ABSTRACT

Introduction
One of the most important elements of marketing mix is place, i.e. product availability. Making a product/service available to customers is what distribution is all about.

Managing the supplies to ensure adequate and timely availability of products to the end users is one of the most challenging aspects of distribution. This requires proper management of all the activities that form the basis of product availability, right from the supplier to the end users.

Distribution refers to the steps taken in order to move and store a product from the supplier stage to a customer stage in the supply chain. Distribution is one of the basic elements for the success of any business. Though it sounds simple enough to make products available in sufficient quantities wherever the demand exists, the ground reality is rather complex. Customers are spread out in wide geographical regions; many customers prefer different channels at different points of time even within a single location. Different channels have different cost implications and customers seek consistency in service levels across all the channels.

The management of a network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers is known as Supply Chain Management.

Each phase in a supply chain must add some value to the product or the service, i.e. there must be some value addition at every stage starting from idea generation to point of delivery.
Mobile communication is one of the most important developments in the recent times. Mobile telephony is one of the fastest grown and fastest adopted technologies all over the world. The last decade saw a phenomenal increase in the number of mobile phone users. The mobile communications technology is evolving rapidly in the world as more and more people demand mobile services with larger bandwidth and new innovative services like connectivity anywhere, anytime for features like TV, multimedia, interoperability and seamless connectivity with all types of protocols and standards. The mobile communication has contributed more than any other technology to bridge the digital divide.

India has come to be regarded as the world's most competitive and one of the fastest growing telecom markets. The market for mobile phone handsets in India in the year 2005 was estimated at 780 million units all over the world. The number of mobile phone users in India was estimated at 75.94 million* as on December 5, 2005. By March 2010 the country had 584.32 million* mobile phone subscribers, up from 346.89 million* just 15 months earlier. The mobile market was continuing to expand at an annual rate in excess of 40% coming into 2010. At present, with a subscriber base of more than 884.37 million* (as on November 30, 2011), the mobile telecommunications system in India is the second largest in the world.

Scope of the Study

The present study aims to identify the current distribution strategies of mobile handset manufacturers in India with regard to the major players in the market based on their respective market shares.

For the present study, top four mobile handset manufacturers were chosen based on their respective market shares for FY 2009-2010*. They are:

1. **Nokia**, with a market share of 52.2%
2. **Samsung**, with a market share of 17.4%
3. **L.G.**, with a market share of 5.9%
4. **Micromax**, with a market share of 4.1%

(*Source: Voice & Data Journal)
The distribution process involves the efficient use of logistics and the supply chain. There are various components in the supply chain that need to be managed:

1. **Procurement**: The mobile companies either procure different components such as chipsets, consoles, batteries, etc. from the different outside sources or manufacture the same themselves. Proper management of purchase processes should be followed so that the right materials are available at the right place and at right time.

2. **Inventory Management**: Inventory must be properly managed so that there is adequate stock available for production always. Inventory must be managed in a way so as to ensure that the stock is neither too much nor too less, as both these conditions are adverse for the company.

3. **Warehousing & Storage**: After the production is done, the firm may store the handsets at proper locations so that the distribution to the retailers may be made convenient as it would be too cumbersome to transport the handsets directly to each retailer.

4. **Transportation**: The firm must take great care during the transportation of the handsets and must ensure timely delivery to the desired locations.

5. **Packaging**: The handsets must be properly packed so as to ensure proper safety during transportation.

The firm may hire Third Party Logistics who specialize in the delivery operations so that the products reach the desired locations properly and in time.

6. **Information Management**: The company must have proper knowledge regarding the needs and wants of the customers.

Proper communication between the channel members must be there so that useful information may be shared between them in order to cater to the customers' needs.

Further, the information regarding the various competitors, their strategies, market share, customer demographics, etc. must be possessed by the company.
7. **Returned Goods Handling:** This is one of the most important aspects in the entire logistic operations as the image in the minds of the customers regarding the product may be affected by not giving due respect to this aspect.

Few years back, Nokia Corporation recalled its defective BL-5C battery so that the customer may not suffer due to the danger it posed.

