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# Decision models and the adoption of wireless technology

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# DECISION MODELS AND THE USE OF WIRELESS TECHNOLOGY

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## Abstract

*Many nations boast high broadband internet penetration. In many of markets, consumers can choose among competing technologies to connect to the internet. Much research in the IT diffusion domain has been useful for examining the adoption of individual technologies. This paper explores technology adoption in an environment in which different technologies fill a similar need by focusing on wireless internet access. This paper uses a series of focus group interviews to analyze the use of cognitive referencing in the form of reference prices, situational (status quo) framing, and mental accounting as potential determinants of technology adoption. The findings of this study suggest that adoption decisions are reference-dependent and that researchers should consider users' referents when studying adoption in the wireless broadband market.*

*Keywords: Pricing, technology choice, diffusion theory, adoption, standards, wireless, broadband, qualitative research*

# DECISION MODELS AND THE USE OF WIRELESS TECHNOLOGY

## 1.0 Introduction

In Europe, the USA, and parts of Asia, internet penetration is high, with substantial consumer use of broadband technology. A plethora of companies offers internet access through a wide variety of different technologies. Wireless data technologies for laptop computers, such as 3G and WiMAX, are new market entrants that offer a fundamentally different delivery method than the more widely adopted fixed-line access points. This paper examines influences on the consumer decision process that affect the adoption of information and communication technology (ICT) through the study of wireless internet for the computer.

Researchers often employ traditional theories of technological adoption when investigating the adoption of ICT. While these methods have proven useful when studying individual technologies, exploring different models can also enhance the understanding of new technology usage. The current broadband market offers existing technologies that compete with new technologies, all of which access the same internet. The users in this study did not evaluate choices in isolation, but weighed alternatives against their current internet technology.

This paper explores the adoption of technology in a situation in which different technologies fill a similar consumer need. More specifically, it explores the determining factors for the adoption of one internet service technology over another; the choice of fixed-line versus wireless technology in particular. Denmark, the world leader in broadband penetration according to an Economist Intelligence Unit study (2007), serves as a market exemplar for Western nations, and was consequently chosen as the location for this study.

In a market offering a plethora of technological choice, why does such a large portion of the population use such a small number of technologies? What goes on in people's minds during the process to decide which type of information technology to buy? Wireless broadband is a relatively new offering. This paper investigates diffusion models in an environment of competing options by asking the question: what is the best model for predicting and understanding consumer adoption of high-speed wireless internet?

This paper uses focus group research to fill apparent gaps, as pointed out by the calls for alternative perspectives on technology adoption (Benbasat & Barki 2007; McMaster & Wastell 2005; Venkatesh & Davis & Morris 2007) and by the call for the exploration of the consumer decision-making process beyond construct-based research (Blechar & Constantiou & Damsgaard 2006). Following the example of Eynon (2005), this paper utilizes focus group methodology to explore user attitudes about the adoption of internet ICT. The analysis builds upon bounded rationality, prospect theory, and mental accounting. It also expands on the more recent work of Blechar et al. (2006) who applied reference pricing to wireless ICT.

The contributions of this study are two-fold. First, it adds to user behavior research in wireless services by elaborating on the process by which end users make communication technology purchase decisions. Second, it illustrates the insights gained by applying cognitive decision making models to a situation of technological choice.

This article is structured as follows: the next section provides an overview of major broadband access technology. The following section offers an overview to reference pricing and the cognitive psychology theories on which referential decision making is built, as well as the role pricing plays in ICT diffusion. The proceeding segment details the research methodology used to conduct the focus groups and analyze the data. The subsequent section presents the findings. After the presentation of data, the results segment compares research outcomes to theoretical arguments, addresses the implications for service providers, and discusses the propositions and research instrument.

## 2.0 BROADBAND OVERVIEW

Many technologies enable connection to the internet at high speeds. While they all provide internet access, the various technologies deliver the service in distinctly different ways and offer different performance traits. Fixed line technology requires a user to access the internet from a specific location. Portable broadband frees users to move their computers within a limited geographic area. Mobile internet enables free movement between access points without interruption.

