

Drivers_And_Facilitators_Of_High_Tech_Product_Marketing_Intent

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Abstract—Customers in the high-tech market are flooded with many product launches in a short duration, many with varying attributes with threats of high competition, lack of adequate fit and changing technology environment. Firms need to invest in marketing to understand customer adequately and thus ensure products are successful in the first instance. Marketing capabilities an intangible asset for the firm, ensures R&D and new products development are aligned with customer requirements across psychological, sociological, geographical, life-style or attitude factors. The paper analyzes the drivers and facilitators of a firm's intent to engage in high-tech product marketing practices with conceptualized frame-work.

Keywords: High Tech Marketing Intent, Market Orientation, Word of Mouth, Antecedents variables

1 INTRODUCTION

Managers in dynamic environment are facing challenges in High-Tech product development and lifecycle management. MNC's which are large in size are less flexible and more susceptible to risk. Rapid technological changing and saturated product markets make firms more susceptible to risks. High tech Industry is consolidating as huge capital investment is needed to enter in the new technology. Establishing the linkages between these important variables after understanding the customer needs and wants becomes a challenging task. Modern technology easily becomes obsolete and the generation of innovation requires significant amount of investment of resources. Only a focused processing of these strategically important external and internal variables will lead to competitive advantage. Firms are facing intense competition and finding new opportunity for revenue generation become difficult after the recent global slowdown, and often an easy way out is to reduce the R&D and Marketing expenses. Identifying markets with the latent or visible needs of customers by developing demographic, attitudinal, geographical, behavioral groups alongside working on emerging technologies requires critical marketing capabilities leading to R&D effort.

environment. The paper discusses all the variables which impact high-tech product success in the marketplace, and analyzes the effectiveness of these variables, and their relationship with each other. The difference between successful and other firms will be their investment in creating such a model and also in their investment in implementing such a model. Strategy implementation is difficult due to the firm's conviction in strategies which will really bear fruit. Further, the actual marketing intent may need to be defined so that firms recognize the critical variables that help firms build a strategy and here it is assumed that a greater intent to market will lead to high-tech products which lead to greater competitive success. Need is to create appropriate balance in high tech product marketing intent of a firm in building understanding and systemic responses to, the varied customer specific, firm specific, environment specific eco-systems, to achieve competitive success. Antecedent and moderating variables would be useful for firms in changing their own orientation towards marketing Intent. The paper explores research insights and discusses implications for both academia and practitioners from the perspectives of the proposed conceptual frame-work and its practical usage in high tech firms.

2 RESEARCH GAP, RESEARCH PROBLEM & RESEARCH OBJECTIVE

Market uncertainty and technological uncertainty require marketing strategy which leads to technology product performance. Market orientation leads to customer satisfaction, business performance which influenced by competitive intensity, market and technological turbulence (Jaworski and Kohli 1993). There is Linkage between technology acquisition intent and firm level performance (Saji and Mishra 2011). From a resource-based view of the firm, innovative capability generates strategic

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There is a need to develop an improved methodology that facilitates marketing decisions based on the changing

competitiveness. High tech products easily become obsolete and the generation of innovation requires significant investment of resources. Literature has considered various factors but effectiveness and linkages of these variables to competitive advantage is hardly been addressed by researchers.

This gap has been filled by identifying the critical variables in high tech product and their explanation in different literatures after surveying the literature. Literature summarized explanations are done, against each critical variables. Second gap in the existing literature is, no study has been done which has depicted the relationship of these variables. Paper has built the propositions against all these variables to depict their relationship. Third gap is even after identifications of variables is, categorizing of the variables are not there in a way to process and filter the information in order to take actions by these firms. Paper filled this gap by categorization of the variables to process information based on the firm specific context and take useful decision. There is no complete set of consolidated checklist with all critical variables and their relationship available for navigating business managers in high tech firms. This gap is fulfilled by providing consolidated frame-work with all critical variables and their relationship for competitive advantage of the firm.

Identification of research gaps has given us research problem, Identify critical variables and their relationship to generate competitive advantage for high tech firm in dynamic environment. Many high tech firms are losing their market share and competitive advantage in fast changing dynamic environment. Number of variables such as Intensity of competition, changing market needs, shorter product life cycle, rapid changing technologies, and economic environment are creating difficulties for the firms to be competitive in the market. High tech wide spread products with different attributes become obsolete in short span of time. High tech firms are left with small window of opportunity to be on time before competitors and provide workable solution to customers. Firm's needs to keep their R&D and marketing man powers focused and generate results on time. Renewal of market capabilities for building collaboration and relationship with customers and channel partners to predict the success of the products is required by the firm. Research objective is to build complete frame-work with all the critical variables required and their relationship with each other to create competitive advantage for firm. Purpose of this paper is extract critical antecedents, moderating and outcome variables and build relationship using propositions. This frame-work will help

business managers for extracting the drivers and facilitators of the high tech product market.

3 RESEARCH VARIABLES & RESEARCH PROPOSITIONS

Focus research survey has been done and Paper has identified twenty variables and nineteen propositions. Variables has picked from different academic domain are economic management, technology management, Product management, Organization behavior management. Literature survey has touches different domain knowledge to extract the critical variables needed for the frame-work. These variables along with propositions are needed for business managers to analyze the variables based on their context built strategy for high product management. Paper has discussed variables followed by their propositions in below section.