8. **Parts and Service Support:** The mobile companies make available the latest accessories as well as the spare parts to the customers in case they encounter any sort of problem with their handsets.

These firms also provide service for the handsets they sell to their customers so that the customer may remain loyal to the firms’ offerings.

9. **Customer Service Levels:** Nowadays, the mobile companies are trying to provide the best of products and services to their customers in order to stay ahead in market.

Various offers such as free service, gift vouchers, use of genuine parts, etc. are now being provided to the customers.

10. **Channel Management:** Proper management of the various channel members is the key to success. Proper and timely information sharing, proper communication and cooperation between the channel members ensure that the customers’ needs and wants are satisfied and may provide the firm a good market share.

**Research Objectives**

As discussed above, the mobile sector growth depends primarily on the distribution process as well as the management of the supply chain. This study attempts to analyse these processes as to how their betterment can enhance the sales and provide satisfactory service to the customers. Also, the study tries to find out approaches which can prove beneficial for the mobile firms in the context of market share and profitability. Specifically, the study aims:

- To identify the various factors that affect/influence distribution strategies of mobile handset manufacturers.
- To gain an insight into the current distribution dimensions adopted by the mobile handset manufacturers.

- To explore differences, if any, with regard to distribution strategies across different mobile handset manufacturers.

- To suggest distribution strategies to mobile handset manufacturers that may help them in reaching out to the customers in a better way.

**Research Methodology**

This section deals with the problem statement, scope of the study, research objectives, development of conceptual model, formulation of research hypotheses, research design, questionnaire development and its administration. Further, this chapter briefly describes the research strategy and tools of analysis employed in this study. Finally, the limitations of the study are also discussed.

**Development of Conceptual Model**

The conceptual model has been crystallised after a thorough review of literature. This review covered various aspects of business operations. It helped in identifying nine different distribution dimensions that govern different aspects of distribution strategies. These nine dimensions of distribution strategies are Supply Chain Management (SCM), Relationship Management (RM), Environmental Management (EM), Technology (T), Inventory Management (IM), Marketing Strategies (MS), Distribution Network (DN), Financial Strategies (FS) and Risk Management (RSM).

A conceptual model indicating the impact of these dimensions on Distribution Strategies is presented in Figure 1.
Formulation of Research Hypotheses

For the purpose of the present study, two sets of hypotheses were formulated. There are forty-nine hypotheses in all. The first set comprises of forty hypotheses formulated on the basis of different dimensions varying across different organisational variables. Based on review of literature, ten dimensions viz. Supply Chain Management, Relationship Management, Technology, Environmental Management,
Inventory Management, Marketing Strategies, Distribution Network, Distribution Strategies, Financial Strategies and Risk Management were identified that affect the overall distribution policies and strategies adopted by the members of the distribution network. The effect of these dimensions was tested against four different organisational variables viz. status of supply chain members (whether manufacturer, distributor or retailer), nature of the supply chain members (whether operation volume is small, medium or large), different handset brands (whether dealing in Nokia, Samsung, L.G., Micromax or multiple brands) and type of ownership of the supply chain members (sole proprietary or partnership). Second set comprising of nine hypotheses deals with statements that are formulated to test the effects of the nine independent dimensions on the dependent dimension i.e. Distribution Strategies.

Exhaustive literature review and discussions with industry experts and academicians have led to the development of the following hypotheses:

3.7.1 Hypotheses Based on Dimensions of Distribution Strategies across Organisational Variables

H_01: There is no significant difference in the mean value of Supply Chain Management across the status of the supply chain members.

H_02: There is no significant difference in the mean value of Supply Chain Management across the nature of the supply chain members.

H_03: There is no significant difference in the mean value of Supply Chain Management across different handset brands.

H_04: There is no significant difference in the mean value of Supply Chain Management with respect to type of ownership.

H_05: There is no significant difference in the mean value of Relationship Management across the status of the supply chain members.

H_06: There is no significant difference in the mean value of Relationship Management across the nature of the supply chain members.
\textbf{H}_07: There is no significant difference in the mean value of Relationship Management across different handset brands.