TECHNOLOGY	CAPACITY	TRANSMISSION	PORTABILITY	MAXIMUM RANGE
xDSL	1.5 Mbps (12 Mbps)	copper telephone lines	fixed location	5.4 km (0.3 km)
Cable	40 Mbps	coaxial cable TV lines	fixed location	1-3 km
Fiber	1 Gbps	fiber optic cable	fixed location	20 km
Powerline	200 Mbps	existing A/C power lines	fixed location	1-3 km
Satellite	155 Mbps	extraterrestrial satellite	fixed location / wireless	1000-36,000 km
Wi-Fi	11.3 Mbps	unlicensed radio band	portable / wireless	100 m
WiMax	2.8 Mbps (practical speed)	3.5 GHz radio frequency	portable / wireless	50 km
3G	2.0 Mbps	mobile telephone tower	mobile / wireless	Large: based on cellular network

Table 2.1 Summary of common technologies and their distinguishing features (Corning 2005)

This research makes the explicit distinction between using a Wi-Fi router to relay a fixed line connection for a few meters and using a subscription Wi-Fi hotspot service. This study considers a home Wi-Fi router as fixed-line technology because users must decide which access technology to connect to the router when making an ICT adoption decision. See Figure 2.1 for an illustration of the distinction made for Wi-Fi in this study.

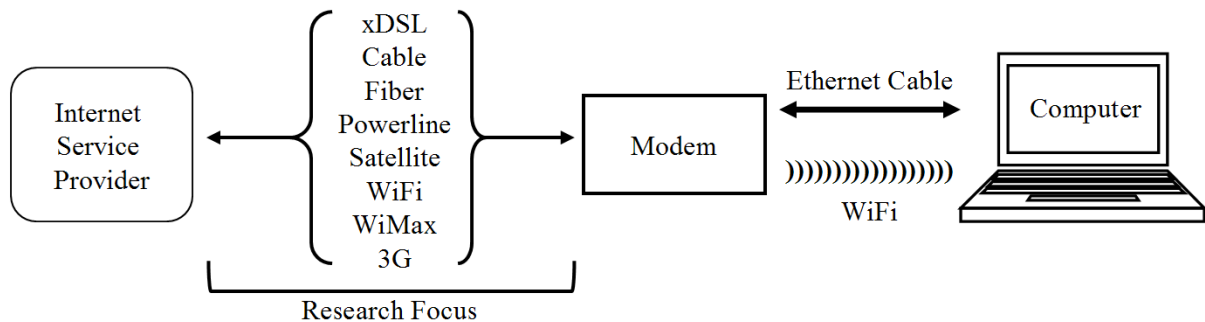


Figure 2.1 Distinction regarding focus of broadband technology choice

## 3.0 THEORETICAL INSIGHTS AND PROPOSITIONS

This section begins with the call for different theoretical approaches to the study of technology adoption within Information Systems research. It provides an overview to the theoretical basis for the argument that reference prices influence the decision of whether or not to use a technology. Second, it provides an introduction to the behavioral economics literature that paves the path for the proposition that a status quo bias impacts the willingness of a person to accept a new technology. Third, it lays the theoretical grounding for user preference of simple, flat-rate payment plans that can affect the selection of one internet service over another.

Much of the recent IS adoption literature uses theories such as the Technology Acceptance Model (Davis 1989), Theory of Planned Behavior (Ajzen 1991), Unified Theory of Acceptance and Use of Technology (Venkatesh & Morris & Davis & Davis 2003) and other theories that focus on individual-level adoption. For example, researchers recently applied the Theory of Planned Behavior by expanding it to new types of IT systems (Dinev & Qing 2007) and to the acceptance of broadband among different groups (Hsieh & Rai & Keil 2008). Other studies use UTAUT to study computer applications in non-Western countries (Al-Gahtani & Hubona & Wang 2007) or to investigate the adoption of e-commerce in developing nations (Uzoka 2008).

Research continues to advance the Technology Acceptance Model, the most often employed and influential IS theory (Benbasat et al. 2007; Lee & Kozar & Larsen 2003; McMaster et al. 2005). Recent applications include wireless data networks (Yoon & Kim 2007) and mobile communications (Zhang & Mao 2008). Despite greatly advancing IS research by focusing a formerly scattered field of study (Lee et al. 2003), some argue “TAM has fulfilled its original purpose and that it is time researchers moved outside its confines” (Benbasat et al. 2007). While TAM is appropriate in an organizational context, it lacks other vital considerations necessary to explain user behavior (Lopez-Nicolas & Molina-Castillo & Bouwman 2008). Perceived usefulness and ease of use may not be sufficient criteria to study emerging services such as wireless because the impact on everyday routine may be more influential than the technology itself (Bouwman & Carlsson & Molina-Castillo & Walden 2007). TAM is binary, considering only the choice whether to adopt or not adopt one technology in isolation. It ignores context and contingency. Therefore, it does not adequately consider the complexity of the actors’ decision (Bouwman et al. 2007; McMaster et al. 2005).

