Marketing Strategies to Successfully Sell Voice Over Internet Protocol to Mainstream Canadian Markets

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ABSTRACT

Voice over Internet Protocol (VoIP) is an emerging innovation which allows for low cost voice communications similar to conventional circuit-based telephone, but over the Internet either in part or in whole. Because VoIP uses the Internet as its transmission medium, it has the capacity to disrupt the more than $15 billion dollar per year Canadian local access and long distance telephone industry. While VoIP offers much potential for unique functionality, at its current level of advancement it underperforms conventional telephone in the areas of security, quality, and reliability. Everett M. Rogers' seminal work on the diffusion of innovations serves as useful theory to examine VoIP adoption within a population. Additionally, disruptive technology theory presented by Clayton M. Christensen and Geoffrey Moore's theory on marketing technology to mainstream customers is reviewed. Additional data and information was collected by completing semi-structured interviews of telecommunications industry stakeholders, plus through the completion of a focus group with early adopters of Internet communication technologies. This paper synthesizes fundamentals of diffusion, disruptive technology and marketing theory, plus data collected, to draw conclusions of how marketers of VoIP should proceed to sell their services to mainstream Canadian markets.
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INTRODUCTION

While Voice over Internet Protocol (VoIP) has existed in various forms since the inception of the Internet, yet it has only been in recent years that advancements have made it technologically and economically viable (Cope, 2002). Initially, using VoIP to place a telephone call over the Internet required a computer station at each end of the connection. Today, VoIP telephone calls can be completed using inexpensive telephone handsets with built-in microcomputers or through digital adapters which communicate between the Internet and conventional telephones.

What is more significant than the technological basis, is VoIP’s potential to disrupt the more than $15 billion dollar per year segment of the Canadian Telecommunications Industry generated through local access and long distance telephone services. Because VoIP uses the public Internet as its transmission medium, the only cost, potentially, is a monthly flat rate Internet connectivity fee. Per minute long distance charges based on the call length, country called, and the time of the day, become irrelevant. With this, the revenue streams incumbent telephone providers have enjoyed for the past 100 years are at risk, and this draws into question the future of the conventional telephone industry.

Does VoIP mean the liberation of users from telephone service providers? Now and for the foreseeable future VoIP users will need to subscribe to an Internet telephone service provider. A subscription is needed to retain a traditional look telephone number out of the North American Numbering Plan (rather than a computer IP address) plus the capacity to utilize centrally hosted enhanced telephone calling features (e.g., voice mail, call waiting.
three way calling, call display,) But more importantly, a subscriber service is necessary to place and receive calls with users on the conventional public switched telephone network.

The purpose of this paper is to examine VoIP from the perspective of a marketing problem and make recommendations to gain market entry and then penetrate larger mainstream market segments; specifically, the early and late majority adopter categories. These recommendations will synthesize various theories on developing markets for innovative technology products, along with new information gathered and analysis performed as part of the methodology process of this project.

This paper will be organized into five major sections. The first section will look at the current state of knowledge on VoIP technology, diffusion of innovations theory, marketing, marketing technology and theory surrounding the concept of disruptive technologies. The second section describes the methodology for new research. The methods utilized include semi-structured qualitative interviews with members of VoIP stakeholder groups, and a focus group session with participation by self-identified early adopters of Internet communication technologies. The third section presents the results of the methodology, and the fourth a discussion of these results synthesized with key components of the literature review. The fifth and final section of the paper will draw conclusions through examination of the existing knowledge and new information gathered. Following this synthesis of existing and new information, specific recommendations to market VoIP to mainstream Canadian Markets will be made.
LITERATURE REVIEW

DESCRIPTION OF VOICE OVER INTERNET PROTOCOL

VoIP involves the real-time transmission of voice and fax data information over data networks concurrently with traditional data packets. The Internet is the communications infrastructure where VoIP calls are normally carried. VoIP operators use their existing Internet access to receive and place telephone or fax calls with other VoIP users or conventional telephone users.

THE BENEFITS OF VOICE OVER INTERNET PROTOCOL

VoIP offers end-users three major value components:

- Advanced Applications – Because VoIP utilizes a compressed and packetized digital format, the potential for advanced multimedia, multi-service applications are virtually limitless. These include Web-enabled call centers, collaborative white boarding, remote telecommuting and personal productivity applications such as unified message handling.

- Cost Reduction – VoIP minimizes the use of traditional circuit-switched networks and potentially eliminates the associated per-minute long distance fees. Users may enjoy a flat monthly Internet access fee. VoIP also reduces infrastructure cost by converging voice and data networks to better utilize available bandwidth.
• Simplicity and Robustness – One system supports voice and data communication needs. Otherwise, data and voice are separated into parallel redundant communication infrastructures.

In its basic form, VoIP is a substitute for conventional voice telephone and its most popular calling features. Many VoIP advanced applications like unified messaging—the convergence of email and voicemail—are still maturing service developments. As of the time of writing this paper, advanced Internet Protocol (IP) applications do not figure prominently, if at all, in current VoIP service offerings. VoIP service providers are largely marketing their product as either a supplement or substitute to conventional telephone. But the question must be asked if this is the best strategy to use for seeking maximum market penetration?

**HOW DOES VOIP DIFFER FROM CONVENTIONAL TELEPHONE?**

From a technical perspective, VoIP is fundamentally very different from conventional circuit-based telephone. With telephone, voice signals are transmitted as a continuous stream of analog audio frequency transmissions. These transmissions are carried over a pair of dedicated copper wires, which are connected or switched to another circuit to establish a phone call. Alternately, VoIP transmits voice signals by breaking them up into transmittable packets and sending these through a data stream carried by one or more of a local area network, a corporate Intranet, and the public Internet. In the case of conventional telephone, the actual phones are *dumb* devices relying on the intelligence of local switching stations to route calls. In the case of VoIP, much of the intelligence is
contained in the handset. This contributes to VoIP’s higher levels of general overall functionality which conventional telephone cannot match. For example, the functionality of being able to transport a VoIP handset anywhere in the world and receive calls at one identical phone number simply by connecting it to a sufficiently high bandwidth Internet connection. The phone’s actual location on the World Wide Web is irrelevant. Your VoIP phone number remains the same no matter in what continent, country, city or town you happen to be connected. In today’s applications, this functionality is used frequently for office relocations within a building, or even on the same floor.

Unfortunately, not everything about VoIP is positive. In many applications VoIP presently underperforms conventional circuit-based telephone in the areas of security, quality, and reliability. Security deficiencies arise because of the transmission medium. VoIP telephone calls are in most applications carried in-part or completely on the public Internet. Whereas conventional telephone utilizes a dedicated circuit, VoIP uses an open and somewhat lawless information medium. Because the transmission medium is not dedicated like a traditional telephone circuit, the potential for security breaches are numerous. In terms of quality, VoIP’s performance is largely dependant on quality of service (QoS) implementation in public and private networks. The public Internet in its present form does not widely incorporate QoS considerations. QoS considerations are necessary for VoIP because sound packets need to receive priority. A half second delay is quite inconsequential when downloading an email message or web page, but can have devastating effects on the audio quality of real-time voice information. Merely having high bandwidth is not enough. In addition, these same quality of service considerations
affect the reliability of VoIP calls which can be susceptible to mid call drops, and
connection difficulties. Transmitting voice over data networks presents several
challenges. Sound bites need to be broken down and transmitted as small packets. These
packets then need to be reassembled in proper order at the end-point. The packet for the
last sound of a spoken word may arrive first, and the packet for the first sound may arrive
last. This often results in delays and assembly errors resulting in degraded audio quality
referred to as “jitter.” While these performance shortcomings are prevalent today, the
anticipation is that each will be resolved in time.

Another key consideration is most VoIP calls need to interface with the Public Switched
Telephone Network (PSTN). This requirement exists because now and for many years
there will continue to be many PSTN subscribers which need to be accessible to VoIP
telephone subscribers, and vice versa. This means that VoIP calls will have some of the
same time and distance related billing characteristics as conventional telephone. For
example, Vonage Canada’s Premium Unlimited plan allows unlimited VoIP calling in the
U.S. and Canada, but calling Bangalore, India will still cost $0.24 per minute (Vonage,
2006).

**CONVENTIONAL TELEPHONE – A MATURE INDUSTRY**

In Canada, conventional wireline telephone is a mature industry characterized by slowing
demand growth and increasing long distance price competition. The wireline
telecommunications sector underperformed the broader market in 2005 (Privitera, 2005),
suggesting as an industry that conventional telephone is in decline. Wireline services
revenues, representing 72% of the total industry revenues, increased in 2004 from 23.8 billion in 2004 to 23.9 billion, a 0.3% increase (CRTC, 2005). Of the $23.9 billion, local telephone and access accounted for $9.7 billion, long distance $5.6 billion, data & private line $4.4 billion, and Internet access $4.2 billion (CRTC, 2005). Total wireline revenues were essentially unchanged between 2003 and 2004, but this was due to gains in Internet access revenues which offset revenue losses in conventional telephone (CRTC, 2005). Long distance revenues decreased in 2004, as has been the case for the past five years, primarily due to the intense pricing pressures resulting from competition (CRTC, 2005). Because of this stagnant and/or negative growth, conventional telephone services are becoming secondary revenue generators as Internet, leading-edge data, and wireless cellular telephone services continue to grow (CRTC, 2005).

Incumbent telephone providers like Telus, Bell Canada Enterprise, and Aliant, continue to hold the vast majority of both residential and business segment revenues and lines (CRTC, 2005). As of 2004, the incumbent share of total long distance revenue stood at 67% for business and 75% for residential (CRTC, 2005). In local access, incumbents are dominant, controlling 88% of business and an even higher 97% of total residential revenues (CRTC, 2005).

Competition in Canadian long distance markets has resulted in decreasing market share for incumbent telephone companies (CRTC, 2005). However, incumbents continue to hold the vast majority of local access market share given only sparse competition which
is limited to certain major urban centres. In other centres and rural Canada, local competition is very limited (CRTC, 2005).

In 2004, VoIP services had essentially no impact on incumbent provided local and long distance revenues. However, it is expected that revenues and subscriptions from VoIP services will have increased in 2005 and will increase in subsequent years (CRTC, 2005).