\textbf{H}_08: There is no significant difference in the mean value of Relationship Management with respect to type of ownership.

\textbf{H}_09: There is no significant difference in the mean value of Technology across the status of the supply chain members.

\textbf{H}_010: There is no significant difference in the mean value of Technology across the nature of the supply chain members.

\textbf{H}_011: There is no significant difference in the mean value of Technology across different handset brands.

\textbf{H}_012: There is no significant difference in the mean value of Technology with respect to type of ownership.

\textbf{H}_013: There is no significant difference in the mean value of Inventory Management across the status of the supply chain members.

\textbf{H}_014: There is no significant difference in the mean value of Inventory Management across the nature of the supply chain members.

\textbf{H}_015: There is no significant difference in the mean value of Inventory Management across different handset brands.

\textbf{H}_016: There is no significant difference in the mean value of Inventory Management with respect to type of ownership.

\textbf{H}_017: There is no significant difference in the mean value of Environmental Management across the status of the supply chain members.

\textbf{H}_018: There is no significant difference in the mean value of Environmental Management across the nature of the supply chain members.

\textbf{H}_019: There is no significant difference in the mean value of Environmental Management across different handset brands.
**H_020:** There is no significant difference in the mean value of Environmental Management with respect to type of ownership.

**H_021:** There is no significant difference in the mean value of Marketing Strategies across the status of the supply chain members.

**H_022:** There is no significant difference in the mean value of Marketing Strategies across the nature of the supply chain members.

**H_023:** There is no significant difference in the mean value of Marketing Strategies across different handset brands.

**H_024:** There is no significant difference in the mean value of Marketing Strategies with respect to type of ownership.

**H_025:** There is no significant difference in the mean value of Distribution Strategies across the status of the supply chain members.

**H_026:** There is no significant difference in the mean value of Distribution Strategies across the nature of the supply chain members.

**H_027:** There is no significant difference in the mean value of Distribution Strategies across different handset brands.

**H_028:** There is no significant difference in the mean value of Distribution Strategies with respect to type of ownership.

**H_029:** There is no significant difference in the mean value of Distribution Network across the status of the supply chain members.

**H_030:** There is no significant difference in the mean value of Distribution Network across the nature of the supply chain members.

**H_031:** There is no significant difference in the mean value of Distribution Network across different handset brands.

**H_032:** There is no significant difference in the mean value of Distribution Network with respect to type of ownership.
**H₀₃₃:** There is no significant difference in the mean value of Financial Strategies across the status of the supply chain members.

**H₀₃₄:** There is no significant difference in the mean value of Financial Strategies across the nature of the supply chain members.

**H₀₃₅:** There is no significant difference in the mean value of Financial Strategies across different handset brands.

**H₀₃₆:** There is no significant difference in the mean value of Financial Strategies with respect to type of ownership.

**H₀₃₇:** There is no significant difference in the mean value of Risk Management across the status of the supply chain members.

**H₀₃₈:** There is no significant difference in the mean value of Risk Management across the nature of the supply chain members.

**H₀₃₉:** There is no significant difference in the mean value of Risk Management across different handset brands.

**H₀₄₀:** There is no significant difference in the mean value of Risk Management with respect to type of ownership.

### 3.7.2 Hypothesis based on Relationship among the Dimensions of Distribution Strategies

**H₀₄₁:** There is no significant impact of Supply Chain Management on Distribution Strategies.

**H₀₄₂:** There is no significant impact of Relationship Management on Distribution Strategies.

**H₀₄₃:** There is no significant impact of Environmental Management on Distribution Strategies.

**H₀₄₄:** There is no significant impact of Technology on Distribution Strategies.
**H045:** There is no significant impact of Inventory Management on Distribution Strategies.

**H046:** There is no significant impact of Marketing Strategies on Distribution Strategies.

**H047:** There is no significant impact of Distribution Network on Distribution Strategies.

**H048:** There is no significant impact of Financial Strategies on Distribution Strategies.

**H049:** There is no significant impact of Risk Management on Distribution Strategies.

**Research Design**

The research design used in this study is conclusive in nature which is divided into two parts. The initial phase of the study follows a descriptive research design in which a conceptual model is developed, covering the broad dimensions of the study.

