Consumer Adoption of New Radio Distribution Systems

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EXECUTIVE SUMMARY

Since its inception, terrestrial radio has been threatened by a number of competing technologies. Despite these challenges, radio has continued to thrive, and many observers have described radio as one of, if not the most, adaptable form of mass media. The rapidly evolving industry of digital audio programming has introduced a host of new competitors, including: satellite radio, Internet radio, and personal audio devices, such as iPods, CD & MP3 players, and now cell phones.

Of the new digital audio challengers, satellite radio has emerged as a potential threat to terrestrial radio broadcasters. Satellite radio, a relatively new paid distribution system for niche radio programming, has engaged almost six million subscribers since its deployment in late 2001 (Manly, 2005). XM Satellite Radio and Sirius Radio, the two licensed satellite radio providers, provide more than a hundred distinctive audio program channels, several with mass appeal and others with more specialized formats that offer nationwide coverage and digital audio quality.

While the number of satellite radio subscribers is significantly lower than the 230 million weekly radio listeners enjoyed by terrestrial AM/FM radio (Arbitron, 2005), the early positive response to satellite radio raises important questions about the status of AM/FM radio, the audience adopting satellite radio, the impact such adoption has and will have on AM/FM radio, as well as, the important cultural, economic and public policy implications associated with new radio distribution systems. This study examined a subset of early adopters of satellite radio, described as satellite radio "enthusiasts" and examined their dynamic relationship with AM/FM radio.

To assist with the development of a written survey instrument, two focus groups were conducted with satellite radio users. Using traditional qualitative procedures grounded in diffusion theory (1995), repeated technology attributes were noted and from these, questions developed for an online survey. Two Internet discussion groups were identified as appropriate (active with a high volume of postings) to query participation in the online survey, XM411.com and SIRIUSFAN.com. Postings were placed under "General Discussion" on these web sites identifying the study as an attempt to learn about the respondents experience with radio. Over a three-week period, 488 usable surveys were completed.

The sampling technique was effective in identifying a group of early adopters of satellite radio as "enthusiasts," (Book, 2004) a combined conceptualization of innovators and early adopters (Rogers, 1995). These enthusiasts demonstrate high surveillance needs associated with radio and are actively engaged online discussing satellite radio with others and reading about satellite radio. The data also confirmed that the self-selected convenience sample was consistent with satellite radio subscription rates reported by the industry.
Consistent with diffusion theory, research questions pertaining to satellite radio were considered: reasons for adoption, complexities associated with adoption, impact on

terrestrial radio, listening habits, and relationship to awareness of local or community issues. In addition, general findings pertaining to satellite radio also are reported in this study. Key findings of this study are highlighted below:

The Sample of Satellite Radio Enthusiasts

A total of 488 respondents completed the online survey. These "enthusiasts" were mostly White, male, and relatively young. Ninety-five (95%) were male, 51% were between 18 and 35 years of age, 90% were White, 53% were college graduates and 14% held graduate degrees. Twenty-eight percent (28%) of respondents earned more than 76 thousand dollars annually. This demographic profile of respondents is consistent with earlier studies of innovators and early adopters.

Satellite radio enthusiasts are heavy users of other media technology and twice as likely to be satellite television subscribers. All respondents reported owning a computer. Ninety percent (90%) of respondents owned a desktop computer and 60% owned a laptop computer, and just over half of respondents owned both a desktop and a laptop. Eighty-three percent (83%) were broadband Internet users, 41% subscribed to satellite television, 30% owned a digital television set and 39% owned an iPod or similar device.

Consistent with national subscription trends, most respondents currently subscribe to XM Satellite Radio, however 10% of satellite radio enthusiasts subscribed to both XM and SIRIUS. Sixty- seven percent (67%) of respondents subscribed to XMSR, 24% to SIRIUS, and 10% to both. Most enthusiasts (75%) reported listening to satellite radio using a "plug-n-play" satellite radio receiver, 30% a built-in car receiver, 23% a home satellite radio receiver and 22% a personal receiver.

General Findings Related to Satellite Radio

Most satellite radio enthusiasts (30%) first learned about satellite radio while browsing the Internet. Additionally, twenty-three (23%) became aware of the satellite radio by reading about it in a newspaper or magazine, 15% from a friend, 13% from television or radio and 11% from a store display.

Satisfaction among satellite radio enthusiasts is very high. Ninety-eight percent (98%) indicated they are "very satisfied" or "satisfied" with the service. A high level of satisfaction was significantly related to less time listening to AM/FM radio, satellite radio's commercial-free environment, variety of music, quality of satellite radio's audio signal and widespread signal coverage. Almost all satellite radio enthusiasts (98%) recommended the purchase of satellite radio to others based on these attributes of the service.

Satellite radio enthusiasts are heavy users of satellite radio. Forty-one percent (41%) of satellite radio listeners are "heavy" (more than 10 hours/day), 38% are "moderate" (5-10 hours/day), and 22% are "light" (1-4 hours/day) users.

Enthusiasts said their "best" experiences with satellite radio were diversity of content/programs (40%), national signal coverage (23%), more rock music choices (13%), being introduced to new music (8%), and no commercials (5%). Respondents also indicated that they "strongly agreed" with four key relative advantages of satellite radio: variety of programming (99%), no commercials (98%), nationwide signal coverage (97%) and price of satellite is a good value (95%).

Two thirds (68%) of enthusiasts say they have faced some problems with their satellite radio service.   Respondents indicated their "worst" experiences with satellite radio were related to reception problems (25%), equipment failure (5%), diminished sound quality (4%) and installation problems (2%). Seventy-nine percent (79%) installed their own satellite receiver, 16% were installed by an audio retailer and 3% were preinstalled in a car. One third (32%) of satellite radio enthusiasts reported no difficulties with the service.

Most satellite radio enthusiasts live in mid-size to larger markets, as defined by standard Designated Market Areas. Twenty-seven percent (27%) live in DMA 1-10, 39% in DMA 11-50 and 20% in DMA 51-100.

Satellite Radio Enthusiasts' Relationship with AM/FM Radio

The most frequently mentioned reason cited by enthusiasts for adopting satellite radio was dissatisfaction with the programming on AM/FM radio. Twenty-four percent (24%) of respondents said they adopted satellite radio to leave AM/FM, 16% because of satellite radio's diverse programming, 13% because satellite equipment was on sale, 8% the commercial free environment and 7% because of the nationwide signal coverage provided by satellite radio.

The first wave of satellite radio adoption has occurred among highly dissatisfied AM/FM radio listeners. Satisfaction with terrestrial radio among satellite enthusiasts is low.   Ninety-three percent (93%) of respondents said they were either "very dissatisfied" or "dissatisfied" with AM/FM radio. More recent satellite radio adopters were significantly less dissatisfied with AM/FM radio than those that adopted satellite radio in late 2001 and 2002. This suggests that satellite radio adoption rates may begin to decline as satisfaction rates with AM/FM radio improve.   Among their favorite AM/FM radio formats, enthusiasts (who were allowed to list more than one format) mentioned: talk (50%), sports (29%), Top 40 music (27%), Adult Contemporary music (26%) and public radio/NPR (26%).

The key relative advantages of AM/FM radio mentioned by satellite radio enthusiasts are: it is free (26%), provides local news/talk (13%), and provides other local content (12%) and local personalities (5%). Key negative factors mentioned by respondents are: too many commercials (48%), repetition/lack of variety (13%), and limited playlists (8%).

After adopting satellite radio, satellite radio enthusiasts, on average, reduced their AM/FM listening time by 61%. Average daily AM/FM listening time was reduced from 3.8 to 1.5 hours, while the average satellite radio listening time was reported as seven (6.98) hours a day.

Satellite radio enthusiasts, while reducing their overall AM/FM listening time; continue to listen to AM/FM, specifically during morning drive time (72% of satellite radio enthusiasts). Listening to AM/FM in the car during morning drive time was less affected among satellite enthusiasts, with only a 17% reduction. AM/FM continues to have a role in overall listening habits of satellite radio listeners.

