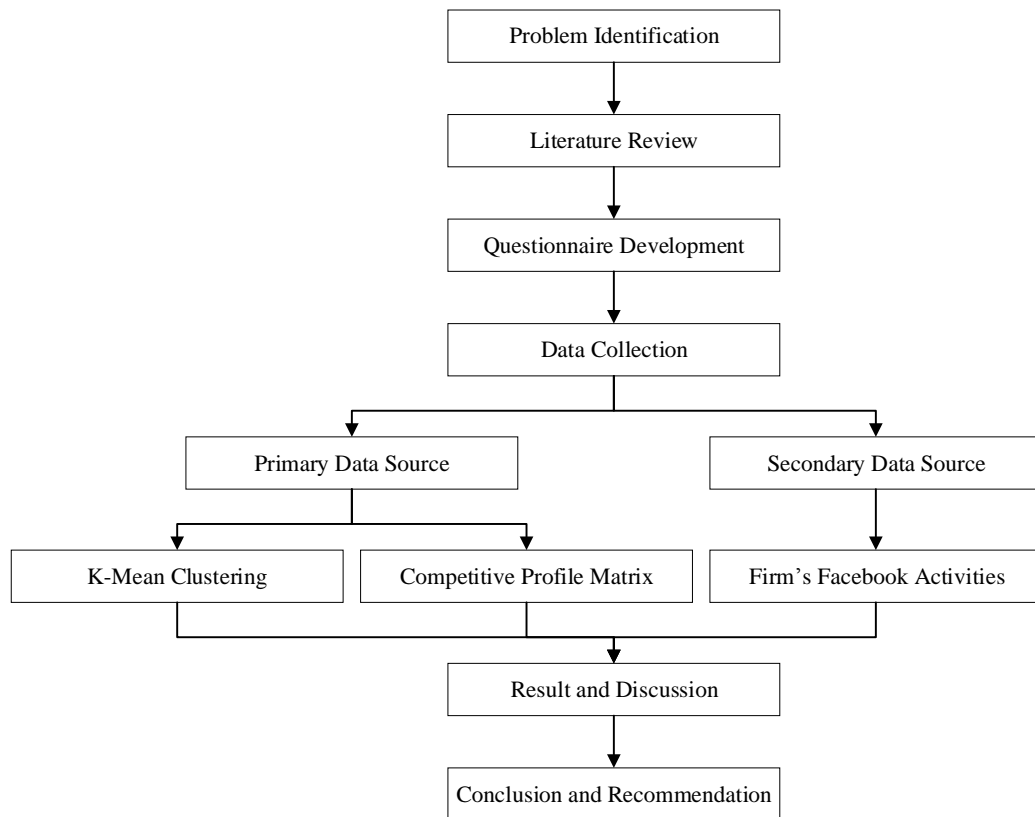


Figure 3-1: Methodology of Research

Competitive profile matrix is performed based on the five critical success factors: taste, branding, availability of product, size variety and product variety based on the score 1 (low) to 5 (high). The average score of participants’ responses are taken and weighted score is calculated and finally rank was assigned to each soft drinks. The firm’s key competitors’ relative strengths and weaknesses is compared and effective plan are made for taking competitive advantage.

K-mean clustering of the respondents are performed based on two variables: usage rate and preference based on score of 1 (low) to 5 (high). The respondents are categorized into 4 clusters using through SPSS version 16.0 software and their demographic profile,

Facebook engagement and consumers' behavior pattern are studied. Chi-square test and Phi-coefficient of these data are calculated in order to check goodness of fit and correlation of data. Lastly, conclusions are drawn and the management committee are suggested for making the selection decision in improving the product evaluation.

3.2.2 Methodology for Competitive Profile Matrix Model

A method for using Competitive Profile Matrix (CPM) tools are: -

Step 1: Identifying the Critical Success Factor (CSF): The critical success factor is identified through literature and questionnaires (open questions) from the team of experts.

Step 2: Assign the Weights and Rating: The weights are assigned from the response value of experts from 1 to 5 (Least Priority to Most Priority).

$$W_i = \frac{\sum_{i=1}^n a_i}{\sum_{i=1}^n a_i + \sum_{i=1}^n b_i + \dots \dots \sum_{i=1}^n z_i}$$

Where, W_i = Weightage of Key Success Factor

a_i, b_i, \dots, z_i = Score of Key Success Factor

Step 3: Compare the scores and take action: The score is assigned from the response value of consumers from 1 to 5 (Worst to Excellent).

$$\text{Average Score, } S_{\text{average}} = \frac{\sum_{i=1}^n a_i}{n}$$

$$\text{Weighted Score} = \text{Weightage} \times \text{Average Score} = W_i \times S_{\text{average}}$$

3.2.3 Methodology for K-Mean Clustering

K-mean Algorithms

This algorithm is performed in the following steps (Arora et al., 2015): -

Step 1: First of all, 'K' numbers of clusters is to be chosen.

Step 2: Then the vector is assigned to the initial centers of the clusters that is the centroid of cluster centroids and is obtained as C_1, C_2, \dots, C_k .

Step 3: Computation of cluster centers

- Assigned each object to their closest cluster center using Euclidean distance between the data vector 'X_i' and centroid 'C_j'.

Then the nearest centroid is selected by using Euclidean distance between an object and all the nearby centroid is calculated as per the formula (Kadam and Bagal, 2014).and finally the vector is assigned to that centers

$$d_{ij} = \sum_{j=1}^k \sum_{i=1}^n \|X_i^{(j)} - C_j\|^2$$

where $\|X_i^{(j)} - C_j\|^2$ is the nearest distance measure between a data point X_{ij} and the centroid C_j.

- Compute the membership grades λ_{ik}. Here, λ_{ik} ≥ 0 indicates the amount of association of data vector X_i with centroid C_j and depends on the distance d_{ik}
- Then new cluster center should be computed by calculating mean points.

$$C_k = \frac{\sum \lambda_{ik} \cdot X_i}{\sum \lambda_{ik}}$$

- And if the data point is nearly closest to its own cluster, leave the process where it is. If the data point is not closest to its own cluster then move it into the closest cluster.

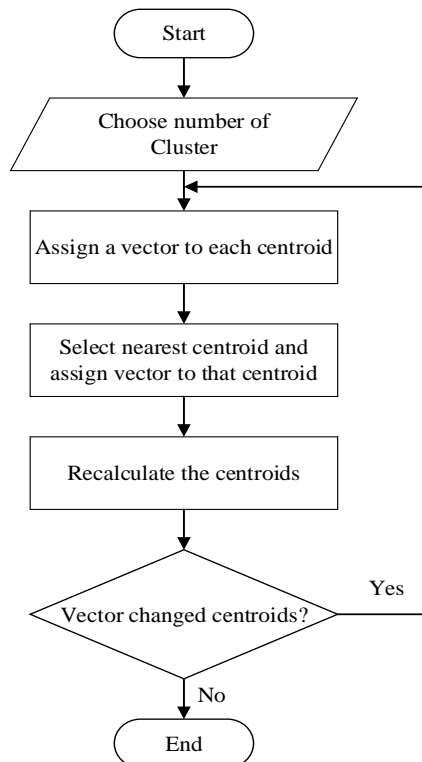


Figure 3-2: Algorithms for K-Mean Clustering

Step 4: Iterate until membership grades remains unchanged, i.e no change in cluster center or no object change its clusters. The final centroids are then determined.

Step 5: Partition 'n' number of data points into k groups; $G = G_1, G_2, \dots, G_k$ by minimizing the function within clusters.

Algorithm for Determining Optimal Value of K by Elbow Method

The elbow method can be summarized in the following steps (Thorndike, 1953):

Step 1: Computing K-Means clustering for different values of 'K' varying from 'K' from 1 to 10 clusters.

Step 2: For each number of cluster K, calculate the total within-cluster sum of square (WCSS).

$$WCSS = \sum_{i=1}^n (X_i - C_i)^2$$

Where, X_i = Data vector and C_i = Centroid of 'K' number of clusters

Step 3: Then the curve is plotted in graph of WCSS vs the number of cluster 'K'.

Step 4: The appropriate number of clusters is seen in the graph where the location of a bend (knee) is formed.

3.3 Sampling

3.3.1 Selection of Sampling Area

A set of observations drawn from a population is said to be a sample. The sample for research instrument consists of consumers, hotel managers and restaurant owners that uses Coca-Cola official Facebook page. The participants are well versed with the concept of the soft drinks. In terms of demographic and socio-economic characteristics, this participant may or may not be homogenous.

3.3.2 Sampling Technique

The sampling is a category that belongs to non-probability sampling techniques and allows researcher to use their judgment to select the subjects based on their knowledge of the phenomenon. Factors important for binding members of consumers across Nepal

are identified in it. The data that are collected via primary source are from the questionnaire section and secondary data is collected from firm's and consumers' activity on Coca-Cola official Facebook page from April, 2019 to March, 2020.

3.3.3 Selection of Respondents

For K-mean clustering, the consumers that uses Coca-Cola official Facebook page are taken for the participation. To qualify with well concept of the soft drinks and have an great experience with the case being formulated. For the critical success factor, hotel managers, product reviewers and restaurant owners are chosen as the team of expert for analysis. In terms of demographic and socio-economic characteristics, this participant may or may not be homogenous.

3.3.4 Determination of Sample Size

Sampling is the practice of selecting group of consumers considered to represent the entire population. Sufficient efforts have been made to make the sample representative by including consumers from the different professions, age group, sex and education background.

Sample Size (S) is calculated by:

$$S = \frac{X^2NP(1-P)}{d^2(N-1)+X^2P(1-P)} \quad (\text{Krejcie and Morgan, 1970})$$

Where, X = the tabulated value of chi-square for 1 degree of freedom at 95% confidence level = 1.96

P = Population proportion = 0.5 (assumed for the maximum sample size)

d = the degree of accuracy = 0.05 (Usually)

$$\text{Sample Size (S)} = \frac{1.96^2 \times 10000000 \times 0.5(1 - 0.5)}{0.05^2(10000000 - 1) + 1.96^2 \times 0.5(1 - 0.5)}$$

$$\text{Sample Size (S)} = 384.14 \approx 385$$

3.4 Source of Data

3.4.1 Primary Data

Under primary sources, relevant information has been collected by online survey with self-administered questionnaire to understand the external environment and the firm's key competitors and to determine consumer behavior and their engagement in Facebook sites. The set of closed questionnaires were prepared for a particular topic with the fact of collecting data and information through the participants. The designed questionnaire was then circulated to 385 participants to gather the responses. The participants to this questionnaire are a committee of experts or consumers that follows firm's official website. Data was collected and further summarized.

3.4.2 Secondary Data

Under secondary source, relevant information has been collected through firm's official Facebook page to determine the firm's nature of post (photos and videos) and consumer activities (likes, comments and shares).

3.5 Questionnaire Preparation

A survey questionnaire approach was used for gathering the data to assess the competitive analysis and to study the consumer behavior. Sample of 385 participants were selected who were well versed with the concept of soft drinks and have an adequate experience with the issue being discussed. These participants were asked to respond to the closed questions and the questionnaire includes a proper numbering of questions for a mentioned topic with the purpose of gathering information from respondents.

To tackle the questions most easy to the participants, a very closed checklist style questionnaire where included in which the maximum questions were just to tick one or multiple-choice questions depending on the types of question. The question such as many, few, bad, frequently, etc were avoided due to avoid two major problems; Firstly, to introduce response biasness and secondly to make the analysis of the statistical of the data more difficult.

After that the questionnaire were forwarded to 385 participants who are familiar with the English language and are familiar in using Internet. Questionnaires are prepared on Google Questionnaire survey. Two methods were implemented for sending the questionnaire to participants: One is electronic mail and online link at Google docs through Gmail and other one is a Facebook Messenger.

A. Questionnaire Section for Competitive Profile Matrix

This questionnaire section includes the evaluation of competitors with five critical success factor -

- Taste
- Color and Ingredient
- Branding
- Availability of Product
- Product and Size Variety

The competitors of Coca-Cola product chosen are Fanta, Sprite, Pepsi, Miranda and Dew. Participants evaluate each competitor according to critical success factor scoring from 1 (low) to 5 (high).

B. Questionnaire Section for Consumer Behavior

The following patterns of variables were setup for developing questionnaires to study the consumer behavior:

Generable Variable

1. Demographic Profile

- Gender
- Age group
- Educational background
- Marital status
- Occupation/profession

2. Consumers' Engagement in Facebook

- Experience in using Facebook

- Frequency of usage
- Time spent in Facebook
- Number of Facebook friends
- Purpose of using Facebook

3. Consumer's Opinion on Coca-Cola

- Preference of soft drinks
- Frequency of use of soft drinks
- Priority of brand of soft drinks
- Preference of Coca-Cola
- Frequency of use of Coca-Cola
- Coca-Cola's product features
- Coca-Cola's taste rating
- Media channels of Coca-Cola Advertisement
- Social media
- Experience in using Coca-Cola
- Recommending to prefer Coca-Cola

3.6 Data Analysis

3.6.1 Competitive Profile Matrix Analysis

After conducting the survey from different respondents, an Excel sheet was developed for computing the competitive profile matrix with the use of key success factors and the total weighted score is obtained on the basis of score 1(low) to 5(high) and the firm's key competitors were identified.

3.6.2 Cluster Analysis

After conducting the survey from different respondents, an SPSS version 16.0 software was developed and the K-mean clustering of the respondents are performed based on the two variables: usage rate and preference on the score of 1(low) to 5(high). The respondents were categorized into 4 clusters and then their demographic profile, Facebook engagement and consumers behavior pattern were studied.

CHAPTER FOUR: RESULTS AND DISCUSSION

The chapter discussed here deals on the presentation, data-analysis and interpretations of data with explanation. The data was collected from the case industries and is entered and processed in the excel sheet and further the processed data are collected for the qualitative analysis. The major findings for the analysis are presented in this section.

4.1 Industrial Analysis

Coca-Cola is the leading brand of soft drinks industries in Nepal and was introduced by Bottlers Nepal (Terai) Limited in 1973. The products of the industries are Coca-Cola, Fanta and Sprite. It has gross sales revenue of NRs. 7,865 million and gross profit of NRs. 2,042 million. Coca-Cola Nepal has introduced the social media marketing in Facebook with 106,670,867 fan followers.

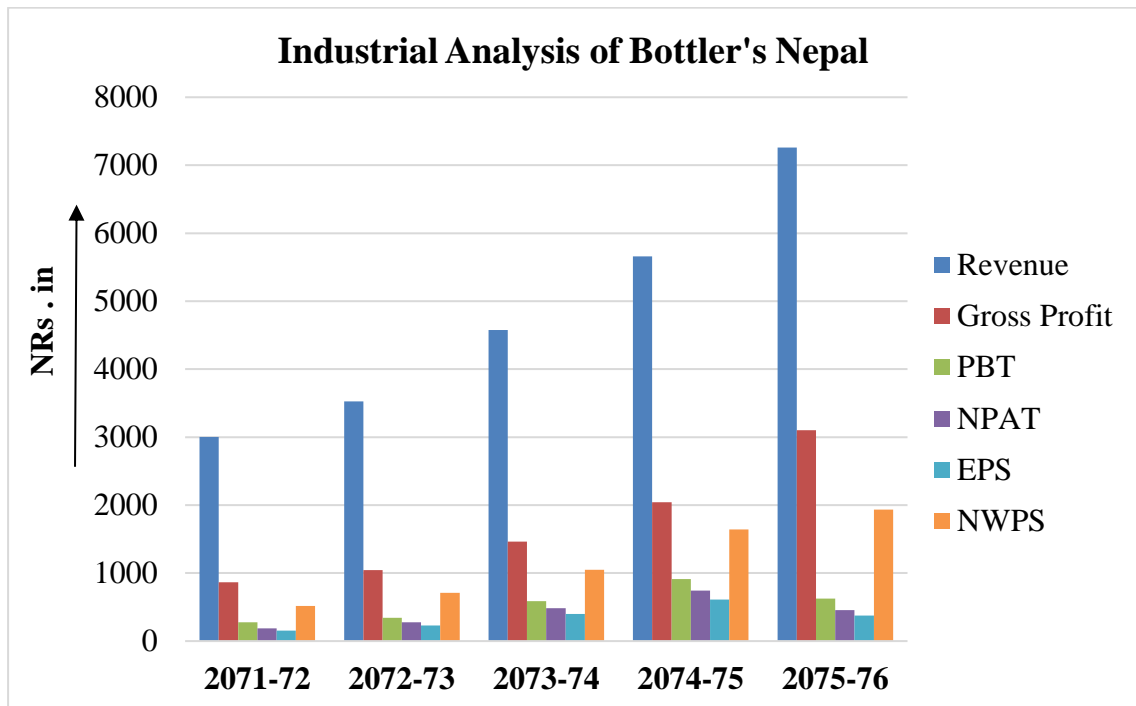


Figure 4-1: Overall Performance of Bottlers Nepal (Terai) Limited

Source: Annual Report of Bottlers Nepal (Terai) Limited 2075/76

Figure 4-1 gives the overall activities of Bottlers Nepal (Terai) Limited in NRs. Millions over the last 5 years. The revenue of the company increases exponentially from 3,004 million to 7,262 million from fiscal year 2071-72 to fiscal year 2075-76. Similarly, over the last 5 years, Gross Profit and Net Worth Profit per Share (NWPS) of the company also increases exponentially from 867 million to 3,102 million and from 516 million to 1,935 million respectively. While Profit Before Tax (PBT), Net Profit

After Tax (NPAT) and Earning per Share (EPS) increases gradually last 4 years and experience 40% drop in fiscal year 2075-76.

