NTBFs Use of Market Orientation

in the

Wireless Outpatient Healthcare Sector

A research proposal submitted

by

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Overview of Research

This exploratory pilot study will contribute to the literature by exploring market orientation of new technology business firms (NTBFs) in the wireless outpatient sector vis-à-vis the acceptance of their products by customers in their target market(s). It will be a basis for development of a hypothetical framework for further research on market orientation and its connection to long term performance. Market orientation involves generating, disseminating, and responding to information and knowledge to create products in line with a target market’s perception of unique value. The wireless outpatient healthcare sector is immature and turbulent as both the government and the medical sector push to cut costs and improve care. Wireless technology is creating major changes in how providers and vendors approach healthcare delivery; diagnosis, treatment, and, prevention.

Wireless Health Market at a Tipping Point

Augustine (2007) noted that a tipping point in science and technology innovation has been reached in the global economy. The tipping point is a term popularized by Malcolm Gladwell (2000) and refers to the point at which something develops critical mass. Augustine’s use of the phrase “tipping point” refers to the point in time when an innovation has developed sufficient critical mass within the human social network that its eventual global adoption is highly likely.

The World Economic Forum (2010) regards competitiveness in information communications technology (ICT) as essential to the development and maintenance of economic health of every country. The Forum initiated the Global Information Technology Report,
assessing national competitiveness and development in ICT for each of 134 economies. The impact of wireless (mobile) telecommunications is a specific focus of the Forum. One of the key sectors for any country intent on economic dominance is healthcare products and services. The Forum views wireless as an innovation of breakthrough proportions. Dr. Eric Topol, Chief Academic Officer at Scripps Health, believes that wireless is indeed powering a major inflection point in healthcare (2010).

Wireless health products and services have the potential to revolutionize the way in which healthcare is received by patients, potentially boosting positive outcomes while also lowering the costs of care substantially. The term “potentially” is being used because the wireless health sector is new and lacking in substantial hard data as to the actual economic implications. Caring for chronic conditions accounts for more than three quarters of healthcare expenditures as hospitalizations are frequent (Anderson, 2002). The costs might be lower and outcomes improved if chronic conditions could be managed via proactive outpatient care.

Generally, there are two broad categories of wireless outpatient care offerings: those designed for remote monitoring of physiological conditions such as high blood pressure or diabetes and those designed to encourage patients to participate in the management of their own health issues. ABI Research expects mobile data services for healthcare to generate about $7.7B by 2014 which is approximately 10 percent of expected mobile data services revenues for 2014.

Why This Research Is Needed

Design and development of wireless medical products and services is fraught with the same challenges faced by all high technology offerings. Christiensen (1997) notes that 75% of high technology research and development monies are spent on products that fail while Coburn
(2006) believes the percentage is as high as 90%. If the level of product failure was lower, the obvious result would be even higher productivity, individual wealth, profits, and, increases in the standard of living. Creating these higher levels of economic contribution requires that a firm successfully navigate a turbulent market environment. A turbulent market means a market in which there is rapid and discontinuous change in products, competitors, and market demand, and which places a premium on a firm’s ability to make rapid transitions (D'Aveni, 1994; Eisenhardt, 1989).

Individually, NTBFs tend to value engineering expertise, not marketing expertise (Mohr and Shostari, 2003). Generally, NTBFs are competent in science and technology but quite weak in marketing skills (Oakey, 1991; Jones-Evans, 1996). NTBFs learn technology more easily than they learn how to chart the target market’s perceptions of what creates unique value (Meyers and Roberts, 1986; Rosen, Schroeder, & Purinton, 1998; Mohr, 2001). Making the situation even more complex for NTBFs is as NTBFs’ products move through their product life cycles, the target markets’ perceptions of what creates unique value change (Moore, 1994). The Technology Adoption Life Cycle (TALC) was originally introduced as a sociological model by Beal and Bohlen (1957) to track the manner of hybrid corn adoption by farmers, subsequently expanded by Rogers (1983) to explain how innovations diffuse through a society. Bass (1986) adapted it for mathematical use in forecasting product adoption rates. For NTBFs, their difficulty stems from not accurately understanding how the perceptions of mainstream market targets for science and technology products, relative to what constitutes unique product value, differ from those of earlier segments (Moore, 1994.) For early customers, the new- to- market product need not solve a pressing problem; all it needs is to be is a new technological paradigm. For later customers, those key to long term viability and profit, the product must solve a pressing problem.
Reaching these customers means crossing something Moore (1994) terms a chasm, that period of time in which the firm either delivers the unique product value desired by the mainstream market or stalls and fails. Figure 1 illustrates the zones of TALC.