Satellite radio enthusiasts say that AM/FM stations provide important local programming. Respondents "strongly agree" or "agree" with the following: "AM/FM stations provide important local information" (73%), and "AM/FM is an important part of my community" (43%). Also of importance was the key finding that satellite radio enthusiasts that reported a greater sense of "feeling informed" about their local communities spent significantly more time listening to AM/FM and significantly less time listening to satellite radio. However, at the same time, 79% of satellite radio enthusiasts disagreed with the statement, "AM/FM station owners are serious about serving the needs of the local community."

Two thirds (67%) of satellite radio enthusiasts indicated changes AM/FM radio might make in order to increase their listenership. Recommended key changes that may impact their AM/FM listening habits included: reducing the number of commercials (25%), providing better programming variety (12%), more specialized formats (12%) and more local programming (4%).

Awareness of high definition (HD Radio) technology was high, but adoption was very low among satellite radio enthusiasts. Although 84% of satellite radio enthusiasts indicated they were aware of HD Radio, only 1% said they had purchased an HD radio receiver. Ninety-five percent (95%) of respondents say it is unlikely that HD Radio technology, as an audio enhancement, will reengage them as listeners of AM/FM. Forty-two percent (42%) indicated that the improved sound quality promised by HD Radio does not outweigh concerns about AM/FM programming. Twenty-five percent (25%) say that HD radio is not likely to reclaim them as listeners because they are now satisfied with satellite radio.

Considerations for AM/FM Radio

"It's (AM/FM) radio's audience to lose." The data from satellite radio enthusiasts suggest that satellite radio experienced a first wave of adoption among highly dissatisfied AM/FM radio listeners. More recent satellite radio enthusiasts report higher rates of satisfaction with AM/FM radio, although overall, AM/FM satisfaction is low among this group of satellite radio early adopters. Diffusion theory suggests that the rate of adoption is slowed as the driving needs recede. In other words, the perceived innovation attributes of satellite radio diminish among more satisfied AM/FM listeners (Rogers, 1995). As one radio executive noted, "It's (AM/FM) radio's audience to lose" (Bachman, 2005).

The traditional S-curve of satellite radio adoption could be disrupted by implementing AM/FM radio strategies related to commercial load and programming adjustments in relation to playlists and the use of disc jockeys. While the change agents (discussed in the analysis section of this report), such as car dealerships, will continue to fuel the adoption of satellite radio, their work will be more difficult among more satisfied AM/FM radio listeners.

Local content is a significant attribute of AM/FM radio and should be a cornerstone for all future policy and programming decisions.

Poor audio quality of AM/FM signals was not the driving reason among satellite radio enthusiasts for adopting satellite radio services. Instead, AM/FM radio's commercial loads and formula based, limited content were cited as the compelling reasons to adopt satellite radio. The data collected in this study suggest that more important than HD Radio's ability to enhance sound, is its ability to deliver a variety of digital content and opportunities to the consumer via AM/FM radio. These include, but are not limited to, multicasting of AM/FM signals into niche formats, digital *fluidity* of AM/FM radio content that allows listeners to personally record then time shift and *device* shift AM/FM music and digital visual displays for content information, and perhaps advertising. While this study was not designed to provide programmatic suggestions, the data collected suggest that using these new *digital* features of AM/FM to make adjustments in commercial loads, strategies related to disc jockeys and wider, deeper playlists by genre will disrupt demand for satellite radio.

Tomorrow's relationship with the audience may need to be more intimate--one household at a time. For example, in order for HD Radio to succeed, radio stations will need to become "change agents" selling the attributes of the service to radio listeners. Rather than this happening one radio station at a time, one promotion at a time, an argument could be made for local radio markets to combine energies and connect with audiences as an industry to educate and inform them about the attributes of HD Radio. The National Association of Broadcasters might consider coordinating such an effort.

<div align="center">Final Thoughts</div>

While no single study paints a complete picture of a population, this study presents a part of the puzzle, the satellite radio enthusiast. The satellite radio enthusiast is important because of the role they play in providing information and recommendation to adopt satellite radio to others. This "opinion leader" activity creates momentum for satellite radio. Radio stakeholders can learn from the findings of this study and use the information as they respond to today's dynamic radio environment. Terrestrial radio remains the delivery system of choice for radio programming among the vast majority of Americans. The future of the AM/FM industry rests in the retention of that audience by continuing to be a dynamic service, responsive to new distribution systems for radio programming.

Consumer Adoption of New Radio Distribution Systems

INTRODUCTION

Satellite radio, a relatively new paid distribution system for niche radio programming, has engaged almost six million subscribers since its deployment in late 2001 (Manly, 2005). The momentum has spurred newspaper headlines, such as, "Radio Under Siege" and "Satellite Companies Threaten Radio Industry Longevity."[1] While the number of satellite radio subscribers is significantly lower than the 230 million weekly radio listeners enjoyed by terrestrial AM/FM radio, the response to satellite radio raises important questions about the status of AM/FM radio, the audience adopting satellite radio, the impact such adoption has and will have on terrestrial radio, and the important cultural, economic and public policy implications associated with new radio distribution systems (Arbitron, 2005). This study examines a subset of early adopters of satellite radio, described as satellite radio enthusiasts (see Methodology section) and examines their dynamic relationship with AM/FM radio.

Since radio's inception, the industry has been threatened by a number of competing technologies including: the 8-track tape, cassette recorder, digital audio devices and perhaps most prominently, television. The advent of broadcast television in middle class America resulted in the only period of revenue loss for terrestrial radio from 1951 to 1955 (Bachman, 2005). Radio responded to television with new music driven programming models. Later, technological advancements led to FM radio, which caused internal disruption of the industry, but inevitably resulted in the AM dial embracing talk radio, today's most popular radio format. Terrestrial radio has even faced competition from subscription radio services before satellite radio. During the 1980s, the cable industry introduced subscription music via cable television with CD Radio and DMX, hoping to fragment terrestrial radio's audience (Poole, 1993).

Today, despite competing technologies over the years, America's radio industry remains profitable and pervasive. Ninety-four percent (94%) of Americans 12 and older interact with America's 13,500 radio stations on a weekly basis (Radio Advertising Bureau, 2005).   Arbitron (2004) format trends indicate that eight major format categories dominate the terrestrial airwaves, attracting 87% of radio listeners nationwide (see Table 1).

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[1] The following headlines appeared in and Mediaweek and BusinessJournalism.org respectively.

Table 1
Radio Formats by Audience Share (Arbitron, 2004)

Format Trends Report*

Adult Contemporary	14.3
Contemporary Hit Radio	11.2
Country	8.8
Oldies	7.0
Rock	7.8
Urban	10.1
News/Talk/Information	18.3
Spanish	9.6
Total	87.1

*specialized formats exist within formats categories

This study attempted to learn about consumer adoption of satellite radio by better understanding the characteristics of the diffusion of the service. This study also sought to understand how satellite radio adoption impacts the subscriber's relationship with AM/FM radio. The data collected offer AM/FM broadcasters valuable information as they move forward with plans to address the impact of satellite radio.

REVIEW OF RELATED LITERATURE

Challenges to AM/FM Radio
While no one can question the success of terrestrial radio, recent economic trends in the industry suggest a stalemate period of sorts for broadcast radio. In recent years, the radio industry's profits have remained flat, with annual increases of less than 2% for the 22 billion dollar industry. Flat profits, coupled with the slight, but ongoing, 1% loss in total broadcast radio audiences since 1998, suggest gradual erosion in listenership.

Much of this movement is being driven by the adoption of digitally based audio programming by the younger radio audience. An Arbitron study found that, "the monthly Internet radio audience represents an estimated 37 million Americans, and the estimated weekly audience is nearly 20 million Americans" (Arbitron, 2004a, p. 5). On-demand devices are becoming increasingly popular, especially with younger people. "Twenty-seven percent of 12-17 year-olds, 18% of 18- 24 year-olds and 20% of 25-34 year-olds own an iPod or other portable MP3 player, compared with 9% of those 35 and older" (Arbitron, 2004a, p. 5). So called "podcasting," the audio equivalent of "blogging," appears to be on the increase. Although the findings have been questioned by some sources, a recent study by the Pew Center for Internet and American Life found that six million people in the United Stated had tried podcasting (Podcasting News, 2005). Younger radio consumers traditionally drive early adoption of competing technologies. Arbitron (2005) also reports that younger consumers have much higher satisfaction

numbers with these digital radio alternatives. For example, 40% of consumers adopting Internet radio expressed high satisfaction with the service, while a lower 19% reported high satisfaction with AM/FM radio. Specifically, the younger radio audience reports greater dissatisfaction with characteristics of AM/FM radio, such as commercial advertising and programming (Arbitron, 2005).