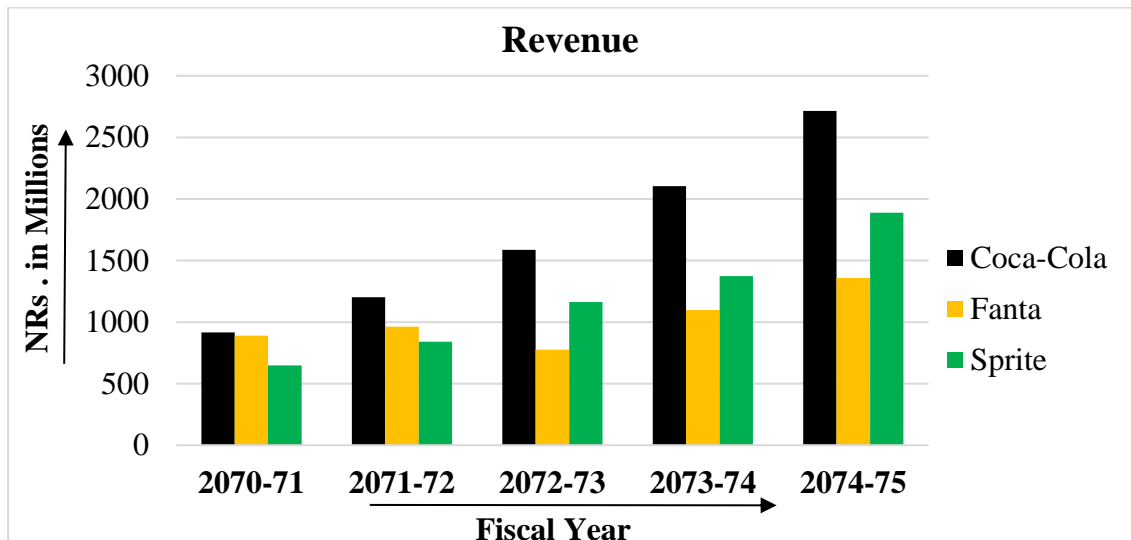


Figure 4-2: Revenue of Bottlers Nepal (Terai) Limited

Source: Annual Report of Bottlers Nepal (Terai) Limited 2075/76

Figure 4-2 gives the revenue generated by each of the product of Bottlers Nepal (Terai) Limited in NRs. Millions over the last 5 years. The revenue of Coca-Cola increases exponentially from 915.85 million to 2,715.84 million from fiscal year 2071-72 to fiscal year 2075-76. Similarly, the revenue of Sprite increases from 647.21 million to 1,887.6 million while revenue of Fanta grows slowly from 647.21 million to 1,357.92 million.

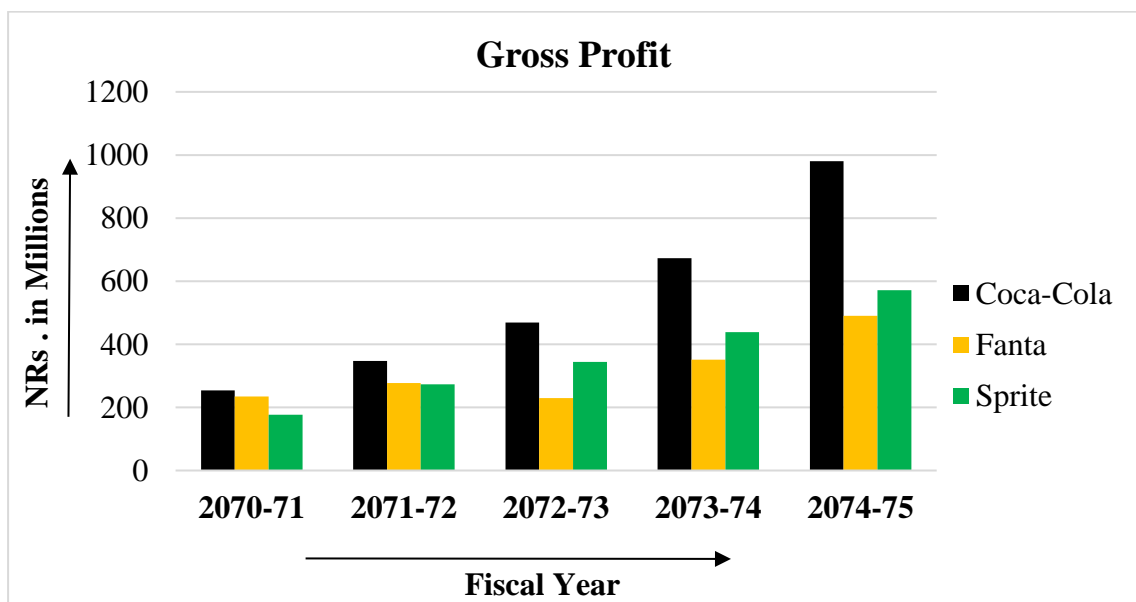


Figure 4-3: Gross Profit of Bottlers Nepal (Terai) Limited

Source: Annual Report of Bottlers Nepal (Terai) Limited 2075/76

Figure 4-3 gives the gross profit generated by each of the product of Bottlers Nepal (Terai) Limited in NRs. Millions over the last 5 years. The gross profit of Coca-Cola increases exponentially from 253.69 million to 980.16 million from fiscal year 2071-72 to fiscal year 2075-76. Similarly, the gross profit of Sprite increases from 176.94 million to 571,76 million. While, the gross profit of Fanta shows slow increment from 234.32 million to 490.08 million.

4.2 Firm's Social Media Effort in Facebook

Table 4-1: Descriptive Data of Facebook Effort of Coca-Cola for the year 2019-2020

Factors (in per day)	Mean	Minimum	Maximum	Standard Deviation
Number of Post	0.296	0.065	0.742	0.187
Number of likes in a Post	118.5	14.726	501.908	134.326
Number of Comments in a post	1.384	0.270	6.452	1.744
Number of Shares in a post	1.558	0.181	6.189	1.633

Table 4-1 briefly presents data on Firm's and consumer's Facebook activity between April, 2019 and March, 2020. The number of posts per day have a maximum value of 0.742 having an average value of 0.296 while post have an average of 118.5 number of likes, 1.384 number of comments and 1.558 number of shares.

Table 4-2: Descriptive Data of Firms Nature of Post for the year 2019-2020

Factors (in per day)	Mean	Minimum	Maximum	Standard Deviation
Photos	0.153	0.032	0.323	0.084
Videos	0.129	0.000	0.387	0.123

Table 4-2 explains the nature of the firm's posts that is obtained by Firms on Facebook. The firm's preferred to use average post of 0.153 photos per day (ranging from 0.032 to 0.323) and 0.129 videos per day (ranging from 0 to 0.387)

Table 4-3 summarizes the number of enriched and non-enriched post made by Firm's on their official Facebook page over last 12 months (April, 2019 to March, 2020). Intensity of post is the volume of post made by the firm while richness of the post is the

information richness of the post made by the firm. The intensity of post was highest for the October, 2019 (0.742 posts per day) and least for January, 2020 (0.065 post per day). Similarly, November, 2019 and February, 2020 has highest richness (richness =1) whereas May, 2019 has least richness (richness = 0.286)

Table 4-3: Intensity and Richness of Post

Months	No. of Days	No. of Posts			Intensity	Richness
		Enriched	Non-Enriched	Total		
Apr. 2019	30	4	5	9	0.300	0.444
May 2019	31	2	5	7	0.226	0.286
June 2019	30	4	2	6	0.200	0.667
July 2019	31	3	1	4	0.129	0.750
Aug. 2019	31	7	4	11	0.355	0.636
Sep. 2019	30	6	5	11	0.367	0.545
Oct. 2019	31	18	5	23	0.742	0.783
Nov. 2019	30	7	0	7	0.233	1.000
Dec. 2019	31	3	1	4	0.129	0.750
Jan. 2020	31	1	1	2	0.065	0.500
Feb. 2020	29	15	0	15	0.517	1.000
Mar. 2020	31	8	1	9	0.290	0.889

Source: Coca-Cola Official Facebook Site

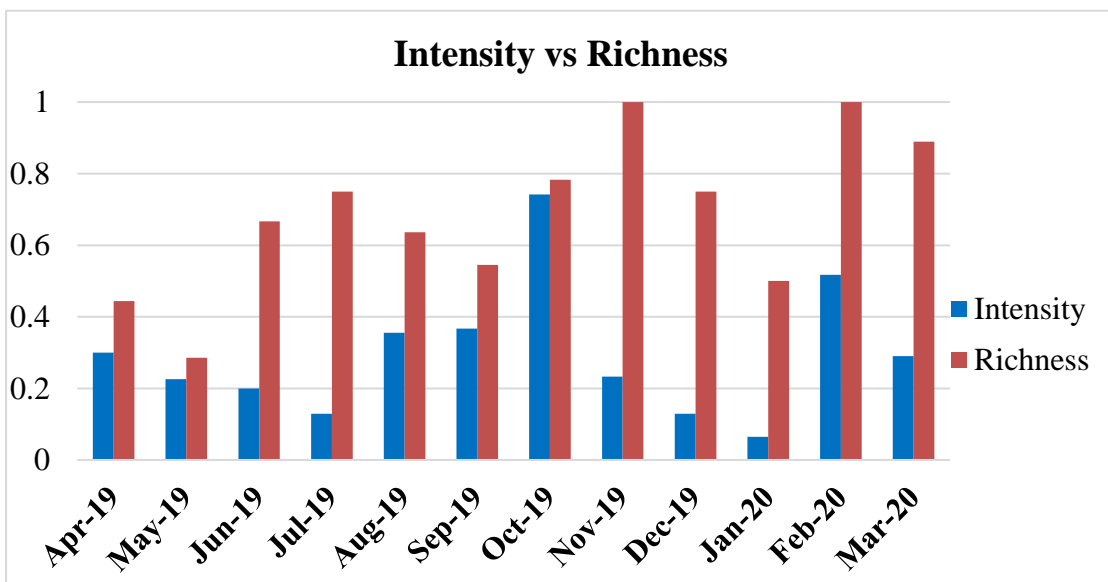


Figure 4-4: Intensity vs Richness of Post

Figure 4-4 depicts the intensity and richness of post over last 12 months (April, 2019 to March, 2020). Richness of post is highest on November, 2019 and February, 2020.

This is due to the fact that most of marriage ceremonies falls in these months and effective Ad campaign is necessary for boosting sales. Despite of highest Richness of post, the intensity of post is very less on November, 2019 (Intensity = 0.233 posts per day). While, intensity of post is high in October, 2019. Demand of Coca-Cola is very high in Dashain and Tihar because most of Nepalese people highly consume soft drinks during festival occasion. Similarly, the intensity of post is least in January, 2020 (Intensity = 0.065 posts/day) as the consumption of soft drinks is less during winter. This advocates that consumption pattern of Nepalese people for soft drinks are mainly based on festivals and seasonality.

Table 4-4: Descriptive Data on Intensity and Richness of Post for the year 2019-2020

Factors	Mean	Minimum	Maximum	Standard Deviation
Intensity of post	0.296	0.065	0.742	0.187
Richness of post	0.688	0.286	1.000	0.219

Table 4-4 outlines the nature of the posts that is obtained by Firms on Facebook. The firm's average intensity of post is 0.296 (ranging from 0.065 to 0.742) whereas the firm's richness of post is 0.688 (ranging from 0.286 to 1.000).

4.3 K-Mean Clustering

4.3.1 Elbow Method for Determining Number of Clusters

Table 4-5: WCSS for different K Value

K Value	Within Cluster Sum of Squared Error (WCSS)
2	655
3	507
4	282
5	256
6	232
7	225
8	218

Table 4-5 shows the within cluster sum of square error for the various number of K values starting from K=2 to K=8. The WCSS is calculated by the sum of square distance between the data values and final centroids of each clusters. Graph is plotted between WCSS and K Value and WCSS value gradually decreases with increase in K-value for

determining optimal number of K which signifies that the selection of the number of clusters obtained from the elbow point achieves a reasonable activity of not having too many clusters.

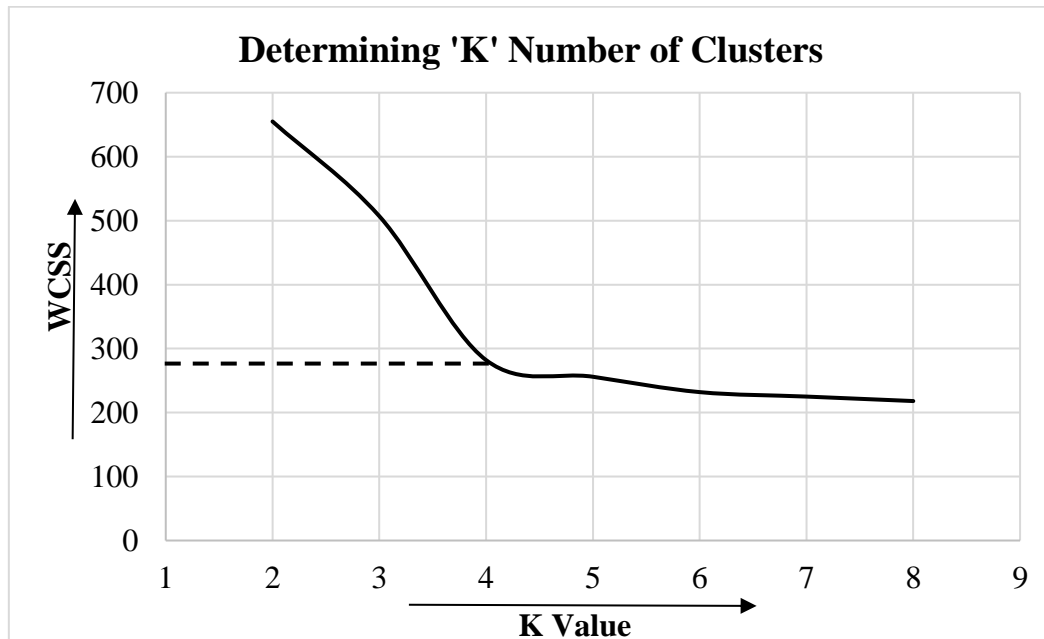


Figure 4-5: Elbow Method for Determining K Number of Clusters

Figure 4-5 explains the graph between K Value and WCSS. For K=2, WCSS value is 655 and exponentially decreases to 507 and 282 for K=3 and K=4 respectively. While the WCSS value remains flat from K=5 to K=8. So, the formation of knee or a bend in the graph is shown at K=4 which is the appropriate selection of number of clusters for the data set.

4.3.2 Input Variables of K-Mean Clustering

The variables used for K-Mean cluster analysis in SPSS version 16.0 software are usage rate and preference. The nature of variables used for the analysis are presented in Table 4-6.

Table 4-6: Input Variables of K-Mean Clustering

S.N.	Name / Label	Type	Measure
1.	Customer ID	Numeric	Nominal
2.	Usage Rate	String	Nominal
3.	Preference	String	Nominal
4.	Consumption	Numeric	Nominal
5.	Rating of Features	Numeric	Nominal
6.	Cluster Number	Numeric	Nominal
7.	Cluster Distance	Numeric	Scale

Table 4-6 shows the input variable of K-Mean clustering. The customer ID is the code or number used for the respondents so as to concise the personal information about the participants. These are used in numeric format and its measure is nominal value. While usage rate and preference are used in strings used in questionnaire section and the measures are nominal. Consumption and rating of features are the values assigned to each string value of usage and preference respectively based on the scale 1 (low) to 5 (high). These have nominal measure of value. Cluster number and cluster distance are the value derived from the simulation for 4 cluster (K=4) after K-mean clustering. Cluster number takes nominal value whereas the cluster distance from centroid takes scale measures.

Decoding the usage rate and preference into numeric value are performed by following steps.

1. Click on “Transform” and then “Recode into Different Variables”. Select the variables used for decoding the old variables and converting them in new value. Fill the output variables and click on “Old and New Values”.

2. Usage Rate >> Consumption

Insert the old values and enter the new value for the range and add them. After adding the desired value for conversion, click on “Continue” for processing.

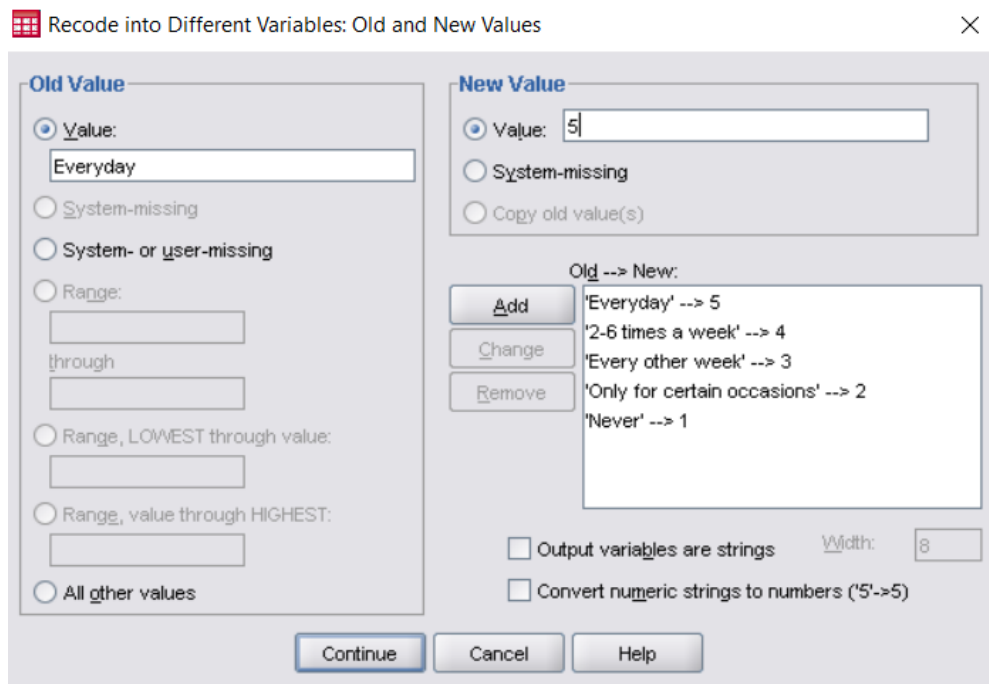


Figure 4-6: Decoding Usage Rate in Scale

3. Preference >> Rating of Features

Insert the old values and enter the new value for the range and add them. After adding the desired value for conversion, click on “Continue” for processing.