Figure 1: The Technology Adoption Life Cycle

This research explores what firms perceive to be the actual organizational activities and behaviors that constitute their market orientation after receipt of some level of venture capital funding, a financial marker indicative of a product having the potential for disruptive and profitable growth.
Research questions

This pilot study will focus on the following: what are the activities and behaviors engaged in by new technology business firms that they perceive provide the necessary knowledge for creating and marketing a product that meets with high customer acceptance? Are there differences between firms who have recently begun offering their mainstream product and those who have not yet begun to? Do the views of current customers utilizing their product offerings indicate high customer acceptance?

Specific questions to be asked of each competing firm include the following:

What data sources are utilized to determine the appropriate market orientation, who is involved, and with whom and how do they share the data?

What data analyses are done, who is involved, and with whom and how do they share the analyses?

What decisions are made based on the analyses, who makes the decisions, and to whom and how are they communicated?

Finally, how is the process of gathering, analyzing and subsequent decision making different from how they did things prior to receipt of the commercialization funding? Are the tasks different? Are the people involved different? Is the method of communicating data, findings, analysis and/or decisions different?

Specific questions to be asked of each firm’s customers include the following:

For what specific purpose(s) are you utilizing this firm’s product?
Prior to purchasing this product, how did your firm handle those needs?

Is the product performing to your expectations? Why or why not?

How would you characterize your relationship with this vendor?

Do you anticipate continuing to purchase this product from this vendor? Why or why not?

Delimitations

This research limits its study and selection parameters to wireless manufacturing firms based in the US whose offerings target outpatient medical care, currently a sector with less than 100 firms. As well, these firms need to have received at least one round of funding from venture capitalists, as represented in the National Venture Capital Association’s comprehensive database. Ten participating firms will be the minimum target sample for this pilot study.

Review of the Literature

*Marketing Concept is Foundation for Market Orientation*

Drucker’s (1954) seminal work in marketing contributed the simple premise that businesses are created to serve customers. Businesses succeed in serving the customer when they offer the right product or service at the right price, at the right place, with the right message, and at the right time. Drucker emphasized the necessity of innovation, noting that a unique and valued position is needed, and one that answers the question “why would a customer want to do business with us?”

Drucker’s (2006) view is that good marketing makes selling unnecessary. This view implies that if you are offering a product or service that people or firms recognize as obviously solving a problem, selling is not needed. Having a market orientation allows firms to better assess and manage risk as they look to take their product or service from idea to concept and then
to product and/or service. The behaviors of market orientation allow macro and micro level environmental information and analysis to be available to them dynamically. This allows the firm the opportunity to decide what’s feasible in terms of the firm’s resources versus the needs/wants of the market. The “if we build it, they will come” mindset that many engineers have is not viable. Understanding marketplace reality is a key to profitable survival. Market orientation exists along a continuum or highway with firms taking or not taking actions based on their view of the road relative to their perception of the appropriate destination.

* Constructs of Market Orientation: One Culture-Based, One Behavior-Based *

Market orientation involves generating, disseminating, and responding to information and knowledge to create products in line with the target market’s perception of what creates unique value. Research on market orientation comes in two major streams, starting with the 1990 seminal works of Kohli and Jaworski as well as Narver and Slater. The stream initiated by Slater and Narver in 1990 explores the relationship between business performance and a culture-based market orientation of organizations. The stream initiated by Kohli and Jaworski in 1990 seeks to understand a behavior-based market orientation, that is, the characteristics that differentiate firms with a high level of market orientation from those with lower levels of market orientation. Narver and Slater's belief is that market orientation is a business culture that sustains effective and efficient creation of superior customer value. Their emphasis is on the need for a firm to engage in intelligence gathering and then respond organization-wide with what the customer values. Narver and Slater emphasize the need for a customer and competitor orientation with inter-functionally coordinated efforts to utilize the firm’s unique blend of resources to deliver a product that customers value. Kohli and Jaworski’s emphasis is on the activities in which the firm must engage to generate, disseminate and act on information regarding forces outside the
firm’s control, particularly their influence on customer needs, present and future. Regardless of the nature of their approach to research on market orientation, Kohli and Jaworski’s behavioral view or Narver and Slater’s culture view, both emphasize that the end result must be customer value. Both streams of research support an emphasis and commitment to market orientation on the part of firms who wish to be viable long-term.