The flat broadcast radio industry was also reflected on Wall Street. Investment banks, watching the lack of listenership and advertising growth, downgraded the value of several of the Country's top radio corporations, Clear Channel, Citadel and Westwood One. Earlier this year, Clear Channel and Viacom responded to increasing skepticism about the annual growth of their radio divisions and conducted write-downs of their holdings. Clear Channel announced a five billion dollar write off and Viacom ten billion (Radio: Economics, 2005).

Clear Channel, which owns and operates 1200 radio stations, making it far and away the largest radio corporation in America (Radio: Ownership, 2005), also responded to the flat market by announcing significant changes in the areas of programming where consumers expressed the most dissatisfaction--commercial loads and shallow playlists. In December 2004, Clear Channel initiated its "less is more" programming initiative. The move cut advertising time by more than 50% in some of its urban markets (Bachman, 2005a). In response to the younger on-demand radio consumer (Arbitron, 2004), Clear Channel and a few of its competitors converted radio stations to the so called Jack-FM formats, also sometimes called Doug or Dave. These rock oriented formats have deeper, iPod like playlists, moving from 250 songs in rotation, to 1000 songs (Dotinga, 2005).

Clear Channel's 1200 stations are also online, along with thousands of other radio stations. Several online stations are experimenting with podcasting of radio programming and Internet radio delivery of their signals. Infinity Broadcasting announced that its San Francisco station, KYCY-AM, will originate KYOURADIO, "the world's first podcasting radio station……users will be able to upload podcast of varying lengths for free…Programming on the station will be determined by listener interest and feedback, and evaluated on a daily basis" (FMQB, 2005).

These moves create a more fluid environment for radio programming, bringing it to new reception and playback venues, such as online downloading of music to a portable digital audio player.

Satellite Radio
Of the new technological challengers, satellite radio has emerged as potentially one of the most serious threats to terrestrial broadcasters. Two major players, XM Satellite Radio and SIRIUS Radio, offer over a hundred mass appeal and niche programming channels (most commercial free) that provide nationwide coverage of digital quality audio. Both companies are reporting significant growth in subscribers in 2005. XM has engaged four million subscribers and SIRIUS is just shy of two million subscribers (xmsr.com, 2005; Sirius.com, 2005). If both companies reach projected numbers by the end of 2005, eight

million households of America's 109 million will be subscribing to satellite radio (Nielsen, 2005).

In recent months, both satellite companies have aggressively pursued new program offerings. Most notably, Howard Stern and Martha Stewart, are set to convert or lure their fans from AM/FM radio to satellite radio. Stern will begin broadcasting on SIRIUS radio in January 2006. The Howard Stern show currently reports 8.9 million listeners and 150 million in advertising revenue (Quick Takes, 2005).

XM and SIRIUS are also pursuing programming that "localizes" their services. Both companies insert local weather and traffic reports from their most urban pockets. Local programming is the cornerstone of terrestrial broadcasting. The initial reaction of terrestrial radio broadcasters was outrage, with the National Association of Broadcasters (NAB) calling the move an encroachment on the role and function of local terrestrial radio (Martin, 2004). Today, the NAB is working with Congress to protect local broadcasting from encroachment and proposed legislation would prevent satellite radio from providing local signals (Woolley, 2004).

HD Radio and Multicasting of AM/FM Signals
Terrestrial radio is also making a voluntary switch to digital transmission that allows high definition audio quality, called HD Radio. While the transition to digital *television* was made possible by the allocation of newly assigned spectrum, the technological standard to emerge for digital radio enables digital transmission to work on existing AM and FM signals. This "in-band/on-channel" (IBOC) approach to digital radio, the product of iBiquity Digital Corporation, was recently approved by the National Radio Systems Committee (NRSC) as the digital radio broadcasting standard for the United States. According to iBiquity, "the adoption of this industry standard (NRSC-5) will pave the way for the radio industry to accelerate its transition to digital broadcasting. Digital radio broadcasting is expected to offer a wide variety of new entertainment, information and data opportunities for broadcasters, receiver manufacturers, service providers and consumers" (iBiquity, 2005).

HD Radio removes noise and static and improves the audio quality of both AM and FM stations. Perhaps most important for FM broadcasters, HD Radio provides the opportunity for "multicasting," the ability to carry up to four signals (one analog, and three digital) simultaneously. The audio quality of digital signals is determined by the broadcaster through bandwidth allocation. Multicasting enables FM broadcasters to offer up to three different program services, including enhanced datacasting (iBiquity, 2005).

Support for HD Radio technology is growing among broadcasters and receiver manufacturers. Three hundred stations have already made the move to HD Radio (Bachman, 2005). Clear Channel Communications has 65 digital stations, and plans to convert over 95% of its stations in major markets to HD Radio in the next three years (iBiquity(a), 2005). Additionally, car in-dash, tabletop and "high-end" home receiver manufacturers have expressed a commitment to HD Radio. iBiquity says it expects "at

least a dozen different manufacturers" will be offering HD Radio products by the end of 2005 (iBiquity, 2005).

Much of the excitement over digital radio's multicasting possibilities is being led by public radio. WFAE in Charlotte was the first station in the country to test digital multicasting, (Taylor, 2005) and NPR has announced that it will this summer begin providing network affiliates with five programming music formats (NPR, 2005).

As one radio executive noted about possible audience adoption of HD Radio and other programming efforts, "It is (terrestrial) radio's audience to lose, and they've lost some already. They've certainly lost the perceived buzz (of new technology developments), but they're starting to get it back (with HD Radio)" (Bachman, 2005).

THEORETICAL FOUNDATIONS

Diffusion of Innovation Theory
Diffusion theory, initially introduced by Everett M. Rogers in 1978, examines the adoption of a new medium by one's innovativeness and willingness to try new products. Rogers argued that the perceived characteristics of innovations help to explain varying rates of diffusion across society. An "innovation" is an idea, practice, or object that is seen as new by the person or people adopting it. Consumer adoption begins with the actual "innovation", not competing brands. A consumer will become interested in an innovation, and then compare it with alternative brands (Rogers, 1995).

The decision to adopt a new technology happens along a continuum. The process is initiated by "prior conditions." Prior conditions, because they vary with each technology, are not addressed in depth by Rogers; however Rogers does address the notions of "change agents" or forces that create knowledge of new technology. The change agent can create a perception of need where previous need was not present. The change agent also propels adoption by not only making potential adopters aware of the technology, but by also beginning the persuasion to adopt process. For example, satellite radio has a host of change agents at work. Primarily, auto manufacturers have embraced satellite radio as a selling feature of new cars. The auto manufacturers invested in satellite radio and then ensured its success by offering it as a standard option in respective car lines. Satellite television (the Dish Network offers SIRIUS' programming), high end car audio suppliers, as well as retail relationships all serve as change agents for the adoption of satellite radio. These manufactured prior conditions, coupled with the existing prior conditions in the AM/FM radio marketplace, spur the adoption of new technology. The adoption continuum begins with prior conditions that lead to knowledge of a product, persuasion to adopt, decision to adopt, implementation of the product and confirmation. Positive confirmation spurs recommendation to adopt to others, building momentum for the diffusion of an innovation.

During the persuasion phase of adoption, consumers were found to focus on five perceived attributes of an innovation. In repeated studies, these five attributes accounted

for 49-87% of diffusion rates: relative advantage, compatibility, complexity, trialability, and observability (Rogers, 1995, p. 206).

Rogers defines "relative advantage" as the degree to which an innovation is perceived as better than the idea it supersedes. Relative advantage can be measured in economic terms, by social prestige, convenience and satisfaction. The most important aspect of relative advantage is whether an individual perceives the innovation as being an advantage, not whether it is actually an advantage over the previous product. Rogers (1995) argues that the perceived relative advantage is directly related to its rate of adoption (p.213).

"Compatibility" is defined as the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. An innovation that is contrary to the values and norms of a society will not be adopted as quickly as an innovation that fits in with established values and norms (Rogers, 1995, p.224).