This paper breaks from the study of technology in an isolated environment to address the gaps pointed out by Benbasat and Barki (2007), McMaster and Watsell (2005), and Venkatesh et al. (2007) in their calls for alternative theoretical perspectives that expand the study of technology diffusion to include contingent models. It also answers Blechar et al.’s (2006) call to explore adoption decisions beyond construct-based research.

Because people cannot gather or analyze every bit of information, they simplify and seek satisfactory, not necessarily ideal, solutions. Building on this concept of Bounded Rationality (Simon 1955), Prospect Theory, a behavioral economics approach to decision-making in the presence of choices and risks, argues that outcomes are contingent upon comparisons to a referent. People judge value by gains or losses relative to a reference point, not in terms of absolute monetary value (Kahneman & Tversky 1979). For example, people perceive a \$5 price change on a \$25 item as greater than a \$5 change on a \$500 item, even though the differences have the same financial value (Thaler 1980). Constructive preference, in which people determine their preferences when presented with a choice rather than drawing upon *a priori* preferences, suggests that the context and the framing of the choice affect the decision. A goal of the decision-making process is to maximize the ease of justifying a decision (Bettman & Luce & Payne 1998).

Constantiou, Damsgaard, and Knutsen (2007) argue that price is the most important attribute for basic and advanced users of advanced mobile features. Similarly, a study of Wireless Application Protocol details how users compared it against PC-based internet services (Hung 2003). Blechar et al. (2006) introduce reference pricing to the use of advanced mobile services by arguing that mobile phone users compare phone-based data services to computer-based internet services. The reference situation of the internet, perceived as nearly free of charge for similar services, made nearly any price for m-services to expensive in the consumer mind. Therefore, the redundancies between mobile services and PC-based internet could constrain mobile services adoption if users perceive the personal computer as higher in quality relative to mobile devices (Blechar et al. 2006). The importance of reference pricing in a situation of constructive preferences leads to the following proposition:

Proposition 1: the reference price of fixed-line internet creates a situation that biases the consumer against adopting wireless internet service for the laptop.

Because preference construction is contingent on the framing of the problem, the method of elicitation, and the context of the choice; contrast effects play a strong role in decision making by influencing the reference point that is used to gage value (Tversky & Simonson 1993). The perception of quality differences between a new option and the referent affect the likelihood of switching (Constantiou et al. 2006). Since losses loom larger than corresponding gains, loss aversion suggests that disadvantages are more salient than advantages (Tversky et al. 1993). In an identical situation, a different decision can be reached depending on whether the choice is framed to indicate a gain or a loss (Kahneman et al. 2003). Perception is reference-dependent and people notice and evaluate changes as percentages rather than the whole value, creating a phenomenon in which people assign a higher value to something that they view as theirs to be lost; while they assign a lower value to something they see as a gain. Take for example the person who is unwilling to pay more than \$35 for a bottle of wine yet is unwilling to sell a bottle he already owns for \$100. The loss aversion associated with this “endowment effect” contributes to status quo bias (Kahneman & Knetsch 1991). Loss aversion during the discernment process leads to the second proposition of this paper:

Proposition 2: status-quo bias adds a perceived switching cost that increases the difference between the referent and the alternative, diminishing the perceived the gain from the adoption of a new broadband technology.

Consumers use “mental accounting” to frame purchasing decisions by assigning them to an expense category. They use these mental distinctions as a frame of reference to measure changes to reference prices. Decisions about which category, and whether to combine categories, impacts the perceived value of the choice. Loss aversion strongly influences how people organize financial transactions in their mind. Accordingly, “consumers don’t like the experience of ‘having the meter running.’ This contributes to what has been called the ‘flat rate bias’ in telecommunications. Most telephone customers elect a flat rate service even though paying by the call would cost them less” (Thaler 1999).