Many of the early and influential U.S.-based studies found a positive association between market orientation and performance (Jaworski & Kohli, 1992; Narver & Slater, 1990; Slater & Narver, 1994; Ruekert, 1992). This positive link has continued to be validated in later studies. Dawes (2000) did a meta-analysis of 36 studies in the 1990 to 1999 timeframe, finding support for a positive connection between performance, as measured by profitability, and market orientation. Kirca, Jayachandran, and Bearden (2005) did a meta-analysis of 114 market orientation studies from which they concluded that the overall positive effects of market orientation performance are indeed generalizable. Their findings were in line with those of Rodriguez Cano, Carrillat, and Jaramillo (2004) who also performed a meta-analysis of studies. Kirca et al. found, relative to market orientation’s impact on performance, an overall strong relationship with particular strength in the relationship between market orientation and performance for manufacturing firms. However, the science and technology based firm sector has been all but ignored in research done to date on market orientation. The focus has been on large established firms or units of large firms, not on startups.

Methodology

This exploratory qualitative study will focus on wireless firm activities and behaviors relating to market orientation vis-à-vis customer views of their product offering in terms of its unique value. Selection will be purposive (Patton, 1990) rather than random (Eisenhardt, 1989)
with selected firms meeting specific criteria to ensure that they represent the NTBF population of interest. This increases external validity and creditability of the results, allowing the results to be generalized within that realm and further, allows the construct of market orientation within the wireless sector to be longitudinally tested later.

This preliminary study will provide the basis for developing testable hypotheses on market orientation strategies relevant to today’s emerging industries. The data gathered will reflect the actions and perspectives of the participating firms (Merriam, 1998).

An integrated methodological triangulated qualitative study approach will be used to construct the case studies including in-depth interviews, observation, and document analysis. Methodological triangulation is one of the four types of triangulation identified by Denzin (1978) with the others being data triangulation, investigator triangulation, and theory triangulation. Patton (1990), and Healy and Perry (2000), note that utilizing multi-methods allows different aspects of the subject reality to emerge. Construct validity is increased by triangulation as it provides a system of checks and balances (Hall et al, 1999.)

Case Study Research and Analysis

Qualitative research such as case study is not to pinpoint causality but rather to understand the complex and elusive systematically. Data generation, analysis and interpretation are interactive and ongoing with data being compared with data, data being compared to existing theory and prior research and finally being categorized, conceptualized and turned into tentative hypotheses and theories. The researcher is not looking just for patterns, but also for variety and anomalies. (Gummesson, 2005)

Research in emerging areas for which existing theory may fall short is regarded by Eisenhardt (1989) as particularly well suited to the case study approach due to the rich data
generation possible, with Eisenhardt (1989) offering guidelines for use. Stake (1995) and Yin (1994) have written seminal texts on case study research which will be consulted. Effective case study research adheres to an appropriate protocol with Gummesson (2007) providing a checklist for assurance of data quality, while Miles and Huberman (1994) offer data analysis procedures.

Sample Selection Criteria

The criteria for selection that a firm must meet are: not more than three to five years in business; has developed a wireless based product or service targeting the outpatient healthcare market that is being sold and has received venture capital. For the purposes of this research, it will be assumed that receipt of a venture capital commercialization round indicates a high technology product with high potential for disruption, that is, a radically new paradigm or way of doing something. Typically, this means it has not simply improved cost, time to market, quality, etc. but is an offering that disruptively shifts the manner in which something gets done. The National Venture Capital Association’s comprehensive database will be used to locate the wireless industry sub sector firms who have recently received funding.

Research Process Overview

The research process includes selecting the sample firms, making initial contact to request in-person interview appointments and sending follow-up letters confirming appointments, and providing more detail on the research purpose and the actual interviews for primary data collection. The secondary data collection will include press articles, press releases, product data sheets, marketing and sales materials, web site content, white papers, analyst comments, and customer profiles.

