CHAPTER – 3

SCOPE AND OBJECTIVES OF THE RESEARCH

The extensive review of the literature on the various concepts involved in the usage of Information Technology (IT) in the downstream supply chain provides a base to define the scope and objectives of this research to examine the impact of Information Technology on Competitive Marketing Performance of firms.

3.1 Scope of the research

This research study is carried out among the manufacturing companies in India. The scope of the study is to capture the current practices adopted in the usage of IT in the downstream supply chain. As explained in Section 1.8, the downstream supply chain refers to the company’s out-bound processes - from the company through its distribution channels to its consumer. The study maps the status of the usage of IT in the downstream supply chain by companies, in the current competitive business environment context, assesses the contribution of IT to the creation of supply chain capabilities and the impact of such usage and capabilities on operational and strategic marketing benefits and ultimately its impact on competitive marketing performance.

This research study differs from previous research in three ways. First, unlike the majority of past studies that focus on benefits of IT use in supply chain to buying firms, this study focuses on benefits to the selling firm. The benefits that accrue to selling firms would be of interest to both managers and researchers. Second, the primary focus is not on the upstream supply chain – from the supplier to the company but on the downstream supply chain that is from the company to its consumers (either directly or through distribution channels). Third, empirical literature to measure performance primarily focuses on financial performance measures. This study measures operational and strategic benefits, which are considered to be first order organizational benefits that are expected to impact second order benefits for the firm. The second order benefits are considered to be the competitive marketing performance of the firm in the marketplace, which is the final outcome dependent variable in this study.
3.2 Objectives of the research

- To study the extent of usage of Information Technology invested by organizations in the downstream supply chain
- To analyze whether the use of advanced IT and IT alignment with channel members impacts on supply chain capabilities.
- To study and understand the influence of the extent of IT usage and supply chain capabilities on the operational and strategic marketing benefits of organizations.
- To assess the combined impact of extent of IT usage, IT advancement and alignment and supply chain capabilities on operational benefits and strategic marketing benefits which influence the competitive marketing performance of organizations.

3.3 Conceptual Research Model

Combining the broad objectives and drawing on the resource-based view (RBV) of the firm, the proposed conceptual research framework of this study consists of firm IT resources, supply chain capabilities, and competitive marketing performance as depicted in Figure 3 in Chapter 1.

The conceptual model of the study is presented in Figure 4. The proposed conceptual model enables the examination of the specific objectives of this study. It is expected that the business environment influences the usage of IT in firms in their downstream supply chain, leading to the creation of resources such as IT advancement and IT alignment which facilitate supply chain capabilities such as interfirm information exchange, coordination, collaboration and responsiveness. As illustrated in the framework, the enhanced capabilities then lead to operational benefits and strategic marketing benefits, which in turn lead to favourable competitive marketing performance. The relationships between the constructs arising out of the conceptual model in this study are stated as research hypotheses in the following section.
Figure 4: Conceptual Research Model

- Business Environment
  - H1
  - Level of IT Usage
    - H2a
    - H2b
  - IT Advancement
    - H3
  - IT Alignment
    - H4
  - Supply chain capabilities
    - H5a
    - H5b
  - Operational Benefits
    - H6
  - Competitive Marketing Performance
    - H7

<table>
<thead>
<tr>
<th>IT resources</th>
<th>Supply chain Capabilities</th>
<th>Performance</th>
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3.4 Research Hypotheses

Based on the review of literature and in discussions with academic researchers and practitioners from industry in the IT/Supply chain area, the following hypotheses were formulated to meet the research objective of this study.