Research into the implications of the bundling wars that have begun with the telecom business explores the effect complementarity has on perceived value and how customers assess a bundle’s transaction value. Mental accounting plays a key role in assessing the transaction value and how context and perceived price affect the choice of mental “category” consumers use to budget a bundled offering (Sheng & Parker & Nakamoto 2007). The influence of mental accounting in purchase and usage decisions leads to the third proposition set in this paper:

Proposition 3: consumers prefer flat-rate plans over pay-per-use billing as a way to simplify mental accounting

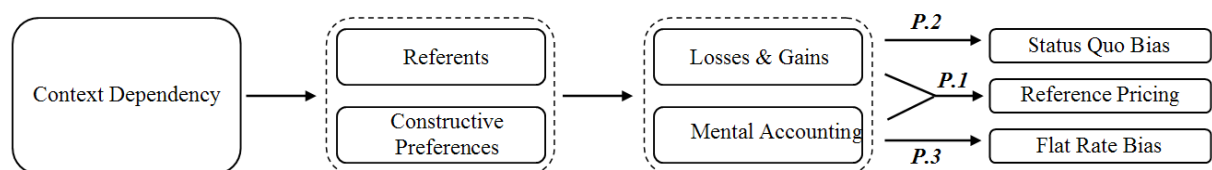


Figure 3.1 Theoretical model of decisions in the presence of choice and derivative research propositions

## 4.0 METHODOLOGY

This section describes the research methodology used in this study. It begins by detailing the selection of the research instrument and details the study design, recruitment of participants, data collection methods, and data analysis technique.

### 4.1 Instrument Selection

This study explores how consumers make the decision whether or not to adopt wireless broadband for their laptops. It asks the research question: “what do people think about when deciding to buy

broadband internet?" The attitudinal-based nature of the research question and propositions makes the focus group interview the logical choice of research formats (Kitzinger 1995; Krueger & Casey 2000; Morgan 1997).

The processes of attitude formation and decision-making are inherently unobservable. When researching such topics, focus groups provide access to data than cannot be easily obtained by direct participant observation or open-ended interviews (Morgan 1997). Krueger and Casey emphasize the suitability of focus groups to "uncover factors that influence opinions, behavior, or motivation" (Krueger et al. 2000).

The group interview research technique can be a self-contained methodology that can generate principal data that can be the basis for a complete study (Morgan 1997). The data gained from a particular study provide theoretical insights which possess a sufficient degree of generality or universality to allow their projection to other contexts or situations which are comparable to that of the original study (Sim 1998).

## **4.2 Study Design**

This study consists of multiple focus groups in order to be able to analyze data across groups to find patterns and themes (Krueger et al. 2000) and to reduce the effect of individual group dynamics on the overall dataset (Morgan 1997). The formation of three separate groups serves to achieve the data saturation recommended by Morgan (1997) and by Krueger and Casey (2000).

The number of participants represents a strategic balancing act between manageability and achieving significant idea diversity among group members (Morgan 1997). This study opted for small groups, with 6, 5, and 4 participants respectively. In order to compare and contrast data across groups, the interview questions were created prior to the focus groups (Krueger et al. 2000). The questions progressively narrow the topic of discussion specifically to gather data relevant to validating the propositions.

## **4.3 Participant Recruitment**

Recruitment strategy and the study design encouraged openness of sharing and to facilitate interaction among participants. As recommended by Barbour, the goal was to achieve a balance between diversity and homogeneity (Barbour 2005). In order to ensure sufficient heterogeneity of ideas within each group, the selection criterion was "college-aged persons living or working in Denmark." This basis is general enough to include a large population, yet create a sense of similarity among the group interviewees, as recommended by the literature (Kitzinger 1995; Krueger et al. 2000; Morgan 1997). Within the mixed gender participant set, some were students, others were students with jobs, and some had completed their education and were in the Danish workforce. Thus the screening criteria also had the advantage of diversity, which according to Kitzinger (1995) maximizes the exploration of different perspectives within a group setting.

The study selected young adult participants for several reasons. The study aimed to reduce extraneous variables and prior studies show that age affects individual technology adoption (McFarland 2001; Morris & Venkatesh 2000; Yang & Jolly 2008). The selected group has lived their entire lives since the introduction of mainstream personal computing and related technologies (Prensky 2001). They make heavy use of ICT; particularly internet use, and they have therefore incorporated it into their daily lives. They consider technology to be part of the landscape (Oblinger 2003) and they consider computers as commonplace, not as technology (Frans 2000; McMahon & Pospisil 2005). Networked for most their lives (Prensky 2001), they are generally unaware of the pre-internet era (Rickard & Oblinger 2003). Equally important, they are consumers whose entrance as decision makers into the marketplace closely coincides with the wide-scale launch of wireless internet services.