Recode into Different Variables: Old and New Values

Old Value

Value: Excellent

System-missing

System- or user-missing

Range: [] through []

Range, LOWEST through value: []

Range, value through HIGHEST: []

All other values

New Value

Value: 1

System-missing

Copy old value(s)

Old --> New:

Add Change Remove

'Excellent' --> 5
'Good' --> 4
'Average' --> 3
'Poor' --> 2
'Very Poor' --> 1

Output variables are strings Width: 8

Convert numeric strings to numbers ('5'-->5)

Continue Cancel Help

Figure 4-7: Decoding Preference in Scale

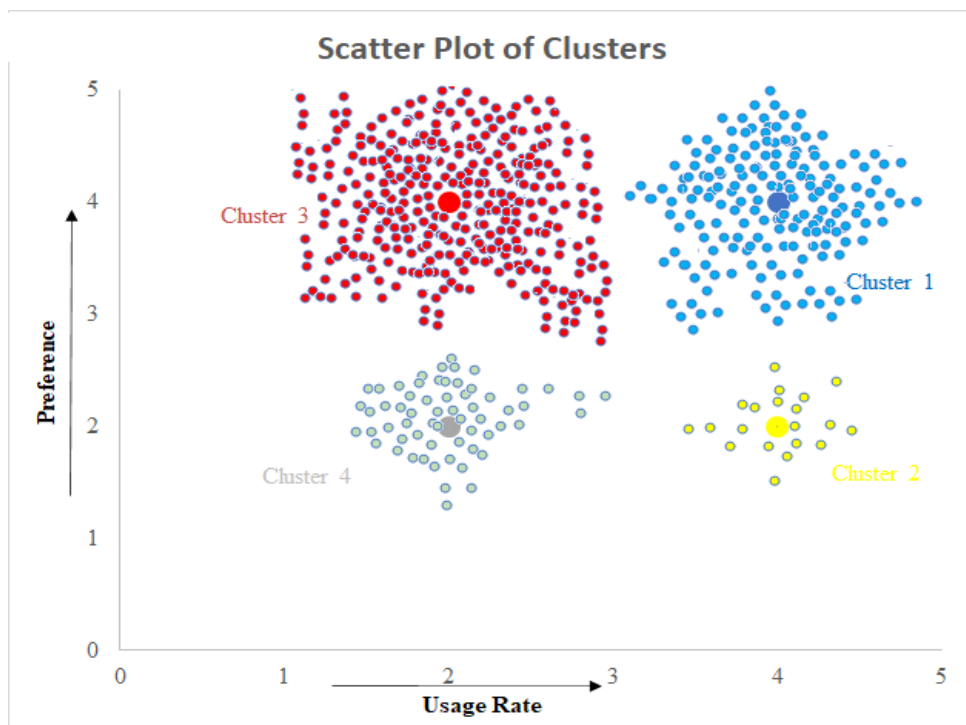


Figure 4-8: Scatter Plot of Clusters

Figure 4-8 illustrates the scatter plots of data of each cluster. The frequency of each data points is mentioned within the graph and different color is introduced so as to identify the data points to their cluster members. Cluster 3 represents in having the greatest number of respondents while cluster 2 represents in having the lowest number of respondents with wide scatterings of data.

4.3.3 K-Mean Clustering of Respondents

Based on the consumer's responses in two variables, i.e. usage rate and preference, K-mean cluster analysis was performed. These variables are scored from 1 to 5 (1 = Low to 5 = High) and 4 clusters (K = 4) were formed. Table 4-7 represents four initial centers are chosen randomly for K-mean clustering in SPSS version 16.0 software.

Table 4-7: Initial Cluster Centers

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Usage Rate	5	5	2	1
Preference	5	1	4	1

The final clusters were obtained through iterative process and is shown in Table 4-8.

Table 4-8: Final Cluster Centers

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Usage Rate	4	4	2	2
Preference	4	2	4	2

Consumers with high usage rate and highly preference of Coca-Cola are categorized in Cluster 1. They are loyal consumers of the product and has somewhat stereotype buying behavior (habitual buying behavior).

While, consumers with high usage rate and low preference of Coca-Cola are under Cluster 2. They are negative promoter of the product and have dissonance reducing buying behavior. Improvement of product features like taste, ingredients, variety, etc. are required for booming sales of the product.

In Cluster 3, consumers with low usage rate and high preference of Coca-Cola. They are the consumers that highly prefer Coca-Cola but they have low involvement in

consumption of soft drinks. Effective marketing with consistent quality is required to improve its involvement.

While, consumers with low usage rate and low preference of Coca-Cola are categorized in Cluster 4. They do not play any effective roles in sales of the product. These consumers need to be neglected.

Table 4-9: Number of Cases in Each Cluster

	Usage Rate	Preference	Frequency (n)
Cluster 1	4	4	129
Cluster 2	4	2	21
Cluster 3	2	4	181
Cluster 4	2	2	54

Euclidean distance is calculated between the input data and final clusters centers, and 385 respondents were categorized into 4 clusters which is identified on the least distance between these centers. Table 4-9 tabulates the respondent numbers in each cluster. Cluster 3 has majority of respondents (n=181) while cluster 2 has least number of respondents (n=21).

Table 4-10: ANOVA of K-Mean Clustering

	Cluster		Error		F	Sig.
	Mean Square	df	Mean Square	df		
Usage Rate	144.723	3	.257	381	563.671	.000
Features Rating	141.107	3	.397	381	355.477	.000

Table 4-10 explains the mean square error of usage rate and features rating and also there's significant level. The result shows that the four clusters are significantly different and that all variables are independent. Usage rate is the less errored variable in the profile of cluster (F=563.671) compared to features rating which is the the social media dimension with a slightly greater error (F=355.477).

Table 4-11: Usage Rate vs Preference of Coca-Cola

Variables	N	Cluster-1	Cluster-2	Cluster-3	Cluster-4
1. Usage Rate ($\chi^2 = 269.2565$ and $\phi = 0.8363$)					
A. Never	26	1	0	0	25
B. Only for certain occasion	141	0	0	114	27
C. Every other week	73	0	5	67	1
D. 2-6 times a week	99	94	5	0	0
E. Everyday	46	34	11	0	1
2. Preference ($\chi^2 = 269.0133$ and $\phi = 0.8359$)					
A. Very Poor	32	1	11	0	20
B. Poor	47	6	9	0	32
C. Average	64	5	0	58	1
D. Good	149	46	1	102	0
E. Excellent	93	71	0	21	1

Table 4-11 shows cluster membership was significantly related with usage rate and preference of Coca-Cola. Higher the value of Chi-Square and Phi Coefficient, stronger is the association of variable with cluster membership. The strong association was between usage rate and cluster membership (Chi -Square = 269.2565 and Phi Coefficient = 0.8363) where 141 respondents in the high involvement cluster were using it only for certain occasion and 26 respondents in low involvement cluster have never used the product. This depicts that consumers are mainly focus on usage rate rather than preference as the availability of Coca-Cola product in the market is higher in the number and the quality of the product in terms of taste and price is very clear to the consumers. Relationship between preference and cluster membership shows that 149 respondents find the product good while 32 respondents in low index find the product very poor (Chi-Square = 269.0133 and Phi Coefficient = 0.8359).

Table 4-12 shows significant relationship between cluster membership with all demographic variables. The strongest association was between occupation or profession and cluster membership (Chi-Square = 253.9783 and Phi Coefficient = 0.8122) where 195 respondents were employed and 18 respondents were unemployed. While education background is weakly associated with the cluster membership (Chi-

Square = 188.5110 and Phi Coefficient = 0.6997). This depicts the consumers behavior patterns depends highly on occupation as they can afford its usage in high number.

Table 4-12: Demographic Profile of Respondents

Variables	n	Cluster-1	Cluster-2	Cluster-3	Cluster-4
1. Gender ($\chi^2 = 251.9867$ and $\phi = 0.8090$)					
A. Male	229	71	19	114	25
B. Female	156	58	2	67	29
2. Age Group ($\chi^2 = 252.7375$ and $\phi = 0.8102$)					
A. 16-20 Years	40	12	2	21	5
B. 20-25 Years	116	41	4	48	23
C. 25-30 Years	124	34	6	70	14
D. 30-35 Years	52	21	8	23	0
E. Above 35 Years	53	21	1	19	12
3. Education Background ($\chi^2 = 188.5110$ and $\phi = 0.6997$)					
A. Below SLC/SEE	10	3	0	5	2
B. SLC/SEE	12	5	0	5	2
C. +2 or equivalent	115	39	11	53	12
D. Undergraduate	109	46	1	49	13
E. Postgraduate	139	36	9	69	25
4. Marital Status ($\chi^2 = 252.7690$ and $\phi = 0.8103$)					
A. Single	226	63	12	111	40
B. Married with no children	54	21	4	28	1
C. Married with children	105	45	5	42	13
5. Occupation or Profession ($\chi^2 = 253.9783$ and $\phi = 0.8122$)					
A. Student	97	27	9	47	14
B. Employed	195	65	8	94	28
C. Self-employed	75	32	0	34	9
D. Unemployed	18	5	4	6	3

Table 4-13 shows cluster membership was significantly related with respondent's engagement in Facebook. The strongest association was between frequency of usage and cluster membership (Chi-square = 254.2581 and Phi Coefficient = 0.8127) as they get more familiar about the product by observing the enriched and non-enriched post

made by the firm. 210 respondents use Facebook several times a day while 11 respondents use Facebook one couple of months while time spend in Facebook was weakly associated with the cluster membership (chi-square = 251.7319 and phi-coefficient = 0.8086)

Table 4-13: Respondent's Engagement in Facebook

Variables	N	Cluster-1	Cluster-2	Cluster-3	Cluster-4
1. Experience in Facebook ($\chi^2 = 252.8391$ and $\phi = 0.8104$)					
A. Less than 5 Years	55	20	2	24	9
B. 5-10 Years	153	56	10	70	17
C. Above 10 Years	177	53	9	87	28
2. Frequency of Usage ($\chi^2 = 254.2581$ and $\phi = 0.8127$)					
A. Rarely	15	1	1	12	1
B. Once every couple of month	11	2	0	5	4
C. Atleast once a week	31	12	8	11	0
D. Several times a week	23	3	0	13	7
E. Atleast once a day	95	32	1	44	18
F. Several times a day	210	79	11	96	24
3. Time spent in Facebook ($\chi^2 = 251.7319$ and $\phi = 0.8086$)					
A. Less than an hour	111	36	4	61	10
B. 1-3 hours	200	71	10	87	32
C. More than 3 hours	74	22	7	33	12
4. No. of Facebook Friends ($\chi^2 = 252.9415$ and $\phi = 0.8105$)					
A. Less than 200 friends	28	7	0	12	9
B. 200-1000 friends	238	92	15	107	24
C. 1000-2000 friends	96	24	4	48	20
D. More than 2000 friends	23	6	2	14	1
5. Purpose of using Facebook ($\chi^2 = 252.1499$ and $\phi = 0.8093$)					
A. Communication	117	46	5	49	17
B. Entertainment	112	30	10	59	13
C. Information sharing	60	24	1	25	10
D. All of Above	96	29	5	48	14

Table 4-14 shows cluster membership was significantly related with respondent's opinion on Coca-Cola. The strongest association was between product features of soft drinks and cluster membership (Chi-square = 266.2561 and Phi Coefficient = 0.8316) where 247 respondents prefer the good taste of soft drinks while 9 respondents prefer good package of soft drinks. This depicts that preference of brand of soft drinks depends upon the product features. While the weakest association was between preference of Coca-Cola and cluster membership (Chi-square = 253.6737 and Phi Coefficient = 0.8117).

Table 4-14: Respondent's Opinion on Coca-Cola

Variables	n	Cluster-1	Cluster-2	Cluster-3	Cluster-4
1. Priority of brand ($\chi^2 = 260.449$ and $\phi = 0.8225$)					
A. Coca-Cola	165	49	15	68	33
B. Fanta	105	32	5	51	17
C. Sprite	78	36	1	40	1
D. Pepsi	4	0	0	3	1
E. Miranda	1	0	0	1	0
F. Dew	32	12	0	18	2
2. Preference of Coca-Cola ($\chi^2 = 253.6737$ and $\phi = 0.8117$)					
A. Yes	327	115	16	144	52
B. No	58	14	5	37	2
3. Product Features of Coca-Cola ($\chi^2 = 266.2561$ and $\phi = 0.8316$)					
A. Good taste	247	68	19	121	39
B. Classic package	9	4	0	5	0
C. Brand image	76	31	1	30	14
D. Variety of products	53	26	1	25	1
4. Experience in using Coca-Cola ($\chi^2 = 255.4182$ and $\phi = 0.8145$)					
A. Less than 1 Year	4	1	0	3	0
B. 1 to 5 Years	14	4	0	9	1
C. More than 5 Years	352	119	21	159	53
D. Never used Coca-Cola	15	5	0	10	0
5. Recommending to prefer Coca-Cola ($\chi^2 = 254.4216$ and $\phi = 0.8129$)					
A. Yes	362	121	21	169	51
B. No	23	8	0	12	3

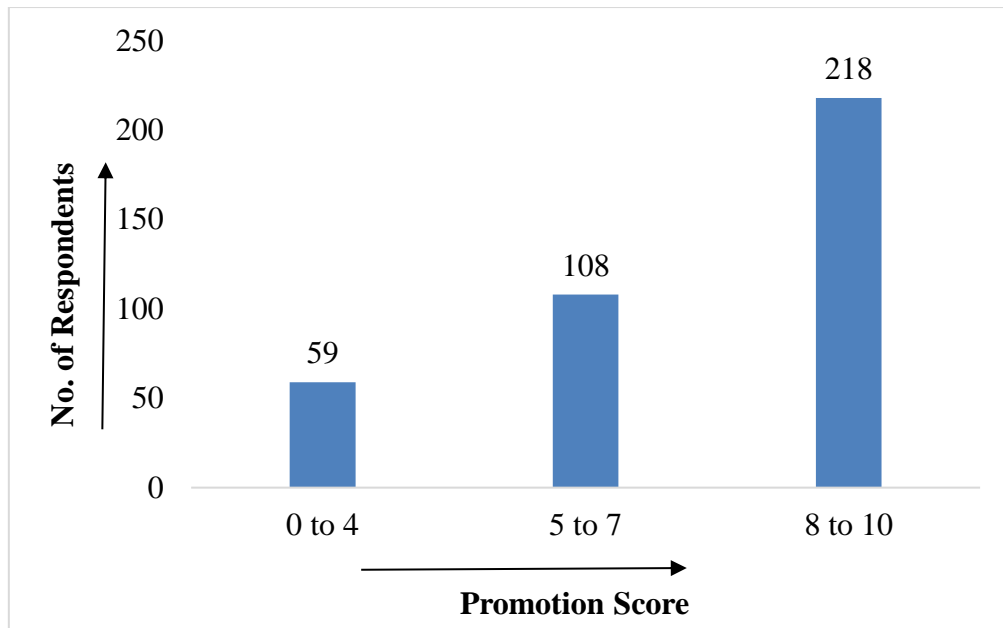


Figure 4-9: No. of Respondents and Their Promotion Score

Figure 4-9 depicts the scoring pattern of respondents for recommending the products to their groups and communities. The promotion score ranges from 0 (Least) to 10 (Most). The detractors, neutral and promoter scores are 0 to 4, 5 to 7 and 8 to 10 respectively. There is large number of promoters (218 respondents) and least number of detractors (59 respondents).

Net Promoter Score (NPS) = Promoters – Detractors = 218 - 59 = 159 which signifies that 159 are loyal consumers that recommend other to use the product.

4.4 Results for Competitive Profile Matrix

Table 4-15 depicts that the computation of weightage for evaluating key success factor. The key success factor is selected from the literature as well as from the response of experts. Scoring of CSF is from 1 to 5 (Least Important to Most Important).

Table 4-15: Computation of Weightage for Evaluating Critical Success Factor

S. N.	Critical Success Factor (CSF)	Weightage
1	Taste	0.2277
2	Color and Ingredients	0.2141
3	Branding	0.2148
4	Availability of Product	0.1821
5	Product and Size Variety	0.1612

These factors are calculated by the ratio of obtained score by total score of respondents. Based on weightage generation from team of experts, it is seen that Taste has highest weightage of 22.77% amongst Critical Success Factor of Soft drinks. It is followed by Branding and Color and Ingredients where the weightage are 21.48% and 21.42% respectively. Product and Size Variety has least weightage of 16.12% amongst all Critical Success Factor.

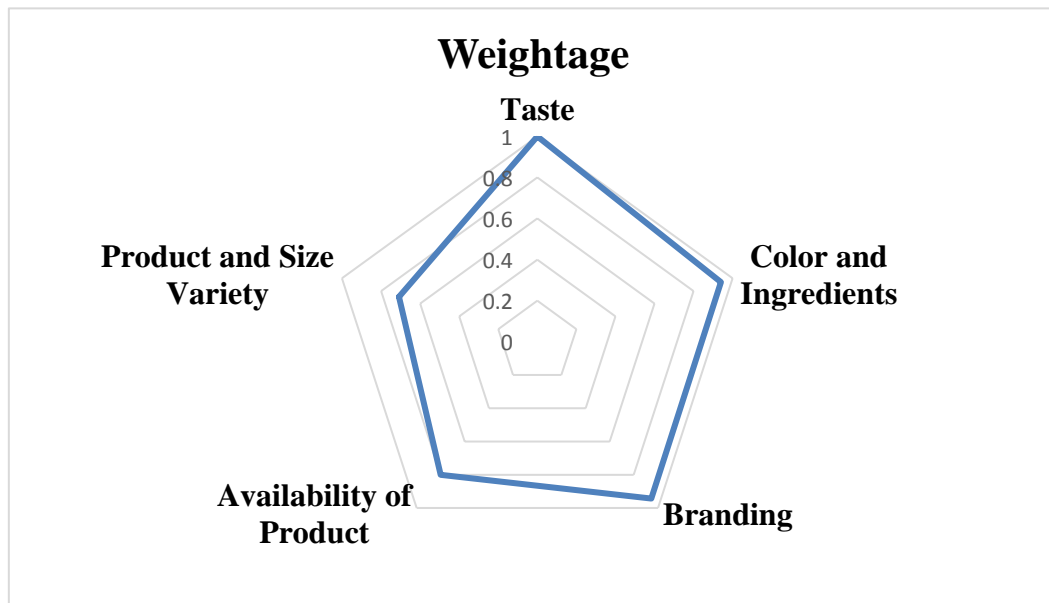


Figure 4-10: Radar Diagram of Weightage of CSF

The priorities of Critical Success Factor (CSF) are performed based on Weightage. Figure 4-10 illustrates the priorities of the CSF; Taste has the highest priority and is followed by branding. While product and size variety has least priority amongst the CSF.

Table 4-16: Average Scoring of Soft Drinks based on CSF

S.N.	CSF	Coke	Fanta	Sprite	Pepsi	Miranda	Dew
1	Taste	4.12	3.78	4.08	3.32	3.01	4.15
2	Color and Ingredients	4.22	3.72	3.61	3.36	3.16	4.28
3	Branding	4.63	4.34	4.50	4.60	3.30	4.54
4	Availability of Product	4.63	4.41	4.48	4.62	3.15	4.62
5	Product and Size Variety	4.44	4.12	4.14	3.65	3.32	4.07

Table 4-16 depicts that the average scoring of expert for evaluating soft drinks based on key success factor. The average score of each expert for evaluating the product based on scoring 1 to 5 (Worst to Best) is taken for analysis.