HYPOTHESES RELATING TO THE STUDY OF THE IMPACT OF IT ON COMPETITIVE MARKETING PERFORMANCE

**H1:** Competitive business environment will lead to a greater extent of IT usage in firms.

**H2a:** Greater the extent of IT usage, higher the level of IT advancement in firms.

**H2b:** Greater the extent of IT usage, higher the alignment of the firm with channel partners.

**H3:** IT advancement in firms will influence supply chain capabilities positively.

**H4:** IT alignment in firms will influence supply chain capabilities positively.

**H5a:** Supply chain capabilities of firms impact the operational benefits positively.

**H5b:** Supply chain capabilities of firms impact the Strategic Marketing Benefits positively.

**H6:** The Operational benefits have a positive impact on Competitive marketing performance of firms.

**H7:** The Strategic marketing benefits have a positive impact on the Competitive Marketing Performance of the firm.

**H8:** Operational benefits and Strategic marketing benefits will have higher influence on the Competitive marketing performance in firms with direct distribution channels than in firms with indirect distribution channels.
HYPOTHESES RELATING TO THE DIMENSION LEVEL ANALYSIS OF IMPACT OF ITEMS IN SUPPLY CHAIN CAPABILITIES ON OPERATIONAL BENEFITS

H9.1: Information sharing impacts the operational benefits positively.

H9.2: Coordination impacts the operational benefits positively.

H9.3: Collaboration impacts the operational benefits positively.

H9.4: Supply chain responsiveness impacts the operational benefits positively.

HYPOTHESES RELATING TO THE DIMENSION LEVEL ANALYSIS OF IMPACT OF ITEMS IN SUPPLY CHAIN CAPABILITIES ON STRATEGIC MARKETING BENEFITS

H10.1: Information sharing impacts the strategic marketing benefits positively.

H10.2: Coordination impacts the strategic marketing benefits positively.

H10.3: Collaboration impacts the strategic marketing benefits positively.

H10.4: Supply chain responsiveness impacts the strategic marketing benefits positively.

HYPOTHESES RELATING TO THE DIMENSION LEVEL ANALYSIS OF IMPACT OF ITEMS IN OPERATIONAL BENEFITS ON COMPETITIVE MARKETING PERFORMANCE OF FIRMS

H11.1: Increased demand forecast accuracy has a positive impact on Competitive marketing performance.

H11.2: Increased delivery performance has a positive impact on Competitive marketing performance.

H11.3: Increased fill rate has a positive impact on Competitive marketing performance.

H11.4: Increased perfect order fulfilment rate has a positive impact on Competitive marketing performance.
H_{11.5}: Increased finished goods inventory turn has a positive impact on the Competitive marketing performance.

H_{11.6}: Reduction in order fulfilment cycle time has a positive impact on the Competitive marketing performance.

H_{11.7}: Reduction in back orders has a positive impact on the Competitive Marketing Performance.

H_{11.8}: Reduction in stock out has a positive impact on the Competitive Marketing Performance.

H_{11.9}: Reduction in estimated loss of sales has a positive impact on the Competitive Marketing Performance.

H_{11.10}: Reduction in excess stocks has a positive impact on the Competitive Marketing Performance.

H_{11.11}: Reduction in total supply chain management costs has a positive impact on the Competitive Marketing Performance.

HYPOTHESIS RELATING TO THE DIMENSION LEVEL ANALYSIS OF IMPACT OF ITEMS IN STRATEGIC MARKETING BENEFITS ON COMPETITIVE MARKETING PERFORMANCE OF FIRMS

H_{12.1}: Better service support has a positive impact on Competitive Marketing Performance.

H_{12.2}: Improved information and inventory visibility has a positive impact on the Competitive Marketing Performance.

H_{12.3}: Customizing pricing and promotion has a positive impact on the Competitive Marketing Performance.

H_{12.4}: Discovering opportunities for new products has a positive impact on the Competitive Marketing Performance.
HYPOTHESES RELATING TO THE ITEM LEVEL ANALYSIS OF IMPACT OF ITEMS IN SUPPLY CHAIN CAPABILITIES ON ITEMS IN OPERATIONAL BENEFITS

H13.1a: Information sharing has a positive impact on increased forecast accuracy.