3.1 Absorptive Capacity

Absorptive capacity is fundamental learning ability of the firm to extract knowledge, information available in external environment and adapt this knowledge internal to the firm to achieve its goal. Higher the absorptive capacity and higher is the utilization of external knowledge. Two different types of absorptive capacity are science-push absorptive capacity where technical institution provides knowledge flow, demand-pull absorptive capacity where customers, suppliers provides market needs & competitors provides market information (Murovec and Pordan 2009). It is dynamic capability which generates knowledge bank for competitive advantage of a firm.

3.2 Market Uncertainty

Market uncertainty is the unknown factors which creates instability in the market. Known information diminishes over time and unknown information expands over time. Correctness of the market is based now on the new available information, which is dynamic slow process. There are three type of uncertainty concerning drivers of change which are evolution state, competition on the firm and response of the firm (Milliken 1987). Market uncertainty refers to lack of accurately predicting the micro and macro environment. Micro environment refers to competitor's future actions, supplier uncertainty, and customer changing needs, substitute available products, and future new entrants in the industry (Porter's model). Macro environment refers to changing political, economic, social, technological, Ecological and legal environment (PESTEL). Microeconomic uncertainty affects one market and does not have spillover effect from one market to other market. Macroeconomic shocks impacts the markets in the entire

value chain and few industries may impact higher than other.

3.3 Technological Uncertainty

Customer changing needs with change in their life-style, behavior leads to emerging technologies. Environmental factors are the main drivers of technological change. Gradient of drivers of change are also uncertain and its evolution is changing and cost estimate in new technologies become difficult. Technological changes definitely are unpredictable changes and forecasting accurately the performances of these changes are difficult. In this scenario what strategic decision company should adopt is based on the risk bearing culture and capacity of the firm. Time pressure also create uncertainty as with existing organization capabilities and resources firm acquire and process new technology late as compare to competitors creates technological uncertainty for the firm.

3.4 R&D Capability

R&D capability of firms is knowledge creation by firm in specific field of science and technology through experimentation and exploration (Lane, Koka and Pathak 2006). R&D capability includes doing the research based on the market inputs and monitoring the technology markets to utilize this information internally.

3.5 Accumulated Marketing Capability

Accumulated Marketing capability is defined as accumulation of knowledge of customer's needs, segmentation of customers, knowledge of competitors, developing advertising program and effective pricing (Song and Renedetto 2008). It is also defined as building customer relationship, effective market participation and developing new products based on the customer's needs (Day 1994). There are four types of marketing capabilities of a firm which are customer-based assets, internal information & cost control assets, supply chain assets and market access, shared technology using alliance assets (Hooley, Fahy, Cox, Beracs, Fonfara and Snoj 1999).

3.6 Other Proprietary Assets (OPA)

OPA is defined as Patents, Intellectual Property, Rights, Relations with trade partners, which increases the Brand Equity of the firm (Aaker 1991). Generating ideas from customers, suppliers, and competitors are source of doing scientific research and generating patents. Proprietary assets are intangible assets which increases the worth of the organizations. Market value of the firms is greater than the book value because of these intangible assets. This proprietary capital of the firms generates the innovation attractiveness inside the firms. Patents are solution to the technological problems which if are commercialized well in

the new high tech products leads to competitive advantage. Trademarks are the sign which identify products sources from other product source.

3.7 Network – Externalities

Network Externalities are externalities in which person's utility for a good depends on the number of other people who consumes this good. When utility of the goods increases with other people consumption it is called positive externalities and when utility of the goods decreases with others consumption it is called negative externalities. It can generate negative utility if it exceeds the maximum limit and reduces the utility of product or service. Higher usage increases the confidence in the product/service and gives positive signals to late adopters of the products/services.

3.8 High Tech Product Marketing Intent (HTPMI)

High tech product marketing intent is marketing and capturing high tech products needs based on the consumer intent to purchase, consume, or adopt the products. Data mining is needed on this intent data and social network sites are one source of information. Product mapping is needed with different market segment and geography map using statistical methods such perceptual, preference maps. Attribute base analysis using conjoint analysis and cluster analysis is very useful for high tech products specifically while investing in new products. Each product segment needs to be tracked with return of investment on these products. HTPMI is innovation-driven dynamic product strategy to meet changing market expectations. The need to retain a technological advantage along with change in high-tech markets requires diffusion of technology and marketing strategy. High tech product marketing success is based on financial matrices of new product profit, sales, and market share. High-tech markets are characterized as fast-moving, expensive, and risky. Silicon Valley companies market share are declining because of their inability to bring the next generation technology products to market on time. Success in the markets with innovation using the marketing inputs will leads to financial gain to the firm.

3.9 Relationship of Absorptive Capacity with HTPMI

Local knowledge become redundant at some point and value addition in products of host companies decline, enhanced absorptive capacity acquire new knowledge from outside host firms and create value addition in the products/services. This external source are technical & research institutes, customers, suppliers, and competitors. Idea generation from outside environment needs to be evaluated and new product to be analyzed with respect to market needs, probability of technical success, growth

potential. Higher is the absorbing capacity and higher is the probability for firms to focus on high tech product marketing intent.