"Complexities" are the hurdles an adopter must overcome during the adoption phase. For example, the primary complexity associated with adoption of a digital television receiver is cost. Other products, such as the personal digital assistant, struggle with making adopters aware of the value of adopting the new technology (Rogers, 1995, p. 242).

Rogers (1995) defines "trialability" as the degree to which an innovation may be experimented with on a limited basis. When potential adopters are given the opportunity to try a new innovation before they have to buy it, they are more likely to adopt it (p.243). XM Satellite Radio's agreement to provide service in rental cars is an example of trialability.

Finally, "observability" is defined as the degree to which the results of an innovation are visible to others. Rogers (1995) argues that the easier it is for potential adopters to visually see the innovation, the greater the likelihood of adoption (p.244).

Roger's diffusion theory was used in developing the research questions to guide this study of early adopters of satellite radio.

Related Theories: Media Substitution, Supplementation and Technological Fluidity
Adoption of satellite radio appears to be an act of media substitution—substituting AM/FM radio with another radio service, satellite radio. However, as new technologies have emerged, scholars have not found evidence that one technology, automatically replaces another. What researchers have found is evidence of media erosion. For example, adoption of cable television erodes time spent with the broadcast networks (Nielsen, 2005). Scholars also found that personal computer use, and Internet adoption and use, change television use, but do not displace it (Larose & Atkin, 1992; Neuendorf et al, 1998). Lin (2001) describes these changes as supplementing and complementing traditional media. For example, a fan of a television show might record that show using a personal video recorder (PVR) and then time shift and repeatedly view episodes. One

could argue in this scenario that while television viewing has changed, time spent with television was not substituted, but supplemented.

Communications scholar Wilbur Schramm (1988) noted that old media reinvent themselves rather than fade away. Such was the case of radio's reinvention with the launch of television. However, erosion will surely lead to the displacement of some technologies, such as the record player giving way to the compact disc. Perhaps Schramm's vision was oriented to content, rather than the mode of delivery.

A more recent theoretical position offered by Lin (2004) is the notion that "fluidity" of a technology is an important adoption characteristic. *Fluidity* is defined as a technology's ability to adapt to user demand. The versatility of digital technologies reinforces notions of fluidity where efficiencies of digital content allow the distribution and consumption of content in various, portable environments. Lin (2004) describes these fluid characteristics of technology as multiplatform, multimodal, multimedia and multitasking (p. 450).

Consideration was given to these theoretical perspectives in the preparation of the satellite radio assessment, by engaging satellite radio enthusiasts in a discussion of AM/FM usage before and after adopting satellite radio.

METHODOLOGY

To assist with the development of a written survey instrument, two focus groups were conducted with satellite radio users. Names of satellite radio adopters were provided by local, car audio retailers. In all, 19 satellite radio adopters participated in two 90 minute conversations about their satellite radio and AM/FM radio experiences. Diffusion theory and innovation attributes (relative advantage, compatibility, complexity, trialability and observability) were the foundation for a series of questions. Focus groups were videotaped and the content transcribed. Using traditional qualitative procedures, repeated concepts were noted and from these written survey questions developed.

Sampling Method
During a study of high definition digital television (Book, 2004), a dichotomy among early adopters presented itself: early adopters that were technology oriented, adopting technology that intrigued their sense of engineering and innovation; and another group that adopted technology in order to maximize their experience with content. The latter group was identified as "enthusiasts" to reflect the heightened sense of excitement they expressed with the innovation overall and its ability to enhance their experience with content. Enthusiasts were significantly more likely to report attributes of the innovation rooted in content, such as watching a favorite film with spectacular high definition pictures and digital quality sound (p. 127). The dichotomy among early adopters of satellite radio was also present in the data. These satellite radio subscribers were also significantly more likely to report talking about the new technology with others and making the recommendation to purchase (Book, 2004). Therefore, the word enthusiasts appears to be an appropriate descriptor because the term represents not only those

satellite radio subscribers that adopted during a specific time period, but the important role they play spurring adoption of the innovation.

Internet discussion groups on satellite radio were utilized as a way to effectively and efficiently sample satellite radio enthusiasts. The decision to use satellite radio forums was based on previous studies of online discussion group users that confirm "information seeking" as the primary agent for participating in online social systems (Charney & Greenberg, 2002; Reagan, 2002; Lin, 1999). Other studies have found that a desire to exchange information and connect with highly specialized social systems led Internet users to discussion groups (Wellman and Gulia, 1995) and that the symmetry and diversity of topical exchange were the most important factors of online discussion group success (Rafaeli & LaRose, 1993). These findings, coupled with studies showing early adopters of technology spend more time with media, adopt other new media technologies, and are younger and better educated (Rogers, 1995; Atkin et al., 1998; Lin, 2001), support the decision to utilize online discussion forums to identify survey participants related to satellite radio. The combination of adoption of satellite radio and activity in discussion groups related to satellite radio conform to the notion of "enthusiast."

Two online discussion groups (active with a high volume of postings) were identified as appropriate forums to query participation in a written survey, XM411.com and SIRIUSFAN.com. Calls for study participation were placed in the "General Discussion" identifying the study as an attempt to learn about the respondents experience with radio. Over a period of three weeks (February-March, 2005), 488 usable surveys were completed. The survey is available in Appendix A. The survey asked respondents to answer both scaled and open-ended questions. Written responses were collapsed into thematic categories and coded by 3 separate coders. Cohen's Kappa (.92) was used to identify intercoder reliability. Since all coding was objective, errors were corrected by agreement among the coders.

Using diffusion theory as a guide, the following research questions were examined in this study:

RQ1: What are the reasons early adopters seek satellite radio service? (Relative Advantages)

RQ2: What are the perceived complexities associated with the adoption of satellite radio?

RQ3: How does the adoption of satellite radio impact local radio listenership? (Compatibility)

RQ4: When and how is local radio consumed by satellite radio enthusiasts? How compatible is satellite radio with existing radio listenership habits? (Compatibility)

RQ5: How does the adoption of satellite radio impact the adopter's overall support and perception of local radio service? (Compatibility)

RQ6: How does a satellite radio subscription impact the perceived awareness of community issues among early adopters? (Do satellite radio adopters have a sense that they have lost some "community connection" as a result of their satellite radio listenership?) (Observability)

FINDINGS

Internet discussion forums served as an effective tool in reaching online, satellite radio enthusiasts. The satellite radio enthusiast plays an important role in Rogers (1995) adoption sequence in that these subscribers, a blend of innovators and early adopters, act as opinion leaders to create excitement and interest in an innovation, such as satellite radio, which brings the technology to the next phase of adoption, the early majority and subsequent critical mass. The rate of adoption has been described by scholars as visually creating an S-curve.

Figure 1
S-Curve of Technology Adoption
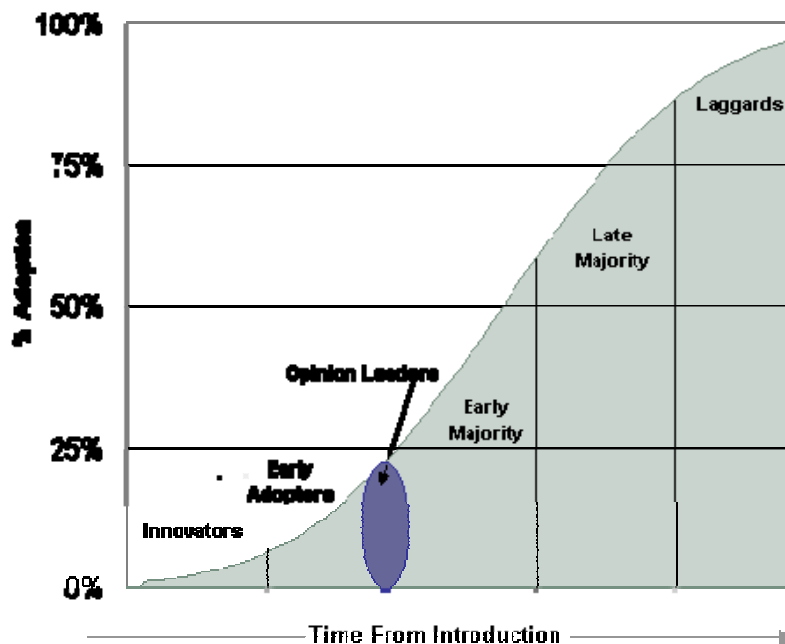
Source: http://www.sageresearch.com/images/Scurve.gif, retrieved April 5, 2005