The general design of this research is inductive. Individual case studies will be built and then compared across cases to construct a conceptual framework. In this instance, an in-depth
multiple case study approach is selected as the best approach for illuminating the behaviors and activities, particularly as to why, how, and what resulted (Schramm, 1971) The researcher is following Yin (2003), who suggests that the cases chosen follow replication logic in that they predict similar literal results.

Data Collection Method

Once a firm selected for interview has agreed to participate and appointments have been set, a preliminary situational analysis or TOWS will be done. TOWS stands for Threats, Opportunities, Weaknesses and Strengths (Weihrich, 2008). This preliminary assessment will be done using secondary external data such as journal or newspaper articles that cite customer, wholesaler and middleman commentary, analysts, and the firm’s own executives (Wall, 1974). This will allow the researcher to assess the current and expected future situation of the firm (Weihrich, 2008) as perceived in external sources. This preliminary assessment of the firm’s strategic situation will then allow the researcher to enhance each individual interview with questions particular to that firm’s market position as represented in the external data. A request for internal secondary data such as financial news, sales and marketing material will be made at the time of the interview as additional internal views of the firm’s current and expected future situation (Weihrich, 2008.)

A semi-structured interview method will be employed which will allow a focused conversation but without rigid control, allowing a more natural conversational flow. The interview format was developed based on an understanding of the industry as well as knowledge of the extant literature in the market orientation arena (Kohli et al.1993; Deng & Dart, 1994; Harris 2001, 2002.) Open-ended questions will be utilized, allowing for the likelihood of new questions to arise within the interview format, maximizing the opportunity for insight into the
behaviors and activities of the firm. Purposeful conversation is how one might regard this method. The semi-structured interview protocol to be followed is given in Appendix A. Using this protocol should allow replication logic (Yin, 2003). The same protocol will be used with participants from each firm.

Contact with Sample

Initial contact would be by phone with the CEO’s office. The purpose of the research would be explained and a request made for an appointment with an individual who would be able to either answer my research questions themselves or refer me to the individual person(s) needed. A request for permission to audio record the interviews would be made, as well as a request for access to written documents that are perceived as indicative of the firm’s market orientation activities and behaviors. All of these permissions will be given, in writing, on company letterhead, by the CEO, or other person with authority to do so.

Phone or email contact with the designated contact would then be made. The contact will be told that he/she’s participation is strictly voluntary and if he/she decide to decline participation that decision will be kept confidential. The phone call will be followed quickly by a letter, if he/she wish to participate, confirming the appointment, accompanied by a Research Briefing Note and Informed Consent Form(s) for interview, recording, and access to written documents (see Appendix for details).

Potential participants will be designated by the firm. Participation will be strictly voluntary and participation or non-participation will be kept confidential.

Participants will be asked to provide a different name (pseudonym) for any quotes that might be used in the final research report. After the interviews, thank-you letters will be sent to all participants.
Data Collection

In the interview, the researcher will reiterate the background of the research (purpose and method) and will ensure that the necessary consent forms have been signed prior to turning on the tape recorder or asking any questions. If the firm has decided not to allow recording, the interviews will proceed without recording, with only note-taking.

The interview format will be semi-structured. The researcher will proceed as set out in the Interview Protocol (Appendix A).

At the end of each interview, the researcher will ask participants about their willingness and availability for follow-up interviews should they be required.

Validity of the Data Collection Method

Audio recording may limit the interviewees’ desire to fully offer their thoughts (Lincoln and Guba, 1985.) The background or position of either the participant or the interviewer may bias results. For instance, only individuals who have been designated by the firm will be asked to participate. This introduces several possible bias scenarios. The designated interviewee may edit his responses to ensure that the firm is always presented positively or, alternatively, believes he has been given permission to answer very honestly and the answers are subsequently edited upon review by the firm. The interviewer, with many years of experience in high tech marketing, may impact interviewee perceptions. The recording of the initial pilot interview will be carefully reviewed to reduce bias and to ensure the highest quality interviews.