However, the later part of the study is based on causal research design which is used to validate the cause-effect relationship among the different dimensions (variables) of the study.

The research techniques employed in this study were:

- **Questionnaire-based survey:** Questionnaire-based survey is an established approach to obtain respondents' opinion on a range of issues related to a research problem. In the present research, it was used to gain an insight, in terms of breadth as well as depth, regarding the strategies adopted by Indian mobile manufacturers for the distribution of handsets.

- **Case Development and Comparative Study:** Case studies were developed for the select companies highlighting their structure, growth and distribution strategies adopted.
Further, a comparative analysis was done based on different dimensions as regards the selected companies.

**Questionnaire Development**

The Indian mobile phone sector has grown significantly in the last decade. The mobile subscriber base has increased significantly and has paved way for new entrants in the mobile phone market.

There is a lack of enough research regarding the comparative study of mobile firms for distribution of handsets in the Indian context. This study attempts to address this shortcoming. It is aimed at assessing the current distribution strategies adopted by mobile firms and compare them on a common platform. To that end, a questionnaire-based survey was conducted. The questionnaire was designed after reviewing the available literature and extensive discussions with four executives attached with mobile firms and two academicians.

To increase the response rate and facilitate respondents, the questionnaire included close-ended questions. A five point Likert-scale was used for that purpose. However, there were some questions that had yes/no options as well. The questionnaire had three sections. Section A dealt with the organisational as well as personal profile of the respondents. Section B focused on issues related to various dimensions of distribution strategies. Section C assessed extent of implementation of specific dimensions of distribution strategies by the supply chain members in their operations.

**Questionnaire Administration**

Administration of the questionnaire was done in order to collect relevant data from the sources. The target population was analysed and samples were drawn accordingly. Before final collection of data, pilot study was carried out for questionnaire refinement.

**Target Respondents**

The respondents comprising of the executives working in the departments of supply chain, administration and operations of the top four mobile firms viz. Nokia,
Samsung, L.G. and Micromax (based on their respective market shares) were selected to participate in the survey for the administration of the questionnaire. The distributors and retailers for these brands were also approached for data collection.

**Sampling Technique**

For the selection of executives, simple random sampling was employed. The questionnaires were sent to respective heads of the departments of supply chain, administration and operations requesting them to get the questionnaires filled.

Since there are an umpteen number of retailers and distributors of these four brands, stratified random sampling was used. For this purpose, three broad geographical areas were covered that included retailers and distributors from NCR, eastern Uttar Pradesh and Pune-Mumbai regions.

**Classification of Target Respondents**

The respondents were classified on the basis of status, nature, brand association and ownership. These are explained below.

**Status:** Classification based on the status of the respondents as a supply chain member, i.e. Manufacturer, Distributor or Retailer.

**Nature:** Classification based on the nature of the respondents as a supply chain member, i.e. Small, Medium or Large. The supply chain members generating business worth up to Rupees Five Lakhs per month were classified as *small*, those generating more than Rupees Five Lakhs and up to Rupees Ten Lakhs per month were classified as *medium*, while the members generating income more than Rupees Ten Lakhs per month were classified as *large* supply chain members respectively.

**Brand Association:** Classification based on association with a particular brand viz. Nokia, Samsung, L.G. or Micromax.

**Type of Ownership:** Classification based on the type of ownership of the supply chain members, i.e. Sole Proprietary or Partnership.
Pilot Study

Before administering the questionnaire full scale, a pilot study was carried out among select companies. The pilot study aimed at:

- obtaining feedback of the executives of the mobile firms working in the area of supply chain, operations and environmental management;
- obtaining feedback from the suppliers, distributors and retailers;
- carrying out necessary additions in the questionnaire to make it even more comprehensive;
- deleting those questions that may be of limited significance; and
- refining/ rephrasing the existing questions to impart greater clarity.