Characteristics of Responding Sample
When conducting a study using a convenient sampling technique among a select population, *who* responded to the call for participation, becomes an important indicator of validity. In this assessment, the demographics of satellite radio enthusiasts is comparable to other innovator and early adopter studies being largely White (90%), male (95%)

sample, and between 25 and 45 years old (58%) (Rogers, 1995; Atkin et al., 1998; Lin, 2004). Because participation in the study relied on those actively discussing satellite radios in online discussion groups, the sample can be described not only as innovators and early adopters, but as *enthusiasts*. These satellite radio enthusiasts meet a majority of the typical demographics related to early adopters (White males, adopters of other technologies, younger). However, where innovators and early adopters are typically more educated and earn more annually, satellite radio enthusiast data suggest that education and income are distributed on a more bell-shaped continuum. Satellite radio enthusiasts that responded to this study have typically earned a college degree or greater (53%) and half earn above $50,000 annually. This same phenomenon was found among early adopters of the Internet, webcasting and high definition digital television receivers (Book, 2004; Lin, 2001; Atkin et al, 1998). Perhaps the lower costs of these technologies and reported adoption of other audio innovation (see below), combined with the reported enthusiasm about the content these technologies provide, create an earlier willingness to adopt.

Table 2
Demographic characteristics of responding sample. **(N=488)**
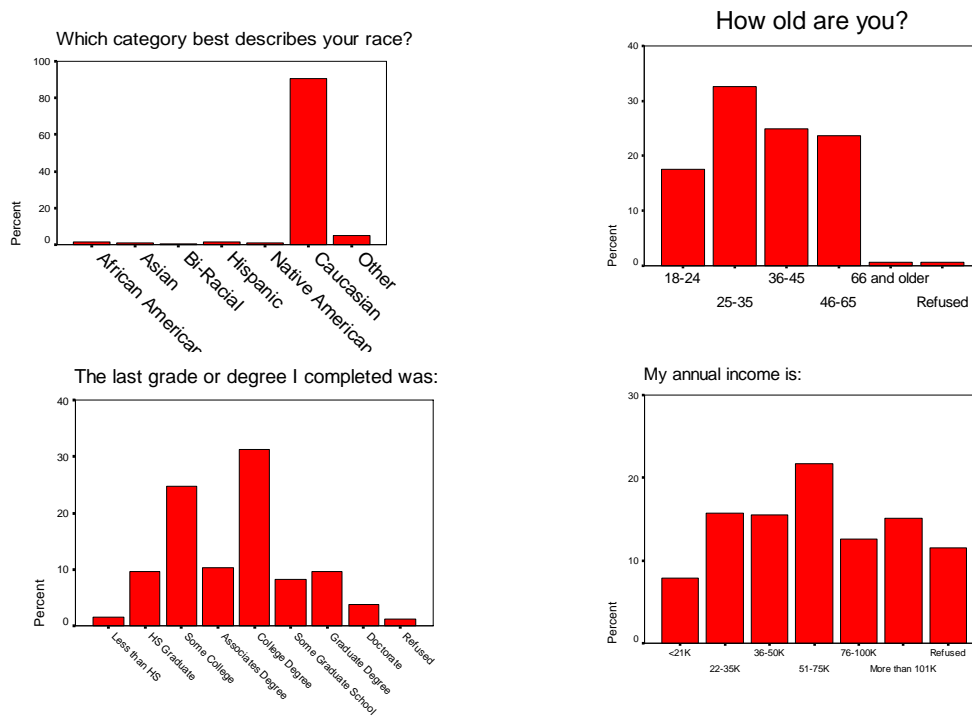
The demographics of early adopters of satellite radio produced by the sampling technique used in this study were consistent with other early adoption studies. The more bell-shaped dispersion by income and education is also consistent with previous studies of early adopters of more affordable new technologies that provide access to specialized content.

Adoption of Technology Clusters

In addition to the demographics, the respondents' adoption of other technologies was assessed to better understand the respondents overall relationship with technology. Technology cluster adoption (interrelated technology adoption) is a phenomenon noted by scholars (Rogers, 1995; Lin, 2001; Reagan, 1996). This included measures of ownership related to satellite television (41%), digital television receivers (30%), DVD recorders (43%), iPods (or similar devices) (39%), pagers with data services (12%) and interestingly, HD radio receivers (1%).

Satellite radio enthusiasts were almost twice as likely to subscribe to a satellite television subscriber which indicates a level of familiarity with satellite driven technologies and perhaps an exposure to satellite radio programming on the popular Dish Network service. Interestingly, satellite radio enthusiasts were six times more likely to have adopted a digital television receiver than the average consumer (Downey, 2005).

These findings suggest satellite radio enthusiasts have a positive adoption history associated with the enhancements of content offered by digital technology.

In contrast, satellite radio provided new programming, whereas a digital TV set did not provide new programming, but enhanced video and audio of existing programming.

Technology Affluence

A technology affluence score was determined by the sum of all tested technologies owned. Using an analysis of variance (ANOVA), higher technology affluence was found to be significantly related to several variables, including:
- Adoption of satellite radio earlier.
- More overall hours of audio activity each day.
- Higher importance of the digital data displays.
- Higher importance of the disc jockeys knowledge.
- Price/value of satellite radio rated positively.
- More overall satisfaction with satellite radio.

Type of Satellite Radio Service

Sixty-seven percent (67%) of satellite radio enthusiasts reported subscribing to XMSR and 24% to SIRIUS. Ten percent (10%) reported subscribing to both services which reflects the sample we engaged—satellite radio enthusiasts. Nationally, XMSR engages 76% of subscribers and SIRIUS engages 24% (Manly, 2005). The year of adoption was also consistent with the satellite radio's industry reported subscribership. Seven percent (7%) of the sample adopted in 2001, 13% in 2002, 24% in 2003, 43% in 2004 and 14% in the first quarter of 2005.

Table 3
Adoption trends. **(N=488)**

Type of Service

When did you adopt satellite radio?
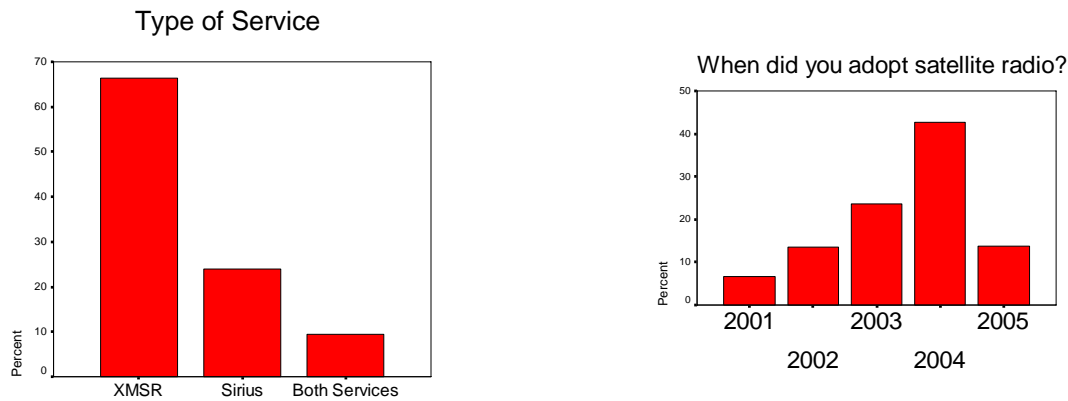
The convenient selective sample reported satellite radio subscription rates consistent with those reported by the industry.

When considering the type of satellite radio device respondents used, most reported plug-n-play satellite radio receivers (75%). Not surprising, since the plug-n-play device was the first to be aggressively marketed and allows the respondent to reconfigure the audio set-up in their vehicle for satellite radio, as well as attach the device to a home stereo system. Another 30% utilized a built-in radio receiver in their car. Twenty-three percent (23%) reported owning a home satellite radio receiver and 22% a personal satellite radio receiver. In the "other" category, 5% of respondents indicated that they listened to satellite radio online or using their Dish Network satellite television subscription routed through a speaker system.