Similarly, the Hypothesis set H13.1b to H13.1k deals with the positive impact of information sharing on increased delivery performance, increased full rate, increased perfect order fulfillment rate, increased finished goods inventory turns, reduction in order fulfillment cycle time, reduction in back orders, reduction in stock out, reduction in estimated loss of sales, reduction in excess stocks and reduction in total SCM costs, respectively.

H13.2a: Coordination has a positive impact on increased forecast accuracy.

Similarly, the Hypothesis set H13.2b to H13.2k deals with the positive impact of coordination on increased forecast accuracy, increased delivery performance, increased full rate, increased perfect order fulfillment rate, increased finished goods inventory turns, reduction in order fulfillment cycle time, reduction in back orders, reduction in stock out, reduction in estimated loss of sales, reduction in excess stocks and reduction in total SCM costs, respectively.

H13.3a: Collaboration has a positive impact on increased forecast accuracy.

Similarly the Hypothesis set H13.3b to H13.3k deals with the positive impact of collaboration on increased delivery performance, increased full rate, increased perfect order fulfillment rate, increased finished goods inventory turns, reduction in order fulfillment cycle time, reduction in back orders, reduction in stock out, reduction in estimated loss of sales, reduction in excess stocks and reduction in total SCM costs, respectively.

H13.4a: Supply chain responsiveness has a positive impact on increased forecast accuracy.
Similarly the Hypothesis set $H_{13.4b}$ to $H_{13.4k}$ deals with the positive impact of supply chain responsiveness on increased delivery performance, increased full rate, increased perfect order fulfilment rate, increased finished goods inventory turns, reduction in order fulfilment cycle time, reduction in back orders, reduction in stock out, reduction in estimated loss of sales, reduction in excess stocks and reduction in total SCM costs, respectively.

**HYPOTHESES RELATING TO THE ITEM LEVEL ANALYSIS OF IMPACT OF ITEMS IN SUPPLY CHAIN CAPABILITIES ON ITEMS IN STRATEGIC MARKETING BENEFITS**

$H_{14.1a}$: Information sharing has a positive impact on Service Support.

Similarly, the Hypotheses set $H_{14.1b}$ to $H_{14.1d}$ deal with the positive impact of information sharing on information and inventory visibility, customizing pricing and promotion and discovering opportunities for new products respectively.

$H_{14.2a}$: Coordination has a positive impact on Service Support.

Similarly, the Hypotheses set $H_{14.2b}$ to $H_{14.2d}$ deal with the positive impact of coordination on information and inventory visibility, customizing pricing and promotion and discovering opportunities for new products respectively.

$H_{14.3a}$: Collaboration has a positive impact on Service Support.

Similarly, the Hypotheses set $H_{14.3b}$ to $H_{14.3d}$ deal with the positive impact of collaboration on information and inventory visibility, customizing pricing and promotion and discovering opportunities for new products respectively.

$H_{14.4a}$: Supply chain responsiveness has a positive impact on Service Support.

Similarly, the Hypotheses set $H_{14.4b}$ to $H_{14.4d}$ deal with the positive impact of supply chain responsiveness on service support, information and inventory visibility, customizing pricing and promotion and discovering opportunities for new products respectively.
HYPOTHESES RELATING TO THE ITEM LEVEL ANALYSIS OF IMPACT OF ITEMS IN OPERATIONAL BENEFITS ON ITEMS IN COMPETITIVE MARKETING PERFORMANCE

H_{15.1a}: Increased forecast accuracy has a positive impact on sales growth.

Similarly, the Hypothesis set H_{15.1b} to H_{15.1e} deal with the positive impact of increased forecast accuracy on market share, entry into new markets, new product introduction and customer satisfaction respectively.

H_{15.2a}: Increased delivery performance has a positive impact on sales growth.

Similarly, the Hypothesis set H_{15.2b} to H_{15.2e} deal with the positive impact of increased delivery performance on sales growth, market share, entry into new markets, new product introduction and customer satisfaction respectively.

H_{15.3a}: Increased fill rate will have a positive impact on sales growth.