A total of fifteen supply chain members were contacted to fill out the questionnaires. Accordingly, the questions were modified and the final questionnaire was crystallised.

Procedure for Data Collection

Data through a total of 325 questionnaires were either collected personally or through mails to the selected executives of the companies from the chosen sector. The survey was conducted during October 2010-January 2011. Four questionnaires each were sent to the selected companies. Questionnaires, including a covering letter and self-addressed stamped envelopes, were mailed to the respective heads of the departments of supply chain, administration and operations. Reminders were sent to all non-respondents, three weeks after the despatch of the questionnaires. In addition, personal visits, phone calls and e-mails were also resorted to for eliciting responses. Data from distributors and retailers were collected personally. Out of the 325 questionnaires, 163 were received back. Out of those, 12 questionnaires were either incomplete or ambiguous and hence, were discarded. So, only 151 questionnaires were analysed. This gave an overall response rate of 46.5%. A response rate of above 20% is considered desirable for survey findings (Yu and Cooper, 1983). Malhotra and Grover (1998) have also suggested a response rate of 20% for positive assessment of the surveys.
Tools of Analysis

The study used the specifically developed research questionnaire as the basic research instrument to collect the data. The organised data was then analysed using different statistical tools such as MS-Excel 2007, SPSS 17.0, and AMOS 16.0 software. Using these tools, different tests were applied depending on the nature of the data. The tests applied for analysing the data were:

- **Exploratory Factor Analysis**
  Exploratory factor analysis (EFA) attempts to discover the nature of the constructs influencing a set of responses. It is used to uncover the underlying structure of a relatively large set of variables. The researcher's *a priori* assumption is that any indicator may be associated with any factor. This is the most common form of factor analysis. There is no prior theory and one uses factor loadings to intuit the factor structure of the data.

- **Reliability Analysis**
  Reliability analysis is used to determine the internal consistency or average correlation of items in a survey instrument to gauge its reliability. Reliability analysis helps in determining whether the same set of items would elicit the same responses if the same questions are recast and re-administered to the same respondents. Variables derived from test instruments are declared to be reliable only when they provide stable and reliable responses over a repeated administration of the test. The reliability is tested on the basis of Cronbach's alpha value, which is a numerical coefficient of reliability.

- **Analysis of Variance**
  The Analysis of Variance (ANOVA) is a statistical method used for making simultaneous comparisons between means of two or more samples. It is a method that yields values that can be tested to determine whether a significant relation exists between variables. ANOVA is generally applied when comparison of means for more than two samples is to be drawn. However, this method can be applied in case of means for two samples as well.
• **The T-Test**
  The t-test is applied when the comparison of means of two samples is to be drawn. When we have only two samples we can use the t-test to compare the means of the samples but it might become unreliable in case of more than two samples. The t-test assesses whether the means of two samples are statistically different from each other.

• **Confirmatory Factor Analysis**
  Confirmatory factor analysis (CFA) is a technique which tests whether a specified set of constructs is influencing responses in a predicted way. CFA is conducted to examine the validity and reliability of the measurement model. Model fitness is determined on the basis of various factors such as GFI, AGFI, RMSEA, etc.

• **Structural Equation Modelling**
  The Structural Equation Modelling (SEM) is used in order to evaluate the measurement model. This is done to test the impact of independent variables on the dependent variable.

**Key Findings**
Key findings based on the results of the hypotheses testing as well as those results that have emerged out of qualitative analysis are as under:

• There exist significant differences with respect to Supply Chain Management, Relationship Management, Technology, Inventory Management, Marketing Strategies, Distribution Network and Distribution Strategies across the status of the supply chain members.

• Manufacturers pay greater importance to the management of the supply chain as compared to distributors or retailers.

• Manufacturers pay more importance to development of cordial relations among the members of the supply chain as compared to distributors or retailers.

• Manufacturers pay greater importance to adoption of modern technology as compared to distributors or retailers.
• Manufacturers pay higher importance to proper management of inventory for achieving desired distribution objectives as compared to distributors or retailers.

• Manufacturers are more committed to devising better marketing strategies for proper distribution as compared to distributors or retailers.