#### **4.4 Data Collection**

The focus groups were convened during late April and early May 2008. After the meetings, field notes were typed recording salient points and researcher impressions of the discussions. The conversations were recorded in order to maintain accuracy during the analysis phase of the project. In keeping with the effort to make participants feel comfortable about sharing their opinions, the research plan followed the privacy guidelines recommended by Krueger and Casey (2000).

#### **4.5 Analytical tools**

The analysis used both the field notes and transcripts. The data were analyzed at the group level and on a comprehensive (study-wide) level. ATLAS.ti was used to code the data. At times many statements contained similar information; and other statements were short statements that required the context of the surrounding conversation to convey a point. The quotations included in the next section of this paper serve as demonstrative exemplars.

### **5.0 FINDINGS**

This section details the information provided by the focus group participants. It begins with an overview and then elaborates by providing specific statements and quotations.

Based on past and present experiences, the focus group participants weigh many factors when evaluating broadband internet service. Service characteristics such as speed, security, stability, provider reputation, data transmission consistency, and convenience all play a role in the decision-making process. For all participants, price plays a pivotal role in deciding which broadband service to adopt. Rather than purely considering the monetary amount charged, they view price as the financial value derived from the amount paid for the service relative to the performance received. The overall pricing function includes the evaluation of different service characteristics such as performance metrics and provider reputation. Thus, they compare the price of one option to another, both in terms of the monetary amount and the price to performance ratio. While some consumers seek the ultimate price-performance ratio, there is a propensity for the monetary amount to supersede other attributes once the consumers' minimum needs have been satisfied. Therefore, generally speaking, the performance portion of the function begins to weigh less heavily once a minimum threshold is satisfied.

All of the participants subscribe to fixed-line internet technology, and all use Wi-Fi access at least part of the time. The use of Wi-Fi to deliver the internet from a fixed line access point creates the reference perspective that internet access is portable. While such internet access cannot be accessed continuously over a large geographic area, it does enable access in a wide variety of locations. Some participants expressed an interest in mobile internet that they could use on moving trains, etc. Others saw little difference between mobile service and the portable service they currently experienced with a Wi-Fi link to a fixed line connection. Some subscribe to Wi-Fi hotspot services as either a paid subscriber or as part of an internet collective, but all participants primarily use Wi-Fi as router connected to the same fixed line access that the users can plug into if they choose. Therefore fixed line access serves as the reference point against which wireless alternatives are compared.

Although all participants used fixed-line for primary access, the cost basis varied widely. Some purchased internet as part of a service bundle along with VoIP or television service. Others had home internet service paid by an employer so that they experienced no out-of-pocket expense for the service. Others received internet from the building in which they lived. Often the internet was included as part of the rent, essentially creating a reference price of zero. A participant explains how this frames the decision process:

“And that might be a competition to wireless because people will have internet with their rent, as it is right now. So they don't need that wireless or that extra internet. It's not like



they say ‘either we’re going to have wired that we pay for or we’ve going to have wireless.’  
It’s ‘we have a wired are we going to pay for wireless as well?’”

Others lived in buildings in which their choice of fixed-line provider was determined by the building, and therefore had only wireless technologies as alternatives. In a similar instance, a participant must choose between two fixed-line options available at his building. A participant whose rent payment includes internet service also belonged to the Webbies collective. Webbies members receive a wireless router that permits any member to connect to any other member. The participant states: “And this way, I also have almost internet everywhere with my cable. ...It’s free and a lot of people have it.”

When asked about willingness to switch providers in order to adopt a new technology, some participants express a willingness to switch providers. Others express a status quo bias in which they are hesitant to change providers when such change was necessary to adopt a better internet technology. If participants associate inconvenience with switching, they would stay with their provider. Participants explain that this hesitation stems from a broad aversion to changing relationships with companies.

Others explain their hesitation to switch companies because of the time it takes to complete the switching process. One participant shares that uncertainty plays a part in creating his status-quo bias:

“It’s changing the paperwork and the bank details and whatever it is. But it’s also the fact that you know what you have. You know that it works or that it doesn’t work or that whatever else you *don’t know* about the other company.”