**VOICE OVER IP—THE OPPORTUNITY**

In 2004, together Canadian residential and business telephone subscribers spent $5.6 and $9.7 billion on long distance and local access voice telephone services respectively (CRTC, 2005). Of these amounts, residential telephone services accounted for $2.9 billion of the long distance total, and $5.1 billion of local and access gross revenues. The remainder for each category ($2.7 and $4.6 billion) was generated through business and wholesale sales. These are the prime Canadian markets for VoIP to penetrate. The local and access market represents the largest segment of the telecommunications market, accounting for 29% of the industry's revenues (CRTC, 2005). In local and access services, the incumbents continue to enjoy a quasi monopoly holding the vast majority of both residential and business segment revenues and lines (CRTC, 2005). Competition in local and access telephone was not a factor in 2004 (CRTC, 2005).

In Canada, the telecommunications industry is regulated by the Canadian Radio-television and Telecommunications Commission (CRTC). The CRTC is vested with the authority to regulate and supervise all aspects of the Canadian broadcasting system, as
well as to regulate telecommunications common carriers and service providers that fall under federal jurisdiction. In past landmark decisions affecting telecommunications, the CRTC provided for competition in long distance telephone services in 1991 and local access in 1997. Prior to this a small number of incumbent telephone providers enjoyed pure monopolies. More recently the CRTC has made another important ruling, this one pertaining to VoIP telephone. In its April 2004 preliminary decision, Regulatory framework for voice communication services using Internet Protocol, the CRTC announced the initial regulatory framework should apply to VoIP services offered by Incumbent Local Exchange Carriers. Further, “... Competitive Local Exchange Carriers would not be required to file tariffs for VoIP services falling within the scope of applicable existing forbearance decisions.” In short, the CRTC ruled that it would only regulate VoIP services provided by incumbent telephone providers. Competitive VoIP carriers would therefore have the benefit of unprecedented price flexibility and be unencumbered by the majority of the Canadian Telecommunications Regulatory Framework.

In its October 2005 report titled Status of Competition in Canadian Telecommunications Markets, the CRTC noted that in 2004, VoIP services had essentially no impact on local and access revenues. However, the CRTC expects revenues and subscriptions for VoIP services will increase in 2005. Canada essentially remains an untapped market for potential VoIP service providers. A market in which the constant exposure of VoIP in the

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media has raised its awareness to a level where 75% of Canadians agree it is possible to have a voice conversation using the Internet (Decima Research Inc., 2004). Amazingly, the VoIP awareness level in Canada is even higher than the 2004 internet penetration rate of 59 subscribers per 100 households (CRTC, 2005).

**Voice Over IP – The Challenge**

Canada has a public Internet and private data communications networks comparable to any developed country in the world. However, using Internet data networks to transport real-time voice communications presents unique challenges (Kwan, 2005). Voice transmissions over conventional data networks can suffer from several types of problems. For example, highly noticeable delays, difficulties placing calls, mid call drops and audio problems. Next Generation Networks (NGN) are needed to carry VoIP calls with the same quality of the conventional circuit telephone network. The popular belief is that NGN implementations will be incremental, and the transition will take several years. As a result, for the foreseeable future, many applications of VoIP are destined to suffer from the problems described, which will cause VoIP to be viewed as an inferior form of telephone.

One of the key advantages of VoIP is its capacity to support advanced applications. One such example is the potential to use a VoIP handset to carry multimedia and advanced data applications behaving similar to a personal computer connected to a local area network (Pulver, 2005). However, there is presently very little in the way of advanced applications and few advanced application ready VoIP handsets available commercially.
For now and perhaps several years to come, advanced applications for VoIP will continue to be a capacity with much future promise.

Another challenge for VoIP is emergency 9-1-1 calling. Unlike the conventional telephone network which supplies its own power source, VoIP does not and therefore calls, particularly 9-1-1 calls, can not be placed during a power outage. Another problem is that VoIP phones can be relocated and used anywhere there is an Internet connection. Emergency services may not automatically be provided with a caller's address when dialling 9-1-1. In Canada, the CRTC mandated that VoIP providers register the location of fixed subscribers and make this information available to 9-1-1 calling centres when emergency calls are placed using VoIP. While this arrangement seems to have addressed the basic 9-1-1 location requirement, it may have not have quelled public perceptions that VoIP can not be relied on during the time of an emergency.

Perhaps the greatest challenge for VoIP will be to first gain market entry, and then penetrate the Canadian telephone market. The adage that if a new technology product or service is worthy it will sell itself is a myth (Rosen, 1998). Knowledge of theory surrounding innovation adoption and disruptive technologies is necessary to build an understanding on which to base a methodical strategy to introduce new innovative products and gain acceptance in mainstream primary markets.
Diffusion theory is one of the more popular frameworks used to examine adoption of a technology, like VoIP, within a population. Diffusion is defined as the process by which an innovation is adopted and gains acceptance by members of a certain community (Surry, 1997). General diffusion theory is not a single, well-defined, and comprehensive theory. Many theories, from a variety of disciplines, each focusing on a different element of the innovation process, combine to create a meta-theory of diffusion (Rogers, 2003, 6). There is no unified theory of diffusion because it is a fairly new area of study. The Ryan and Gross (1943) work which examines the adoption rates among Iowa farmers for a new hybrid corn seed represents the genesis of the study of diffusion. However, it is the seminal works of Everett M. Rogers (1962) published in the book *Diffusion of Innovations* which solidified and communicated the theory of innovation diffusion.

Rogers described diffusion as the process where an innovation is communicated through certain channels over time among members of a social system. An *innovation* is an idea, practice, or object perceived as new by an individual or a community. Rogers defines *communication* as the process where participants create and share information with one another to reach a mutual understanding. Diffusion is generally recognized as a particular type of communication in which the subject matter focuses on a new idea (Rogers, 2003, 5). Fundamentally, diffusion is the process by which one individual communicates an idea to one or several others. For Rogers *time* pertains to the innovation-decision process when an individual first receives knowledge of an innovation, to adoption or rejection. The stages in the innovation-decision process are: knowledge, persuasion, decision,
implementation, and confirmation. According to Rogers’ theory, potential adopters of an innovation must first learn of the innovation, be persuaded of the relative advantages of the innovation, decide whether or not to adopt, implement the innovation, and confirm (reaffirm or reject) the decision to adopt the innovation. All of these factors of diffusion occur within a social system. A social system is defined by Rogers as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal. The members of a given social system may range from individuals, informal groups, organizations, and/or subsystems. But it is within a social system that critical interactions take place which affect the rate of adoption of new innovations (Rogers, 2003, 24).

**Rate of Adoption**

Rate of adoption is the relative speed with which an innovation is adopted by members of a social system (Rogers, 2003, 221). The perceived attributes are the most significant factors in determining rate of adoption of an innovation. These perceived attributes are: relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003, 223). Relative advantage is the degree to which an innovation is perceived as an improvement over the product or service it supersedes. The relative advantage of VoIP is cost saving (e.g., flat-rate long distance telephone calls) and increased functionality. Relative advantage as perceived in a social system has a direct relationship to the rate of adoption (Rogers, 2003, 223). Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters. VoIP in its most common present configuration is a substitute for conventional telephone. Compatibility is also positively related to rate of adoption (Rogers, 2003, 249).
Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use. Users can understand how a telephone that plugs into dedicated wires works. They will have more difficulty understanding how VoIP works through an Internet connection. This increases perceptions of complexity. Complexity is a detractor for many potential users of new technologies (Moore, 2002), such as VoIP. This attribute is negatively related to the rate of adoption (Rogers, 2003, 257). Trialability is the degree to which an innovation may be experimented with on a limited basis. The trialability of an innovation, as perceived by members of a social system is positively related to its rate of adoption (Rogers, 2003, 258).

Presently there is no evidence which suggests Canadian VoIP providers are providing incentives to trial VoIP. For example, free limited duration, no obligation trials. The final attribute, observability, is the degree to which the results of an innovation are visible to others. VoIP’s present observability is low since its present usage is to replace conventional telephone. What observability attributes are visible today will likely reveal themselves when VoIP underperforms during a VoIP to conventional telephone call (Venkataraghavan, 1999). Observability is positively related to its rate of adoption (Rogers, 2003, 259).

In addition to these five perceived attributes influencing rate of adoption, other variables such as; the type of innovation-decision, nature of the communication channels diffusing the innovation at various stages in the innovation-decision process, the nature of the social system in which the innovation is diffusing, and the extent of the change agent’s
promotion efforts in diffusing the innovation, all affect an innovation’s rate of adoption (Rogers, 2003, 222). Those innovations which require an individual innovation decision are generally adopted more rapidly than when an innovation is adopted by an organization. Where there are more persons involved in the innovation-decision process, the slower the rate of adoption (Rogers, 2003, 221). Accordingly, one method of speeding the rate of adoption of an innovation is to attempt to alter the unit of decision so that fewer individuals are involved.

Communication channels also can play a role in the rate of adoption (Rogers, 2003, 222). For example interpersonal channels rather than mass media channels, are generally more effective with later adopters. The nature of the social system in terms of its norms and degree of connectedness also affect an innovation’s rate of adoption. An innovation’s rate of adoption is also affected by the extent of a change agent’s promotional efforts (Rogers, 2003, 222). Change agents are individuals who influence innovation-decisions for the adoption of innovation, however, a change agent can also slow or prevent adoption of undesirable innovations with respect to their self-interest. Change agents often use opinion leaders in a social system as their lieutenants in diffusion activities (Rogers, 2003, 223). The greatest response to change agent effort generally occurs when opinion leaders adopt an innovation (Rogers, 2003, 223).

Overall, what is most important is that diffusion proponents understand how potential adopters perceive new ideas and innovations. These perceptions figure prominently in determining how to advance the diffusion process.
ADOPTER CATEGORIES

Individuals in a social system do not all adopt an innovation at the same time (Rogers, 2003, 265). In practice, individuals adopt innovations with varying periods. Studying the adoption time period for each individual could be done, but this would be very tedious. For this reason the use of adopter categories is popular. Individuals in a social system can be reasonably categorized according to their degree of innovativeness. Innovativeness can be viewed as the degree to which an individual is relatively earlier in adopting new ideas than other members of a system. Degree of innovativeness reveals itself in observable behavioural change, the ultimate goal of most diffusion programs, rather than cognitive or attitudinal change (Rogers, 2003, 268). Hence, innovativeness is an effective means to establish adopter categories.