P1: Absorptive Capacity positively influence the HTPMI

3.10 Relationship of Market Uncertainty with HTPMI

Changing market needs and intense competition in the market forces shorter product life cycle and obsolete products quickly. Uncertainty of government policies impact the macroeconomic factors such as growth, inflations and investment (Bloom 2009). Effect on inflation more depend on international shocks such as oil price shocks. Recession in USA and sovereign crisis in Europe impacted the product demands in Asia region because of globalization. Collecting competitor's data along with generating Preference map & Perceptual map helps to reduce market uncertainty. To make product successful in uncertain market environment requires technical and marketing strategy. This strategy will vary across wide range of technology producers and technology.

P2: Market uncertainty positively influence the HTPMI

3.11 Relationship of Technological Uncertainty with HTPMI

Kodak was undisputed leader in camera but after evolution of technology to digital cameras they have lost their market. Nokia was also undisputed leader in mobile phones but lost their market position with changing technology of smart-phones. Business managers processing external information in incorrect manner leads to U.S. semiconductor firms early exit from the market when technological changes was happening very fast (Holbrook et al.). High investment in new technologies is perceived by managers as high risk as initial stage of the technology development & leads to risk averse behavior by the majority of the managers as this is seen as deviation from the given target return (Petty and Bowlin 1976). Firms can generate royalties for radical innovative technologies such as FDSOI or FINFET in semiconductor & increases their resources as success rate of technology increases. Firms might lose this competitive advantage if competitors use radical innovations which can erode their market share.

P3: Technological uncertainty positively influence the HTPMI

3.12 Relationship of R&D Capability with HTPMI

R&D capability is most important means to innovates new products and increase economic dynamics, is strategic response to dynamic environment (Keizer et al. 2002). Organization utilizes external and internal sources of knowledge through R&D capability. New product

innovation is how much new product is differentiated and impact marketing thinking with pull of customers. R&D capability and external changing innovative products in the market effect the competitive position of the firm. R&D capability is innovativeness of the technology & design of firms which results in to commercialize of products and services. Diffusion of market pull and technical push helps to build and commercialize new innovative products. R&D innovative capabilities positively impacted the value chain of the Taiwanese integrated circuit (IC) industry and increase their ROA (Sher and Yang 2005).

P4: R&D capability positively influence the HTPMI

3.13 Relationship of Accumulated Marketing Capability with HTPMI

Accumulated marketing capability results into fulfilling customer needs by offering expected products and services. These capabilities enable the firm to identify and understand customer needs and wants along with knowing competitor behavior which in turns generates competitive advantage. Knowing important attributes of the products needed by customers & generating conjoint analysis along with cluster analysis for segmentation of product based on attributes is important element of HTPMI. These capabilities develop effective marketing programs to communicate with its customers & develop collaborative communication, information sharing between customer and firm.

P5: Accumulated marketing capability positively influence the HTPMI

3.14 Relationship of OPA with HTPMI

Proprietary assets of the firms generate innovative attractiveness inside the firms. Conversion of patents to commercialization of products creates advantage to the firm rather than number of patents. Capitalization of patents must be higher than cost of the patents. Similarly trademark should generate differentiation and price premium for the products. Google and Microsoft have large no. of patents with worth more than tangible assets. Patents make a firm sole ownership for using them in their application products & give the company strategic strength with market power and bargaining power. After having patents firms get the legal rights to exclude their competitors to use this patents from manufacturing, marketing, & commercial their products.

P6: Other proprietary assets such as Patents and Trademarks positively influence the HTPMI

3.15 Relationship of Network Externalities with HTPMI

Early in the product life cycle many consumers see low utility in the product and with consumers increase creates network externalities effect. Firms also want to adopt new technology as technology matures and there are more users to the technology. High network externalities give perception to customers as superior technology or product, ease of use as many customers have adopted the technology or product. Firms increases there resources as network externalities increases with increased customer base and enhances the experiences of the customers. Network externalities expected by many people but often fail to materialize in the emerging technology market in reality (Li 2005). Network externalities can impact negatively if it exceeds the maximum limit of the firm and provide poor services to customers.

P7: Network externalities positively influence the HTPMI

3.16 Competitive Advantage

Processing of variables and building strategy with environment uncertainty is the key for the firm. Competitive advantage (CA) make the firm ahead of competitors with more market share in the market as compare to competitors. Three competitive strategies are Low cost leadership, Differentiated products; focus market segmentation targeting niche market with high profit margins (Porter 1980). Transfer pricing is one such technique of generating organization efficiency & setting aggressive prices of product for killing the competition. Competitive advantage indicated by financial performances and better HR performances with lower attrition rate of employees.

