MULTIDIMENSIONAL SCALING AS A TOOL OF POSITIONING - A CASE STUDY OF MOBILE HANDSETS.

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Mobile industry is a fast growing one with latest innovations and so it is imperative to study the consumer insights into it. One tool which can be used for this is multidimensional scaling. Multidimensional scaling (MDS) is a set of related statistical techniques often used in information visualization for exploring similarities or dissimilarities in data. An MDS algorithm starts with a matrix of item–item similarities and is used as a tool of perceptual mapping. Each object or event is represented by a point in a multidimensional space. The points are put in this space so that the distances between pairs of points are connected to similarities. That is, two similar objects are represented by two points that are close together, and two dissimilar objects are represented by two points that are far apart.

This multivariate analysis is used widely in marketing for positioning of products and brands. This concept helps in giving a graphical representation to the position of the products or brands in the market. The study helps to understand the applications of this concept by taking the example of mobile handset brands and their comparisons. The study analyses the concept of multidimensional scaling and the current mobile handset market and also gives a SPSS multidimensional scaling output of the positioning of mobile handsets. The research study can be used as a stepping stone for further research in this area.

GENERAL FACTS AND FIGURES ABOUT MOBILE PHONE INDUSTRY

According to the International Data Corporation's (IDC) Q3 2011 Mobile Phone Tracker release, the Indian Mobile phone market grew 12% in units shipped, over the previous quarter, to clock 47.07 million units. (Q3 CY2011 IDC'S India Mobile Phone Tracker report)The worldwide mobile phone market declined 1.5% year over year in the first quarter of 2012 (1Q12), as Samsung became the world's top mobile phone vendor. According to the International Data

Corporation (**IDC**) **Worldwide Quarterly Mobile Phone Tracker**, vendors shipped 398.4 million units in 1Q12 Year-on-year too, there was a shipment growth of 13.8. Today mobile has become the most important gadget for every class of people, especially youth of the country are driving the sales of the mobile in different direction, not only functional feature but features such as connectivity, radio, facebook, entertainment, flashy look, touchpad and many more.

1. In 2011, there were 835 million Smartphone users and 5.6 billion feature phone users in the world[1].
2. Global internet usage will more than double by 2015, and most of these users will be mobile[2].
3. 64% of time spent on mobile is for applications (Nielson 2012).
4. Adults spend more media time on mobile than any newspapers and magazines combined (emarketer December 2011).
5. Apple and Android represents more than 75% of Smartphone market (Comscore 2012)
6. Nokia grew its share of overall mobile phone shipments during July-Sept 2011 by 6.8% over the previous quarter, Samsung succeeded in increasing its Smartphone shipment share by 5% over the same period