Deutschmann and Fals Borda (1962) in their study of rate of adoption of farming innovations in a small Columbian village pioneered the five tier adopter categories most commonly in use today. The five categories are: (1) innovators, (2) early adopters, (3) early majority, (4) later majority, and (5) laggards.

*Innovators* on average make up approximately 2.5% of a social system and are characterized as venturesome. Their interest in new ideas lead them out of local peer networks and into more cosmopolite social relationships, some of which will be geographically distanced (Rogers, 2003, 282). Prerequisites for innovators include substantial financial resources and the ability to understand and apply complex technical
knowledge. Ample financial resources are necessary to absorb the losses of what colloquially are referred to as “bleeding-edge” imperfect innovations. The innovator must be able to cope with a high degree of uncertainty about an innovation at the time of adoption. Innovators play important roles in the launching of new ideas since they serve as the initial launching point into the system.

Innovators have likely been using VoIP in varying capacities for a decade or longer. Because of their worldliness and appetite for the newest Internet functionality, Innovators will not have needed commercial applications of VoIP. Rather, they made use of rudimentary programs, some of which they may have even created themselves, to transmit real-time audio to fellow innovators.

Early adopters are generally more integrated into the social system than innovators (Rogers, 2003, 283). Whereas innovators are more cosmopolitan, early adopters are localized. This segment, which makes up 13.5% of the total population, has the highest level of opinion leadership within most social systems (Rogers, 2003, 283). Potential adopters generally look to early adopters for advice and guidance on an innovation. For this reason technology marketers should seek out and target early adopters in order to advance the diffusion process (Rogers, 2003, 283). Within their peer groups, early adopters are respected for their discreet use of new ideas. The early adopter realizes that to maintain his/her status and continue to maintain the esteem of colleagues, they must make judicious innovation-decisions. Early adopters follow and demonstrate a willingness to adopt innovations; however, they rarely lead.
Marketers of VoIP need to specifically target early adopters. This segment harbours the opinion leadership critical to further diffusion into the larger social system, and population of telephone users. Early adopters have the unique role of linking between those who are first and those who are relatively late adopters of innovations within the social system.

The *early majority*, representing 34% of the social system, adopt an innovation just prior to the average. While the early majority interact and communicate frequently within their peer group, they very rarely hold positions of opinion leadership (Rogers, 2003, 283). The early majority characteristically have a longer innovation-decision process period than early adopters and innovators. VoIP has not yet begun to penetrate the early majority adopters segment.

Like the early majority, the *late majority* also represents 34% of the total population; however their adoption comes just after the average member within the system. Adoption can occur as an economic necessity for the late majority and the result of increasing peer pressures (Rogers, 2003, 284). Innovations are generally approached with caution and some scepticism. Because of their relatively scarce resources, the late majority will not adopt until most of the uncertainty about an innovation is removed, and even then the presence of peer pressure is a necessity.
**Laggards** are the third largest segment at 16%, and the last in the social system to adopt an innovation. They possess virtually no opinion leadership, have very limited involvement in adopter communities, and tend to isolate. Laggards are typically suspicious of innovations and the change agents who represent them. Because their resources are limited, laggards must be certain a new idea will not fail before they adopt.

Present data suggests VoIP telephone is currently penetrating early adopters. Innovators, the predecessor of early adopters, utilized VoIP through computer to computer Internet connections using web cameras along with audio headsets. As of the date of this paper, marketers of VoIP offer a product which substitutes conventional telephone targeted at early adopters. A minority of Internet users (19%) report having actually used the Internet for voice conversations (Decima Research Inc., 2004). There is no evidence to suggest VoIP has had any significant impact among mainstream Canadian telecommunication users (CRTC, 2005).

A fundamental understanding of diffusion theory, factors of adoption, and adopter categories is important for proponents and marketers of new innovations and technologies. The work pioneered by Everett M. Rogers in *Diffusion of Innovations*, and Ryan and Gross in *The Diffusion of Hybrid Seed Corn in Two Iowa Communities* during the mid point of the 20th century continues to be recognized as highly relevant to the challenges of introducing and penetrating mainstream markets with new innovative product and service developments.
DISRUPTIVE TECHNOLOGIES

Many technology pundits identify Voice over Internet Protocol as a revolutionizing technology. Others have used the term “disruptive” to describe VoIP and its potential impact on the conventional circuit-based telephone industry. Harvard business professor Clayton M. Christensen, in his book *The Innovators Dilemma: When New Technologies Cause Great Firms to Fail*, first reported the concept of a disruptive technology.

Christensen defines disruptive technologies as; “technologies which offer a novel mix of attributes compared to the established technology, but are inferior to existing technology according to the needs of consumers in the primary (mainstream) market segments.”

Some have prophesized that VoIP is the epitome of a disruptive technology. VoIP offers heightened functionality (Bischoff, 2002), but at the same time underperforms conventional telephone in the areas of quality, security and reliability (Keynote Systems Inc., 2005). However, VoIP technological advancement trajectories suggest each of these factors are not permanent problems (Venkataraghavan, 1999).

Christensen’s 1997 seminal work on disruptive technologies is important to this project since it describes the product characteristics and environmental factors that give rise to a scenario where a disruptive technology can supplant an existing industry recognized solution. One of Christensen’s early examples is the replacement of the mechanical excavator (steam shovel) by hydraulic excavation. The first hydraulic excavators marketed in 1947 had a bucket capacity ¼ that of the industry standard mechanical excavators. Early hydraulics lacked power and strength due to pressure limitations of

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seals, and failed frequently. While hydraulic excavation technology was initially inferior, its performance improved steadily with improvements in hydraulic pump and cylinder seal technology. Over the next twenty years the incumbent mechanical excavator manufactures largely stood by their winch and pull cable system that powered their high payload excavation shovels. By 1966, the performance of hydraulic excavation technology had reached the pivotal point where it outperformed mechanical excavation equipment. This ushered in the rapid obsolescence of the mechanical excavator, and along with this, the eventual extinction of the mechanical excavation manufacturers who were unable to adapt efficiently to the disruptive technology.

There are analogies between hydraulic excavation technologies of the 1950’s and today’s VoIP telephony. Both are (were) considered inferior with respect to their early product lifecycle performance compared to the incumbent technological solutions of the day. Although suffering from underperformance, both possessed novel attributes which increase user’s overall utility in specific applications. For hydraulic excavation equipment, it was the improved agility, being able to manoeuvre into tighter location to complete smaller scale, more tedious excavation jobs. The equivalent for VoIP might be the functionality of being able to utilize the same phone number at any location in the world where connectivity is obtainable, or in the office just across the hall. Incremental advances in hydraulic technology charted out a product advancement trajectory with a steeper slope than the mature mechanical excavator’s advancement trajectory. Likewise, VoIP’s technological advancement trajectory is steeper than that of conventional telephone (Pulver, 2005), which has flattened (Privitera, 2005). In fact, in an effort to
maintain advancement, in order to continue to offer customers more innovative and better telephone services and products, conventional telephone providers may have entered the realm of performance oversupply; another key characteristic of a disruptive technology. In the case of the mechanical excavator, performance oversupply was evident in the extended horizontal reach, maximum excavation depth and bucket capacity. However, the scale of these machines made the equipment difficult to transport, and uneconomical to deploy for smaller jobs like residential feeder sewage lines which were normally dug by hand (Christensen, 1997). For conventional telephone, delivery of 99.999% availability, and dedicated circuit connections, may well be the performance oversupply being provided today. The key for the first hydraulic excavators was to seek out specialized applications where the benefits of its unique attributes outweighed the detriments of its shortcomings. Arguably, the same challenges presently exist for VoIP with its current performance.

The challenge of 1950s hydraulic excavators and today’s VoIP are in their most basic form marketing problems. The challenge is now, as it was then, is to seek out a customer segment with unfulfilled needs which can be best satisfied by the unique attributes of your particular innovation.

Canadian incumbent conventional telephone service providers are different from the mid 20th century manufactures of steam shovels in several ways. Digital data services are to VoIP what hydraulics was to the developers of the early hydraulic excavator. However, incumbent telephone companies have long offered digital
data services to enterprises. Leased digital circuits are provided to organizations to establish wide area private data networks, and also for video conferencing. In the past 10 years incumbents have also extended their digital data services to consumers seeking broadband Internet connectivity. Incumbent providers of conventional telephone service have built up considerable expertise in the data communications line of their businesses. The impact of this is two-fold. First, incumbents already have a healthy level of respect for the convergences that are taking place in all forms of communications, of which just one is VoIP. Second, their internal experience, knowledge and expertise with respect to telephone, digital data networks and Internet protocols make it doubtful they will have difficulties responding to a rapid shift to VoIP telephone.

**THE MARKETING CONCEPT**

Although it has existed for centuries in one form or another, the formalization of the philosophy of the marketing concept can be traced back to a 1952 General Electric annual report to its stakeholders. What was key is that in 1952 General Electric described the marketing concept “at the beginning rather than the end of the production cycle and integrates marketing into each phase of the business.”\(^3\) This mindset was pivotal because it articulated sales as just one component of marketing, that marketing included a broad range of activities and factors. Also, it changed the traditional sales-based view to one where marketing inputs are required at the beginning of the cycle before product design.

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In 2004, The American Marketing Association updated its marketing definition to “an organizational function and set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit the organizations and its stakeholders.” This definition is generally accepted by most marketing practitioners and the implications of it are far reaching. First, the definition specifies that marketing is a set process of planning and executing. Marketing represents an array of integrated business decisions and activities. Second, that marketing represents a wide range of responsibilities related to delivering value to customers, and managing these relationships in ways that benefits the organization as a whole and its various stakeholders. This suggests marketing as an integral business component.

The marketing concept is the view that firms should analyze the needs of their customers and strive to satisfy those needs better than the competition. Marketing carries heightened importance when the goal is to instil the use of a new product or service, for example VoIP. The marketing concept is fundamentally a focus on the customer with sales just being one element (NetMBA, 2005).

**THE MARKETING PROCESS**

If the goal of the marketing concept is to find ways to satisfy customers unfulfilled needs, the goal of the marketing process is to complete a series of steps to methodically carry this out. First, situational analysis is completed to identify opportunities. Second is the marketing strategy to formulate the customer value proposition—the unique combination of benefits received by targeted buyers that includes quality, price, convenience, on-time
delivery, and both before-sale and after-sale service (Berkowitz, 2000, 14). Third is a series of tactical decisions surrounding product, price, promotion and distribution known as the marketing mix. Finally, the marketing plan is implemented and its performance is monitored. Each of these components is described in more detail.