All of the participants’ primary internet access services employ flat-rate billing plans. The participants expressed a general preference for flat rate pricing plans and an aversion to per-use billing structures. Those who have internet-enabled phones use the data service infrequently because of the high cost of sending and receiving data. One participant uses three services with his laptop: fixed-line, Wi-Fi hotspot, and 3G. The fixed line and hotspot subscriptions are flat rate and used frequently; however, the expense of 3G causes him to use it “only as little as possible, for *essential* things.” Participants explained that choosing fixed rate plans simplifies their personal budgeting process and also makes it easier to decide whether or not to use the internet:

“...if there is a new opportunity to get like TV access or somebody tells you to go watch this or do this, I don’t have to worry about whether it is worth it to do that transaction; whether I want to spend the extra money on the download. I like the that flexibility of being able to do whatever I want”

Prior to broadband, internet service price varied upon use. When asked about the advantages of dial-up versus high speed fixed-line internet service, in addition to performance differences, focus group participants brought up the differences in billing strategies between the two technologies with statements like:

“When you used the modem, you know in the back of your head, that it costs for every minute. Now it doesn’t matter, really.”

## **6.0 RESULTS**

This section is divided into two parts. The analysis compares the findings to the expected outcomes based on theoretical arguments and suggests a diffusion approach for wireless internet service providers based on the study findings and existing literature. A discussion of the propositions and evaluation of the focus group methodology concludes the segment.

### **6.1 Analysis**

The participating consumers view internet service options as access technologies. They have already integrated the internet with their daily lives. They are accustomed to fixed line and wireless ICT.

Therefore, people view the choice among alternative types of technology as a relatively routine purchasing process and thus employ standard cognitive choice models.

When buying broadband service, people exhibit isolation effects. In the case of the focus group data, all broadband technologies take the user to the internet, enable VoIP, data transfer, etc. As a result, the focus group participants pay attention to the factors that differentiate the choices, the most concrete of which is price. Therefore, their ISP choices are generally a function of price. The disregard for components shared by the alternatives conforms to the findings of Kahneman and Tversky (1979).

The interviewees base value on price, not just absolute prices of one offering versus another, but as an assessment of the price relative to various key features. Therefore, if one service costs twice as much, but offers performance perceived to be twice as “good” then the offers would be equal in the consumer mind. At that point, the consumer would evaluate the offering that came closest to his or her subjective performance requirements, in a rough but somewhat rational manner. As a result, the participants evaluate the offerings using their past and current experience to frame their decision, as postulated by Kahneman and Tversky (1979). They make their decisions by evaluating differences from their fixed line reference point, supporting Kahneman’s (2003) findings that people use analogical reasoning to make choices.

Focus group participants using home broadband access reimbursed by an employer or included in the rent or tenant fees perceive the reference price of broadband services as free. These consumers experience no marginal cost for adopting their current internet service, but would experience an incremental cost if they decided to use a different internet service. Therefore, any alternative choice, including wireless broadband, would be *infinitely* more expensive; which provides support for the argument by Blechar et al. (2006) that mobile service users make reference to existing service delivery platforms when making their usage decisions.

Participants use price analysis to view possible outcomes as a gain or loss to a reference point so they can employ a partially rational decision process. This approach to balancing accuracy and effort conforms to the findings of Bettman et al. (1998) who write that people reach a subconscious compromise between the desire to make the right decision and the desire to minimize the cognitive effort required to make the decision.

A notable situation exists when comparing current fixed line and wireless broadband service. Except for mobility and installation convenience, every metric considered by focus group participants is inferior to the fixed line frame of reference. As predicted (Kahneman 2003; Kahneman et al. 2003), the loss of functionality is weighed more strongly than the gain of another function. This also supports Constantiou et al.’s (2006) argument that quality perception may cause a status quo bias against mobile services.

The presence of an affinity for flat-rate billing and supports Thaler’s (1999) argument that “mental accounting matters.” Participants feared that pay-per-use plans could become very expensive, as postulated by Thaler’s assertion that loss aversion contributes to a flat rate bias in telecommunications decisions (Thaler 1999). Furthermore, the adoption of a flat-rate plan frees the internet user from evaluating whether or not each internet activity is worth incurring a separate expense, in accordance with Bettman et al.’s argument that one goal of the decision making process is to maximize the ease of justifying the decision (Bettman et al. 1998). In the case of broadband internet, an unlimited use plan eliminates the possibility of “buyer's remorse” after spending money to visit a website, download a file, or view a video.