Healy and Perry (2000) provide criteria for validity that a qualitative study must meet. One, the ontological assumption is that the research is dealing with complex social phenomena which market orientation behaviors and activities certainly are. Two, the case studies done must be generated utilizing valid sources and appropriate contexts referred to as “contingent validity”
and this criterion is met by utilizing a known database for sample selection. Third, data
triangulation should be employed and this is being done by analyzing public information on the
firm both prior and subsequent to the in-depth interview. Fourth, the methodology must be
trustworthy, that is, auditable. As I am providing the semi-structured interview format and being
careful to describe the critical procedures to be used, this criterion is also met. Fifth, construct
validity is critical. Meeting these criteria is the use of prior theory in marketing, and marketing
within technological markets as well.

Data Analysis and Insight

As done by Eisenhardt (1988), each interview will be transcribed immediately after the
interview (if audio recording was not allowed). Use of a digital voice recorder with built-in USB
coupled with “Dragon Naturally Speaking” voice recognition software will allow automatic
transcription of the interview as well as the interviewer’s post-interview reflections. The
interview data will be entered into a database indexed by case, interview number and question
number. Each respondent would be sent a transcript of their interview for review and to indicate
removal of any material they do not wish to have used by the researcher. Once returned, analysis
would move to the next level.

At this next level, the notes will then be coded, that is, divided into analyzable units,
creating general thematic categories (Coffey and Atkinson, 1996). These thematic categories
will emerge from the data and not be arbitrarily imposed to ensure they are sensitive to, and
reflective of, the data (Dey, 1993; Coffey and Atkinson, 1996). These thematic categories will
then be evaluated, identifying similarities, differences, and recurring themes. Note that
independence of all data will be maintained at all times within the database. The secondary data
analysis done prior to, and subsequent to, the in-depth interviews will be used to evaluate the
interviewees’ statements. Then, utilizing the interview data and the secondary sources, a case study will be created for each firm. More in-depth analysis will wait until all cases have been written to maintain the independence of the replication logic. Once the case studies are complete, cross case analysis will be done to develop conceptual insights. The researcher will be looking for common dilemmas, as well as the unique aspects of each case.

Reporting and Storage

Participants will be asked to provide a different name (pseudonym) for any quotes that might be used in the final research report. The names of the firms will also be changed in all written documents. Recordings and all related research materials will be kept in a secure file cabinet and destroyed five years after completion of the study. The results of the research will be published in journal articles or books.
References


Appendix A – Interview Protocol

Introduction

This guide describes how interviews will unfold during the proposed research. The first section describes the procedural aspects of the interview and the second section sets out the interview questions.

1.0 Procedures

- Initial contact with the firm will be to the CEO’s office via telephone. An explanation of the doctoral research will be provided and request made to be directed to the appropriate individual(s) within the firm.
- Each interviewee will then be contacted via telephone and the doctoral research explained.
- Each interviewee will then be sent the Research Briefing Note as well as consent form with return envelope. The appointment day, time and length will be set.
- Interviews will take place at the firm in a private office and last forty-five to sixty minutes.
- Before the interview starts, the interviewee will be asked if they would like the researcher to review the background of the research (i.e. purpose and methodology).
- Recording device is started and interview begins.
- Researcher proceeds through the interview as set out by the protocol below.
2.0 Semi-structured Interview Format

2.1 Information Needs

What types of information does your firm regularly require?

Prompts: product, pricing, technology, standards, competition, regulatory, market, demographics, economics, etc.

2.2 Data Gathering

1. From what external sources does the firm gather this information?
2. From what internal sources does the firm gather this information?

2.3 Data Sharing

1. With whom and how is the information you get shared?

Who: marketing, engineering, finance, sales, BOD, CEO, etc.
How: via meeting, via email, via written reports, via phone
How shared: singly, in groups

2. Is information sharing done formally, informally, or both?

Who: marketing, engineering, finance, sales, BOD, CEO, etc.
How: via meeting, via email, via written reports, via phone
How shared: singly, in groups
2.4 Data Analysis

1. By whom and how is the information analyzed?

   Who: marketing, engineering, finance, sales, etc.

   Where: via meeting, via email, via written reports, via phone

   How: cross checked against other sources, combined with other sources, etc.

2.5 Data Response

1. What decisions have been made recently using the information and the analyses?

2. For what types of decisions do you feel the firm usually has a solid base of information?

3. What kind of information would be particularly useful for you to have (that you do not currently have access to)?