A thorough analysis of the environment the firm finds itself in serves as the basis for identifying opportunities to satisfy unfulfilled customer needs. For example, in the Canadian market, VoIP has had little impact and price competition in conventional telephone is continually forcing down long distance rates (CRTC, 2005). In addition to examining customer needs, a firm must also understand their own capacities and core competencies and the situation it finds itself operating within. The situational analysis therefore must focus on the macro environment, and the micro environment which is the firm itself (Berkowitz, 2000, 14). A situational analysis should look at the past, present and future. History needs to be examined in order to determine what the trend has been to determine where the trend will go in the future. A firm does not want to invest a year or more developing a product or service that customers may have little value for once it is released. A situational analysis identifies gaps between what customers want, and what is presently available. This is where there are opportunities to introduce products which better satisfy customer needs better than the competition. In the case of VoIP service providers, they offer a product which can either supplement or substitute conventional telephone at a competitive price. Projections are for higher level functionality unmatchable by conventional telephone technology, but the current situational analysis
suggests underperformance presents a formidable gap between customer needs, wants and minimum acceptable performance requirements.

Once an opportunity to satisfy an unfulfilled customer need is identified, a strategic plan known as the *marketing strategy* is developed to pursue the opportunity. Market research is used to gather information to target specific market segments and provide these consumers an optimally positioned product with an increased customer value proposition. Devising a worthy customer value proposition should be the focus of VoIP providers. The marketing strategy therefore involves the steps of: 1) segmentation, 2) target market selection, 3) product positioning within the target market, and 4) creating a customer value proposition tailored for the target market.

VoIP providers' efforts should first be focusing on segmenting markets and selecting targets to infiltrate. Product positioning decisions are not nearly as critical at this juncture because of the relative small size of the early adopters segment (13.5%). However, care and attention needs to be exercised when developing the customer value proposition to attract and retain early adopter users of VoIP. It will be particularly important to retain early adopters since they hold positions of opinion leadership within their communities. Losing early adopters of VoIP who chose to switch back to conventional telephone will certainly be a medium to long term detriment to VoIP providers hoping to eventually penetrate mainstream markets.
The marketing mix describes the combination of product, price, promotion and distribution developed to provide the greatest utility for a target market segment (NetMBA, 2005). Product design considerations are influenced by a host of factors including brand name, functionality, packaging, quality, styling, warranty, accessories and services. Price decisions are also influenced by an assortment of factors including pricing strategy, volume discounts, cash discounts, seasonal pricing, bundling, price flexibility and discrimination. Bundling of services is used extensively within many successful telecommunications marketing strategies. Therefore, VoIP Providers should consider bundling to provide their subscribers an increased value proposition.

In the context of the marketing mix, promotional activities pertain to the methods used to communicate the marketing message to the customer. Included here are the promotional strategy (e.g., push-salesmanship vs. pull-advertisement) sales promotions, public relations activities and publicity. Distribution or place decisions include: distribution channels, market coverage, inventory management, warehousing, order processing, transportation and reverse logistics. Marketing theory is largely based on the premise that through customizing the factors of product, price, promotion and distribution, it is possible to develop an optimal marketing mix for which maximum sales will ensue within the target customer segment.

The final block of the marketing process is implementation and control. Recognizing that all markets are dynamic, it is imperative to monitor the progress of the marketing plan through implementation. Monitoring activities will provide the valuable intelligence
needed to adjust the marketing mix to make changes as markets evolve, or to make corrections for planning miscalculations. Often changing consumer wants can be addressed through relatively small adjustments to the factors contributing to the marketing mix. As the change in customer expectations become more significant, complete product redesign may be required. The marketing plan does not end with implementation; it is a long-term ongoing process which makes adjustments to best meet the unfulfilled needs of existing or potential customers.

CROSSING THE CHASM

Geoffrey A. Moore’s book *Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers* looks at the unique challenges of marketing and selling technology to mainstream customers. According to Moore, the most difficult task is not the initial market entrance. Rather, the challenges, and largest potential rewards, are through the penetration into primary mainstream market segments that compose the vast majority of consumers. More specifically, the early and late majority segments which make up almost 70% of potential customers (Rogers, 2003, 284). Moore theorizes that on the technology adoption curve, there is a gap between the early adopters and the early majority that is so significant, it warrants being referred to as a chasm. And crossing this chasm must be the primary focus of any long-term technology marketing plan (Moore, 2002).

According to Moore, there are four main reasons for the chasm between the early adopters and the early majority. The commonality of all four is the characteristics of early
adopter’s experiences with a technology product. They will specifically seek out products their peers are not using in order to get the upper-hand. Alternately, members of the early majority place deep value in the experiences of their colleagues. Before they buy, they want several references from companies in their own industry; something which is unlikely to exist. Second, early adopters are more interested in technology than their industry. As Moore suggests, “they are bored with the mundane details of their own industries. They like to think and talk high tech.”

In contrast, the early majority are not very interested in futuristic technologies. They prefer to concentrate on the pragmatic issues affecting their present day-to-day operations. The third reason for the existence of the chasm is the very different views of the necessity for existing product infrastructure. Early adopters don’t mind building systems from the ground up. They do not expect standards to have been established, they do not expect support groups to be in place, procedures to have been established, or support mechanisms to reduce risk. The early majority look for all of these things, and seeing this lacking from early adopters causes them to place less stock in them as a reference. Moore’s final rationale for the chasm has to do with the differing commitment levels to technology of each adopter category. To members of the early majority, early adopters lack commitment to long term sustainable solutions. They implement their personal projects, then move on to the next initiative leaving the early majority to try and finalize the implementation.

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In order to cross the chasm and win entry to mainstream markets Moore recommends what he calls the D Day strategy. “Cross the chasm by targeting a very specific niche market where you can dominate from the outset, force your competitors out of that market niche, and then use it as a base for broader operations.” The advantage of this strategy is the technology firm focuses on a specific achievable goal which can be leveraged for long-term success. According to Moore, most companies are not able to cross the chasm because they become overwhelmed with the scale of the opportunity and spread their resources too thin.

Interestingly, Rogers disputes Moore’s chasm theory. According to Rogers, there is no past research which supports this claim of a chasm between certain adopter categories. Alternately, he believes that innovativeness, if measured correctly, occurs on a continuous course with no breaks within or between adopter categories (Rogers, 2003, 282). According to Moore’s chasm theory, technology products stall or fail to progress along the innovation diffusion curve and eventually disappear. There can be many reasons why a technological product is unsuccessful. Technology products are more susceptible to imperfection, or replacement by similar or substitute higher utility products. What some view as a chasm may in reality be a slowing of the diffusion process due to sub-optimization of the marketing mix. Marketing factors are a much stronger explanation for technology products stalling or terminating during the diffusion process. Marketers of technology products like VoIP need to be attentive to the fundamentals of the marketing process.

MARKETING OF TECHNOLOGY

High technology markets are characterized as complex (Rosen, 1998) and exist under rapidly changing conditions with shorter lifecycles (Davidow, 1986). As a result of these dynamic market conditions organizations will often emphasize a product focus (Dungal, 1995) rather than the needs of customers. The problem of focusing on the product rather than the needs of the customer is compounded by the lack of attention to the critical role of diffusion theory in a successful product launch (Rosen, 1998). Intrinsic to the adoption process is the appreciation that different stages of adopters have different requirements. These different requirements combined with shorter lifecycles make correctly targeting each adopter category critical (Rosen, 1998). By isolating the psychographics of customers based on when different customer segments tend to enter the market, it gives clear guidance on how to develop a marketing program for an innovation product (Moore, 2002, 55). In order to reap the rewards of mainstream markets, a marketing strategy must respond to each of the stages or categories of technology adopters. The key is to focus on the dominant adoption type in the current phase of the market, learn to appreciate that person’s psychographics, and then adjust the marketing strategy and tactics accordingly (Moore, 2002).
HYPOTHESES

There are a number of dynamics specific to the Canadian telecommunications market which influence marketing strategies for VoIP. There are also dynamics specific to marketing technology, the present performance, and unique attributes of VoIP which need to be taken into consideration when developing marketing strategies. If present and future providers of VoIP consider the following factors when developing marketing strategies, they will be able to penetrate mainstream markets in Canada:

1. VoIP is a disruptive technology which incumbent telephone providers recognize as a threat to their mainstream business. Incumbent providers will develop marketing plans to exploit VoIP in new markets and defend current markets.

2. New entrant VoIP providers will employ a focused marketing approach, concentrating on specific niche market segments to establish themselves and penetrate broader, more lucrative mainstream markets.

3. Providers will feature the unique product attributes of VoIP in their marketing strategies.

4. Providers of VoIP must address concerns and perceptions related to security, quality, and reliability in their marketing strategies to early adopter and other market segments.
METHODOLOGY

The methodology segment of this paper was made up of two primary activities. The first was a series of semi-structured interviews with telephone industry and VoIP stakeholders. The second activity involved a focus group session with representatives of the VoIP early adopters category.

SEMI-STRUCTURED QUALITATIVE INTERVIEWS

Semi-structured qualitative interviews were completed to collect additional data and information from two main VoIP stakeholder groups.

The first group was incumbent telecommunications companies. These companies had regulatory sanctioned monopolies till the CRTC introduced long distance competition in 1991, and local access competition in 1997. Even though full service competition has existed for nearly a decade, these former monopolists continue to control the majority of the telephone market in their respective geographic territories. For this reason, incumbent telephone companies potentially have the most to lose with the arrival of VoIP as a viable alternative to conventional telephone.

The second interview group were the new entrants working to establish VoIP telephone services in today’s market. New entrant VoIP providers vary greatly in size, resource availability, and geographic footprint.
Semi-structured qualitative interviews were conducted over the period of December 20, 2005 thru to March 9, 2006 with representatives of several Canadian incumbent telephone companies, new entrant VoIP telephone providers, and one telecommunications hardware manufacturer. Interviews were conducted by phone and lasted between 20 minutes and one hour in length. Appendix 2 identifies the question set used for each of the stakeholder group’s interviews. Additionally, impromptu follow-up questions were employed to delve further into certain themes and ideas.