The graph below shows the mobile cellular subscriptions per 100 inhabitants(2000-10)
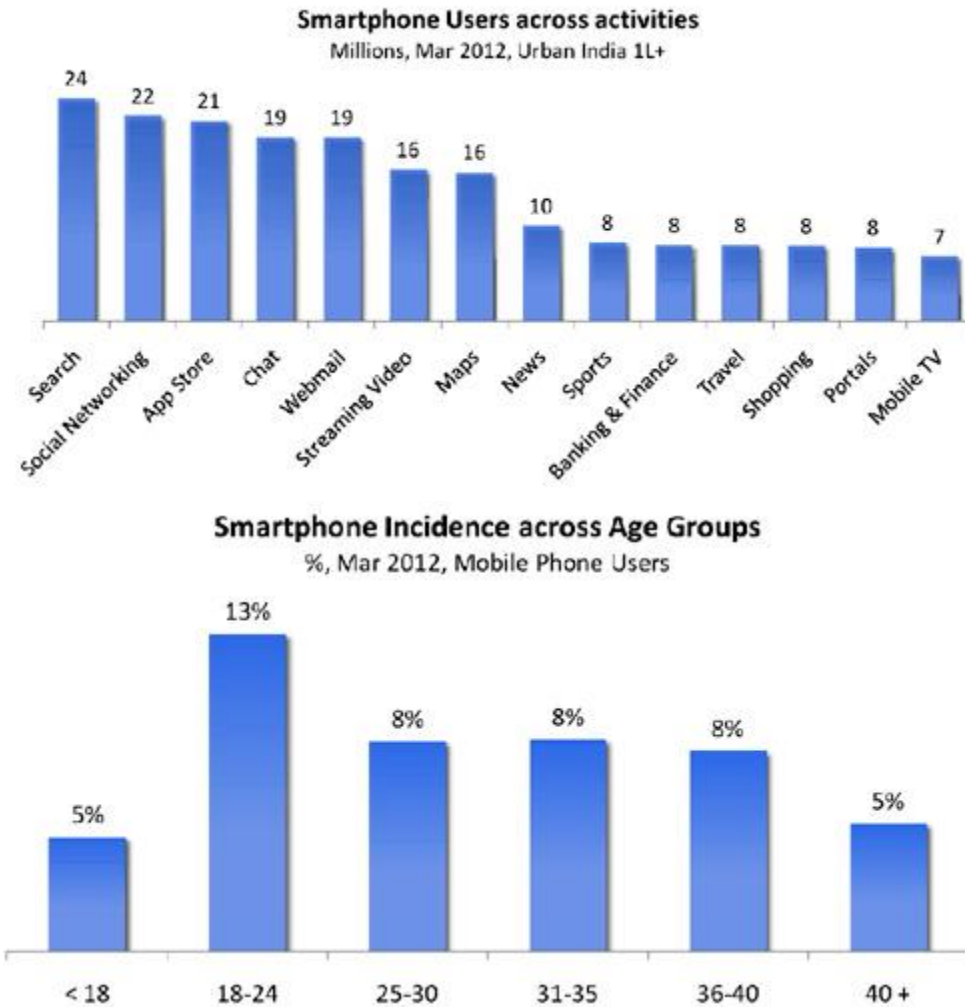

Mobile cellular subscriptions per 100 inhabitants, 2000-2010*
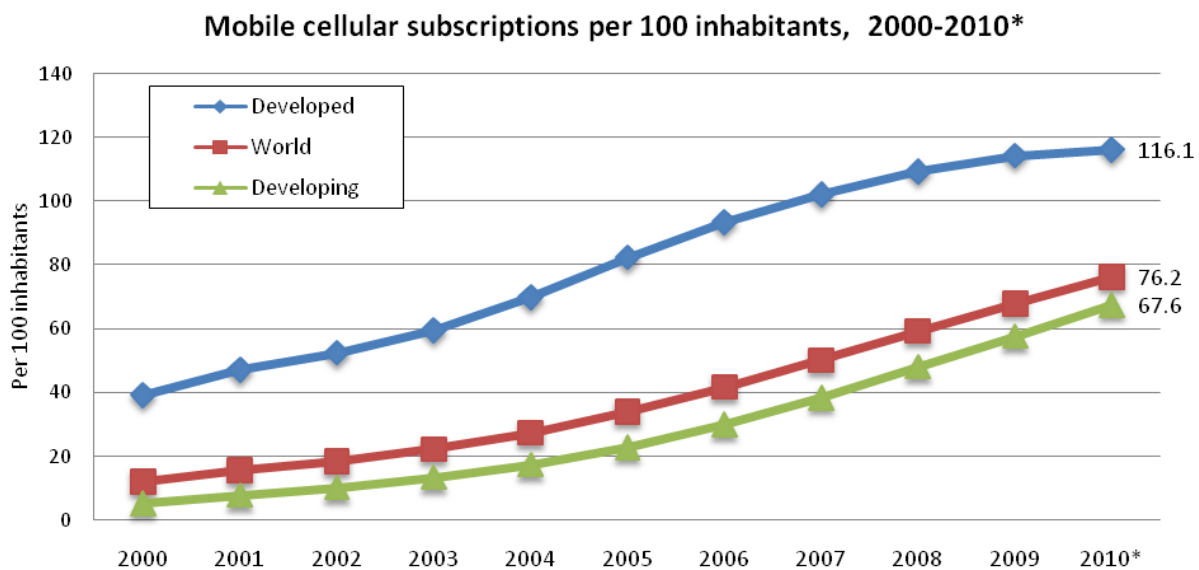
*Estimates
The developed/developing country classifications are based on the UN M49, see:
http://www.itu.int/ITU-D/ict/definitions/regions/index.html

SMARTPHONE

A Smartphone is a device that lets you make telephone calls and also help in sending and receiving emails and also can be used for other applications

Smartphone Users across activities
Millions, Mar 2012, Urban India 1L+

Smartphone Incidence across Age Groups
%, Mar 2012, Mobile Phone Users

Source: Nielsen Informate Mobile Insights

The survey highlights that currently the adoption of smart phones is high in urban areas including tier 1&2 towns with 1-10 lakh population. These urban areas have a 9% penetration of smart phones. In this, the North has outpaced the rest of the country with 11% rate of adoption.