Weighted Score = Weightage x Average Score

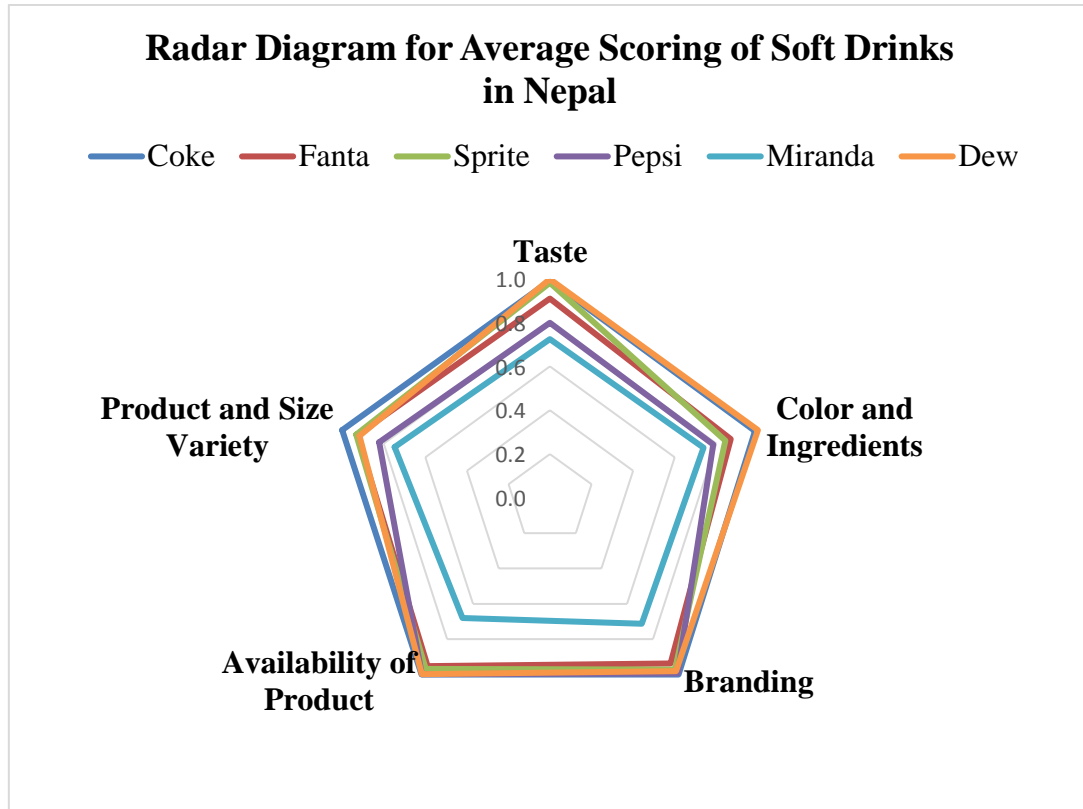


Figure 4-11: Radar Diagram for Average Scoring of Soft Drinks in Nepal

Figure 4-11 illustrates the priority of the distributors based on CSF. Dew has the highest priority under taste and color and ingredient while Coca-Cola has the highest priority in term of branding, availability of product and product and size variety.

Table 4-17: Weighted Scoring of Soft Drinks based on CSF

S.N.	CSF	Coke	Fanta	Sprite	Pepsi	Miranda	Dew
1	Taste	0.94	0.86	0.93	0.76	0.68	0.94
2	Color and Ingredients	0.90	0.80	0.77	0.72	0.68	0.92
3	Branding	1.00	0.93	0.97	0.99	0.71	0.98
4	Availability of Product	0.84	0.80	0.81	0.84	0.57	0.84
5	Product and Size Variety	0.72	0.66	0.67	0.59	0.54	0.66
Overall Strength Rating		4.40	4.06	4.15	3.89	3.18	4.33

Table 4-17 depicts that the weighted scoring of expert for evaluating soft drinks based on key success factor which is obtained from the product of weightage and average score. The total weighed score of Coke, Fanta, Sprite, Pepsi, Miranda and Dew are 4.40, 4.06, 4.15, 3.89, 3.18 and 4.33 respectively. It shows that these values are the average value of each KSF scoring from 1 to 5. The ranking of soft drinks from the first to the last are Coca-Cola, Mountain Dew, Sprite, Fanta, Pepsi and Miranda.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This thesis aims to reveal the consumer behavior of Coca-Cola product. Sample of 385 consumers that uses Coca-Cola official Facebook pages and have an adequate experience with the issue were chosen for the participation. The set of closed questionnaires for studying consumer behavior were designed and then circulated to these participants to gather the responses. The consumer behavior pattern was studied through the variables of demographic profile, consumer's engagement in Facebook and consumer's opinion on Coca-Cola.

For K-Mean clustering, 385 respondents were categorized into 4 clusters based on usage rate and preference in SPSS version 16.0 Software. Cluster 1 includes consumers with high usage rate and high preference. These are loyal consumers and includes 33.51% of respondents. Cluster 2 includes minority of respondents (5.45%), are detractors and have dissonance reducing buying behavior. Cluster 3 includes majority of respondents (47.01%) with less consumption and high preference of Coca-Cola product. Cluster 4 includes consumers with low usage rate and low preference contributes 14.03% of respondents. Net promotion score of these respondents is 159 (41.30%). So, majority of people are satisfied with Coca-Cola and promote the product.

K-Mean clustering shows that the strong association was between usage rate and cluster membership ($\text{Chi-Square} = 269.2565$ and $\text{Phi Coefficient} = 0.8363$) where 141 respondents in the high involvement cluster were using it for certain occasion and 26 respondents in low involvement cluster have never used the product.

Firms and consumer's Facebook activity between April, 2019 and March, 2020 depicts that the firm's average intensity of post is 0.296 (ranging from 0.065 to 0.742) whereas the firm's richness of post is 0.688 (ranging from 0.290 to 1.000).

It was seen that Taste has highest weightage of 22.77% amongst Critical Success Factor of Soft drinks while Product and Size Variety had least weightage of 16.12% amongst all Critical Success Factor. The total weighed score of Coke, Fanta, Sprite, Pepsi, Miranda and Dew are 4.40, 4.06, 4.15, 3.89, 3.18 and 4.33 respectively. It shows that these values are the average value of each KSF scoring from 1 to 5. The ranking of soft drinks from first to last are Cola-Cola, Dew, Sprite, Fanta, Pepsi and Miranda.

The study shows that there is an interconnection between the theoretical dimensions and the proposed implication of the managerial plan. From theoretical point of view, this case helps to bridge the gap related to measure companies' social media efforts. From a managerial perspective, this study is useful to compare the Coca-Cola with key competitors and helps to expand consumer awareness and brand loyalty.

5.2 Recommendations

- i. By performing K-mean clustering, the consumers can be categorized into desired number of clusters so that the firm can develop strategies for improving the product features and boosting the sales of the product.
- ii. By evaluating Competitive Profile Matrix, the case industry can make a strategy in improving those attributes of the products so as to gain competitive advantage.
- iii. This research paved the way for understanding the consumer behavior of product through firm's effort and consumer's responses on social media site.
- iv. Business model innovation enables the firm to identify new ways to create value and grow through a more integrated view of their business and its relative stakeholders.

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APPENDIX A: QUESTIONNAIRE SECTION

Questionnaire for Consumer's Behavior of Coca-Cola and Consumer's Engagement on Facebook

Section 1: Personal Information

1. Name:
2. Address:
3. Contact Number:
4. Gender
 - (a) Male
 - (b) Female
5. What is your age group?
 - (a) 16-20 years
 - (b) 20-25 years
 - (c) 25-30 years
 - (d) 30-35 years
 - (e) Above 35 years
6. What is your education background?
 - (a) Below SLC/SEE
 - (b) SLC/SEE
 - (c) +2 or equivalent
 - (d) Undergraduate
 - (e) Postgraduate
7. Marital Status
 - (a) Single
 - (b) Married with no children
 - (c) Married with children
8. What is your occupation/profession?
 - (a) Student
 - (b) Employed
 - (c) Self-employed
 - (d) Unemployed

Section 2: Consumer's Engagement on Facebook

1. How long have you been using internet?
 - (a) Less than 5 years
 - (b) 5-10 years
 - (c) Above 10 years

2. How often do you use Facebook?
 - (a) Rarely
 - (b) Once every couple of months
 - (c) At least once a week
 - (d) Several times a week
 - (e) At least once a day
 - (f) Several times a day

3. How long do you spent in Facebook?
 - (a) Less than an hour
 - (b) Between 1 hours and 3 hours
 - (c) More than 3 hours

4. How many Facebook friends do you have?
 - (a) Less than 200 friends
 - (b) 200 to 1000 friends
 - (c) 1000 to 2000 friends
 - (d) More than 2000 friends

5. What is your purpose of using Facebook platform?
 - (a) Communication
 - (b) Entertainment
 - (c) Information sharing
 - (d) All of Above

Section 3: Consumer's Opinion (Sales Promotion)

1. Do you drink soft drinks?
 - (a) Yes
 - (b) No
2. How often do you drink soft drinks?
 - (a) Daily
 - (b) Once a week
 - (c) Once a month
 - (d) Occasionally
3. Which soft drinks do you prefer?
 - (a) Coca-Cola
 - (b) Fanta
 - (c) Sprite
 - (d) Pepsi
 - (e) Miranda
 - (f) Dew
4. Do you drink Coca-Cola?
 - (a) Yes
 - (b) No
5. How often do you drink Coca-Cola?
 - (a) Everyday
 - (b) 2-6 times a week
 - (c) Every other week
 - (d) Once a month
 - (e) Only for certain occasions
 - (f) Never
6. What kinds of products made by Coca-Cola you have tried?
 - (a) Coca-Cola
 - (b) Fanta
 - (c) Sprite
7. What is Coca-Cola product features?
 - (a) Good taste
 - (b) Classic package

- (c) Price
- (d) Brand image
- (e) Variety of products
- (f) Others

8. How well do Coca-Cola's product taste?

- (a) Excellent
- (b) Good
- (c) Average
- (d) Poor
- (e) Very Poor

9. In which media channels do you usually recognized Coca-Cola's advertisements?

(Multiple Tick)

- (a) Television
- (b) Radio
- (c) Newspapers and Magazines
- (d) Posters and Hoarding boards
- (e) Social media

10. How long have you been Coca-Cola's customer?

- (a) Less than 3 years
- (b) 3 to 5 years
- (c) More than 5 years
- (d) I have never brought a Coca-Cola's product

11. Will you focus on Coca-Cola's new products?

- (a) Yes
- (b) No

12. How likely is that you would recommend this product to a friend or colleague?

	Scale											
Not at all likely	0	1	2	3	4	5	6	7	8	9	10	Extremely likely

Questionnaire for Key Success Factors of Soft Drinks in Nepal

Section 1: Personal Information

1. Name:
2. Address:
3. Contact Number:
4. Gender
 - (a) Male
 - (b) Female
5. Age(in Years) :
6. What is your education background?
 - (a) Below SLC/SEE
 - (b) SLC/SEE
 - (c) +2 or equivalent
 - (d) Undergraduate
 - (e) Postgraduate
7. Marital Status
 - (a) Single
 - (b) Married with no children
 - (c) Married with children
8. What is your occupation/profession?
 - (a) Student
 - (b) Employed
 - (c) Self-employed
 - (d) Unemployed

Section 2: Consumer Review

How do you rate the following soft-drinks from 1 to 5?

(Where 1 = Poor, 2 = Below Average, 3 = Average, 4 = Good and 5 = Excellent)

1. In terms of Taste:

	1	2	3	4	5
Coca-Cola					
Fanta					
Sprite					
Pepsi					
Miranda					
Dew					

2. In terms of Color and Ingredients:

	1	2	3	4	5
Coca-Cola					
Fanta					
Sprite					
Pepsi					
Miranda					
Dew					

3. In terms of Branding:

	1	2	3	4	5
Coca-Cola					
Fanta					
Sprite					
Pepsi					
Miranda					
Dew					

4. In terms of Availability of Product:

	1	2	3	4	5
Coca-Cola					
Fanta					
Sprite					
Pepsi					
Miranda					
Dew					

5. In terms of Product and Size Variety:

	1	2	3	4	5
Coca-Cola					
Fanta					
Sprite					
Pepsi					
Miranda					
Dew					

APPENDIX B: DETAILS OF RESPONDENTS FOR SURVEY

Name	Gender	Address	Code
Abraham Poudel	Male	Pokhara	N01
Amar Nath Shah	Male	Siraha	N02
Amit Pandit	Male	Butwal	N03
Ananda Pudasaini	Male	Hetauda	N04
Anil Chaudhary	Male	Butwal	N05
Barshad Ghimire	Male	Hetauda	N06
Basu Gautam	Male	Chitwan	N07
Bimala Mishra	Female	Tanahun	N08
Bina Khanal	Female	Sindhupalchowk	N09
Binita Gautam	Female	Pokhara	N10
Darpan Sapkota	Male	Pokhara	N11
Deepak Kumar Singh	Male	Bandipur	N12
Deepak Raj Pathak	Male	Kailali	N13
Gaurav Raut	Male	Rautahat	N14
Harish Raj	Male	Nawalparasi	N15
Kishor Ghimire	Male	Kapilvastu	N16
Kishor Ghimire	Male	Surkhet	N17
Kusum Bhatta	Female	Nawalparasi	N18
Lekhnath Timalsena	Male	Tanahun	N19
Partik Pahari	Male	Pokhara	N20
Ram Krishna Khadka	Male	Pokhara	N21
Ramesh Dahal	Male	Morang	N22
Ritesh Kumar Jha	Male	Kailali	N23
Ritu Prasad Gautam	Male	Chitwan	N24
Ronish Bastola	Male	Jhapa	N25
Sanjay Rajbhandari	Male	Sarlahi	N26
Santosh Kumar Rauniyar	Male	Jhapa	N27
Subash Neupane	Male	Jhapa	N28
Sunil Shakya	Male	Bharatpur	N29
Sushant Neupane	Male	Narayanghat	N30
Swagat K.C.	Male	Pokhara	N31
Tika K.C.	Female	Kathmandu	N32
Ajay Kumar Jha	Male	Lalitpur	N33
Alisha Shahi	Female	Kathmandu	N34
Angela Koirala	Female	Kathmandu	N35
Aniket Manandhar	Male	Kathmandu	N36
Anita Maharjan	Female	Kathmandu	N37
Anmol Aryal	Male	Bharatpur	N38
Awornit Shrestha	Male	Lalitpur	N39
Binay Sharma	Male	Bharatpur	N40

Name	Gender	Address	Code
Bishwash Hada	Male	Kathmandu	N41
Deewa Shrestha	Female	Kathmandu	N42
Dibya Shakya	Female	Bhaktapur	N43
Ganga Lamichanne	Female	Bhaktapur	N44
Jasmine Shrestha	Female	Lalitpur	N45
Jessika Bista	Female	Kathmandu	N46
Karuna Mahat	Female	Bhaktapur	N47
Luna Shah Thakuri	Female	Kathmandu	N48
Nimika Aryal	Female	Kathmandu	N49
Paurakh Sharma	Male	Kathmandu	N50
Pooja Bade	Female	Bhaktapur	N51
Prasna Tuladhar	Female	Kathmandu	N52
Pratikshya Tiwari	Female	Kathmandu	N53
Pravin Khatri	Male	Kathmandu	N54
Rabila Khadgi	Female	Kathmandu	N55
Rajin Basnet	Male	Kathmandu	N56
Reena Shahi	Female	Kathmandu	N57
Rejina Chaulagain	Female	Lalitpur	N58
Rojina Nhemaphuki	Female	Bhaktapur	N59
Sabin Shahi	Male	Kathmandu	N60
Sagar Khanal	Male	Bharatpur	N61
Sandhya Khadgi	Female	Kathmandu	N62
Sanjeev Maharjan	Male	Kathmandu	N63
Sanjita Thapa	Female	Bhaktapur	N64
Shahi Sharad	Male	Kathmandu	N65
Shilpi Bajracharya	Female	Kathmandu	N66
Shreeja Shrestha	Female	Kathmandu	N67
Siddiq Ansari	Male	Nawalparasi	N68
Sonal Shahi	Female	Kathmandu	N69
Srijan Khadgi	Male	Kathmandu	N70
Suman Dangi	Male	Nepalgunj	N71
Suraj Khadka	Male	Kathmandu	N72
Suraj Pokharel	Male	Kathmandu	N73
Ujjwal Khadka Chhetri	Male	Kathmandu	N74
Tez Aryal	Male	Bharatpur	N75
Sujan Yadav	Male	Janakpur	N76
Reena Manandhar	Female	Kathmandu	N77
Ram Tamang	Male	Hetauda	N78
Kiran Nakarmi	Male	Pyuthan	N79
Santosh Poudel	Male	Bharatpur	N80
Anjila Bhattarai	Female	Illam	N81

Name	Gender	Address	Code
Anjil Hamal	Male	Surkhet	N82
Aswit Magar	Male	Butwal	N83
Anita Magar	Female	Butwal	N84
Sangeet Gurung	Male	Bhojpur	N85
Pasupati Gupta	Male	Kapilvastu	N86
Lalit Rai	Male	Jhapa	N87
Rohan magar	Male	Kathmandu	N88
Biraz Shrestha	Male	Bhaktapur	N89
Diya Rana	Female	Butwal	N90
Sunita Rana	Female	Gorkha	N91
Nisha Poudel	Female	Pokhara	N92
Prajwal Karki	Male	Dolakha	N93
Ayush Nakarmi	Male	Bhaktapur	N94
Sangeet Lama	Male	Illam	N95
Lalit Thapa	Male	Pyuthan	N96
Ramela Niroula	Female	Itahari	N97
Nirmali Limbu	Female	Illam	N98
Ganga Oli	Female	Dang	N99
Sujan Sharma	Male	Biratnagar	N100
Nishan Rai	Male	Dharan	N101
Bimala Rawat	Female	Butwal	N102
Denisha Magar	Female	Lumbini	N103
Sunita Gurung	Female	Gorkha	N104
Ayushman Bhatta	Male	Biratnagar	N105
Som Nath Aryal	Male	Kathmandu	N106
Nilima Sharma	Female	Lumbini	N107
Hari Bhatta	Male	Kapilbastu	N108
Janaki Sharma	Female	Bhojpur	N109
Nikima Shahi	Female	Kathmandu	N110
Neeraj Singh	Male	Pokhara	N111
Nilima Bhatta	Female	Biratnagar	N112
Supriya Phathak	Female	Bhojpur	N113
Ajay Chaulagain	Male	Dolakha	N114
Radhika Shrestha	Female	Chitwan	N115
Rabindra Tandukar	Male	Kathmandu	N116
Subhandra Gautam	Female	Chitwan	N117
Ram Shrestha	Male	Bharatpur	N118
Indra Shrestha	Male	Kathmandu	N119
Akhanda Sharma	Male	Janakpur	N120
Arnika Dahal	Female	Morang	N121
Srijana Shah	Female	Kapilbastu	N122