• Manufacturers pay highest importance to designing better distribution network as compared to distributors or retailers.

• Manufacturers are more committed for developing better distribution strategies as compared to distributors or retailers.

• There is no significant difference with respect to adoption of any of the dimensions of distribution strategies across the nature of the supply chain members.

• There exist significant differences with respect to implementation of Relationship Management, Technology, Marketing Strategies, Distribution Network and Risk Management across different handset brands.

• Supply chain members associated with Samsung pay greater importance to the development of cordial relations among each other as compared to members associated with other brands.

• Supply chain members associated with multiple brands pay more importance to adoption of newer technology as compared to supply chain members associated with other brands.

• Members dealing in multiple brands pay more importance to development of better marketing strategies as compared to members associated with other brands.

• Members associated with multiple brands pay higher importance to development of proper distribution network as compared to members associated with other brands.
• Supply chain members associated with Samsung pay more importance to management of risk as compared to members associated with other brands.

• Implementation of strategies for the management of inventory varies significantly across type of ownership.

• Supply chain members with sole proprietorship pay more importance to the management of inventory as compared to supply chain members working in partnership.

• There is a positive significant impact of Supply Chain Management, Relationship Management, Technology, Inventory Management, Marketing Strategies and Distribution Network on Distribution Strategies.

• Environmental Management and Financial Strategies have a negative but insignificant impact on Distribution Strategies.

• Risk Management has a positive but insignificant impact on Distribution Strategies.

• Most of the supply chain members associated with Nokia and L.G. receive help with regard to storage of inventory in the warehouses from other members of the supply chain. For Samsung and Micromax, this value is only moderately high.

• There is a low level of adoption with regard to use of electronic order forms for placing the orders among all the players.

• There is a low level of adoption regarding the use of GPS and GIS for tracking and locating the consignments among all the players.

• Barring Micromax, all other players make extensive use of warehouses for storage of inventory. For Micromax, there is a moderate level of adoption in this regard.

• There is a moderate level of research conducted by Nokia, Samsung and L.G. for understanding the buying behaviour of the customers. For Micromax, this value is low.
• Most of the members associated with each brand make use of Personal Interviews as a means of taking feedback from the customers.

• There is low level of adoption with regard to the use of data provided by different research organisations among all the players.

• All the players make extensive use of internet/e-mail for communicating with other channel members.

• All the players seek regular feedback from other channel partners.

• Nokia and Samsung make extensive use of third parties and other independent agencies in order to gather information from the market and make it available to other members in the supply chain. For L.G. and Micromax, this value is only moderately high.

• Majority of the supply chain members associated with each brand make use of Letter of Credit as a means of transferring the money.

• Most of the supply chain members associated with each brand have a credit repayment period between three to six months.

Summary

The growth of mobile telephony in India has been tremendous in the last decade. The mobile sector has contributed significantly to the GDP of the country. The increase in the mobile subscriber base has been substantial which has grown from 5 million subscribers in 2001 to over 884 million subscribers as of November 2011. This has been possible due to sharp decrease in calling rates and also due to availability of cheaper and advanced mobile handsets that offer customers various services such as online shopping, mobile ticketing, information services, mobile banking, browsing, and so on.

One of the most important aspects that the mobile handset manufacturers focus upon for the availability of better mobile handsets for customers’ use has been the development of optimal distribution strategies that ensure timely and proper delivery
of handsets. Further, devising such strategies guarantees lower levels of logistics costs which in turn allows manufacturers to offer handsets at considerably low prices.

The handset manufacturers need to appropriately manage their supply chains and work out plans to make sure that the distribution network is so designed that it benefits all the members of the supply chain, right from the suppliers to the end users.

The manufacturers also have to find out various factors that play a crucial role in the development of effective and proper distribution strategies for the distribution of mobile handsets.

The present research work focuses on the different dimensions that act as key factors aiding in planning and control of distribution strategies adopted by handset manufacturers.

The research also compares the different strategies adopted by top four mobile handset manufacturers in India selected on the basis of their respective market shares.