These findings suggest that satellite radio enthusiasts enjoy the technological fluidity (Lin, 2004) of the digital stream which allows them to engage in satellite radio content in variety of settings.

Notably one in three satellite radio enthusiasts reported owning a built-in radio receiver in their car. The majority of these were installed after car purchase by specialized car audio retail outlets. But the automobile industry has invested in satellite radio and aggressively pursued marketing the service as a desirable feature of purchasing a new car. The use of outside forces to create adoption momentum is an example of what Rogers (1995) identified as "change agents." As discussed earlier, the change agent works to connect the innovation to the client, in this case satellite radio to potential subscribers.

Satellite radio was installed by the respondent the majority of the time (79%), installed by a car audio retailer 16% of the time, preinstalled in a new car was mentioned by 3% of respondents and installed by a friend 1% of the time.

These findings suggest that satellite radio enthusiasts are less likely to have been engaged in the service by a change agent (car dealership) and more likely to have sought knowledge regarding and installed satellite radio on their own.

Satellite Radio Experiences

Most satellite radio enthusiasts indicated that they heard about satellite radio while browsing the Internet (30%)[2], followed by reading about it in a newspaper or magazine (23%). Others indicated that a friend told them about the service (15%), others had heard about it on television or the radio (13%) and others had reported seeing satellite radio on display in a store (11%).

These findings indicate that the mass media (Internet, newspapers, magazine, television and radio) play a critical role in creating awareness for enthusiasts about satellite radio.

Rogers (1995) has studied the period of time that passes between hearing about the product and adopting a product. During this period, Rogers found that potential adopters weigh the relative advantages, compatibility, complexities, trialability and observability of a product (p. 206). Once adopted, another phase of consideration occurs, the confirmation of having made the correct choice (p.162).

Satellite radio enthusiasts were most likely to indicate that a few months passed between learning about satellite radio and adoption (23%). This was followed by "one year" (21%) and "less than a month" (17%).

The data suggest that satellite radio enthusiasts are likely to consider the decision to adopt for a period of a few months to a year.

Satellite Radio Enthusiasts and the Decision to Adopt

Satellite radio enthusiasts were asked in an open-ended question what prompted them to make the decision to adopt the service. Responses were categorized and checked by three independent coders. The most frequently cited reason for adopting was a desire to leave AM/FM radio programming (20%). Satellite radio's diversity of programming was mentioned by 16% and satellite radio equipment being on sale was mentioned by 13%. Other reasons mentioned included absence of commercials (8%) and satellite radio's nationwide signal coverage (7%).

When reviewing the open-ended responses related to why the satellite radio enthusiasts had adopted satellite services, one in four subscribers mentioned that their decision to adopt was related to a negative perception of AM/FM radio, rather than a positive feature of satellite radio. The open-ended comments were collapsed into two categories, responses related to negative AM/FM features versus response related to positive satellite radio features. In all 24% of satellite radio enthusiasts adopted as a move away from AM/FM radio, rather than a move toward satellite radio (76%).

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[2] Important to remember is that our sample was comprised of satellite radio owners engaged in online discussion groups. This sample is already engaged on the Internet.

An analysis of variance (ANOVA) was used to consider how those adopting as a move away from AM/FM radio differed from their counterparts. Those adopting satellite radio as a move away from AM/FM were significantly more likely to:
- ➢ Listen to CDs or MP3s at home.
- ➢ Listen to AM/FM only during morning drive time prior to adopting satellite radio.
- ➢ Less likely to agree AM/FM provides important local information.
- ➢ Less likely to agree AM/FM serious about serving local needs.
- ➢ Less likely to agree that AM/FM will always be a part of their radio listening habits.

These findings suggest that one in four satellite radio enthusiasts made the decision to adopt based on negative perceptions of AM/FM radio, specifically perceptions generated from experiencing AM/FM during morning drive time (discussed later). These satellite radio enthusiasts also reported lower overall AM/FM listenership prior to adopting satellite radio and higher listenership of CDs and MP3s at home. These satellite radio enthusiasts are significantly less likely to believe that AM/FM is an important provider of local information and less likely to believe AM/FM will always be a part of their listening habits.

Relative Advantages of Satellite Radio
Satisfaction with satellite radio among satellite radio enthusiasts was very high with 98% indicating being "very satisfied" or "satisfied" with the service.

Table 4
Satisfaction with satellite radio. **(N=488)**
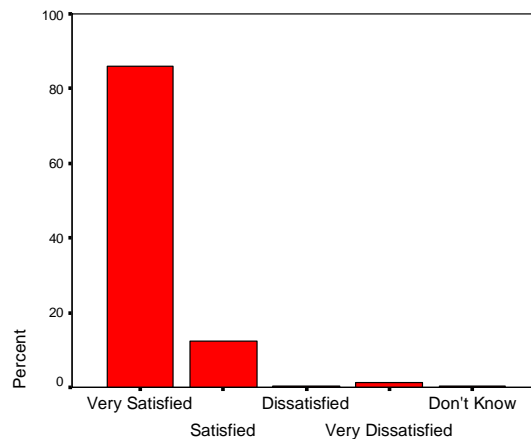
Reported satisfaction with satellite radio was tested against other questions in the survey using an ANOVA to determine significant relationships. High levels of reported satisfaction with satellite radio were found to be significantly related to:

> ➢ Less time spent listening to AM/FM radio.
> ➢ Less time between hearing about the service and adoption of the service.
> ➢ Positive scores for satellite radio's commercial-free environment, variety of music, audio quality of service, widespread signal coverage.
> ➢ Negative responses related to AM/FM's localism and community involvement.
> ➢ Less likely to indicate that AM/FM would always be a part of their radio listening habits.

Satellite radio enthusiasts were asked to describe their "best" experience with satellite radio as a means to measure the relative advantages of the service. The characteristics of satellite radio receiving the highest scores from enthusiasts were programming diversity, national coverage or footprint of satellite radio's signal, more rock music choices, introduction of new music to the listener, and the absence of commercials. Second mentions were similar, but the absence of commercials assumed the top spot, followed by programming diversity and national signal coverage.

Table 5
The best experience I've had with my satellite radio was...

Top 8 Mentioned First Response **(N=481)**		Top 5 Second Response **(N=157)**	
1. Content choices/diversity	40%	1. No commercials	29%
2. National signal coverage	23%	2. Content choices/diversity	17%
3. Rock choices	13%	3. National signal coverage	13%
4. Introduced to new music	8%	4. No more AM/FM radio	8%
5. No commercials	5%	5. Sound quality	5%
6. Everything about it.	6%		
7. Sound quality	2%		
8. Easy install	2%		

These findings suggest and reaffirm earlier data that the relative advantages of satellite radio are its niche programming, absence of commercials and a national signal footprint that allows coast-to-coast listening.

Complexities of Satellite Radio
Similar to the "best" satellite radio experience, respondents were asked about their "worst" experience as a measure of complexity of satellite radio. The most frequent response was "none." These open-ended comments reinforce the high marks given for overall satisfaction with satellite radio. The next most frequently mentioned "worst" experience was reception problems (25%), followed by the dropping of a favorite music channel (7%) and equipment failure (5%). Second mentioned responses placed a recent rate hike by XMSR in the first slot, followed by the dropping of a favorite music channel.

Table 6
The worst experience I've had with my satellite radio was...

Top 10 Mentioned First Response (**N=440**)		Top 3 Second Response (**N=4**)	
1. None	32%	1. Rate hike	50%
2. Reception problems	25%	2. Dropped a favorite channel	25%
3. Dropped a favorite channel	7%	3. DAR ability	25%
4. Equipment failure	5%		
5. Sound quality diminishing	4%		
6. Installation	2%		
7. Lack of portability	2%		
8. Cost of service	2%		
9. Refresh service	2%		
10. Too many choices	2%		

When asked about any difficulties that respondents had encountered using their satellite radio, most indicated "nothing" (36%). Too many choices (which is actually a positive) was mentioned second (11%), followed by antenna placement or positioning (11%).

These findings suggest that one in three satellite subscribers did not experience complexities with the service. Of the remaining 68%, the most common complexity reported was related to reception.