Name	Gender	Address	Code
Subodh Shah	Male	Kapilbastu	N123
Rameshwar Yadav	Male	Okaldhunga	N124
Sarita Mishra	Female	Janakpur	N125
Leeqwan Gautam	Male	Chitwan	N126
Sarita Dahal	Female	Kathmandu	N127
Ajay Nath Yadav	Male	Biratnagar	N128
Sita Sapkota	Female	Rasuwa	N129
Hari Sapkota	Male	Rauwa	N130
Amit Gupta	Male	Biratnagar	N131
Arya Singh	Female	Kathmandu	N132
Ashok Pangeni	Male	Illam	N133
Bikash Basnet	Male	Kapan	N134
Aashma Sharma	Female	Kathmandu	N135
Smita Jha	Female	Kapan	N136
Sushan Khadgi	Male	Bhaktapur	N137
Subekshya Sharma	Female	Jhapa	N138
Sujesh Shahi	Male	Swoyambhu	N139
Sudarshan Awasthi	Male	Pokhara	N140
Subhash Giri	Male	Jhapa	N141
Umesh Baidhya	Male	Bhaktapur	N142
Bikash Baidhya	Male	Bhaktapur	N143
Yogendra Pandit	Male	Bhaktapur	N144
Rohit Tandukar	Male	Kathmandu	N145
Roshan Khatri	Male	Okaldhunga	N146
Salina Shrestha	Female	Patan	N147
Sanjeev Dahal	Male	Surkhet	N148
Santosh Kunwar	Male	Bhaktapur	N149
Udesh Singh	Male	Biratnagar	N150
Shammi Giri	Female	Dhobidhara	N151
Roshan Sharma	Male	Pokhara	N152
Gari Manandhar	Female	Pyuthan	N153
Shankar Bhattarai	Male	Palpa	N154
Rabina Tandon	Female	Hetauda	N155
Sanjay Yadav	Male	Biratnagar	N156
Raghav Tandon	Male	Hetauda	N157
Samita Pathak	Female	Kathmandu	N158
Ujesh Shahi	Male	Patan	N159
Kapil Tandukar	Male	Kathmandu	N160
Lokendra Gautam	Male	Chitwan	N161
Lokman Hamal	Male	Dang	N162
Amar Pandit	Male	Bhajang	N163

Name	Gender	Address	Code
Ruja Thapa	Female	Kathmandu	N164
Roshna Prajapati	Female	Bhaktapur	N165
Rojni Sharma	Female	Biratnagar	N166
Hari Yadav	Male	Butwal	N167
Manoj Singh	Male	Butwal	N168
Mahendra Sharma	Male	Butwal	N169
Manindra Yadav	Male	Kapilbastu	N170
Dilli Laxmi Shrestha	Female	Morang	N171
Santoshi Shrestha	Female	Kathmandu	N172
Roshani Khatri	Female	Jhapa	N173
Ritu Sharma	Male	Chitwan	N174
Rameswor Pathak	Male	Morang	N175
Anjali Sharma	Female	Butwal	N176
Nalina Shahi	Female	Kathmandu	N177
Namrata Upadhyaya	Female	Kapilbastu	N178
Sopnil Khadka	Male	Kathmandu	N179
Hari Sharma	Male	Kathmandu	N180
Rubina Shrestha	Female	Patan	N181
Ajay Das	Male	Biratnagar	N182
Hema Kafle	Female	Morang	N183
Laxmi Yadav	Female	Biratnagar	N184
Suman Chaulagain	Male	Dolakha	N185
Sarita Limbu	Female	Dang	N186
Roshna Puri	Female	Pokhara	N187
Ajay Puri	Male	Kathmandu	N188
Narita Thapa	Female	pokhara	N189
Narendra Pun	Male	Kathmandu	N190
Preeti Pun	Female	Kathmandu	N191
Yogesh Chalise	Male	Pokhara	N192
Upendra Yadav	Male	Biratnagar	N193
Sopnil Basnet	Male	Udhyapur	N194
Nikima Thapa	Female	Okaldhunga	N195
Narina Shrestha	Female	Hetauda	N196
Hari Sapkota	Male	Pokhara	N197
Roshan Singh	Male	Kathmandu	N198
Santosh Khanal	Male	Kathmandu	N199
Ravi Khanal	Male	Kathmandu	N200
Sabin Dahal	Male	Kathmandu	N201
Sabina Thapa	Female	Pokhara	N202
Sarita Limbu	Female	Makwanpur	N203
Sopnal Khadgi	Male	Patan	N204

Name	Gender	Address	Code
Sumendra Dhakal	Male	Janakpur	N205
Upama Sharma	Female	Biratnagar	N206
Hari Devkota	Male	Bhaktapur	N207
Raja Ram Poudel	Male	Pokhara	N208
Sarita Limbu	Female	Bhojpur	N209
Sarina Thapa Magar	Female	Gorkha	N210
Ajay Shrestha	Male	Gorkha	N211
Monita Dhakal	Female	Pokhara	N212
Maneet Singh	Male	Illam	N213
Parash Shah	Male	Kapilbastu	N214
Hom Nath Yadav	Male	Biratnagar	N215
Haresh Sharma	Male	Morang	N216
Kapil Chaudhary	Male	Butwal	N217
Sujan Tandon	Male	Hetauda	N218
Suraj Thakuri	Male	Palpa	N219
Rajesh Chaudhary	Male	Butwal	N220
Deepika Poudel	Female	Tanahun	N221
Belove Bista	Male	Kailali	N222
Bijay Gurung	Male	Ramechhap	N223
Dilip Paneru	Male	Syangja	N224
Shrinkhala Khatiwada	Female	Makwanpur	N225
Sanish Maharjan	Male	Kathmandu	N226
Sijan Dangi	Male	Morang	N227
Roshan Adhikari	Male	Dhanusa	N228
Pratiksha Shukla	Female	Rupandehi	N229
Suman Gole	Male	Makwanpur	N230
Anurag Mallik	Male	Mahottari	N231
Archana Lamsal	Female	Dhadging	N232
Arjun Ghimire	Male	Dang	N233
Santosh Shrestha	Male	Dhadging	N234
Puskar Karki	Male	Dang	N235
Padam Adhikari	Male	Dhadging	N236
Kushal Shrestha	Male	Darchula	N237
Alka Prajapati	Female	Panchthar	N238
Sushma Pandey	Female	Tanahun	N239
Aarju Basnet	Female	Morang	N240
Khum Prasad Poudel	Male	Dang	N241
Anil Kumar Kamat	Male	Morang	N242
Anish Kutuwo	Male	Bhaktapur	N243
Bibek K.C.	Male	Palpa	N244
Rabina Bhandari	Female	Dolakha	N245

Name	Gender	Address	Code
Anumita K.C.	Female	Kathmandu	N246
Digya Acharya	Female	Kathmandu	N247
Purnam Khadka	Male	Solukhumbu	N248
Ashok Poudel	Male	Kaski	N249
Indira Pokhrel	Female	Nawalparasi	N250
Sikha Saboo	Female	Jhapa	N251
Naswa Ranjit	Female	Lalitpur	N252
Bishal Khatiwada	Male	Kathmandu	N253
Sujan Khadka	Male	Kathmandu	N254
Madhu Shahi	Female	Sindhuli	N255
Parbat Shresrtha	Male	Bara	N256
Kundan Shah	Male	Kathmandu	N257
Angeela Acharya	Female	Dhadging	N258
Bikram Regmi	Male	Kavrepalanchowk	N259
Prakriti Sapkota	Female	Kavrepalanchowk	N260
Shreeya Tamrakar	Female	Lalitpur	N261
Jenisha Shrestha	Female	Bhaktapur	N262
Jiban basnet	Male	Salyan	N263
Bibek Gautam	Male	Chitwan	N264
Bidhan Bajgain	Male	Chitwan	N265
Rabin Khadka	Male	Dolakha	N266
Manoj Sharma	Male	Parsa	N267
Anup Jha	Male	Dhanusa	N268
Mina Chakatu	Female	Bhaktapur	N269
Sushma Khanal	Female	Gorkha	N270
Krishna Karki	Male	Sindhuli	N271
Anish Mahat	Male	Kathmandu	N272
Sujan Baral	Male	Kaski	N273
Keshab pal	Male	Darchula	N274
Dristi Marasini	Female	Syangjya	N275
Sangita Thapa	Female	Dailekh	N276
Kopila Rajbanshi	Female	Sunsari	N277
Pushkar Aryl	Male	Kathmandu	N278
Sandip Karki	Male	Chitwan	N279
Shanti Gurung	Female	Kaski	N280
Kishan Patel	Male	Sarlahi	N281
Subharna Adhikari	Male	Kathmandu	N282
Nirajan Bhattarai	Male	Chitwan	N283
Prashant Adhikari	Male	Kaski	N284
Bishnu Poudel	Female	Palpa	N285
Kriishan Patel	Male	Sarlahi	N286

Name	Gender	Address	Code
Nikita Manandhar	Female	Dhadging	N287
Kalpna Dhakal	Female	Okaldhunga	N288
Smit Shrestha	Male	Morang	N289
Eshana Shrestha	Female	Makwanpur	N290
Nasala Dangol	Female	Kathmandu	N291
Bipasana Shakya	Female	Lalitpur	N292
Usha Poudel	Female	Lalitpur	N293
Sanam Chhusyabaga	Female	Bhaktapur	N294
Suman Rai	Male	Sunsari	N295
Roshani Singh	Female	Syangja	N296
Lokendra Sodhari	Male	Tanahun	N297
Dibyashwori Poudel	Female	Syangja	N298
Hom Nath Gautam	Male	Tanahun	N299
Sushma Shrestha	Female	Hetauda	N300
Niranjana Adhikari	Male	Palpa	N301
Sunil Bogati	Male	Achham	N302
Bibek Khatiwada	Male	Dolakha	N303
Asma Tamang	Female	Palpa	N304
Hira Kafle	Female	Nawalparasi	N305
Rajesh Joshi	Male	khotang	N306
Anil Pantha	Male	Palpa	N307
Upama Nepal	Female	Jhapa	N308
Sabin Silwal	Male	Dhadging	N309
Paras Chataut	Male	Dadeldhura	N310
Suresh Regmi	Male	Gorkha	N311
Binita Subedi	Female	Dang	N312
Pramod Sapkota	Male	Chitwan	N313
Kshtiz Shrestha	Male	Nuwakot	N314
Upasana Poudel	Female	Kathmandu	N315
Ishan Aryal	Male	Dhadging	N316
Pradip Lamichhane	Male	Kathmandu	N317
Sushma Poudel	Female	Nawalparasi	N318
Priyanka Kumari Das	Female	Sarlahi	N319
Promish Gadai	Male	Chitwan	N320
Surya Yadav	Male	Nawalparasi	N321
Sagar Rimal	Male	Makwanpur	N322
Ramesh Khadka	Male	Dang	N323
Sankalp Bhattarai	Male	Syangja	N324
Pratima Dhakal	Female	Morang	N325
Shreya Shakya	Female	Kathmandu	N326
Bikram Shrestha	Male	Morang	N327

Name	Gender	Address	Code
Sarmistha Shrestha	Female	Lalitpur	N328
Avidha Shah	Female	Kathmandu	N329
Sayera Dhubadhel	Female	Bhaktapur	N330
Deepika Khadka	Female	Morang	N331
Sushil Tiwari	Male	Gorkha	N332
Preety Regmi	Female	Kathmandu	N333
Susmita Shrestha	Female	Parbat	N334
Rupesh Gautam	Male	Sindhuli	N335
Nisha Neupane	Female	Nuwakot	N336
Sandeep Rai	Male	Chitwan	N337
Nitu Linkha	Female	Bhojpur	N338
Kabindra Pokhrel	Male	Kaski	N339
Prashant Bohara	Male	Banke	N340
Suman Adhikari	Male	Lamjung	N341
Elin Bhusal	Male	Jhapa	N342
Nimmi Regmi	Female	Kathmandu	N343
Alen Shrestha	Male	Lalitpur	N344
Niraj shakya	Male	Bhojpur	N345
Somya Kumari	Female	Parsa	N346
Birat Sangraula	Male	Morang	N347
Manish Pageni	Male	Syangja	N348
Ajay Kumar Yadav	Male	Saptari	N349
Surena Shrestha	Female	Kathmandu	N350
Suraj Libi	Male	Bhaktapur	N351
Rojit Mote	Male	Sunsari	N352
Himali Bhatta	Male	Rupandehi	N353
Kabiraj Sapkota	Male	Kathmandu	N354
Kroshna Bista	Female	Kavrepalanchowk	N355
Radha Dhakal	Female	Gulmi	N356
Pooja Basnet	Female	Solukhumbu	N357
Bibek Chetri	Male	Chitwan	N358
Usha Adhikari	Female	Dhadging	N359
Suresh Khatri	Male	Kathmandu	N360
Shyam Giri	Male	Sindhupalchowk	N361
Bishal Thapa	Male	Kaski	N362
Arjun Niroula	Male	Khotang	N363
Asmita Bhatta	Female	Gorkha	N364
Nistha sharma	Female	Lalitpur	N365
Prithivi Bogati	Male	Makwanpur	N366
Sarita Ghimire	Female	Dholakha	N367
Saurav raj Pathak	Male	Siraha	N368

Name	Gender	Address	Code
Sumit kumar Das	Male	Morang	N369
Raju Bhattari	Male	Syangjya	N370
Bikash Adhikari	Male	Dhadging	N371
Anusha Joshi	Female	Lalitpur	N372
Sanjina Poudel	Female	Makwanpur	N373
Bharat Sapkota	Male	Rupandehi	N374
Santosh Adhikari	Male	Palpa	N375
Sunita Ghimire	Female	Lalitpur	N376
Rajati Dhakal	Female	Kailali	N377
Sabita Basnet	Female	Bhaktapur	N378
Pawan Shrestha	Male	Chitwan	N379
Sudharsan Dhakal	Male	Kalikot	N380
Bibek Neupane	Male	Nawalparasi	N381
Prabin Prajapati	Male	Bhaktapur	N382
Pradeep Pokhrel	Male	Chitwan	N383
Sunil Rakhali	Male	Parbat	N384
Indra Shrestha	Male	Dang	N385

APPENDIX C: FIRM'S ACTIVITIES ON FACEBOOK

Table 7-1: Firms Facebook Effort for Coca-Cola

S.N.	Factors	2019									2020			Total
		April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	
1	Posts	9	7	6	4	11	11	23	7	4	2	15	9	108
2	Likes in a Post	3976	108914	41420	4684	40720	24615	68652	6823	7014	1791	48643	32744	389996
3	Comments in a Post	73	1400	197	66	685	865	519	67	60	46	261	212	4451
4	Shares in a Post	93	640	1114	81	548	326	897	38	134	32	612	425	4940

Table 7-2: Firms Richness of Post on Facebook Effort

S.N.	Factors	2019									2020			Total
		April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	
1	Enriched Post	4	2	4	3	7	6	18	7	3	1	15	8	6.50
2	Non-Enriched Post	5	5	2	1	4	5	5	0	1	1	0	1	2.50
Total Post		9	7	6	4	11	11	23	7	4	2	15	9	9

Table 7-3: Firms Nature of Post on Facebook Effort

S.N.	Factors	2019									2020			Total
		April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	
1	Photos	3	4	4	4	4	9	10	5	2	1	5	5	56
2	Videos	4	3	2	0	6	1	12	2	2	1	10	4	47

APPENDIX D: BUSINESS MODEL CANVAS

Client: Bottler's Nepal Limited

The Business Model Canvas

Date: 26 January, 2020

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer Segments
1. Bottling Partners 2. Ad Agencies 3. Customer Distributors	1. Bottling 2. Production (Franchises) 3. Distribution of physical product in large quantities 4. Marketing	1. Product Portfolio 2. Quench Thirst 3. Winning product guaranteed to sell (distributors)	1. Advertisement to consumers 2. Displays and Fridges 3. Close coop with few big distributors 4. Storytelling	1. Large Scale Distribution 2. Small Shops/Restaurant 3. Children, Teens and young adults
	Key Resources		Channels	
	1. Bottling Factory 2. Sales and Marketing 3. Formula of Ingedriants 4. Distribution Deals		1. Large scale distribution 2. Stores 3. Social media, TV, Traditional Advertising,	
Cost Structure		Revenue Streams		
1. Marketing and Advertising 2. Staffs and Employees 3. Franchises (Maintaining Factory, Maintaining Fleet, Bottling and Distribution) 4. Taxes		1. Bulk Sales 2. Retail Price per Crate		

Figure 7-1 Business Model Canvas of Bottlers Nepal (Terai) Limited

APPENDIX E: INDUSTRIAL ANALYSIS

Table 7-4: Performance and Operation of Bottlers Nepal (Terai) Limited

	2071-72	2072-73	2073-74	2074-75	2075-76
Revenue	2624	3004	3526	4574	5658
Gross Profit	711	867	1043	1462	2042
PBT	204	276	344	589	911
NPAT	130	187	277	483	741
EPS	101	154	229	399	613
NWPS	381	516	711	1047	1642
Total Asset	3140	3426	3750	4204	4249
Shareholder's Equity	472	625	860	1267	1987
No. of Employees	268	276	265	282	307
Gross Sales Revenue	3639	4134	4759	6370	7865

Table 7-5: Gross Profit of Bottlers Nepal (Terai) Limited

	2071-72	2072-73	2073-74	2074-75	2075-76
Coca-Cola (in Millions)	254.69	346.80	469.35	672.52	980.16
Fanta (in Millions)	234.32	277.44	229.46	350.88	490.08
Sprite (in Millions)	176.94	272.76	334.19	438.60	571.76