## **6.2 Discussion**

This discussion provides an overview of the findings and a summary of the contribution to theoretical literature. Second, it addresses the relevance to the business community. Finally, it reviews the methodology chosen for the study.

The data support the propositions derived from existing literature. In general, as put forth Proposition 1, participants use reference pricing as a primary decision-making tool. Although opinions vary, a general status quo bias influences purchase decisions, supporting Proposition 2. Mental accounting contributes to a flat rate payment bias in telecommunication services, as predicted by Proposition 3.

The findings contribute to the body of literature that studies technology adoption beyond individual-level technology studied in isolation. The study adds to the body of knowledge about consumer decision-making processes outside construct-based research. It adds to user behavior research in wireless services by elaborating on the process by which end users make ICT purchase decisions. It illustrates that insights can be gained when cognitive decision models are applied to technology choice.

In addition to theoretical contributions, the findings resulting from this focus group study have several business implications for companies with heavy investment in wireless internet technology. With heavy sunk-cost investments in licensing and infrastructure roll-out, much is to be lost if wireless broadband does not gain mass adoption. There are many challenges to the adoption and diffusion of wireless broadband: inferior perceived performance, high price, and reference situations that weaken the wireless value proposition. These reference situations concern the demand for mobility framed by Wi-Fi and by current usage habits.

Study data suggest wireless providers should use flat rate pricing and create an offering that disassociates mobile broadband from fixed-line internet so that users (i) assign the cost to a different mental account and (ii) view it as different enough to weaken a performance comparison between the technologies. Once customers begin using wireless internet, they may experience the “endowment effect” (Kahneman et al. 1991) which will cause the users to perceive giving up wireless internet as a loss. In such case, status quo bias will make them less likely to discontinue service. As Kahneman (2003) indicates, people opt out of the framed situation much less frequently than they opt in to an alternative.

The study creates an opportunity to review the selected methodology. In this case, the focus group format provides a method to learn the thought process of the test subjects. The interplay of the different participants during discussions provides rich data for analysis. The open-ended nature of the format allows participants to introduce new ideas into the group and therefore provides insight not attainable through surveys. During the first focus group, for example, participants introduced a topic that received significant attention and generated much discussion. This topic appears as a question within the interview guide used with subsequent groups. Additionally, a theme recurred within the first focus group that seemed a worthy topic of research. Therefore, a new question explicitly asked subsequent focus groups about their perceptions regarding the theme, enabling more elaborate data collection.

The small sample size of this study precludes developing a probabilistic model from the data; however, the focus group findings are useful for theoretical generalizability (Barbour 2005) and conceptual transferability (Krueger et al. 2000). The selection of participants with common characteristics rather than random sampling provides insights, but it limits the transferability of the findings to the general population at large.

## **7.0 CONCLUSION**

This study uses focus group data to explore the differences as perceived by high-speed internet users that would influence the adoption of wireless broadband. By exploring what consumers consider when making technology purchase decisions, the data support the importance of referencing pricing in technology adoption. It lends additional support to the existence of status quo biases in purchase decisions; and it strengthens the argument that consumers prefer flat-price service plans in telecommunications because of bounded rationality and the derivative concepts of prospect theory and mental accounting.

A significant implication of this paper is furthering the proposition that much consumer adoption of new technology can be explained with general decision models by providing strong evidence that these models play a primary role in adoption decisions. The implications are important both to further research as well as to industry. Focusing exclusively on technology diffusion models when conducting research or developing business plans or marketing strategy may ignore real and present influences that affect the acceptance and uptake of innovation.

While this study provides support for and insight into applying cognitive decision models to technological adoption, the study has limitations that warrant further research. For example, additional qualitative studies could enrich the findings of this study by exploring the underlying reasons why some consumers exhibit stronger status quo bias than others. Additionally, quantitative research with larger samples could validate the findings of this study. One potential study would focus on the young demographic featured herein because their technology literacy differs from the population at large. Continuing to study this demographic is relevant to adoption theory and business practitioners because the participants may view different technologies as their referents; and thus their status quo may be different from that of older individuals. At the same time, a sample of the population at large would serve to test the overall validity of the findings. Similar results between the groups would validate this study. If differences between younger and older demographics prove significant, then it might support a call for different approaches to the study of technology adoption based on generational considerations.

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