3.17 Relationship of HTPMI with Competitive advantage

Marketing strategy creativity and marketing strategy implementation is impacted by environment and business unit strategy (Slater, Hult and Olson 2010). Constant innovation and newness in the products are the challenge for the firm as new product performance increases product profit, sales, and market share. Different actions needed for Targeting, Segmenting, Positioning, and attack for new market capture is needed by the firm. Analyzing innovation diffusion processes and product development strategy with changing environment is important for success of the firm. Firm needs to acquire knowledge and use it effectively, which will affect the ability to innovate with changing environment, and be competitive.

P8: HTPMI positively influences the firm's Competitive advantage

3.18 Relationship state

Relationship state is based on all previous experiences and impressions the customers have with firm. Relationships built on trust and commitment is less likely to dissolve, leads to lower switching probabilities by customers (Morgan and Hunt 1994). Positive relationship state triggers the higher purchase activity and increases the retention of the customers.

3.19 Influence of 'Relationship State' on HTPMI/CA

Customers with good relationship with firm, willing to pay price premium and accepts bundling of products through cross-buying and up-selling. Customer behavioral changes happen over time and customer relationship has impact on retention rates and customer portfolio management (Homburg, Droll and Totzek 2008). Effective Relationship with customer captures customer's needs & help to find right strategy for marketing which is input for product development, finally leads us to customer profitability. Firm ability in converting this relationship with customers to closer relationship of partners generates HTPMI and CA to the firm.

P9: Relationship state would positively influence the relationship between HTPMI and CA

3.20 Perceived Risk

Perceived risk is risk seen by customer with respect to gap between expected product/services parameters on quality and performance with respect to actual parameters. Service risks the probability that the firm will not offer a good service in case of problems. Social risk the probability that a product purchased results in the disapproval of family or friends. Psychological risk is the probability that a product is inconsistency with self-image of the individual. Financial risks the probability that a purchase product result in loss of money. Time risk the probability of purchase, results in loss of time to buy or retain the product (Mitchell 2001). Consumer perceived risk is related with some amount of uncertainty seen by customers is a kind of subjective expected loss where actual probability of loss cannot be calculated (Bauer 1960). When consumers have insufficient knowledge or information about the products, this creates perceived risk about the products which reduces brand awareness and equity of the firms (Cox 1967).

3.21 Influence of Perceived Risk on HTPMI-CA Relationship

Unease of delivery, complexity of services and trust and reliability has impact on customer perceived risk (Cho 2010). Brand awareness, brand type and brand equity impacts on perceived risk. This risk can be lowered if product attributes and parameters are implicitly and

explicitly known to customers. Perceived risk seen by customers impact the new product commercialization which relates with the firm performance (Saji and Mishra 2012). Improved customer service and shorten product development cycles reduces the perceived risk. Higher is the perceived risk seen by customers higher is need for HTPMI

P10: Perceived risk would positively influence the relationship between HTPMI and CA

3.22 Market Orientation (MO)

Market Orientation is the set of activities and behaviors implemented to reflect the degree to which the marketing concept has been adopted as a business philosophy (Jaworski and Kohli 1992-1993). MO is composed of three activities which are organization-wide generation of market intelligence addressing customer needs, dissemination of the market intelligence across departments and responsiveness to it (Kohli and Jaworski 1990).

3.23 Influence of Market Orientation (MO) on HTPMI-CA Relationship

Development of a shared vision is important for market-orientation implementation. It is essential for a firm to develop an inter-firm strategy for MO and external relationships in offering superior values to the market (Hunt and Lambe 2000). Firm strategic orientation helps in driving market orientation. Market orientation is proactive response that anticipates changes need of customers specifically when competitors has targeted firm target customer base & impact the attitude of sale-force. MO is response to opportunities and threats seen by firm.

P11: Market orientation would positively influence the relationship between HTPMI and CA

3.24 Firm Size

Firm size is number of resources used to by the firm to achieve the desired output. Return on the asset is measure of efficiency for the firm. Entrepreneur firm with lesser no. of resources are more flexible to adopting new technologies and changing environment than firm with large no. of resources. Normally in growth period firm increases their resources to meet the demand and achieve economy of scale but it become difficult to sustain in downturn or stable growth period. Medium sized firm adopt marketing orientation to lesser degree than large size firms (Liu 1995). In high tech firm's quality of resource are more important than quantity of resource and utilization of resource based on the resource based view. Institutional theory states larger is better than smaller. Principal-agent theory states manager's increases the firm size to their own benefits.

3.25 Influence of Firm Size on HTPMI-CA Relationship

High firm size is more susceptible to uncertainty because of less flexibility on account of high uncertainty in market. Reactivity is generally slow on account of hierarchical divisional structure and principle agent problem. Higher firm size can generate economy of scale and economy of scope in high growth period. Small firm's flexibility and agility make them strong in products and technology but small in size make them less focus in marketing as compare to large firms. Firm looking for high profit margins go for differentiated products with decentralized organization. Firm size should not be measured based on the market capitalization but it should be based on sales (Arnott, Hsu and Moore 2005). Higher is the firm size higher is the needs of HTPMI which will create CA.