APPENDIX F: SPSS ANALYSIS

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
1	1	Every other week	Excellent	3	5	3	1.36391
2	2	2-6 times a week	Poor	4	3	1	1.47772
3	3	2-6 times a week	Good	4	4	1	0.53331
4	4	Only for certain occasions	Poor	2	2	4	0.69414
5	5	2-6 times a week	Excellent	4	5	1	0.62064
6	6	Only for certain occasions	Average	2	3	3	0.87225
7	7	Only for certain occasions	Good	2	4	3	0.43790
8	8	2-6 times a week	Excellent	4	5	1	0.62064
9	9	Everyday	Very Poor	5	2	2	0.93919
10	10	Only for certain occasions	Average	2	3	3	0.87225
11	11	Every other week	Average	3	3	3	0.99919
12	12	Only for certain occasions	Good	2	4	3	0.43790
13	13	Never	Very Poor	1	1	4	0.72032
14	14	Only for certain occasions	Average	2	3	3	0.87225
15	15	Every other week	Good	3	4	3	0.65523
16	16	Every other week	Good	3	4	3	0.65523
17	17	Only for certain occasions	Average	2	3	3	0.87225
18	18	2-6 times a week	Excellent	5	5	1	0.90086
19	19	Only for certain occasions	Good	2	4	3	0.43790
20	20	2-6 times a week	Poor	4	2	2	0.51287
21	21	Every other week	Good	3	4	3	0.65523
22	22	Everyday	Excellent	5	5	1	0.90086
23	23	Never	Poor	1	1	4	0.72032
24	24	2-6 times a week	Good	4	4	1	0.53331
25	25	2-6 times a week	Excellent	4	5	1	0.62064
26	26	Every other week	Poor	3	2	2	1.26218
27	27	Only for certain occasions	Average	2	3	3	0.87225
28	28	Only for certain occasions	Poor	2	2	4	0.69414
29	29	Every other week	Good	3	4	3	0.65523

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
30	30	Every other week	Excellent	3	5	3	1.36391
31	31	2-6 times a week	Good	4	4	1	0.53331
32	32	Everyday	Good	5	4	1	0.84307
33	33	Never	Very Poor	1	1	4	0.72032
34	34	Everyday	Very Poor	5	1	2	0.96421
35	35	Every other week	Good	3	4	3	0.65523
36	36	Never	Very Poor	1	1	4	0.72032
37	37	Only for certain occasions	Good	2	4	3	0.43790
38	38	Never	Poor	1	2	4	0.69414
39	39	Only for certain occasions	Good	2	4	3	0.43790
40	40	2-6 times a week	Excellent	4	5	1	0.62064
41	41	Only for certain occasions	Good	2	4	3	0.43790
42	42	Every other week	Good	3	4	3	0.65523
43	43	Everyday	Excellent	5	5	1	0.90086
44	44	Only for certain occasions	Good	2	4	3	0.43790
45	45	Only for certain occasions	Poor	2	2	4	0.69414
46	46	Only for certain occasions	Average	2	3	3	0.87225
47	47	Everyday	Excellent	5	5	1	0.90086
48	48	Only for certain occasions	Good	2	4	3	0.43790
49	49	Only for certain occasions	Good	2	4	3	0.43790
50	50	2-6 times a week	Excellent	4	5	1	0.62064
51	51	Only for certain occasions	Good	2	4	3	0.43790
52	52	Only for certain occasions	Average	2	3	3	0.87225
53	53	Every other week	Good	3	4	3	0.65523
54	54	2-6 times a week	Excellent	4	5	1	0.62064
55	55	2-6 times a week	Good	4	4	1	0.53331
56	56	Only for certain occasions	Average	2	3	3	0.87225
57	57	2-6 times a week	Excellent	4	5	1	0.62064
58	58	Everyday	Excellent	5	5	1	0.90086

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
59	59	Everyday	Average	5	3	1	1.61555
60	60	2-6 times a week	Good	4	4	1	0.53331
61	61	Only for certain occasions	Poor	2	2	4	0.69414
62	62	Every other week	Excellent	3	5	3	1.36391
63	63	Only for certain occasions	Good	2	4	3	0.43790
64	64	Every other week	Good	3	4	3	0.65523
65	65	Only for certain occasions	Good	2	4	3	0.43790
66	66	2-6 times a week	Good	4	4	1	0.53331
67	67	2-6 times a week	Good	4	4	1	0.53331
68	68	2-6 times a week	Excellent	4	5	1	0.62064
69	69	Every other week	Excellent	3	5	3	1.36391
70	70	Everyday	Excellent	5	5	1	0.90086
71	71	Only for certain occasions	Average	2	3	3	0.87225
72	72	Only for certain occasions	Very Poor	2	1	4	0.72032
73	73	2-6 times a week	Good	4	3	1	1.47772
74	74	Only for certain occasions	Average	2	3	3	0.87225
75	75	Every other week	Excellent	3	5	3	1.36391
76	76	2-6 times a week	Poor	4	3	1	1.47772
77	77	2-6 times a week	Good	4	4	1	0.53331
78	78	Only for certain occasions	Poor	2	2	4	0.69414
79	79	2-6 times a week	Excellent	4	5	1	0.62064
80	80	Only for certain occasions	Average	2	3	3	0.87225
81	81	Only for certain occasions	Good	2	4	3	0.43790
82	82	2-6 times a week	Excellent	4	5	1	0.62064
83	83	Everyday	Very Poor	5	1	2	0.96421
84	84	Only for certain occasions	Average	2	3	3	0.87225
85	85	Every other week	Average	3	3	3	0.99919
86	86	Only for certain occasions	Good	2	4	3	0.43790
87	87	Never	Very Poor	1	1	4	0.72032

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
88	88	Only for certain occasions	Average	2	3	3	0.87225
89	89	Every other week	Good	3	4	3	0.65523
90	90	Every other week	Good	3	4	3	0.65523
91	91	Only for certain occasions	Average	2	3	3	0.87225
92	92	2-6 times a week	Excellent	4	5	1	0.62064
93	93	Only for certain occasions	Good	2	4	3	0.43790
94	94	2-6 times a week	Poor	4	2	2	0.51287
95	95	Every other week	Good	3	4	3	0.65523
96	96	Everyday	Excellent	5	5	1	0.90086
97	97	Never	Poor	1	2	4	0.69414
98	98	2-6 times a week	Good	4	4	1	0.53331
99	99	2-6 times a week	Excellent	4	5	1	0.62064
100	100	Every other week	Poor	3	2	2	1.28218
101	101	Only for certain occasions	Average	2	3	3	0.87225
102	102	Only for certain occasions	Poor	2	2	4	0.69414
103	103	Every other week	Good	3	4	3	0.65523
104	104	Every other week	Excellent	3	5	3	1.36391
105	105	2-6 times a week	Good	4	4	1	0.53331
106	106	Everyday	Good	5	4	1	0.84307
107	107	Never	Very Poor	1	1	4	0.72032
108	108	Everyday	Very Poor	5	1	2	0.96421
109	109	Every other week	Good	3	4	3	0.65523
110	110	Never	Very Poor	1	1	4	0.72032
111	111	Only for certain occasions	Good	2	4	3	0.43790
112	112	Never	Poor	1	2	4	0.69414
113	113	Only for certain occasions	Good	2	4	3	0.43790
114	114	2-6 times a week	Excellent	4	5	1	0.62064
115	115	Only for certain occasions	Good	2	4	3	0.43790
116	116	Every other week	Good	3	4	3	0.65523

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
	117	Everyday	Excellent	5	5	1	0.90086
	118	Only for certain occasions	Good	2	4	3	0.43790
	119	Only for certain occasions	Poor	2	2	4	0.69414
	120	Only for certain occasions	Average	2	3	3	0.87225
	121	Everyday	Excellent	5	5	1	0.90086
	122	Only for certain occasions	Good	2	4	3	0.43790
	123	Only for certain occasions	Good	2	4	3	0.43790
	124	2-6 times a week	Excellent	4	5	1	0.62064
	125	Only for certain occasions	Good	2	4	3	0.43790
	126	Only for certain occasions	Average	2	3	3	0.87225
	127	Every other week	Good	3	4	3	0.65523
	128	2-6 times a week	Excellent	4	5	1	0.62064
	129	2-6 times a week	Good	4	4	1	0.53331
	130	Only for certain occasions	Average	2	3	3	0.87225
	131	2-6 times a week	Excellent	4	5	1	0.62064
	132	Everyday	Excellent	5	5	1	0.90086
	133	Everyday	Average	5	3	1	1.61555
	134	2-6 times a week	Good	4	4	1	0.53331
	135	Only for certain occasions	Poor	2	2	4	0.69414
	136	Every other week	Excellent	3	5	3	1.36391
	137	Only for certain occasions	Good	2	4	3	0.43790
	138	Every other week	Good	3	4	3	0.65523
	139	Only for certain occasions	Good	2	4	3	0.43790
	140	2-6 times a week	Good	4	4	1	0.53331
	141	2-6 times a week	Good	4	4	1	0.53331
	142	2-6 times a week	Excellent	4	5	1	0.62064
	143	Every other week	Excellent	3	5	3	1.36391
	144	Everyday	Excellent	5	5	1	0.90086
	145	Only for certain occasions	Average	3	3	3	0.99919

Data View
Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
	146	Only for certain occasions	Very Poor	2	1	4	0.72032
	147	2-6 times a week	Good	4	4	1	0.53331
	148	Only for certain occasions	Average	2	3	3	0.87225
	149	Every other week	Excellent	3	5	3	1.36391
	150	2-6 times a week	Poor	4	3	1	1.47772
	151	2-6 times a week	Good	4	4	1	0.53331
	152	Only for certain occasions	Poor	2	2	4	0.69414
	153	2-6 times a week	Excellent	4	5	1	0.62064
	154	Only for certain occasions	Average	2	3	3	0.87225
	155	Only for certain occasions	Good	2	3	3	0.87225
	156	2-6 times a week	Excellent	4	5	1	0.62064
	157	Everyday	Very Poor	5	1	2	0.96421
	158	Only for certain occasions	Average	2	3	3	0.87225
	159	Every other week	Average	3	3	3	0.99919
	160	Only for certain occasions	Good	2	4	3	0.43790
	161	Never	Very Poor	1	1	4	0.72032
	162	Only for certain occasions	Average	2	2	4	0.69414
	163	Every other week	Good	3	3	3	0.99919
	164	Every other week	Good	3	3	3	0.99919
	165	Only for certain occasions	Average	2	3	3	0.87225
	166	2-6 times a week	Excellent	4	5	1	0.62064
	167	Only for certain occasions	Good	2	4	3	0.43790
	168	2-6 times a week	Poor	4	2	2	0.51287
	169	Every other week	Good	3	4	3	0.65523
	170	Everyday	Excellent	5	5	1	0.90086
	171	Never	Poor	1	1	4	0.72032
	172	2-6 times a week	Good	4	3	1	1.47772
	173	2-6 times a week	Excellent	4	5	1	0.62064
	174	Every other week	Poor	1	1	4	0.72032

Data View
Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
	175	Only for certain occasions	Average	2	3	3	0.87225
	176	Only for certain occasions	Poor	2	1	4	0.72032
	177	Every other week	Good	3	4	3	0.65523
	178	Every other week	Excellent	3	5	3	1.36391
	179	2-6 times a week	Good	4	4	1	0.53331
	180	Everyday	Good	5	4	1	0.84307
	181	Never	Very Poor	1	1	4	0.72032
	182	Everyday	Very Poor	5	1	2	0.96421
	183	Every other week	Good	3	4	3	0.65523
	184	Never	Very Poor	1	1	4	0.72032
	185	Only for certain occasions	Good	2	4	3	0.43790
	186	Never	Poor	1	1	4	0.72032
	187	Only for certain occasions	Good	2	4	3	0.43790
	188	2-6 times a week	Excellent	4	5	1	0.62064
	189	Only for certain occasions	Good	2	4	3	0.43790
	190	Every other week	Good	3	2	2	1.26218
	191	Everyday	Excellent	5	5	1	0.90086
	192	Only for certain occasions	Good	2	4	3	0.43790
	193	Only for certain occasions	Poor	2	2	4	0.69414
	194	Only for certain occasions	Average	2	3	3	0.87225
	195	Everyday	Excellent	5	5	1	0.90086
	196	Only for certain occasions	Good	2	4	3	0.43790
	197	Only for certain occasions	Good	2	4	3	0.43790
	198	2-6 times a week	Excellent	4	5	1	0.62064
	199	Only for certain occasions	Good	2	4	3	0.43790
	200	Only for certain occasions	Average	2	3	3	0.87225
	201	Every other week	Good	3	4	3	0.65523
	202	2-6 times a week	Excellent	4	5	1	0.62064
	203	2-6 times a week	Good	4	4	1	0.53331

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
	204	Only for certain occasions	Average	3	4	3	0.65523
	205	2-6 times a week	Excellent	4	5	1	0.62064
	206	Everyday	Excellent	5	5	1	0.90086
	207	Everyday	Average	5	3	1	1.61555
	208	2-6 times a week	Good	4	4	1	0.53331
	209	Only for certain occasions	Poor	2	2	4	0.69414
	210	Every other week	Excellent	3	5	3	1.36391
	211	Only for certain occasions	Good	2	4	3	0.43790
	212	Every other week	Good	3	4	3	0.65523
	213	Only for certain occasions	Good	2	4	3	0.43790
	214	2-6 times a week	Good	4	4	1	0.53331
	215	2-6 times a week	Good	4	3	1	1.47772
	216	2-6 times a week	Excellent	4	5	1	0.62064
	217	Every other week	Excellent	3	5	3	1.36391
	218	Everyday	Excellent	5	5	1	0.90086
	219	Only for certain occasions	Average	2	3	3	0.87225
	220	Only for certain occasions	Very Poor	2	1	4	0.72032
	221	2-6 times a week	Good	4	4	1	0.53331
	222	Only for certain occasions	Average	2	3	3	0.87225
	223	Every other week	Excellent	3	5	3	1.36391
	224	2-6 times a week	Poor	4	3	1	1.47772
	225	2-6 times a week	Good	4	4	1	0.53331
	226	Only for certain occasions	Poor	2	2	4	0.69414
	227	2-6 times a week	Excellent	5	5	1	0.90086
	228	Only for certain occasions	Average	2	3	3	0.87225
	229	Only for certain occasions	Good	2	4	3	0.43790
	230	2-6 times a week	Excellent	4	5	1	0.62064
	231	Everyday	Very Poor	3	1	2	1.30062
	232	Only for certain occasions	Average	2	3	3	0.87225

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
	233	Every other week	Average	3	3	3	0.99919
	234	Only for certain occasions	Good	2	4	3	0.43790
	235	Never	Very Poor	1	1	4	0.72032
	236	Only for certain occasions	Average	2	3	3	0.87225
	237	Every other week	Good	3	4	3	0.65523
	238	Every other week	Good	3	4	3	0.65523
	239	Only for certain occasions	Average	2	3	3	0.87225
	240	2-6 times a week	Excellent	4	5	1	0.62064
	241	Only for certain occasions	Good	2	4	3	0.43790
	242	2-6 times a week	Poor	4	2	2	0.51287
	243	Every other week	Good	3	4	3	0.65523
	244	Everyday	Excellent	5	5	1	0.90086
	245	Never	Poor	1	2	4	0.69414
	246	2-6 times a week	Good	4	4	1	0.53331
	247	2-6 times a week	Excellent	4	5	1	0.62064
	248	Every other week	Poor	3	2	2	1.28218
	249	Only for certain occasions	Average	2	3	3	0.87225
	250	Only for certain occasions	Poor	2	2	4	0.69414
	251	Every other week	Good	3	4	3	0.65523
	252	Every other week	Excellent	3	5	3	1.36391
	253	2-6 times a week	Good	4	4	1	0.53331
	254	Everyday	Good	5	4	1	0.84307
	255	Never	Very Poor	1	1	4	0.72032
	256	Everyday	Very Poor	5	1	2	0.96421
	257	Every other week	Good	3	4	3	0.65523
	258	Never	Very Poor	1	1	4	0.72032
	259	Only for certain occasions	Good	2	4	3	0.43790
	260	Never	Poor	1	2	4	0.69414
	261	Only for certain occasions	Good	2	4	3	0.43790

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
	262	2-6 times a week	Excellent	4	5	1	0.62064
	263	Only for certain occasions	Good	2	4	3	0.43790
	264	Every other week	Good	3	4	3	0.65523
	265	Everyday	Excellent	5	5	1	0.90086
	266	Only for certain occasions	Good	2	4	3	0.43790
	267	Only for certain occasions	Poor	2	2	4	0.69414
	268	Only for certain occasions	Average	2	3	3	0.87225
	269	Everyday	Excellent	5	5	1	0.90086
	270	Only for certain occasions	Good	2	4	3	0.43790
	271	Only for certain occasions	Good	2	4	3	0.43790
	272	2-6 times a week	Excellent	4	5	1	0.62064
	273	Only for certain occasions	Good	2	4	3	0.43790
	274	Only for certain occasions	Average	2	3	3	0.87225
	275	Every other week	Good	3	4	3	0.65523
	276	2-6 times a week	Excellent	4	5	1	0.62064
	277	2-6 times a week	Good	4	4	1	0.53331
	278	Only for certain occasions	Average	2	3	3	0.87225
	279	2-6 times a week	Excellent	4	5	1	0.62064
	280	Everyday	Excellent	5	5	1	0.90086
	281	Everyday	Average	5	3	1	1.61555
	282	2-6 times a week	Good	4	4	1	0.53331
	283	Only for certain occasions	Poor	2	2	4	0.69414
	284	Every other week	Excellent	3	5	3	1.36391
	285	Only for certain occasions	Good	2	4	3	0.43790
	286	Every other week	Good	3	4	3	0.65523
	287	Only for certain occasions	Good	2	4	3	0.43790
	288	2-6 times a week	Good	4	4	1	0.53331
	289	2-6 times a week	Good	4	4	1	0.53331
	290	2-6 times a week	Excellent	4	5	1	0.62064

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
	291	Every other week	Excellent	3	5	3	1.36391
	292	Everyday	Excellent	5	5	1	0.90086
	293	Only for certain occasions	Average	2	3	3	0.87225
	294	Only for certain occasions	Very Poor	2	1	4	0.72032
	295	2-6 times a week	Good	4	4	1	0.53331
	296	Only for certain occasions	Average	2	3	3	0.87225
	297	Every other week	Excellent	3	5	3	1.36391
	298	2-6 times a week	Poor	4	3	1	1.47772
	299	2-6 times a week	Good	4	4	1	0.53331
	300	Only for certain occasions	Poor	2	2	4	0.69414
	301	2-6 times a week	Excellent	4	5	1	0.62064
	302	Only for certain occasions	Average	2	3	3	0.87225
	303	Only for certain occasions	Good	2	4	3	0.43790
	304	2-6 times a week	Excellent	4	5	1	0.62064
	305	Everyday	Very Poor	5	1	2	0.96421
	306	Only for certain occasions	Average	2	3	3	0.87225
	307	Every other week	Average	3	3	3	0.99919
	308	Only for certain occasions	Good	2	4	3	0.43790
	309	Never	Very Poor	1	1	4	0.72032
	310	Only for certain occasions	Average	2	3	3	0.87225
	311	Every other week	Good	3	4	3	0.65523
	312	Every other week	Good	3	4	3	0.65523
	313	Only for certain occasions	Average	2	3	3	0.87225
	314	2-6 times a week	Excellent	4	5	1	0.62064
	315	Only for certain occasions	Good	2	4	3	0.43790
	316	2-6 times a week	Poor	4	2	2	0.51287
	317	Every other week	Good	3	4	3	0.65523
	318	Everyday	Excellent	5	5	1	0.90086
	319	Never	Poor	1	2	4	0.69414