The characteristics of satellite radio mentioned during initial focused discussions that represented relative advantages, compatibility and complexity were tested among early adopters using Likert scales from strongly agree to strongly disagree. The key relative advantages of satellite radio were affirmed with positive scores: variety of programming (99%), no commercials (98%), nationwide signal coverage (97%) and price of satellite radio a "good value" (95%).

Responses to Likert scaled questions affirm the relative advantages cited by satellite radio enthusiasts in open-ended responses that the primary benefits of satellite radio are rooted in the variety of programming, absence of commercials and nationwide signal coverage.

These responses were followed by easy installation (91%), data display with song information (87%), improved audio quality (84%).

Less critical to the satellite radio enthusiasts appear to be the knowledge of the sales representative (37%) and the ability to try satellite radio before buying (36%).

Likert scaled questions also confirm the minor role of change agents and trialability in the adoption of satellite radio among enthusiasts.

Table 7
Rate your level of agreement with the following statements about satellite radio.

Satellite Radio Characteristics	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
What I like about satellite radio is the widespread signal coverage.	74	23	2	1	.4
What I like about satellite radio is the special event programming.	35	41	14	4	6
What I like about satellite radio is sports programming.	30	29	21	16	4
What I like about satellite radio is the uncensored adult programming.	40	28	16	13	3
My satellite radio was easy to install.	56	35	4	1	4
What I like about satellite radio is the improved audio quality.	44	40	10	2	4
What I like about satellite radio is the variety of programming.	88	11	1	.2	
What I like about satellite radio is the absence of commercials.	87	11	1	1	
What I like about satellite radio is the knowledgeable disc jockeys.	35	33	19	5	7
What I like about satellite radio is the personality of the disc jockeys.	25	40	24	6	6
What I like about satellite radio is the data display provided about programming.	68	29	3	.2	.4
My satellite radio sales representative was knowledgeable.	11	26	22	11	31
The ability to try satellite radio before subscribing was critical.	14	22	41	16	7
I'm satisfied with the amount of information available about satellite radio programming.	36	48	13	2	2
Resolving problems with my satellite radio is easy.	35	39	5	3	18
Price is good value.	57	38	4	1	1

These findings affirm the high level of satisfaction with satellite radio being experienced by satellite radio enthusiasts.

Recommending Satellite Radio
Almost all of enthusiasts (98%) had recommended the purchase of satellite radio to someone else. In other words, satellite radio enthusiasts are "doing their job" according to diffusion theory—engaging the early majority to adopt.

Table 8
Characteristics of satellite radio mentioned during recommendation.
Top 5 Mentioned (**N=451)**
1. Choice of music   54%
2. No commercials   27%
3. Nationwide coverage   4%
4. Sound quality   3%
5. No more AM/FM   2%

When recommending adoption of satellite radio to others, satellite radio enthusiasts highlight the following characteristics of satellite radio: programming choice, no commercials and nationwide signal coverage. Less mentioned were digital sound quality and no more AM/FM.

The few subscribers (2%) who did not recommend satellite radio did not do so because of cost. Others mentioned not recommending the service to people that lived in areas with poor reception. Satellite radio sound quality and poor technical support were two other reasons for not recommending.

Satellite Radio Enthusiasts by Designated Market Areas
The radio industry assesses audience size and service areas using designated market areas (DMAs). Zip codes of respondents were used to determine their DMA for a portion of the sample (N=241). DMA's were collapsed into categories by size. The following table illustrates a majority of the respondents were from markets ranging from large to mid-size markets.

Table 9
Respondents by designated market areas **(N=241)**

Size of DMA	% of Respondents
1 to 10	27%
11 to 50	39%
51 to 100	20%
101 to 150	11%
151 and above	4%

Additionally, DMA categories were analyzed using an analysis of variance to determine if other tested characteristics were important in understanding how population and subsequent AM/FM radio service in these DMAs impacted satellite radio enthusiasts. Respondents from markets 11 to 50 and 51 to 100 were significantly related to:
  ➢ More time spent listening to AM/FM in the car prior to adopting satellite radio.
  ➢ A shorter time frame between knowledge of satellite radio and decision to adopt.
  ➢ The importance of the knowledgeable disc jockey to the satellite radio experience.
  ➢ Less satisfaction with the amount of information available about satellite radio programming.
  ➢ Rated local traffic and weather reports as more important categories of local content.

These findings indicate the importance of satellite radio to respondents in medium and medium to large markets. Perhaps the more limited availability of niche AM/FM channels in these markets, as well as less locally generated programming result in earlier adoption of satellite radio among these enthusiasts.

SATELLITE RADIO ENTHUSIASTS ON AM/FM RADIO

Satellite radio enthusiasts were asked a series of questions to measure their attitudes and listening behavior with AM/FM radio.

Listenership of AM/FM Radio Before and After Satellite Radio Adoption
Prior to adopting satellite radio, respondents indicated, on average that they listened to 3.8 hours of AM/FM radio a day. After adopting satellite radio, the number drops to 1.5 hours a day. In other words, on average, respondents cut their AM/FM listening time by 61%.

This data suggest that after enthusiasts adopt satellite radio, overall AM/FM usage drops 61%.

Table 10
Reported hours of AM/FM listenership among satellite radio enthusiasts. **(N=488)**

Measures	Listenership of AM/FM before Satellite	Listenership of AM/FM after Satellite	Listenership of Satellite Radio
Mean	3.8 Hours	1.5 Hours	6.98 Hours
Median	3.0 Hours	1.0 Hours	6.0 Hours
Mode	2.0 Hours	1.0 Hours	3.0 Hours
Standard Deviation	2.9 Hours	1.8 Hours	4.0 Hours

Seventeen percent (17%) of satellite radio enthusiasts indicated that they listened to AM/FM radio less than one hour a day prior to adopting satellite radio. After adopting satellite radio, 85% reported that they listen to AM/FM less than one hour a day, a 68% increase.

The most commonly reported AM/FM radio listenership before adopting satellite radio was two hours a day, as indicated by 26% of respondents. Once they adopted satellite radio, this number dropped by 21%, with 5% of satellite radio enthusiasts reporting that they listen to AM/FM two hours a day.

When comparing satellite radio listenership (Mean=6.98 Hours, Median=6.0 Hours, Mode=3 Hours), respondents reported listening to satellite radio at much higher rates than they did of AM/FM radio prior to adopting satellite radio.

Of importance is the disparity in the standard deviation on the average listenership scores. The reported listenership of AM/FM radio prior to adopting satellite radio has a standard deviation of almost three hours. After adopting satellite radio, the standard deviation on current AM/FM listenership drops to 1.8 hours.

These numbers suggest a number of satellite radio enthusiasts had already lowered AM/FM usage prior to adopting satellite radio. However, once adopting satellite radio, listenership of AM/FM radio becomes more consistent across all satellite radio enthusiasts.

Table 11
Daily time spent listening to AM/FM radio before and after satellite radio adoption.
(N=488)

Hours	AM/FM Before Satellite	AM/FM After Satellite	Satellite Radio Today
Less than 1	17%	85%	1%
2	26%	5%	8%
3	19%	4%	13%
4	13%	2%	13%
5	5%	1%	10%
6	4%	.2%	11%
7	2%	1%	4%
8	4%	1%	9%
9	2%	.2%	3%
10	4%	.2%	12%
11	1%		1%
12	1%	.4%	5%
13	.2%		1%
14	.2%		3%
15	.2%	.2%	2%
16	.2%	.2%	3%
17			
18			1%
19			.2%
20	.4%	.2%	1%

Heavy Satellite Radio Use

Reported hours spent listening to **satellite radio** was further categorized as light (1-4 hours), moderate (5 to 10 hours) and heavy (more than 10 hours). When considering these categories, 22% of respondents were "light" users, 38% "moderate" users and 41% "heavy" users.

Heavier satellite radio listeners were significantly more likely to:
- Having adopted satellite radio immediately after its launch.
- Listened to AM/FM less before adopting satellite radio.
- Overall satisfaction with AM/FM lower.
- Overall satisfaction with satellite radio higher.
- Rated positively satellite radio's programming options, audio quality and affordable hardware.
- Rated more negatively satellite radio's reliable reception.
- More likely to use portable and home receivers.
- Listen more at home, at work and in the car.
- Less likely to rate local AM/FM programming as important or local radio as an important part of the community.
- Rate AM/FM poor audio quality higher.
- Less likely to report AM/FM programming as always being a part of future listening habits.