P12: Firm Size would positively influence the relationship between HTPMI and CA

3.26 Product Development Cycle Time (PDCT)

Product development cycle time is defines as the time elapsed between the start of the target identification, idea generation phase and date of first production for sale (Griffin 1993). Lead times is time elapsed between the start of the development project and market introduction (Clark 1989). Product development includes preliminary market assessment, market study, technical assessment, test market, and market launch (Cooper and Kleinschmidt 1994). PDCT is also defined as time duration from the start of product development to the end of product launch. Shorted life cycle of the high tech product and emerging technologies is high priority for the firms to capture the market before the competitors.

3.27 Influence of PDCT on HTPMI-CA Relationship

PDCT of high tech products are becoming shorter and consumers observe the large flow of high tech product in short span of time such as smart-phones. Shorter cycle times reduces cost of new product development hence reduces the risk, uncertainty and generate competitive advantage to the firm (Wheelwright and Clark 1992). Management needs to control product development activities by monitoring the project goals to reduce perceived risk, cost of new products and ready products before competitors. Managers looking for shorter life cycle of products paying high attention to development processes by achieving targets on time by using schedule adherence (Gupta and Wilemon 1990).

P13: PDCT would positively influence the relationship between HTPMI and CA

3.28 MARCOM Spending

MARCOM spending in industry includes competition spending, building corporate brand equity along with product image; support the intermediaries' business, sales force. MARCOM spending effectiveness can be measured by improvement in brand awareness, attitude towards Brand, purchase Intentions, sale volume (Aaker 1991). MARCOM matrix comprises Advertising, Sale promotions, public relations and publicity, event marketing, new media and direct marketing (Lawrence-Schmude 2012). The process of evaluating an intangible asset such as brand and product image requires certain degree of estimation and subjectivity (Mueller 2004).

3.29 Influence of MARCOM Spend on HTPMI-CA Relationship

Quality and performance of the products relative to competitors create brand equity (Bendixen, Bukasa and Abratt 2004). Brand equity reduces the customers' perceived risk of purchasing high tech products and improves sale volume. Functional orientated firm's looks for short-term goal generally spend less in MARCOM spending. Market orientated companies recognize the importance of MARCOM spending and looks for long-term goals. Building the firm's corporate brand equity, brand loyalty gives competitive advantage to the entire organization.

P14: MARCOM spending positively influence the relationship between HTPMI and CA

3.30 Continued Investment In Marketing

Continued investment in marketing influences the services to customers and linked with cost and revenue generated from the customers. Investment in marketing positively impact the perception of customers about firm's service offering (Bolton, Lemon and Verhoef 2004). Effectively investing and implementing marketing programs helps in collecting customer data points & generate better understanding about customers.

3.31 Influence of 'Continued Investment in Marketing' on HTPMI-CA Relationship

Investments to customers results in to closer relationship with willingness to cooperate increasing the customer's perceptions of the firm's commitment to them (Anderson and Weitz 1992). Customer and Suppliers see this marketing investment positively and ready to cooperate as partners with firm. Investment in marketing creates more satisfaction for the customers as now firm is now in better position to understand customer needs and providing solution to the customers. This investment also helps to prioritize customer needs based on the profitability of the

customers to the firm & generates brands, customer loyalty, & increasing the marketing productivity.

P15: Continued investment in marketing positively influences the relationship between HTPMI and CA

3.32 Cross Functional Coordination

Cross Functional coordination is group of people from different functional area working for the common goal of the organization. Five different coordination required across different functional organization within a firm which are Marketing and R&D, R&D and Quality, Quality and Manufacturing, Manufacturing and Marketing, Marketing and Sales, (Dutta, Narasimhan and Rajiv 1999). Marketing coordination introduces innovative products based on customer needs, R&D and operation coordination enable firm to introduce product at lower cost. Five organizations Collaboration are cooperation, cross-functional information sharing, knowledge sharing, participative culture, and mutual trust (Eng 2006).

3.33 Influence of Cross-Functional Coordination on HTPMI-CA Relationship

Interdependent organizations mutually and cooperatively working together to control manage and improve the flow of materials and information from suppliers to end users (Aitken and Towill 2002). Marketing knowledge dissemination among different divisions of the firms leads to improved performance of the firm resulted from faster response to customer's needs and competitive threats. Operational plan is insufficient without a collaborative marketing plan using expectation from customers.

P16: Cross-functional coordination positively influences relationship between HTPMI and CA

3.34 Product Type

Marketing researchers has divided product into three types which are search goods, experience goods, and credence goods (Nelson 1974). Based on the product characteristics it has been divided in to three categories durability, Tangibility and use goods (Kotler 2003). Unlike search and experience product, customers are unable to evaluate credence attribute products (Nelson 1970). Each product type will differ with respect to its raw material, product manufacturing, distribution, packaging, usage.

3.35 Influence of 'Product Type' on HTPMI-CA Relationship

Message strategy Emotional or Rational is developed according to different Product type (Liebermann and Flint-Goor 1996). U.S and Europe market are early adopters of the advanced technologies and Asia market is late adopters of the market. Commodity products have less profit margin

than differentiated products, are of different product type. Segmentation of product decides marketing strategy based on the interest of the consumers on this product type.