The data and information gathered through semi-structured interviews is qualitative in nature. As such, the data was gathered from a relatively small group of respondents and is not conducive to statistical analysis. The interviews served as a tool to identify attitudes and perceptions about VoIP, and in the case of incumbent telephone companies, how they are responding to this technology. For reasons of confidentiality, the results of these interviews are presented in aggregate form only. No sources are identified beyond attributing some information to specific stakeholder groups.

**Focus Group**

A focus group was carried out with the goal of gaining further data and information from the early adopter category for VoIP. These individuals represent the prospective users VoIP providers are presently attempting to enlist as subscribers. Participants were comprised of students of the University of Northern British Columbia who self-identified themselves as early adopters of Internet communication technologies. All participants
were recruited through the posting and email distribution of the promotional advertisement displayed in Appendix 3.

Focus groups are group discussions where people are gathered together to discuss a topic of interest. The discussion is guided by a facilitator who introduces topics for discussion and helps the group participate in a lively and natural discussion. The facilitator asks questions and helps the group have a natural free conversation with each other. Focus groups are aimed at encouraging participants to talk with each other, rather than answer questions directly to the facilitator. The interaction of focus groups is important because it gives some understanding of how the participants are thinking about the topic. The participants offer a range of opinions, ideas, beliefs, feelings, attitudes, experiences and practices about a topic of interest.

There are several reasons for selecting students to represent the early adopter category for VoIP. University students will almost always be avid Internet users. The Internet is the tool they use to interact with peers, professors and their institution using a variety of information technologies. Their familiarity with the Internet can be viewed as predisposing them as early adopters of VoIP since it will likely be viewed as an extension of the existing Internet communication capacities students are already familiar with. Students' attendance of classes and other social activities suggest they are normally well integrated within their social systems. Higher levels of social integration are what distinguish early adopters from innovators (their predecessor in the innovation diffusion cycle). Also, it can be reasonably judged that within their immediate and extended
families, Internet savvy students will be viewed as having influential opinions on VoIP, thus serving as the change agents and opinion leaders Rogers refers to in his theories.

The information gathered through the focus group session was evaluated to determine what major themes prevailed. Also, this information was examined in a larger context to identify other themes and relationships that may exist with data and information gathered through semi-structured interviews and learning from the literature review. Appendix 4 contains the opening comments and Appendix 5 the question guide used during the focus group.

CONFIDENTIALITY

In order to address confidentiality concerns, the project paper does not include quotes from subjects participating in interviews. Information gathered during interviews was used in aggregate only. Permission was provided to use quotes from the focus group session. I took great care to ensure to the greatest extent possible, this project report does not disclose any confidential information possibly usable by competitors to gain advantage. Appendix 1 contains the interview request letter. It identifies the measures to address confidentiality requirements and other potential areas of concern. The introductory remarks to the focus group session included similar assurances of confidentiality (see appendix 4).
RESULTS

Two key distinctions came to light over the course of the interviews. First, there are two main categories of VoIP users, and the two are quite different. One is enterprise users of VoIP, and the second is consumers. The enterprise users segment includes all business telecommunications users ranging from small office-home office, to large organizations with several thousand employees. Consumer segments are those individual telephone users normally located in private residences.

The second distinction learned is that incumbent telecommunication providers are also new entrant VoIP providers within traditional and non-traditional market areas. Historically, Canadian incumbent telephone companies have had specific geographic areas where they operated as government sanctioned monopolies. With the liberalization of regulations to introduce competition, incumbents are moving into non traditional markets to expand their businesses.

INCUMBENT TELEPHONE COMPANY RESPONSES TO VOICE OVER IP

Hypothesis one stated VoIP is a disruptive technology which incumbent telephone companies recognize as a threat to their mainstream businesses, and that incumbents will develop marketing plans to exploit VoIP in new markets and to defend existing markets. My interviews revealed that overall incumbent telecommunications companies demonstrate a high attentiveness to VoIP. Incumbents' responses to questions focusing on key business challenges over the short to medium term identified VoIP as a primary consideration. Each Incumbent interviewed recognized VoIP as a revolutionary break-
through technology with the potential to disrupt the telephone industry. Data gathered indicates most incumbent Canadian telephone companies are either strategizing their entrance to the market, or are already offering VoIP services in some capacity. The marketing focus today is mainly large enterprises users, but there is evidence to suggest thought is being given to small and medium sized businesses, small office-home office, and consumer users.

VoIP telephone is one of the tactics incumbents are using to expand their business into new Canadian markets, and to refortify existing markets. While there is some evidence of reluctance to cannibalize existing conventional telephone markets with VoIP service offerings, there is also evidence to suggest many incumbents realize it is better to retain a customer with a lower profit margin services (i.e. VoIP), than it is to lose that customer entirely. For this reason incumbent telecommunications organizations are largely embracing VoIP and treating it as a logical extension of their current businesses.

New entrant providers identify VoIP as a revolutionizing technology with significant market upside. They view VoIP as a technology poised to disrupt incumbent telephone providers’ firm grasp on the industry. New entrants feel their full feature IP telephone service with unlimited North American wide long distance calling offers customers a compelling value proposition which conventional telephone cannot keep pace with.

These findings support my first hypothesis that VoIP is a disruptive technology which incumbent telephone providers recognize and will develop marketing plans to exploit.
NEW ENTRANT VOICE OVER IP TELEPHONE COMPANIES

Hypothesis two stated that new entrant VoIP providers will employ a focused marketing approach, concentrating on specific niche market segments to establish themselves and penetrate mainstream markets. My research shows providers of VoIP have fundamentally broken the market into two segments to which they are focusing their marketing efforts. One is enterprise users, the other is consumer users. The providers I spoke with are either presently targeting enterprise or consumers, but not both. Incumbent telephone companies’ focus is on larger enterprises. New entrant VoIP telephone companies are primarily focused on the consumer portion of the market.

New entrant VoIP providers can be separated into two categories. The first, infrastructure based providers who primarily provide cable television and Internet connectivity services and are extending their product offerings into VoIP. The second are non-infrastructure based pure VoIP providers who offer true VoIP Internet telephone service. Infrastructure and non-infrastructure based VoIP providers both use very different fundamental marketing strategies.

Infrastructure based providers view their existing Internet access subscribers as their target market segment for VoIP. Internet access subscribers are already avid Internet users. In their view, VoIP represents the next logical extension of Internet usage. All others who subscribe to other services (i.e., cable television) represent the next level segmentation.
The final customer segmentation are all other potential VoIP subscribers located in the footprint of their service areas who do not presently subscribe to either cable television, Internet access, or any other service offered.

Non-infrastructure based VoIP providers target their markets primarily through the use of television and Internet promotions directed at internet savvy young adults seeking full feature lower cost telephone with unlimited long distance calling. Neither group of new entrants are presently focusing on large, small and medium enterprises, or small office-home office segments.

These findings lead me to reject my second hypothesis that providers employ focused niche market marketing approaches to establish VoIP.

**VOICE OVER IP’S UNIQUE PRODUCT ATTRIBUTES**

Hypothesis three stated that providers will feature the unique product attributes of VoIP in their marketing strategies. Incumbent providers presently marketing VoIP highlighted some of the unique product attributes of VoIP as a key component of their promotional strategies. Several identify the transportability feature of VoIP telephones as a significant cost saving feature for large enterprises. Employees of large enterprises who get promoted to new jobs, take on special projects, or transfer to new sections frequently relocate to new floors, offices or desks. Under a conventional telephone configuration, a technician is required to relocate a person’s phone number to the new location. When
VoIP is used, all that is required is to move the IP telephone to the new location and reconnect it to the data network. Providers did not mention transportability being a factor for longer distance moves to new buildings, cities, or even to foreign work locations. Because incumbents are primarily focusing on the enterprise market segment at this time, little information was provided to suggest unique product attributes like transportability will factor into a future consumer marketing strategy. The key product attribute identified for consumers pertained to having unlimited North American wide long distance telephone calling.

Aside from unlimited long distance calling new entrant providers did not report any other efforts to promote unique VoIP product attributes in their marketing strategies. Infrastructure based new entrant providers indicate their present marketing strategies focus on differentiating themselves from incumbent telephone providers. As well, communicating to potential customers the heightened quality difference with an infrastructure supported VoIP telephone service.

Early adopter focus group participants identified higher level advanced functionality as a positive feature of VoIP. One individual suggested the capacity for real-time video conferencing, or video messaging has appeal. The ability to personalize VoIP phone service with unique ring tones for different callers, or being able to block telemarketers was identified as a drawing factor, if available. Another person indicated significant cost savings if running a business, or if making frequent international telephone calls could be a factor in their future decision to adopt VoIP.
My findings lead me to reject my third hypothesis indicating providers will feature VoIP’s unique product attributes in their marketing strategies.

**ADDRESSING VOICE OVER IP CONCERNS**

Hypothesis four indicated providers of VoIP will address concerns and perceptions related to security, quality, and reliability in their marketing strategies to early adopter and other market segments. No data or information received through interviews indicates either new entrants or incumbent telephone companies providing VoIP services now or in the near future intend to specifically address concerns and perceptions related to the security, quality, and reliability issues. Some identify each as technical issues which will be resolved with advances in next generation networks. Others indicate their intention to only market VoIP as a second-line telephone alternative because of each of these performance shortcomings. Those employing the secondary line promotional strategy cite quality of service and the limited availability of some standard telephone services like enhanced 9-1-1 as the rationale for this approach.

When discussing the perceived benefits and potential sacrifices associated with VoIP, one focus group participant stated concerns over 9-1-1 emergency calling. Several other participants proceeded to join in expressing similar concerns. The prevailing view is that 9-1-1 does not work at all on VoIP. Two participants indicated this factor alone as a sufficient reason not to consider VoIP as a first-line replacement at any price. Each also
indicated having little interest in having a secondary VoIP telephone line, unless this was included in their current Internet subscriptions at a very low price, or at no additional cost.

Infrastructure based new entrant VoIP providers highlighted the distinction between themselves and other Internet telephone companies. Infrastructure based providers suggest their control over the data communications medium between the subscriber and the connection point to the public switched telephone network allows them to introduce quality of service (QoS) considerations into their networks. These engineering considerations enable them to offer a premium form of IP telephone service which they claim either performs as well or better than conventional telephone service. Alternately, pure VoIP providers rely entirely on the public Internet infrastructure where there is no QoS. Infrastructure based providers also identify the ability to dedicate one voice channel per subscriber as a factor which also contributes to heightened performance and reliability. For these two reasons, infrastructure based VoIP providers describe their IP telephone as a vastly superior product to conventional pure Internet VoIP.