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2
	320	2-6 times a week	Good	4	4	1	0.53331
	321	2-6 times a week	Excellent	4	5	1	0.62064
	322	Every other week	Poor	3	2	2	1.28218
	323	Only for certain occasions	Average	2	3	3	0.87225
	324	Only for certain occasions	Poor	2	2	4	0.69414
	325	Every other week	Good	3	4	3	0.65523
	326	Every other week	Excellent	3	5	3	1.36391
	327	2-6 times a week	Good	4	4	1	0.53331
	328	Everyday	Good	5	4	1	0.84307
	329	Never	Very Poor	1	1	4	0.72032
	330	Everyday	Very Poor	5	1	2	0.96421
	331	Every other week	Good	3	4	3	0.65523
	332	Never	Very Poor	1	1	4	0.72032
	333	Only for certain occasions	Good	2	4	3	0.43790
	334	Never	Poor	1	2	4	0.69414
	335	Only for certain occasions	Good	2	4	3	0.43790
	336	2-6 times a week	Excellent	4	5	1	0.62064
	337	Only for certain occasions	Good	2	4	3	0.43790
	338	Every other week	Good	3	4	3	0.65523
	339	Everyday	Excellent	5	5	1	0.90086
	340	Only for certain occasions	Good	2	4	3	0.43790
	341	Only for certain occasions	Poor	2	2	4	0.69414
	342	Only for certain occasions	Average	2	3	3	0.87225
	343	Everyday	Excellent	5	5	1	0.90086
	344	Only for certain occasions	Good	2	4	3	0.43790
	345	Only for certain occasions	Good	2	4	3	0.43790
	346	2-6 times a week	Excellent	4	5	1	0.62064
	347	Only for certain occasions	Good	2	4	3	0.43790
	348	Only for certain occasions	Average	2	3	3	0.87225

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2	
349	349	Every other week	Good	3	4	3	0.65523	
350	350	2-6 times a week	Excellent	4	5	1	0.62064	
351	351	2-6 times a week	Good	4	4	1	0.53331	
352	352	Only for certain occasions	Average	2	3	3	0.87225	
353	353	2-6 times a week	Excellent	4	5	1	0.62064	
354	354	Everyday	Excellent	5	5	1	0.90086	
355	355	Everyday	Average	5	3	1	1.61555	
356	356	2-6 times a week	Good	4	4	1	0.53331	
357	357	Only for certain occasions	Poor	2	2	4	0.69414	
358	358	Every other week	Excellent	3	5	3	1.36391	
359	359	Only for certain occasions	Good	2	4	3	0.43790	
360	360	Every other week	Good	3	4	3	0.65523	
361	361	Only for certain occasions	Good	2	4	3	0.43790	
362	362	2-6 times a week	Good	4	4	1	0.53331	
363	363	2-6 times a week	Good	4	4	1	0.53331	
364	364	2-6 times a week	Excellent	4	5	1	0.62064	
365	365	Every other week	Excellent	3	5	3	1.36391	
366	366	Everyday	Excellent	5	5	1	0.90086	
367	367	Only for certain occasions	Average	2	3	3	0.87225	
368	368	Only for certain occasions	Very Poor	2	1	4	0.72032	
369	369	2-6 times a week	Good	4	4	1	0.53331	
370	370	Only for certain occasions	Average	2	3	3	0.87225	
371	371	Every other week	Excellent	3	5	3	1.36391	
372	372	2-6 times a week	Poor	4	3	1	1.47772	
373	373	2-6 times a week	Good	4	4	1	0.53331	
374	374	Only for certain occasions	Poor	2	2	4	0.69414	
375	375	2-6 times a week	Excellent	4	5	1	0.62064	
376	376	Only for certain occasions	Average	2	3	3	0.87225	
377	377	Only for certain occasions	Good	2	4	3	0.43790	

Data View Variable View

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2	
378	378	2-6 times a week	Excellent	4	5	1	0.62064	
379	379	Everyday	Very Poor	5	1	2	0.96421	
380	380	Only for certain occasions	Average	2	3	3	0.87225	
381	381	Every other week	Average	3	3	3	0.99919	
382	382	Only for certain occasions	Good	2	4	3	0.43790	
383	383	Never	Very Poor	1	1	4	0.72032	
384	384	Only for certain occasions	Average	2	3	3	0.87225	
385	385	Every other week	Good	3	4	3	0.65523	
386								
387								
388								
389								
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392								
393								
394								
395								
396								
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398								
399								
400								
401								
402								
403								
404								
405								
406								

Data View Variable View

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	ID	String	3	0	ID	None	None	3	Center	Nominal
2	Usage	String	30	0	Frequency of C...	None	None	17	Center	Nominal
3	Rating_Feat...	String	30	0	Rating Coca Cola	None	None	12	Center	Nominal
4	Consumptio...	Numeric	8	0	Consumption_...	None	None	14	Right	Nominal
5	Rating_of_F...	Numeric	8	0	Rating_of_Feat...	None	None	14	Right	Nominal
6	QCL_1	Numeric	8	0	Cluster Number...	None	None	10	Right	Nominal
7	QCL_2	Numeric	20	5	Distance of Ca...	None	None	22	Right	Scale
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
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20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										

	ID	Usage	Rating_Features	Consumption_Rate	Rating_of_Features	QCL_1	QCL_2	var
59	59	Everyday	Average	5	3	1		1.64584
60	60	2-6 times a week	Good	4	4	1		0.55570
61	61	Only for certain occasions	Poor					
62	62	Every other week	Excellent					
63	63	Only for certain occasions	Good					
64	64	Every other week	Good					
65	65	Only for certain occasions	Good					
66	66	2-6 times a week	Good					
67	67	2-6 times a week	Good					
68	68	2-6 times a week	Excellent					
69	69	Every other week	Excellent					
70	70	Everyday	Excellent					
71	71	Only for certain occasions	Average					
72	72	Only for certain occasions	Very Poor					
73	73	2-6 times a week	Good					
74	74	Only for certain occasions	Average					
75								
76								
77								
78								
79								
80								
81								
82								
83								
84								
85								
86								
87								

K-Means Cluster: Save New Variable

Cluster membership

Distance from cluster center

Continue Cancel Help

K-Means Cluster Analysis

Variables:

- Frequency of Coca Cola...
- Rating Coca Cola [Ratin...
- Cluster Number of Case...
- Distance of Case from it...

Label Cases by: ID [ID]

Number of Clusters: 4

Method: Iterate and classify Classify only

Cluster Centers:

Read initial:

- Open dataset
- External data file

Write final:

- New dataset
- Data file

Iterate... Save... Options... OK Paste Reset Cancel Help

Quick Cluster

[DataSet1] C:\Users\Dell\Downloads\very new File of Usage and Preference (1).sav

Initial Cluster Centers

	Cluster			
	1	2	3	4
Consumption_Rate	5	5	2	1
Rating_of_Features	5	1	4	1

Iteration History^a

Iteration	Change in Cluster Centers			
	1	2	3	4
1	.901	.964	.438	.720
2	.000	.000	.000	.000

a. Convergence achieved due to no or small change in cluster centers. The maximum absolute coordinate change for any center is .000. The current iteration is 2. The minimum distance between initial centers is 3.162.

Final Cluster Centers

	Cluster			
	1	2	3	4
Consumption_Rate	4	4	2	2
Rating_of_Features	4	2	4	2

Number of Cases in each Cluster

Cluster	1	129.000
	2	21.000
	3	181.000
	4	54.000
Valid		385.000
Missing		.000

APPENDIX G: RESPONSES OF QUESTIONNAIRES

Personal Information:

Code	1. Name	2. Address	3. Contact Number	4. Gender	5. What is your age group?
N20	Partik Pahari	Pokhara		Male	20-25 yrs
N101	Nishan Rai	Dharan		Male	25-30 yrs
N151	Shammi Giri	Dhobidhara		Female	20-25 yrs
N189	Narita Thapa	Pokhara		Female	20-25 yrs
N205	Sumendra Dhakal	Jankpur		Male	above 35 yrs
N243	Anish Kutuwo	Bhaktapur		Male	25-30 yrs
N264	Bibek Gautam	Chitwan		Male	25-30 yrs
N299	Hom Nath Gautam	Tanahun, Nepal		Male	25-30 yrs
N325	Pratima Dhakal	Morang		Female	25-30 yrs
N385	Indra Shrestha	Dang		Male	above 35 yrs

6. What is your education background?	7. Marital Status	8. What is your occupation/profession?
.+2 or equivalent	Single	Student
.+2 or equivalent	Married with children	Self-employed
.+2 or equivalent	Married with no children	Self-employed
Postgraduate	Single	Self-employed
Postgraduate	Married with children	Employed
Undergraduate	Single	Student
Postgraduate	Married with no children	Employed
.+2 or equivalent	Single	Employed
Postgraduate	Single	Employed
Postgraduate	Married with children	Employed

Consumer's Engagement on Facebook:

1. How long have you been using internet?	2. How often do you use Facebook?	3. How long do you spent in Facebook?
6-10 years	At least once a week	between 1 hours and 3 hours
6-10 years	Several times a day	less than an hour
Above 10 years	Several times a day	more than 3 hours
1-5 years	Several times a day	more than 3 hours
Above 10 years	Several times a day	less than an hour
Above 10 years	At least once a week	between 1 hours and 3 hours
Above 10 years	Several times a day	less than an hour
6-10 years	Rarely	more than 3 hours
6-10 years	Several times a day	more than 3 hours
Above 10 years	At least once a day	between 1 hours and 3 hours

4. How many Facebook friend do you have?	5. What is your purpose of using Facebook platform?
200 to 1000 friends	All of above
200 to 1000 friends	Communication
200 to 1000 friends	Communication
200 to 1000 friends	Information sharing
200 to 1000 friends	Communication
1000 to 2000 friends	All of above
200 to 1000 friends	Entertainment
200 to 1000 friends	Information sharing
more than 2000 friends	Entertainment
1000 to 2000 friends	All of above

Consumer's opinion (Sales Promotion):

Code	1. Do you drink soft drinks?	2. How often do you drink soft drinks?	3. Which soft drinks do you prefer?	4. Do you drink Coca-Cola?
N20	Yes	Occasionally	Dew	Yes
N101	Yes	Occasionally	Coca-Cola	Yes
N151	Yes	Once a week	Coca-cola	Yes
N189	Yes	Occasionally	Coca-Cola	Yes
N205	Yes	Once a week	Coca-Cola	Yes
N243	Yes	Once a week	Coca-Cola	Yes
N264	Yes	Once a week	Sprite	Yes
N299	Yes	Once a week	Coca-Cola	Yes
N325	Yes	Occasionally	Coca-Cola	Yes
N385	Yes	Occasionally	Coca-Cola	Yes

5. How often do you drink Coca-Cola?	6. What kinds of products made by Coca-Cola you have tried?	7. What is Coca-Cola's products' features?
2-6 times a week	Sprite	Brand Image
Only for certain occasions	Coca-Cola	Good taste
2-6 times a week	Sprite	Others
Only for certain occasions	Coca-Cola	Good taste
2-6 times a week	Sprite	Good taste
Every other week	Sprite	Good taste
Every other week	Coca-cola	Variety of products
2-6 times a week	Sprite	Good taste
Every other week	Sprite	Brand image
Every other week	Sprite	Good taste

8. How well do Coca-Cola's product taste?	9. In which media channels do you usually recognized Coca-Cola's advertisements? (Multiple Tick)
Poor	TV, Posters and Hoarding boards, Social media
Average	TV, Social media
Good	TV, Radio, Newspapers and Magazines, Posters and Hoarding boards, Social media
Good	Social media
Excellent	TV, Radio, Newspapers and Magazines, Posters and Hoarding boards, Social media
Good	TV, Social media
Good	TV
Good	TV, Newspapers and Magazines, Social media
Good	TV, Posters and Hoarding boards, Social media
Excellent	TV, Social media

10. How long have you been Coca-Cola's customer?	11. Will you focus on Coca-Cola's new products?
More than 5 years	Yes
More than 5 years	Yes
More than 5 years	Yes
More than 5 years	Yes
More than 5 years	Yes
More than 5 years	Yes
More than 5 years	Yes
More than 5 years	Yes
More than 5 years	Yes
More than 5 years	Yes

12. How likely is it that you would recommend this product to a friend or colleague?
4
8
9
9
10
9
7
8
9
7

Consumer's Review in terms of Taste:

Code	Coca-Cola	Fanta	Sprite	pepsi	Miranda	Dew
N20	3	3	3	3	3	4
N101	4	4	4	2	2	4
N151	4	4	4	3	2	3
N189	5	5	5	3	4	5
N205	5	4	4	5	4	5
N243	4	4	4	3	3	5
N264	5	4	4	3	3	5
N299	5	4	3	2	1	2
N325	4	4	4	3	3	3
N385	5	4	4	3	2	3

Consumer's Review in terms of Color and Ingredients:

Code	Coca-Cola	Fanta	Sprite	pepsi	Miranda	Dew
N20	3	3	3	3	3	4
N101	4	4	4	2	2	4
N151	4	4	4	3	2	3
N189	5	5	5	3	4	5
N205	5	4	4	5	4	5
N243	4	4	4	3	3	5
N264	5	4	4	3	3	5
N299	5	4	3	2	1	2
N325	4	4	4	3	3	3
N385	5	4	4	3	2	3

Consumer's Review in terms of Branding:

Code	Coca-Cola	Fanta	Sprite	pepsi	Miranda	Dew
N20	5	4	5	3	3	5
N101	5	5	5	3	3	3
N151	5	4	5	4	1	4
N189	5	5	5	4	4	4
N205	5	5	5	3	3	4
N243	4	4	4	4	3	4
N264	5	4	5	3	3	3
N299	5	4	4	3	2	2
N325	5	5	5	4	4	3
N385	5	5	5	3	1	4

Consumer's Review in terms of Availability of Products:

Code	Coca-Cola	Fanta	Sprite	pepsi	Miranda	Dew
N20	5	5	5	4	4	5
N101	5	5	5	3	2	3
N151	5	4	4	3	3	3
N189	5	5	5	3	3	3
N205	5	5	5	4	4	4
N243	4	4	4	4	3	4
N264	5	4	5	3	1	3
N299	5	4	3	2	1	2
N325	5	5	5	4	4	4
N385	5	4	5	3	2	3

Consumer's Review in terms of Product and Size variety:

Code	Coca-Cola	Fanta	Sprite	pepsi	Miranda	Dew
N20	5	4	4	3	3	3
N101	5	4	4	3	3	4
N151	4	4	3	2	3	5
N189	4	4	2	1	2	5
N205	5	5	4	4	4	5
N243	4	4	4	3	4	4
N264	4	4	3	1	3	4
N299	4	3	2	1	2	5
N325	5	5	4	4	4	4
N385	5	5	4	2	3	5

APPENDIX H: PLAGIARISM REPORT

Sumit_IV

ORIGINALITY REPORT

10%

SIMILARITY INDEX

3%

INTERNET SOURCES

4%

PUBLICATIONS

8%

STUDENT PAPERS

PRIMARY SOURCES

1	Antonino Galati, Maria Crescimanno, Salvatore Tinervia, Francesco Fagnani. "Social media as a strategic marketing tool in the Sicilian wine industry: Evidence from Facebook", Wine Economics and Policy, 2017 Publication	2%
2	Submitted to Charotar University of Science And Technology Student Paper	1%
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APPENDIX I: RESEARCH PAPER

IOE Graduate Conference, 2020-Summer
[Placeholder for
Publication
Information]

Social Media as a Strategic Marketing Tool to Study the Consumer Behavior of Coca-Cola by K-Mean Cluster Analysis: Evidence from Facebook

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Abstract

Social media is the collective of online communications channels leading to a deep transformation of the organizational models, community-based input, interactions, content sharing collaborations and changing the company's marketing dynamics. This study aims to recognize the consumer behavior of Coca-Cola and validate consistency of respondents. Sets of questionnaire are developed for understanding the consumer behavior and activities in Facebook. The consistency of respondent of consumer analysis were viewed through K-mean cluster technique using through SPSS version 16.0 software. Groups of similar and dissimilar of users attitude regarding the product is categorized by the small distances among the cluster members, dense areas of the data space and the intervals of particular statistical distributions. The respondents were categorized into four clusters using two variables: usage rate and preference. Cluster 1 were labelled consumers with high usage rate and highly preference of Coca-Cola, whereas Cluster 2 were labelled consumers with high usage rate and low preference of Coca-Cola. Cluster 3 were labelled consumers with low usage rate and high preference of Coca-Cola and Cluster 4 was labelled with low usage rate and low preference of Coca-Cola. Majority of respondents are categorized under Cluster 3 while minority of respondents are categorized under Cluster 2 by using K-mean cluster. Finding of this research may facilitate the Nepalese business organizations for formulating policies of sales promotion on soft drinks.

Keywords

social media – consumer behavior – consistency – respondents – K-mean cluster

1. Introduction

Social media is a phenomenon that has drawn a lot of attention both to companies and individuals interacting on the networking landscape. Social media has influenced consumer behavior from information acquisition to post-purchase behavior such as dissatisfaction statements or behaviors about a product or a company [1]. Social media websites provide an opportunity for businesses to engage and interact with potential consumers, encourage an increased sense of intimacy with consumers, and build all important relationships with potential consumers [2]. The much higher level of efficiency of social media compared to other traditional communication channels prompted industry leaders to state that companies must participate in Facebook, Twitter, Myspace and others, in order to succeed in online environments [3]. Amongst the registered online

social network, Facebook is the biggest social network platform in the world with more than 2.49 billion active users, followed by Youtube (about 2 billion active users) and WhatsApp (about 1.92 billion active users). The Facebook platform enables the exchange of information quickly, flexibility and easily [4]. Due to globalization, Nepal is also stepping into the shoes of western countries. It is important to study how people utilize social media in their daily lives. Maintaining interpersonal connectivity between online users of a social media channel has benefits derived from establishing and maintaining contact with other people in a manner of giving social support, friendship, and intimacy [5]. Cultural aspects have an influence on consumer's usage of social networks and a great impact over the online purchase intentions [6]. These allow users to connect with peers by adding them to networks of friends, which facilitates communication, particularly among peer groups [7].