P17: Product Type would positively influence the relationship between HTPMI and CA

3.36 Word of Mouth (WOM)

McKinsey and Co. has called WOM "the most disruptive force in marketing" which drives the sales and has high degree of credibility (Bughin, Doogan and Vetvik 2010). WOM is cumulative effect of interaction by the firms with customers, suppliers, and intermediaries. People exchange comments, recommendations about the product in web sites and it reduce consumer's perceived risk. Negative WOM is result of difference between customer's expectations and firm perceptions about their products. WOM is correlated with customer's perception of value and quality about the product of the firm.

3.37 Influence of 'WOM on HTPMI-CA Relationship

On average across 15 different product and service categories 58 percent of consumers describe high credibility to the WOM, 50 percent mentioned they will likely to buy as a result WOM (Keller and Fay 2012). Customers who generate positive word of mouth are attitudinal customers and also generate customer brand value. It is easy to retain existing customers as acquiring new customers are costly process for firm. High tech products have higher impact of WOM rather than promotions and advertisements as these products are more sensitive to attributes, features, & impact the consumer behavior.

P18: WOM positively influence the relationship between HTPMI and CA

3.38 Merchandising Cooperation

Merchandising cooperation means logistic management, supplier database information development, and sharing cross-functional information. Merchandising cooperation is a supply chain asset which is relationship with intermediaries. Three major areas of collaboration are Demand side such as joint marketing and sales activities, supply-side on joint logistics and supply-chain activities such as information and process improvement (Corsten and Kumar 2005). Trust is as a key element for building relations with suppliers & enables a firm to build complementary capabilities.

3.39 Influence of 'Merchandising Cooperation' on HTPMI-CA Relationship

Boeing 787 faced major delays in their plan without coordinating marketing plan with supply chain operations (Tang and Zimmerman 2009). Collaborative business practices with merchandiser achieve demand specific customer needs at less cost & on time. IC firms in Taiwan creates competitive advantage through their cooperation of value chain cooperative partners. Supplier cooperation in automotive manufacturing leads to faster product development in Europe, North America, and Japan (Clark 1989).

P19: Merchandising cooperation positively influences relationship between HTPMI and CA

4 CONCEPTUAL FRAMEWORK

We have discussed the drivers and facilitators of high-tech product market in this frame-work. All these variables and propositions are important in high tech products. Based on the HTPM context these variables and propositions frame-work has been built. In this frame-work different variables are petals of the flowers and these are bonded with leaf underpinning are the proposition in this frame-work. If one of the petals of the flower is not working properly it can lose the fragrance of the flower. Sensitivity of these variables will vary from firm to firm based on the context of the issues faced by the organization. Paper found twenty variables which are categorized as antecedent variables, moderating variables and outcome variables. Nineteen propositions which has built relation among various variables. This conceptual frame-work is depicted in Fig. Seven antecedent variables are identified and seven propositions are used which build the relationship of antecedent variables with High tech. product marketing intent. Twelve moderating variables have been identified and eleven of these variables are further categorized into customer specific, firm specific and environment specific variables. Twelve propositions have been built which has created a relationship with captured the complete all the drivers and facilitators of the high tech product market. Aim of this framework is to consolidate and analyze the effectiveness of these variables and propositions in HTPM context which can be utilized by business managers. This can help the firm to identify the root cause of their failure and take the appropriate actions on time for their competitive advantage.