Infrastructure based new entrant VoIP providers are making efforts to communicate the quality difference between their product and that of pure Internet telephone companies. News media is being used to communicate this difference in areas where staged product launches are taking place. Infrastructure based VoIP providers acknowledge communicating the difference in their IP telephone service is a challenge given all of the information, conjecture, and rumour about significant problems with VoIP.
Overall, it seems nearly all providers of VoIP view security, quality, and reliability as problems to be resolved through technical solutions. For example, through the implementation of advanced next generation networks. I found little evidence of strategies to address these perceptions through marketing strategies.

**EARLY ADOPTERS FOCUS GROUP SESSION**

Most focus group participants felt that placing phone calls over the Internet should be free of charge whether the call is local or long distance. An individual who had investigated subscribing to VoIP through a national provider helped explain the rationale for monthly charges (i.e., to place and receive calls with traditional telephone users and receive enhanced calling features like voicemail). When asked why he had not subscribed to VoIP, two reasons were identified. One, there were concerns over quality of service. He had read several articles which indicate the quality of VoIP telephone can be a problem. Second, because the service provider’s enrolment contract contained a clause stipulating a $90 fee for cancellation of the service. Between the quality concerns and the cancellation fee, there was insufficient value to risk subscribing.

Several participants indicated the complexity of using VoIP, even through a subscriber service, might be a factor, at least during the initial set-up. Although each participant felt they could navigate the set-up, many mused at the thought of their parents or grandparents having to do this. One participant commented “my mother has no idea what an IP address is, let alone what her computer’s IP is.”
Focus group participants indicated assurances of adequate performance, full compatibility, and price discrimination would be needed in order to consider VoIP as a replacement for their first-line telephone. One participant indicated an unwillingness to accept performance compromises for a pay service. “If it’s free, well that’s different.” Another focus group participant echoed the same thought indicating she would never pay good money for a substandard service. Others commented VoIP service must first be fully compatible with the traditional telephone network. Some stated they would not leave their regular telephone provider for the savings of just a few dollars per month. “I already subscribe with TELUS for my Internet service, so what would be the point?”

Having to enter into any kind of contract and potentially absorb a $90 exit penalty was unanimously felt to be a very significant detractor. Ignoring the $90 fee, one participant stated a willingness to pay a VoIP provider a maximum of $10 dollars per month for full feature local telephone service, plus another $10 for unlimited long distance. One other person was willing to accept not having 9-1-1 service, tolerate occasional outages and dropped calls, but only if the sound quality was consistently good.

Participant identified reasons to either consider or reject VoIP included: 1) very low price, 2) lots of features at no additional charge, and 3) free international calling. The single biggest reason for not considering VoIP is the need to enter into a contract. One participant nicely summed up the groups feelings saying, “I want it all, but I also want it cheap.”
DISCUSSION

FACTORS INFLUENCING RATE OF ADOPTION

Everett M. Rogers' theory on the diffusion of innovations states factors of relative advantage, compatibility, complexity, trialability and observability largely dictate the diffusion rate. The present perceived relative advantage of VoIP is cost savings through primarily unlimited long distance, and to a lesser degree calling features which are included at no additional charge. The higher level advanced functionality potential of VoIP such as collaborative white boarding, remote telecommuting, and personal productivity applications are not currently factors. The information collected from potential early adopters suggests individual adoption decisions are presently being influenced by perceived underperformance of VoIP as a whole. Insufficient cost savings are also reducing early adopters' overall view of the relative advantage of VoIP telephone.

VoIP largely meets adopters' compatibility needs with the exception of one key area; 9-1-1 emergency calling service. The prevailing perception among focus group participants is that 9-1-1 will not function at all if you subscribe to a VoIP service. These perceptions are not entirely correct; however potential early adopters are not receiving any information to advise otherwise. In reality, VoIP subscribers who register their addresses with VoIP providers should receive the security of standard enhanced 9-1-1 service benefits. However, unlike the self powered, battery back up PSTN, VoIP telephone and 9-1-1 will not be available during a power outage, or during an Internet service interruption.
There appears to be misconceptions about the level of complexity involved in using VoIP through a service provider model. None of the early adopters who participated in the focus group knew exactly how difficult or easy it would be to install VoIP service. They presumed a VoIP telephone handset would need to be connected to a laptop or PC along with the installation of a new software program. In reality, VoIP phones are commercially available which plug directly into a standard Internet modem or router. No computer is required. Further, it is not even necessary to purchase a VoIP phone. Digital adapters are available which allow use of all standard hard wire and cordless telephones. Such adapters are normally offered along with your standard VoIP enrolment package. This information came as a surprise, but was well received among focus group participants. Prevailing perceptions surrounding the complexity of VoIP appear to be held among potential early adopters.

My research of commercial VoIP service offerings presently available in Canada, and discussions with key industry stakeholders did not identify any options to trial VoIP telephone services on a limited low cost basis. To the contrary, service contracts with built-in disincentives for service trials were identified through my research, but more importantly by focus group participants themselves. These switching cost fee mechanisms discourage trialability among early adopters and are impediments to the diffusion of VoIP in to these groups. The early adopters who attended the focus group expressed interest in trialing VoIP as a secondary line if a no contract, low or no cost option were available.
Since present day VoIP is a transparent direct substitute to conventional telephone, the influence of observability is low. Where observability does become a factor is in the frequent exposure VoIP receives in the Canadian news media. This exposure is both positive and negative. But it seems to be the negative factors surrounding underperformance and lack of equal availability to enhanced 9-1-1 service which is leaving lasting impressions with potential early adopters. This is particularly disconcerting for the diffusion process given early adopters’ possesses opinion leadership within their social communities.

**VOICE OVER IP AS A DISRUPTIVE TECHNOLOGY**

Hypothesis one identified VoIP as a disruptive technology which incumbent telephone providers recognize and are adapting to. By all accounts VoIP is, in fact, a disruptive technology. VoIP presently underperforms the incumbent conventional telephone technology. VoIP offers a set of unique attributes which set it apart from conventional telephone. VoIP, as well, is on an advancement trajectory which will see it eventually surpass the performance, functionality and robustness of conventional telephone. However, in accordance with hypothesis one, the information collected suggests VoIP will not have a truly disruptive effect on Canadian incumbent conventional telephone providers due to their vigilance.

For many years incumbent telephone providers have worked in an environment of convergence in communications technologies. VoIP would appear to be just one more
area of technological change and convergence in communications requiring their attention. And incumbents appear well equipped for this shift. Incumbent providers of conventional telephone service have considerable expertise working with digital data communications. Incumbents have been providing digital data services for many years and have built up an abundance of knowledge, expertise and experience in this area. They understand VoIP telephony, its current limitations, its future potential, and the changes necessary within private and public data communications infrastructures to make it a mainstream alternative to the telephone.

The information gathered through my interviews suggests incumbent telephone providers either already offer commercial VoIP telephone service, or are preparing future VoIP offering in both traditional and new markets. The enterprise market segment has predominantly been the focus to this point. Organizations which own and operate a portable branch exchange, or PBX, internal telephone systems are considering VoIP when upgrading. Enterprise telecommunications users with aging PBX systems have therefore been a central focus for incumbent telephone companies. Additional data gathered through my interviews of incumbents indicate they are preparing strategies to market consumer VoIP service offerings as well. Most have either been completing service trials, or performing some other type of testing in preparation for future product offerings.

When considering incumbent telephone providers, it is important to remember these companies are only incumbent providers in their traditional operating territories. In the
case of Telus, their incumbent territory is British Columbia, Alberta and parts of Quebec. In every other province and territory of Canada, Telus is a new entrant. The same holds for Bell Canada Enterprise outside of Ontario and Quebec, and Aliant Telecom outside of the four Atlantic Provinces. This is important because as each of these companies expands their service into non-traditional markets, they do so as new entrant providers. As new entrants they are required to overcome the same impediments as other new entrants like VoIP providers. Each also has the task of building the same competencies within their organizations to compete and penetrate markets. Because their infrastructures in new market areas are mainly advanced digital data networks, VoIP is one of their current or planned future service offerings.

One of the environmental characteristics Christensen describes in The Innovator's Dilemma: When New Technologies Cause Great firms to Fail is for firms of incumbent technologies to disregard new innovations. They either fail to recognize the future potential of a new technology, or chose to believe they will quickly be able to build-up the necessary expertise and implement the new technology once it is sufficiently advanced. According to Christensen, organizations who procrastinate will not be able to respond quickly once the performance of the new technology solution surpasses the existing solution. In the case of incumbent telephone providers, they are already experts in the foundational technology of VoIP. In addition, incumbents are forced to respond as new entrants in many markets they strive to penetrate. Therefore, Canadian incumbent conventional telephone providers are unlikely to succumb to the emergence of VoIP. Rather, they will adapt and evolve as VoIP technology diffuses in the marketplace.
Further, the dynamics of the Canadian telecommunications industry, its environmental factors, and the building attentiveness of incumbent telephone companies calls into question whether VoIP will, in fact, have a disruptive affect on the Canadian telephone industry.

**MARKET SEGMENTATION**

Marketing theory states the first step in the marketing strategy process is to segment a market. This then leads to target market selection, product positioning and the creation of the customer value proposition. Hypothesis two stated providers will employ a focused marketing approach, concentrating on specific niche market segments to establish VoIP service. Virtually all of the value-added through the marketing process flows from the initial step of market segmentation. Segmentation allows firms to develop and focus their products to better meet the needs of its potential customers. Market segmentation is therefore critical to the formulation of a focused marketing strategy to establish new products or services.