The survey also highlights the pattern of usage by Smartphone users. Thus, 22 million people use their smart phones for social networking; while 24 million use it for running online searches. Another 19 million users are using it to chat and mail. A slightly lower 16 million users view

streaming video, and use smart phones for maps and navigation, whereas 8 million smart phone users use it for banking.

RESEARCH OBJECTIVE

1. To analyze the mobile market
2. To obtain the perception map of the different brands based on the different factors

RESEARCH METHODOLOGY

The methodology used for this study is a combination of secondary data and primary data. Secondary data is used to give an idea about the mobile handset devices and primary data is used for analyzing the perception of consumers about mobile phones. Around 50 respondents were taken for the study. Paired comparison ranking scale is used for the study and 11 brands were taken pair wise and opinions were asked from consumers using similarity scale. Pair with maximum similarity was given rank 1 and one with minimum similarity was given rank 5

Multidimensional Scaling and Interpretations

Multidimensional scaling (MDS) is a set of related statistical techniques often used in information visualization for exploring similarities or dissimilarities in data. MDS is a special case of ordination. An MDS algorithm starts with a matrix of item–item similarities, then assigns a location to each item in N-dimensional space, where N is specified a priori. For sufficiently small N, the resulting locations may be displayed in a graph or 3D visualization. It is often used in Marketing to identify key dimensions underlying customer evaluation of products, services or companies.

MDS is a generic term that includes many different specific types. These types can be classified according to whether the similarities data are qualitative (called non metric MDS) or quantitative (metric MDS). The number of similarity matrices and the nature of the MDS model can also classify MDS types.

FINDINGS

The analysis gives the following Perceptual map using MDS

Derived Stimulus Configuration

Euclidean distance model
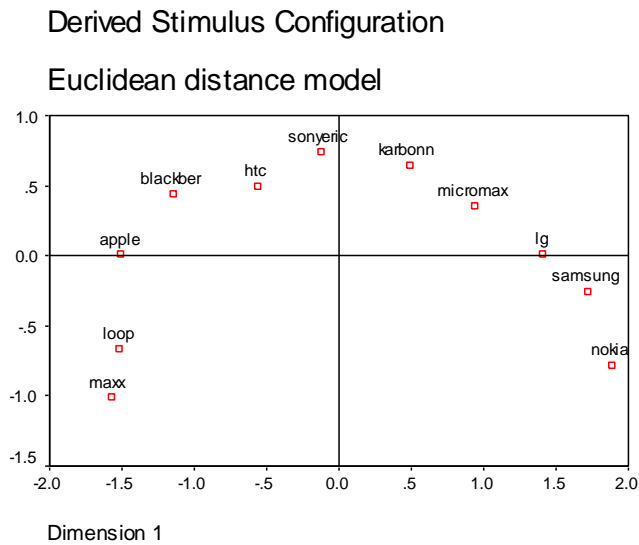
Dimension 1

We can see from the MDS diagram that Nokia, Samsung and LG are similar according to the customers. Multidimensional Scaling gives only dimensions and there are no names for these. Dimension has to be defined by the brands in each of the axis. In this case positive x axis contains brands like Samsung and Nokia   and so the x-axis here should be quality. They are of high quality and if we see Maxx and loop are in the other side which shows comparatively lower quality. Maxx and loop and brands nearby will have lower price and so the y axis could be price. We can also see from the map the areas where there is less brand so that a new brand can position their brands in that space.

REFERENCES

1. Mary Meeker, Klenier Perkins, Morgan Stanley , Research via Business insider
2. Boston Consulting Group, Mary Meeker, Kleiner Perkins, Morgan Stanley Research, Berg Insight via Business Insider
3. Nielsen Informate Mobile Insights

Website

4. www.itu.int/ITU-D/ict/definitions/regions/index.html