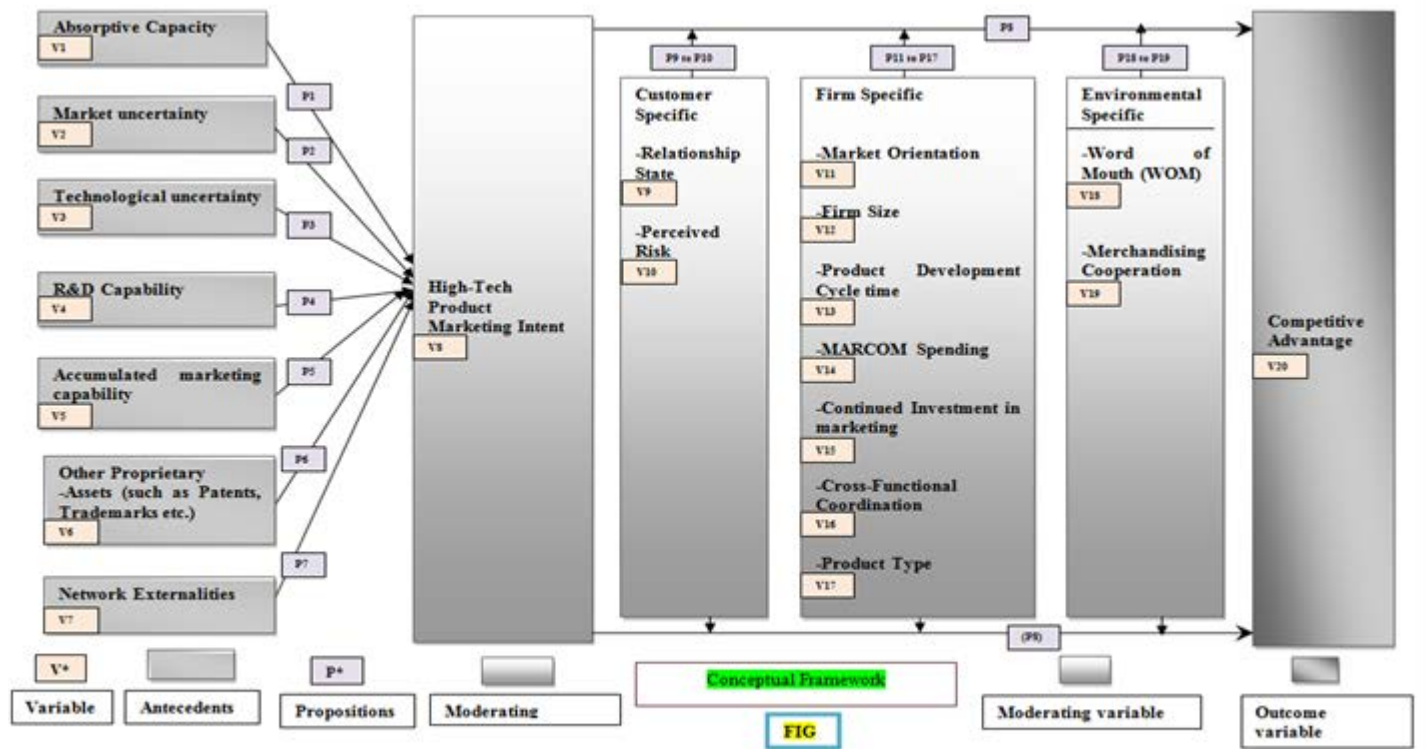


Figure 1. Comprehensive model of Drivers of High Product Marketing Intent and its Relationship with Competitive Advantage

5 IMPLICATIONS TO MARKETING THEORY AND PRACTICE

Implication of Frame-work to Marketing theory is discussed to consolidate the critical variable surveyed in the literature. This is needed to remind the user the frame-work is build based on the survey of the literature. This concludes the validity of the frame-work theoretically. Further firm is interested on the financial results which is outcome of actions generated derived after analyzing the important variables for the firm. Frame-work provides all the critical variables and their relationship, using these variable in practice to high tech firm will confirm the practical application for the firm.

5.1.1 Implication to Marketing Theory

Large part of research has been done on the variables important in high tech product market. Consolidation of these variables along with proposition relationship was not clearly distinguished in the existing literature. All these variables are important for high tech product market but their criticality will vary based on the context of the problem. Firm with high absorptive capacity means learning from external environment and using this information for commercialization of their high tech

products. Absorptive capacity means learning and using information for commercialization of products inside firm from scientific discoveries and technological activities outside the organization (Sun and Anderson 2010). Firm having good degree of absorptive capacity are positively related with HTPMI as customer Intent will be absorbed with ease.

Variability in the market because of macro and micro environment drivers specifically required high HTPMI as firms needs to be keep their resourcing focused after understanding of market Intent. Uncertainty in the environment creates inaccuracy to predict the events and decision making become difficult. Dealing with technological risk appeared to be by placing more stringent requirements on the customary financial criteria for investment (Rosenblatt and Jucker 1979). Most popular risk-assessment method is sensitivity analysis with changing probabilities of impacted variables. Different firm perform their research on technology and use different processes and yield of these technologies also vary across firm in different time domain. Standard technology will emerge slowly as more information will be available about technology which creates uncertainty in the technology. In this scenario firm with high HTPMI can extract information

faster and which can lead to faster decisions on choosing the right technology.

Firm strategy is response to the challenges of an environment full of uncertainties and creates competitive advantage. Higher market uncertainty require stronger relationship between a market orientation and business performance (Jaworski and Kohli 1993). Accumulated marketing capability (AMC) which has been acquired by the firm over the years which means understanding of customer needs, competitors knowledge, effective pricing, advertisement and analysis of firm target segment. Firm with high AMC will be positively related with high HTPMI. In high tech product large customers base are impacted by the network externalities. In Presence of network externalities, consumers adopt technologies early & this creates confidence in the product to late adopters if experience by early adopters is positive. High network externalities give strong message to understand market intent before launching the high tech products. High network externalities are positively linked with HTPMI. Industrial branding has emerged as an important issue, allowing firms to gain substantial competitive advantage, especially in markets where product has become commodity and inventory is also increasing. Brand awareness and brand image generates sales, Increase customer loyalty which is part of MARCOM objectives.

During the process of purchasing decisions consumers will look for various methods of reducing perceived risks (Kotler 1994). Dynamic customer relationship has impact on customer utility and purchasing frequency (Li 2005). Relationship state are derived by the past experiences of the customers from the firm. Firm should have Market orientation strategy from its external relationship support will help firm in offering superior value to the market (Hunt and Lambe 2000). Intra-firm cooperation firms can improve their market understanding and their ability to adapt to their environment. Shorter product cycle time reduces the uncertainty, risk and cost of products and generate competitive advantage. High R&D intensity and high R&D manpower increases innovative capabilities and increases ROA (Return of Assets) and firm performance (Sher and Yang 2005). Firm with high R&D capability require high HTPMI as it will provide navigation path in which direction research needs to be conducted to align with customer needs. Firms which want to exploit their patents, trademark to their financial gain must address the HTPMI which will guide the directions of their patents and exploit their trademark with differentiation in their high tech products.