Based on the information gathered through interviews, market segmentation in potential VoIP markets is not extensive in either scope or depth. The primary segmentation identified divides the market into two groups, enterprise and consumer potential VoIP telephone users. Further segmentations in enterprise markets focuses on separating large organizations from small and medium size enterprise. In consumer markets there are a few isolated examples of firms performing more market segmentation, however, overall consumer segmentation efforts were found to be quite limited. As a result, very few
concrete examples of focused VoIP marketing strategies concentrating on specific niche segments were identifiable. This was particularly the case for the consumer category of potential users. Not one focus group participant had described experiencing any direct VoIP marketing to solicit their adoption. The extent of the marketing focus group participants identified was limited to “pull” type advertising strategies through mass media outlets and Internet banner advertisements on a few of the web sites they frequent. This, in part explains many of the misconceptions focus group participants had in regards to VoIP’s compatibility (e.g., emergency 9-1-1 service) and complexity (e.g., thinking VoIP needed to be installed and used from a computer work station). One of Moore’s fundamental recommendations in Crossing the Chasm is to seek out a very specific niche market, and focus your efforts to establish your technology service or product there. At this point in time, providers of VoIP services are not making great efforts to first segment and then focus on niche markets.

The information gathered leads me to conclude insufficient market segmentation of potential VoIP subscribers is currently taking place in the Canadian market. Evidence suggests that most providers are not heeding Moore’s specific advice, and further are spreading their resource too thin to have impact in any one specific market segment.

**UNIQUE PRODUCT ATTRIBUTES**

Hypothesis three identified the need for providers to identify and focus the present unique product attributes of VoIP. Outside of the benefit of no charge long distance calling North American wide, there is little evidence of efforts to promote VoIP’s unique
attributes. Transportability of VoIP is one key feature seemingly overlooked by marketers in consumer and business market segments. Frequent travellers who incur high cell phone charges may well consider VoIP as a lower cost alternative which also increases their all-round availability. A Canadian business woman who is working in Singapore for extended periods, for example, can use VoIP to liaise with colleagues at her Vancouver head office, or send and receive faxes at little cost. Provided her VoIP service plan is set up with a Vancouver telephone number there will be no additional international calling fees, and to her work colleagues she is available at a local Vancouver telephone number. Travelers can also be within local contact of friends and family members, or even their dentist’s office calling to leave a reminder. Expatriate managers in far-flung international locations, members of the Canadian Armed Forces stationed abroad, plus the estimated 200,000 Canadian snowbirds that winter in the United States or Mexico (Elections Canada, 2005) can all benefit from VoIP’s transportability. Seamless availability at your normal telephone number when abroad presents a compelling customer value proposition for certain customer segments.

Christensen’s literature on disruptive technologies states providers of these inferior solutions need to seek out unique circumstances and situations where the unique attributes of their products are of value. This step is necessary to establish the new technology within the marketplace, and serve some presently unfulfilled need. Presently, there are few efforts to promote VoIP’s unique attributes.
The unique product attributes of VoIP at the present time are limited. However, there is little evidence any effort or thought being given to promote the transportability and telecommuting potential that exists today. In marketing to enterprises, VoIP’s transportability within the organization is a significant cost savings factor presently being promoted. No evidence was gathered to suggest marketers are making efforts beyond the cost savings factor to promote this very unique VoIP attribute.

**VOICE OVER IP PERFORMANCE**

The fourth hypothesis stated providers of VoIP needed to address concerns and perceptions of underperformance related to security, quality, and reliability in their marketing strategies to early adopter and other market segments. I did not collect any specific evidence in my research to suggest providers are adhering to this need. Early adopters participating in the focus group expressed concerns over the performance of VoIP telephone and identified this as a factor in their reluctance to consider this service. Their perceptions were developed through information conveyed in several media sources, and from the second and third-hand accounts of VoIP performance passed through their social networks. At the present time marketers are doing very little to clarify VoIP performance. In this void, potential early adopters of VoIP are left to draw their own conclusions, and for the most part there are notable reluctances to entertain VoIP for reasons of underperformance.
MARKETING VOICE OVER IP TECHNOLOGY

The general marketing concept states the focus should be on the customer with sales being just one element. Also, that the marketing process begins with development of the product in consideration of customers’ needs. While not widespread, there is presently evidence of marketing activities which influence front end product development.

Recognition of VoIP underperformance issues is leading to secondary line marketing strategies. Selling VoIP as a first-line replacement will normally result in a product which does not meet most customers’ minimum service requirements. With respect to hardware products, information gathered suggests manufacturers are being proactive in their development of VoIP products which will meet future needs. By the end of 2006 it is anticipated half of all cellular and PCS phones manufactured will be WiFi capable (Decima Research Inc, 2005). WiFi, short for wireless fidelity, is a wireless Internet access protocol routinely available in airports, universities, office buildings and other institutions through-out Canada in zones know as “hot-spots.” Cell phones with WiFi capacity can be used to enable VoIP transportability which will potentially advance the diffusion process.

To this point VoIP’s value proposition has been about cost savings, mainly in the area of long distance calling. However, this stance alone will not succeed in penetrating larger mainstream markets. Canadian long distance charges have been falling for several years and indications are the trend will continue. One focus group participant identified VoIP presents no compelling value proposition given his preference for utilizing a flat rate 50 cents per call, unlimited minutes long distance calling mechanism. Likewise, potential
enterprise customers do not consider long distance savings a factor in their consideration of VoIP. Present business rates of a few cents per minute hardly justify a switch to VoIP on the basis of long distance savings alone.

Moore’s theory of a chasm between early adopter and early majority segments can not be tested at this point because VoIP has not fully penetrated a majority of early adopters. It is difficult to predict what challenges marketing VoIP to the early and late majority will present. Data and information gathered for this project suggests VoIP will not be under a shortened lifecycle like some technological innovations. In fact, all indications are the cycle for VoIP and other forms of IP telephone will be a long one, comparable to the conventional telephone service which has been around for more than a century.

There is evidence of some marketers employing strategies to appeal specifically to early adopters. One national VoIP provider’s heavy use of Internet banner promotions is a specific example. Information gathered through interviews indicates some present and future VoIP marketers are completing work in the study of psychographics to develop comprehensive and targeted marketing strategies.
CONCLUSIONS AND RECOMMENDATIONS

RECOMMENDATIONS TO MARKET VoIP TO MAINSTREAM CANADIAN MARKETS

1. All providers of VoIP telephone service need to invest more effort to first segment markets into smaller more manageable potential users groups and then create highly focused specific marketing strategies to provide these segments with compelling customer value propositions.

2. Providers must take steps to promote VoIP’s unique product attributes to specific market segments. Target specific market segments by highlighting the functionality of transportability and telecommuting capacity to create a unique customer value proposition to potential VoIP users who can benefit.

3. Providers must be upfront in the communication of performance data. Present provider strategies avoid communicating the reality of VoIP performance to potential subscribers. Instead, providers should be upfront in discussing levels of underperformance. Also, to dispel any misunderstanding with respect to unavailability of 9-1-1 service, use communication techniques which liken the VoIP experience to that of using a wireless cellular/PCS phone which technology adopters will be familiar with. Like with cellular/PCS, VoIP audio performance can be degraded, calls placements can fail, and conversations can be dropped a small percentage of the time. Also, on cellular/PCS, 9-1-1, emergency service is
available; however the caller will have to identify their name and location to summon emergency assistance.

4. Providers need to offer low cost VoIP service trials to early adopters of Internet technologies who maintain opinion leadership within their social communities.

5. Providers should use present and future customer needs to drive VoIP hardware product development. For example, to develop compact VoIP phone and fax hardware packages that can be used by travellers. Also, consider the development of VoIP phones which can be connected through a variety of modes like WiFi, Ethernet 10 base T connections, USB connections to computers, and build VoIP ready routers equipped with standard telephone jack connections.

6. Providers need to promote innovative uses and solutions to potential early adopter user groups. For example, the practice of foreigners subscribing to Canadian VoIP services in order to have local Canadian telephone numbers where they can be reached by friends and family members living in Canada. This provides a workaround solution to avoid VoIP international long distance charges which in some cases are on par with conventional telephone.

7. Utilize bundling of VoIP and other telecommunication and broadcasting services to build a stronger customer value proposition.
8. Providers need to build relationships and develop partnerships with Cellular/PCS wireless providers in anticipation of future business opportunities once dual mode Cellular/PCS and WiFi VoIP telephone handset are available. These partnerships will not only allow cellular/PCS subscribers to utilize wireless VoIP when in WiFi hot spots, there is also potential for household VoIP phones to have cellular back-up access during Internet and/or power outages. VoIP providers should explore all other business opportunities through partnering with wireless telephone providers. This will be particularly important for pure non-infrastructure based VoIP providers who need to build confidence about their product, plus build a capacity to bundle services in order to offer a stronger more encompassing value proposition.

9. Use unique methods to raise awareness and provide for trialability among early adopter segments. Install free use VoIP phones in colleges and universities for student use. Provide low cost or free trials of VoIP to students, particularly if they already subscribe to you for their Internet connectivity.
LIMITATIONS

Only one focus group session was performed to gather data and information for this project. Performing additional focus group sessions, with a greater overall number of participants will lead to more solid conclusions. Also, early adopters participating in the focus group session self-identified for this exercise. Each also received a nominal compensation of $10.00 for their input. Other mechanisms such as surveys or questionnaires could have been used to identify participants more conclusively representing the early adopter segment. Discussions with a greater number of present VoIP subscribers, using a variety of different VoIP services (i.e., infrastructure and non-infrastructure based providers) would have given a more complete picture of the performance distinctions among different VoIP services. In addition, the opportunity to interview representatives of a greater number of the present Canadian VoIP providers would have been beneficial.

RECOMMENDATIONS FOR FURTHER STUDY

The distinction between consumer and enterprise VoIP users and potential users needs to be explored for the purpose of developing marketing specific to each segment. Also, some work needs to be completed to learn more about the real performance differences between infrastructure and non-infrastructure based VoIP providers. Finally, additional investigation is needed to examine the marketing implications of competing with organizations who offer other telecommunications and/or broadcasting services in addition to VoIP and therefore have the potential to package services in bundles to offer customers greater value propositions.
APPENDICES

APPENDIX 1: INTERVIEW REQUEST LETTER

My name is Morris Bodnar and I am a second year Master of Business Administration student attending the University of Northern British Columbia located in Prince George B.C. A key component of my second year studies involves the completion of a major MBA project. The overall objective of the MBA project is to demonstrate the ability to undertake practical business research using a reasonable foundation of existing theory and sound methodology. I will be examining a specific business problem with the goal of gathering suitable information to produce a solid, well-supported, workable set of recommendations.