Similarly the Hypothesis set H_{15.3b} to H_{15.3e} deal with the positive impact of increased fill rate on market share, entry into new markets, new product introduction and customer satisfaction respectively.

H_{15.4a}: Increase in the perfect order fulfilment rate has a positive impact on sales growth.

Similarly the Hypothesis set H_{15.4b} to H_{15.4e} deal with the positive impact of increased perfect order fulfilment on market share, entry into new markets, new product introduction and customer satisfaction respectively.

H_{15.5a}: Increased finished goods inventory turn has a positive impact on sales growth.

Similarly the Hypothesis set H_{15.5b} to H_{15.5e} deal with the positive impact of increased finished goods inventory turns on market share, entry into new markets, new product introduction and customer satisfaction respectively.

H_{15.6a}: Reduction in order fulfilment cycle time has a positive impact on sales growth.

Similarly, the Hypothesis set H_{15.6b} to H_{15.6e} deal with the positive impact of reduction in order fulfilment cycle time on market share, entry into new markets, new product introduction and customer satisfaction respectively.
$H_{15.7a}$: Reduction in back orders has a positive impact on sales growth.

Similarly the Hypothesis set $H_{15.7b}$ to $H_{15.7e}$ deal with the positive impact of reduction in back orders on market share, entry into new markets, new product introduction and customer satisfaction respectively.

$H_{15.8a}$: Reduction in stock outs has a positive impact on sales growth.

Similarly the Hypothesis set $H_{15.8b}$ to $H_{15.8e}$ deal with the positive impact of reduction in stock outs on market share, entry into new markets, new product introduction and customer satisfaction respectively.

$H_{15.9a}$: Reduction in estimated loss of sales has a positive impact on sales growth.

Similarly the Hypothesis set $H_{15.9b}$ to $H_{15.9e}$ deal with the positive impact of reduction in estimated loss of sales on market share, entry into new markets, new product introduction and customer satisfaction respectively.

$H_{15.10a}$: Reduction in excess stocks has a positive impact on sales growth.

Similarly the Hypothesis set $H_{15.10b}$ to $H_{15.10e}$ deal with the positive impact of reduction in estimated loss of sales on market share, entry into new markets, new product introduction and customer satisfaction respectively.

$H_{15.11a}$: Reduction in total supply chain management costs has a positive impact on sales growth.

Similarly the Hypothesis set $H_{15.11b}$ to $H_{15.11e}$ deal with the positive impact of reduction in total supply chain management costs on market share, entry into new markets, new product introduction and customer satisfaction respectively.

**HYPOTHESES RELATING TO THE ITEM LEVEL ANALYSIS OF IMPACT OF ITEMS IN STRATEGIC MARKETING BENEFITS ON ITEMS IN COMPETITIVE MARKETING PERFORMANCE**

$H_{16.1a}$: Better service support has a positive impact on sales growth.

Similarly the Hypothesis set $H_{16.1b}$ to $H_{16.1e}$ deal with the positive impact of better service support on market share, entry into new markets, new product introduction and customer satisfaction respectively.
**H_{16.2a}:** Improved information and inventory visibility has a positive impact on sales growth.

Similarly the Hypothesis set H_{16.2b} to H_{16.2e} deal with the positive impact of improved information and inventory visibility on sales growth, market share, entry into new markets, new product introduction and customer satisfaction respectively.

**H_{16.3a}:** Customizing pricing and promotion has a positive impact on sales growth.

Similarly, the Hypothesis set H_{16.3b} to H_{16.3e} deal with the positive impact of customizing pricing and promotion on market share, entry into new markets, new product introduction and customer satisfaction respectively.

**H_{16.4a}:** Discovering opportunities for new products has a positive impact on sales growth.

Similarly the Hypothesis set H_{16.4b} to H_{16.4e} deal with the positive impact of discovering opportunities for new products on market share, entry into new markets, new product introduction and customer satisfaction respectively.

The detailed individual hypothesis for the sets H13 to H16 is presented in the Annexure C. The following Chapter IV describes the methodology adopted for this research study.