6 Implication to Marketing Practice

Paper has discussed how different variables and their relationship using propositions are used in practice and how their sensitivity changes based on the context of the problem. Semiconductor industry technologies are changing in very fast pace. Technological process improvement has more contribution for achieving high speed and low power in design rather than design improvement. Currently hot technologies are FDSOI and FINFET process. Since yield of these processes are still not matured this creates technological uncertainty for the customers. Firm "A" has shown better results on FDSOI technology but semiconductor firm "B" is using FINFET process which is not only costly but has higher technological uncertainty currently. In spite of better FDSOI results, customers see more perceived risk on FDSOI process as firm "B" is high on brand value and has strong financial resources which can create the complete eco-system which is needed for the customers. Customers has long-term approach and see future risks as high tech product require large investment and resources so they use option strategy of "wait and watch" and does not want to commit for one process. This has generated market uncertainty in context of the customers' acceptance of process. Once standard is governed it will generate the externalities and more customer entered in to the market for using the process. Early adopters have gain of achieving high market share but have high risk because of uncertainty in technology and in market. Market uncertainty, technological uncertainty linkage with HTPMI and Network externalities, brand value, HTPMI linkage has impacted the firm "A". Firm "A" finally collaborated with strong player to build eco-system for FDSOI technology and generating network externalities. Company can generate their revenues through marketing externalities which will push other firms to build products in FDSOI & generate technological royalties for firm "A". Firm "A" further needs collaboration from other firm to generate positive network externalities & WOM.

In another example correlation of Absorptive capacity, Relationship state, Market orientation, PDCT, Cross-functional coordination linkage with HTPMI and competitive advantage. Firm "C" multinational semiconductor company was dealing with "D" company who was making application product. "C" over committed the delivery to customer and created gap between customer expectation of quality and perception by the firm. Commitment done by firm "C" to shorten PDCT as customer want to launch the product next year end. Gaps observed in cross-functional coordination, absorptive

capacity, and information flow in operation level because of divisional matrix structure which impacted Market orientation (MO). This impacted "relationship state" with "D", poor HTPMI, future business, bad worth of mouth(WOM) and lost competitive edge in spite of working hard by the project team.

Firms which has shown high content of HTPMI, Customer specific, Firm specific, Environment specific processing has clearly shown competitive edge. Qualcomm and ARM semiconductor firms gained market share in spite of adverse market condition because of firm specific factors such as shorter PDCT, differentiated product type and customer specific variables such as positive relationship state and less perceived risk. ARM has unique strategy of licensing its IP's keeping cost & price of IP's very competitive. Broadcom (now acquire by Avago) has worked so well on Market Orientation, knows exactly what customers are expecting from them. Samsung inherited skill of absorptive capacity with learning fast from external environment e.g Customers, Suppliers, competitors & generate applications from these learning. These firms are very strong on Firm Specific factors which created brand in customer's mind & hence market externalities. Research shows firm specific parameters are responsible seventy percentages to firm success as compare to external macro-economic market conditions.

Intel is losing market share on account of market uncertainty and network externalities which narrow down to HTPMI. Consumers shifted from desk-top, lap-tops to smartphones, tablets where main requirement is low power and adequate speed. Understanding consumers' needs along with capturing network externalities has high correlation with HTPMI. Firm specific variables "MO" and cross-functional coordination is also impacted by the size of the organization and their organization structure and culture. Large firms with hierarchical organization communication of information go slower and all intended information does not flow down the hierarchy. Less authority to local organization further makes them less effective as "MO" part of local geography is not served properly.

Market decides the product type for the target customers. Product needs will also vary based on different geographic structure. MNC Firm is having Tele-Health product which is running successful in Europe but same product does not work in Asia. Lower Adoption rate for high tech products in Asian market is because of perceived risk seen by hospital authorities which make them reluctant to accept this product. Metro cities with tier-1 Hospitals are the

target customers for the MNC. To build the customer relationship, investment in marketing is required to align the quality of products with perception of doctor's in Tier-1 hospital. Rotation of high-tech product to different geographic region requires coordination among marketing and production division in different geography.

7 CONCLUSIONS

Intent of this paper is to guide the business managers of the high tech product market in fast changing dynamic environment to improve their competitive advantage. These firms need investments in modern technology, products, and marketing. Advancement in technological products generates uncertainty which requires mix of product and marketing strategically choices for the firms. Twenty Variables and nineteen propositions have been built to depict the frame-work needed to analyze and implement the choices to resolve the issues faced by business managers. Paper has discussed how different variables which has built propositions with HTPMI and how customer specific, firm specific and environment specific variables along with HTPMI are finally leads to competitive advantage to the firm. Further frame-work has been used in practice for high tech firms which has proven the usefulness of this frame-work. These variables and propositions provided the complete checklist for the firm where sensitivity of the variables for the firm will vary over time. This framework provided the navigation path for business manager with different directions available using these variables and propositions. These variables and propositions are based on the explorative study of the literature with qualitative analysis of these variables on few firms. Now firm need to pick the directions based on sensitivity analysis of these variables and their relationship using propositions.

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