The subject of my project is Voice over Internet Protocol. My objective is to look at VoIP from the perspective of a marketing problem. More specifically, to examine VoIP and develop recommendations to successfully penetrate mainstream (primary) markets through the optimum mix of product, price, distribution and promotion.

I should let you know I am presently employed with the Federal Government Department Industry Canada and serve as the Manager of Spectrum Operation for Northern B.C. and the Yukon. My core responsibilities are to oversee the management of radio licensing, inspections and interference resolution activities in the northern reaches of the Pacific Region. I do not work for the Telecommunication Policy Branch of Industry Canada, nor do I have any direct or indirect connections to this division which is centralized in Ottawa. My reason for choosing VoIP is due to my educational background in technology, and personal interest in the Internet and how it is impacting business.

My initial focus has been on reviewing a variety of literary sources in order to gain a strong grasp of the technology. In order to balance this theoretical research and move toward meaningful conclusions, I now need to speak with individuals from key organizations who are involved in VoIP. Therefore, I am requesting interviews with persons like yourself who fall into one the three major stakeholder segments: 1) incumbent telecom providers, 2) new entrants providing VoIP service, and, 3) present and prospective VoIP users.

I'd like to speak with you either in person or by telephone to gather additional elements for my study. Interviews will consist of 12 questions which will take approximately 40 to 50 minutes to complete. With your permission, I'd like to record the interviews for the sole purpose of accurately capturing the content of our discussion, and not unnecessarily slowing down the process with frequent pauses to write notes. The recording I make will only be accessed by myself and will be destroyed at the conclusion of the project.

I am cognizant of the potential sensitivities in openly sharing your views given the competitive nature of the telecommunications industry. For this reason, I will be the only person privy to the precise content of each interview. Interviewees will not be quoted in my paper, nor will any specific information considered to be confidential be directly discussed. The content of the interviews will be used in aggregate to develop a snapshot of the present business environment in order to establish principles on which to base a
dynamic marketing strategy. Further, drafts of my paper will be reviewed by the two UNBC professors co-supervising the project to ensure I am not disclosing any proprietary information pertaining to any single interview.

I am available to discuss the format of the interview and any concerns with respect to confidentiality. I will be contacting you in the next week to answer any questions you may have and also to see if there is a convenient time for us to talk.

Thanks for your time.

Regards,
Morris Bodnar
Email: bodnar.morris@ic.gc.ca
Ph: (250) 561-5284
APPENDIX 2: SEMI-STRUCTURED INTERVIEW QUESTIONS

VoIP Marketing Research Questions – Incumbent Telephone Companies

1) Tell me about your organization and the business challenges it sees over the short to medium term. What do you see as the key emerging trends in voice telephone services?

2) To what degree do you see VoIP as a threat to circuit-based local telephone service? Likewise, to what degree do you see this as a threat to long-distance telephone markets? Are the two mutually exclusive?

3) What do you identify as the key components of a VoIP provider’s marketing strategy?

4) What in your view are the key product attributes of VoIP, and how can each be emphasized in a successful marketing strategy?

5) What are the disadvantages of VoIP and how do providers mitigate them?

6) What impact is the CRTC’s decision to regulate VoIP services provided by incumbent telephone companies having on your organization’s strategies?

7) Is the development, manufacturing and overall availability of IP network and telephone hardware influencing adoption of VoIP? For example, one article I read suggested that within a couple of years conventional PBX (private branch exchange) units will no longer be manufactured. Is this statement accurate in your view, and second, to what degree is this influencing your organization’s strategies?

8) What do you see as your firm’s core advantages for introducing new product offerings like VoIP into the marketplace? How will your organization make the most of each of its core strengths? What markets will you pursue initially, and why?

9) According to generally accepted marketing theory, pragmatists—who represent the largest proportion of potential new technology adopters—won’t buy from you
until you are established. Conservatives—the second largest segment—abhor discontinuous innovations.

What strategies are needed to penetrate each of these two market segments?

10) Many communication industry pundits have referred to VoIP as a revolutionizing technology. When revolutionizing technologies arrive in the market, incumbent providers of goods or services can sometimes be reluctant to introduce similar product offerings because such introductions will cannibalize existing markets.

How do the prospects of cannibalizing existing markets impact your firm’s investment, development, and introduction of VoIP telephone service offerings?

11) Will VoIP eventually supplant conventional circuit-based telephone? Why, or why not? What timelines do you see for broad adoption beyond niche into primary markets?

12) Is there anything we have just discussed of which you feel is highly confidential in nature and that you want to draw to my attention so I consider this when writing my paper?

VoIP Research Questions – New Entrants

1) What strategies are you presently using to market VoIP service offerings? What strategies have been the most successful and are there any new strategies you will plan to use in the future?

2) What are the main marketing challenges your firm is experiencing when selling VoIP services to businesses and individuals who are conventional telephone users? What types of businesses, organizations and individuals are you finding to be more receptive to switching to VoIP?

3) Thus far in marketing VoIP, where have you made inroads? Why, in your view has this particular market segment or segments been receptive to VoIP services?

4) Do you consider the users and user groups just described as niche or primary market segments? What new market segments do you plan to target in the future?

5) Is the development and manufacturing of network and telephone hardware influencing adoption of VoIP? For example, one article I read suggested within a
couple years conventional PBX (private branch exchange) units will not longer be manufactured. First, is this statement accurate in your view, and second to what degree is this influencing strategy?

6) What impact has the CRTC’s decision to only regulate VoIP services provided by incumbent circuit-based telephone companies? Assuming this ruling stands, how does this change your firm’s future efforts to market services? What strategies are being considered to take advantage of this with respect to pricing strategies and price flexibility in the marketplace? What impact will it have your firm if the appeal by incumbent telephone providers is successful?

7) What do you see as your firm’s core advantages in introducing new product offerings like VoIP into the market place? How will [firm name] make the most of each of these?

8) According to generally accepted marketing theory, pragmatists—who represent the largest proportion of potential new technology adopters—won’t buy from you until you are established. Conservatives—the second largest segment—abhor discontinuous innovations. What strategies are needed to penetrate each of these two market segments?

9) Is there anything we have just discussed of which you feel is highly confidential in nature and that you want to draw to my attention so I consider this when writing my paper?
APPENDIX 3: FOCUS GROUP ADVERTISEMENT

Are You an Early Adopter?

Have you ever felt the pain of being one of the first to use a new technology?

Have you ever purchased the latest gizmo only to find it selling at half the price a few months later?

Did you introduce your friends to MSN, CU See Me, or Skype?

*If you answered yes to any of the above questions, I'm looking for your services!

* Earn $10.00 Cash!

Participants needed for a MBA Project Focus Group session

Interested or have Questions?
Call Morris @ 561-5284, or bodnar.morris@ic.gc.ca

When:
Wednesday March 8, 1:00 PM

mba
master of business administration
APPENDIX 4: FOCUS GROUP SPEAKING POINTS FOR OPENING THE SESSION

- Welcome the participants and provide a simple explanation of the project without going into detail.

Thank-you for agreeing to participate in today’s focus group session. The information gathered over the next hour will be used for a project paper I am completing as part of my Master of Business Administration program. My paper focuses on developing a series of recommendations for Voice over Internet Protocol telephone providers to penetrate mainstream markets.

- Explain to participants why they were chosen and talk about the importance of their contribution to the project.

I have specifically sought undergraduate university students because most if not all of you are avid Internet users.

- Make sure participants understand that the session will be confidential. Discuss my reason for audio recording.

Today’s session will be completely confidential. I will not identify names or attribute any information gathered to any specific person. Furthermore, my paper will not directly quote any person’s comments. I am recording the focus group session in order to be able to later review the information gathered her today. The recording will only be heard by myself and will be destroyed once my project is complete.

- Explain how the focus group works and “ground rules”

The focus group session will last between one and one and a half hours. The objective is to have a natural free flowing free spirited discussion flowing around certain key questions. As the facilitator I may introduce new ideas or follow up questions to narrow the discussion.

It is best to keep the conversations “in the group” as other side conversations going on between a couple of group members may distract from the flow of the discussion.

I would like to hear from all of you about your feelings on this subject. Anything you want to say is important. All I ask that each of us is courteous of one another and each person in the group has a chance to speak.

There is much information to get through in one hour, so at times I may need to transition the conversations along from one question to another before the group has fully explored one area.

I’d now like to begin the focus group by going around the room asking each participant to tell us your name, where you are from, and your major area of study.
APPENDIX 5: FOCUS GROUP QUESTION GUIDE

Opening Question:
- Tell us your name, where you are from, and your major area of study.

Introductory Questions:
- How do you presently use the Internet to communicate?
- Tell me about your experiences using the Internet to communicate.
- What are you favourite Internet communication applications and why?

Transition Question:
- Has anyone ever used the Internet to place a voice phone call with a friend or relative? If so, what was your experience?

Key Questions:

Perceptions:
- What do you see as the advantages of using the Internet to carry a phone call?
- What features would you look for with Internet telephone?
- How complicated do you think it is to make a telephone call over the Internet?

Services:
- What would you need in an Internet Telephone service to give up your conventional telephone service?
- What concerns would you have?
- If subscribing to an Internet telephone service, how much would you expect to pay per month, and what services need to be included?

Performance:
- Internet telephone in its current form is susceptible to connection problems, mid call drops, and jittery audio a small percentage of the time. Is this acceptable, explain why or why not.
- What are your thoughts about giving up performance to receive limitless long distance calling, is it worth it?
- If your parents were to subscribe to an Internet telephone service, what do you think would be the main reason why?

Closing Question:
- Of all the aspects of Internet telephone we have discussed over the past hour, what stands out in your mind as being: 1) the biggest reason to consider Internet telephone, and 2) the biggest reason to reject Internet telephone?
BIBLIOGRAPHY

Adner, R. (July 6, 2001). When are Technologies Disruptive? A demand-based view of the emergence of competition. Fontainbleau Cedex, France: INSEAD.


Cope, J. (February 1, 2002). Voice Over IP: It's ready. CNN.COM: CNN.


Elections Canada. (December, 2005) Voting by Canadians – Snowbirds – Away from Their Electoral Districts. www.elections.ca


Kharif, O. (February 9, 2006). *Vonage’s Iffy IPO* BusinessWeek Online


Teece, D. J. (June 1986). *Profiting from Technological Innovation: Implications for Integration, Collaboration Licensing and Public Policy.* Berkely California: School of Business Administration, University of California.