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In Nepal, many firms have started using these technologies for promoting their products and services, to communicate with their customers, to gain new business leads and even to do market research. Social media platforms offer many other things than just communication alone. That is the reason why it makes social media so important tool in today's environment.

One of the most useful techniques in business analytics for the analysis of consumer behavior and categorization is customer segmentation. By using clustering techniques, customers with similar means, end and behavior are group together into homogeneous cluster [8]. Customer segmentation helps organizations in identifying or revealing distinct groups of customers who thinks and function differently and follow varied approaches in their spending and purchasing habits. So, K-mean cluster is the most appropriate for the business analysis in the context of customer segmentation.

2. Literature Review

Many studies show that firms adoption of marketing strategies based on social media have a positive impact related to direct interaction with consumers; the strategies allow the firms, based on consumer feedback, to acquire marketing information and to learn about current performance and predict future performance [9, 10]. Four channels through which social media affects the firm's performance are the relationship between firms and society (social capital), knowledge of consumer preferences (revealed preferences), transformation of social-marketing resources into financial performance capabilities (social marketing) and conversion of social corporate resources into operational performance capabilities (corporate social networking) [11].

Companies use social platforms, such as Facebook and Twitter in order to increase brand awareness and enlist people's participation through online comments, posts, and other types of engagement [12]. The five commonly used approaches to analyze multiple-choice test data are classic test theory, factor analysis, cluster analysis, item responses theory and model analysis. Amongst these analysis, the cluster analysis is a good method to point out how consumer's response patterns differ so as to classify consumer's behavior [13]. There is a positive correlation between the number of people talking about a company on Facebook and the firm's net

revenue and number of personnel, indicating that people are talking more about those companies that are larger and more profitable [14]. Similar results were obtained and social media activity on Facebook by South Korean companies was positively and significantly associated with an increase in firm performance measured by financial returns [15].

A small amount of negative information from a few postings can have substantial impacts on consumer attitudes [16]. It was stated that individuals have an underlying need for an emotional bond with high-involvement products that they buy. Brand development and relationship development are complementary and substituting strategies towards this bonding. The relationship between the brand and the consumer is very important for the company and strengthening it leads to loyalty [17].

3. Research Methodology

The research is based on both qualitative and quantitative methods derived from primary and secondary sources. Understanding the consumer behavior is the major problem of research. Secondary data is collected from firm's official Facebook site and primary data is collected from questionnaire related to the consumers behavior and their engagement in Facebook sites. The set of closed questions are developed and forwarded to the respondents or consumers that follows Coca-Cola official website. Sample of 74 respondents of Nepal are taken for analysis.

K-mean clustering of the respondents are performed based on two variables: usage rate and preference, based on score of 1 (Low) to 5 (High). The respondents are categorized into 4 clusters using SPSS version 16.0 software and their demographic profile, Facebook engagement and consumer's behavior pattern are studied. Chi-square test and Phi Coefficient of the data are calculated in order to check goodness of fit and correlation of datas. Lastly, conclusion were drawn and the management committee are suggested for making the selection decision in improving the product evaluation.

3.1 Cluster Analysis

Cluster analysis is one of the most common exploratory data analysis technique which partitioned given dataset into the subset of similar data points in each subset and dissimilar to data from other clusters

[18]. It is based on various kinds of object's differences and uses distance functions' regulations to make model classification [19]. Clustering techniques have become very useful for large datasets even in social media such as facebook and twitter [20]. There are four types of clustering techniques: partitioning methods (K-mean method and K-medoids method), hierarchical methods (agglomerative approach and divisive clustering), density based method (DBSCAN algorithm) and grid based methods (CLIQUE algorithm) [21].

K-means clustering technique is a centroid-based iterative method and is widely used algorithms for clustering [22]. In K-mean algorithm, the 'n' number of observations is divided into 'k' clusters such that the observations in a cluster are nearest to each other in reference value like cluster mean and the distance of the object. When used in conjunction with other algorithms like Lloyd's algorithm, etc., the k-mean methods can be applied to large data sets also [23]. The data in K-means are classified in advance into k clusters to define the k-centroid value of each cluster. The location of centroid is of paramount importance since it may give different results when the farther they are the better it is. In the subsequent steps, the data points that belong to a set are moved towards the nearest centroid so that no point remains unmoved [24]. The new k centroids are recalculated many times over so that the dataset belonging to one cluster may switch into another cluster at the time of new clustering. This process is repeated until no possibility of switching over of dataset remains.

K-mean Algorithms

This algorithm is performed in the following steps [25]

Step 1: Choose 'k' numbers of clusters to be determined.

Step 2: Choose centroids randomly as the initial centers of the clusters. Start with a set of cluster centroids: C_1, C_2, C_k

Step 3: Computation of cluster centers

- Assign each object to their closest cluster center using Euclidean distance between the data vector X_i and centroid ' C_j '.

The Euclidean distance between an object and all the nearby centroid is calculated as per the formula [26]

$$d_{ij} = \sum_{j=1}^k \sum_{i=1}^n [(X_i^{(j)} - C_j)]^2$$

where $[(X_i^{(j)} - C_j)]^2$ is the nearest distance measure between a data point X_{ij} and the centroid C_j , and it indicates the distance between data points from their

centroid.

- Compute the membership grades λ_{ik} . Here, λ_{ik} indicates the amount of association of data vector X_i with centroid C_j and depends on the distance d_{ij}
- Compute new cluster center by calculating mean points.

$$C_k = \frac{\sum \lambda_{ik} X_i}{\sum \lambda_{ik}}$$

- If the data point is closest to its own cluster, leave it where it is. If the data point is not closest to its own cluster, move it into the closest cluster.

Step 4: Iterate until membership grades remains unchanged, i.e no change in cluster center or no object change its clusters. The final centroids of the k clusters are then determined.

Step 5: Partition 'n' number of data points into k groups; $G = G_1, G_2, \dots, G_k$ by minimizing the function within clusters.

$$Chi - Square(\chi^2) = \sum \frac{(f_o - f_e)^2}{f_e}$$

$$Phi - Coefficient(\phi) = \frac{\chi}{\sqrt{n}}$$

where, f_o = observed frequency and f_e = estimated frequency

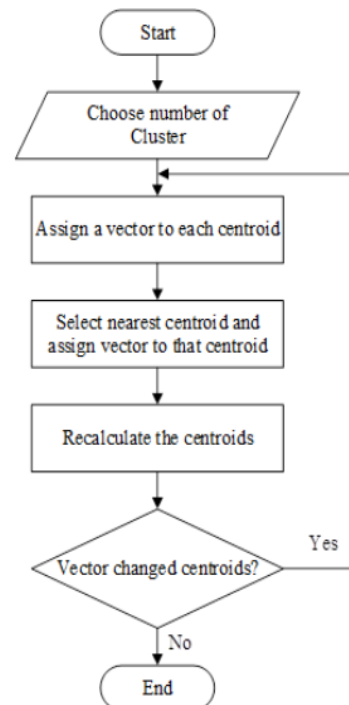


Figure 1: Algorithm of K-Mean Clustering

4. Result and Discussion

4.1 Firms Facebook Activities

Coca-Cola has its official Facebook page of "Coca-Cola Nepal" with 106,683,947 fans or followers. Firms Facebook activities are analysis in the basis of firm's nature of post (photos and videos) and consumers activities (likes, comments and shares) in Facebook as social media site.

Table 1: Descriptive Data of Facebook Effort for Coca-Cola

	Mean	Min.	Max.	Std. Dev.
Posts/Day	0.296	0.065	0.742	0.187
Likes/Post/Day	118.5	14.726	501.908	134.326
Comments/Post/Day	1.384	0.270	6.452	1.744
Shares/Post/Day	1.558	0.181	6.189	1.633

Table 1 briefly presents data on Firm's and consumer's Facebook activity between April, 2019 and March, 2020. In particular, the number of posts per day reached a maximum value of 0.742 with average value of 0.296 while post received an average of 118.5 likes, 1.384 comments and 1.558 shares.

Table 2: Firms Nature of Post

	Mean	Min.	Max.	Std. Dev.
Photos/Day	0.153	0.032	0.323	0.084
Videos/Day	0.129	0.000	0.387	0.123

Table 2 summarizes the nature of the posts published by Firms on Facebook. The firms preferred to use average post of 0.153 photos per day (ranging from 0.032 to 0.323) and 0.129 videos per day (ranging from 0 to 0.387).

4.2 K-Mean Clustering

Based on the consumer's responses in two variables (Usage Rate and Preference), K-mean cluster analysis is performed. These variables are scored from 1 to 5 (1=Low to 5=High) and 4 clusters (k=4) are formed. Table 3 represents four initial centers are chosen for K-mean clustering in SPSS version 16.0 software.

Table 3: Initial Cluster Centers

	Center-1	Center-2	Center-3	Center-4
Usage Rate	5	5	2	1
Preference	5	1	4	1

The final clusters are obtained through iterative process and is shown in Table 4.

Table 4: Final Cluster Centers

	Center-1	Center-2	Center-3	Center-4
Usage Rate	4	4	2	2
Preference	4	2	4	2

Euclidean distance is calculated between the input data and final clusters centers, and 74 respondents are categorized into 4 clusters based on the minimum distance between these centers. Table 5 shows the number of respondents in each clusters. Cluster 3 has majority of respondents (n=35) while cluster 2 has least number of respondents (n=4).

Table 5: Number of Cases in Each Cluster

	Usage Rate	Preference	Frequency (n)
Cluster 1	4	4	25
Cluster 2	4	2	4
Cluster 3	2	4	35
Cluster 4	2	2	10

Consumers with high usage rate and highly preference of Coca-Cola are categorized in Cluster 1. They are loyal consumers of the product and has somewhat stereotype buying behavior (Habitual Buying Behavior).

While, consumers with high usage rate and low preference of Coca-Cola are under Cluster 2. They are negative promoter of the product and have dissonance reducing buying behavior. Improvement of product features like taste, ingredients, variety, etc. are required for booming sales of the product.

In Cluster 3, consumers with low usage rate and high preference of Coca-Cola. They are the consumers that highly prefer Coca-cola but they have low involvement in consumption of soft drinks. Effective marketing with consistent quality is required to improve its involvement.

While, Consumers with low usage rate and low preference of Coca-Cola are categorized in Cluster 4. They do not play any effective roles in sales of the product. These consumers need to be neglected.

Table 6: ANOVA of K-Mean Clustering

	Cluster		Error		F	Sig.
	Mean Sq.	df	Mean Sq.	df		
Usage Rate	27.846	3	0.264	70	105.58	.000
Preference	26.132	3	0.389	70	67.15	.000

Analysis of variance between and within clusters the result of Fishers test (F) and the model significance are shown in Table 6. The result show that the four clusters are significantly different and that all variables are significant at 99% level, as can be seen

usage rate is the most influential variable in the profile of cluster (F=105.58) while features rating is the social media dimension with least influence (F=67.15).

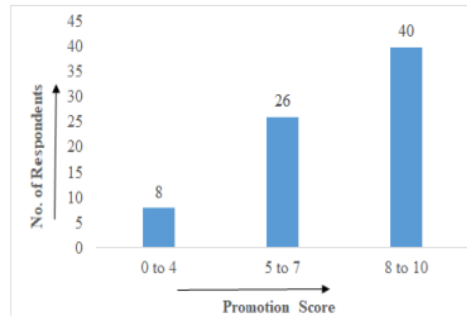


Figure 2: No. of Respondents and Promoting Score

Figure 2 depicts the scoring pattern of respondents for recommending the products to their groups and communities. The promotion score ranges from 0 (Least) to 10 (Most). The detractors, neutral and promoters scores are 0 to 4, 5 to 7 and 8 to 10 respectively. There is large number of promoters (40 respondents) and least number of detractors (8 respondents).

Net Promoter Score (NPS) = Promoters - Detractors
Net Promoter Score (NPS) = 40 - 8 = 32

Table 7: Usage Rate vs Preference of Coca-Cola

Variables	n	C-1	C-2	C-3	C-4
1. Usage rate ($\chi^2 = 64.5948$ and $\phi = 0.9342$)					
A. Never	5				5
B. Only for certain occasion	27			22	5
C. Every other week	14	2	1	11	
D. 2-6 times a week	19	17	1	1	
E. Everyday	9	6	2	1	
2. Preference ($\chi^2 = 64.5248$ and $\phi = 0.9338$)					
A. Very Poor	6		2		4
B. Poor	9	1	2		6
C. Average	12	1		11	
D. Good	29	8		21	
E. Excellent	18	15		3	

Table 7 shows cluster membership was significantly related with usage rate and preference of Coca-Cola. The strongest association was between usage rate and cluster membership (Chi-Square= 64.5948 and Phi Coefficient = 0.9342) where 27 respondents in the high involvement cluster were using it for certain occasion and 5 respondents in low involvement cluster have never used the product. Relationship between preference and cluster membership shows that 29 respondents find the product good while 6

respondents in low index find the product very poor (Chi-square= 64.5248 and Phi coefficient = 0.9338).

Table 8: Demographic Profile of Respondents

Variables	n	C-1	C-2	C-3	C-4
1. Gender ($\chi^2 = 3.9709$ and $\phi = 0.2316$)					
A. Male	46	15	2	20	9
B. Female	28	10	2	15	1
2. Age Group ($\chi^2 = 6.0499$ and $\phi = 0.2859$)					
A. 16-20 Years	7	4		3	
B. 20-25 Years	21	6	2	10	3
C. 25-30 Years	23	6	1	12	4
D. 30-35 Years	14	6	1	6	1
E. Above 35 Years	9	3		4	2
3. Education Background ($\chi^2 = 67.5630$ and $\phi = 0.955$)					
A. Below SLC/SEE	2	1		1	
B. SLC/SEE	3	1	1	1	
C. +2 or equivalent	21	10		8	3
D. Undergraduate	24	5	3	13	3
E. Postgraduate	24	8		12	4
4. Marital Status ($\chi^2 = 7.2720$ and $\phi = 0.3135$)					
A. Single	41	13	2	19	7
B. Married with no children	11	2	2	6	1
C. Married with children	22	10		10	2
5. Occupation or Profession ($\chi^2 = 13.4285$ and $\phi = 0.4260$)					
A. Student	18	7	1	8	2
B. Employed	39	10		22	7
C. Self-employed	15	7	3	4	1
D. Unemployed	2	1		1	

Table 8 shows significant relationship between cluster membership with all demographic variables. The strongest association was between education background and cluster membership (chi-square = 67.5630 and phi coefficient = 0.955) where 24 respondents each were undergraduate and postgraduate, and 2 respondents were under SLC/SEE. While age group and gender are weakly associated with the cluster membership (chi-square = 6.0499, phi coefficient = 0.2859, and chi-square = 3.9709, phi coefficient = 0.2316 respectively).

Table 9 shows cluster membership was significantly related with respondent's engagement in Facebook. The strongest association was between frequency of usage and cluster membership (chi-square = 13.3124 and phi coefficient = 0.4241) where 36 respondents uses Facebook several times a day while 2 respondents uses Facebook once every couple of months. Number of Facebook friends is the next variable that is strongly associated with cluster membership (chi-square = 9.3855 and phi coefficient = 0.3561). While time spend in Facebook was weakly associated with the cluster membership (chi-square = 2.6855, phi coefficient = 0.1905).

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Table 9: Respondent’s Engagement in Facebook

Variables	n	C-1	C-2	C-3	C-4
1. Experience in using Facebook ($\chi^2 = 7.9049$ and $\phi = 0.3268$)					
A. less than 5 Years	11	6		4	1
B. 5-10 Years	26	6	1	17	2
C. Above 10 Years	37	13	3	14	7
2. Frequency of Usage ($\chi^2 = 13.3124$ and $\phi = 0.4241$)					
A. Rarely	3	2			1
B. Once every couple of months	2	2			
C. Atleast once a week	8	4		3	1
D. Several times a week	6	1		4	1
E. Atleast once a day	19	7	2	7	3
F. Several times a day	36	9	2	21	4
3. Time spent in Facebook ($\chi^2 = 2.6855$ and $\phi = 0.1905$)					
A. Less than an hour	22	7	1	10	4
B. 1-3 hours	38	13	2	20	3
C. More than 3 hours	14	5	1	5	3
4. No. of Facebook friends ($\chi^2 = 9.3855$ and $\phi = 0.3561$)					
A. Less than 200 friends	5			3	2
B. 200-1000 friends	46	16	3	23	4
C. 1000-2000 friends	19	8	1	6	4
D. More than 2000 friends	4	1		3	
5. Purpose of using Facebook ($\chi^2 = 4.8468$ and $\phi = 0.2559$)					
A. Communication	22	8	1	12	1
B. Entertainment	22	6	1	11	4
C. Information sharing	12	5		5	2
D. All of above	18	6	2	7	3

5. Conclusion and Recommendation

In this paper, we propose an approach to reveal the consumer behavior of Coca-Cola buyers using K-means cluster techniques. For the analysis, 74 respondents are categorized into 4 clusters based on usage rate and preference in SPSS version 16.0 Software.

Cluster 1 includes consumers with high usage rate and high preference. These are loyal consumers and includes 33.78% of respondents. Cluster 2 includes minority of respondents (5.41%), are detractors and have dissonance reducing buying behavior. Cluster 3 includes majority of respondents (47.30%) with less consumption and high preference of Coca-Cola product. Cluster 4 includes consumers with low usage rate and low preference contributes 13.51% of respondents. The consumers of Coca-Cola for each cluster are analyzed and some suggestions of high preference and high usage solutions are provided to prevent them from not purchasing. Net Promotion Score of these respondents is 32 (43.24%). So, majority of people are satisfied with Coca-Cola and promote the product.

This study has both theoretical and managerial implications. From theoretical point of view, this paper helps to bridge the gap related to measure companies’ social media’s efforts. From a managerial

perspective, this study is useful to compare the Coca-Cola’s with key competitors. In this sense, it is crucial to focus on the quality of the content of messages and posts, the style of writing and the timeliness of information exchange – all factors that can expand consumer awareness and brand loyalty, with the chance to build deals.

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