When Satellite Radio Enthusiasts Listen to AM/FM Radio

Another important measurement becomes, *when* are satellite radio adopters continuing to listen to AM/FM radio? To assess this, percentages of "total" listening time were taken by location (home, work and car) and time of day. The data demonstrate the important opportunity AM/FM radio continues to have in reaching satellite radio subscribers while they are in their automobiles. While overall AM/FM radio listenership declined by 61%, time listening in the car lost a much lower 17%. Additionally, AM/FM listenership in the car became the "only" listening time for 20% of satellite radio enthusiasts, or 1 in 5, and accounted for 70% or more of the total AM/FM listening time for almost 1 in 2 (45%) satellite radio enthusiasts. By comparison, car only listening of satellite radio accounts for just 1 in 10 satellite radio enthusiasts.

Table 12
Car listening before and after satellite radio. **(N=488)**

% of Total Time Listening to AM/FM in the Car	AM/FM Usage in the Car before Satellite Radio	AM/FM Usage in the Car after Satellite Radio	% Change	Satellite Radio Usage in the Car
0%	11%	28%	+17%	7%
10%	15%	11%	-4%	11%
20%	12%	5%	-7%	15%
30%	10%	2%	-8%	10%
40%	7%	3%	-4%	10%
50%	13%	4%	-9%	11%
60%	5%	2%	-3%	8%
70%	8%	5%	-3%	7%
80%	6%	8%	+2%	5%
90%	8%	12%	+4%	8%
100%	6%	20%	+14%	10%

Satellite radio enthusiasts were asked to further describe their average AM/FM car listening activity by daypart. Among satellite radio enthusiasts listening in the car, 97% indicated that they listen to AM/FM during morning drivetime (6:00am to 10:00am). This was followed by afternoon drivetime (2:00pm to 6:00pm) with 78% listening in the afternoon. Additionally, 12% of satellite radio enthusiasts report morning drivetime as the *only* time they listen to AM/FM.

Table 13
Satellite radio enthusiasts daypart activity with AM/FM radio. **(N=488)**

AM/FM Daypart	% of Satellite Radio Enthusiasts Reporting Some AM/FM Listening Activity During Daypart	% of Satellite Radio Enthusiasts Reporting Daypart Comprises 100% of Total Time Spent with AM/FM Radio
6:00am-10:00am	97%	12%
10:00am-2:00pm	56%	5%
2:00pm-6:00pm	78%	4%
6:00pm-12:00am	55%	3%
12:00am-6:00am	23%	10%

These findings suggest that AM/FM listenership, while declining significantly among satellite radio enthusiasts, continues to have some role in their overall radio listening habits, specifically in the car during morning drive.

Respondents were asked to indicate any other listening habits with AM/FM radio that were not covered in questions related to home and car usage. While most indicated "no", 4% (N=21) of satellite radio enthusiasts indicated that they no longer listen to AM/FM radio.

<u>Popular AM/FM Formats Among Satellite Radio Enthusiasts</u>
Satellite radio enthusiasts were asked about their favorite AM/FM formats. Most indicated talk radio programming, sports and some form of rock format. Public radio/NPR was also a popular format. In open codes, when asked if there were other AM/FM formats they listened to (N=245), several mentioned some form of rock or segments of AM/FM radio, such as news, talk and traffic.

Table 14
Popular AM/FM radio formats among satellite radio enthusiasts.* **(N=488)**

Format	Satellite Radio Enthusiasts	Arbitron Ratings**
Talk	50%	18%
Sports	29%	---
Top 40	27%	11%
Adult Contemporary	26%	14%
Public Radio/NPR	26%	---
Country Music	17%	9%
Jazz	10%	---
R&B	7%	---
Urban	4%	10%

*Satellite radio enthusiasts were asked to indicate "all formats listened to," therefore, the total will not equal 100%.
**Arbitron (2005)

These findings suggest that satellite radio enthusiasts prefer niche programming not widely available on AM/FM radio, specifically variations of rock music, talk programming, sports and jazz.

<u>Satisfaction with AM/FM Radio</u>
Satisfaction with AM/FM radio among satellite radio enthusiasts is low, with less than 1% indicating being "very satisfied" and 6% indicating "satisfied." Twenty-five percent (25%) indicated being "dissatisfied" and 68% being "very dissatisfied." In other words, 93% of satellite radio enthusiasts gave a negative rating to AM/FM radio.

This finding suggests that satellite radio enthusiasts adopted the service in the innovator and early adopter phases of diffusion as a result of dissatisfaction with AM/FM radio service.

To further understand respondent's dissatisfaction with AM/FM radio, an analysis of variance was used to test for statistically significant relationships between reported satisfaction with AM/FM and other tested areas. Satellite radio enthusiasts that reported higher levels of satisfaction (~7%) were significantly more likely to:

> ➢ Have more recent subscribed to satellite radio.
> ➢ Listen to AM/FM more before subscribing and since subscribing.
> ➢ Be more positive about HD radio.
> ➢ Desire more local AM/FM programming.
> ➢ Desire greater variety in AM/FM programming.
> ➢ Desire fewer commercials.
> ➢ Report that AM/FM would always be a part of their radio listening habits.

These findings suggest that the initial phase of satellite radio adoption occurred among highly dissatisfied AM/FM listeners and that more recent satellite radio adopters are more likely to report less AM/FM radio dissatisfaction levels. These more recent satellite radio adopters also show patterns of radio usage that continue to include AM/FM radio.

Why Satellite Radio Enthusiasts Listen to AM/FM Radio
In keeping with diffusion theory, respondents were asked to indicate the "best" and "worst" things about AM/FM radio. These responses reflect what Everett Rogers (1995) describes as the relative advantages of a product (best) and the complexities (worst) of adopting a product. The key relative advantages of AM/FM radio first mentioned among satellite radio enthusiasts is that it is free (26%), provides local news/talk (13%), provides other local content (12%) and local personalities (5%). Among second mentioned relative advantages, these same themes are echoed with the top three categories mentioned about local programming, followed by being free and widely available.

These findings illustrate AM/FM radio's assets among satellite radio enthusiasts: the service is free and provides access to local news, talk, weather, traffic and sports.

Table 15
Relative advantages of AM/FM radio among satellite radio enthusiasts.

Top 10 Mentioned First Response **(N=449)**		Top 5 Second Response **(N=66)**	
1. Free	26%	1. Local Content Other	38%
2. Local News/Talk	13%	2. Local News/Talk	14%
3. Local Content Other	12%	3. Local Sports	6%
4. Nothing	11%	4. Availability of signal	6%
5. No longer have to listen to	8%	5. Free	5%
6. Personalities of DJ	5%		
7. Noncommercial radio	3%		
8. Local Sports	3%		
9. Availability of signal	2%		
10. Sound quality	2%		

Respondents were also asked about the negatives or complexities of using AM/FM radio. The key negative issue among respondents was too many commercials, which was mentioned by 48% of respondents as their first response. This was followed by repetition of music, lack of variety and limited playlists (27%). In second mentioned complexities of AM/FM radio, these same themes were mentioned and followed by "weak" personalities or disc jockeys (13%).

These findings illustrate the key programming issues driving satellite radio enthusiasts away from AM/FM radio: commercial loads, limited playlists and quality of local talent.

Table 16
Complexities of AM/FM radio among satellite radio enthusiasts.

Complete the following sentence: The worst thing about AM/FM radio is?

Top 10 Mentioned First Response **(N=462)**		Top 6 Second Response **(N=248)**	
1. Too many ads/commercials	48%	1. Too many ads/commercials	28%
2. Repetition of music/no variety	13%	2. Repetition of music/no variety	17%
3. Limited music playlists	8%	3. Weak personalities/DJs	14%
4. Everything	6%	4. Limited playlists	13%
5. Poor Programming	5%	5. Poor Programming	9%
6. Poor signal quality/reception	4%	6. Poor signal quality/recap.	4%
7. Limited # of stations in area	3%		
8. Weak personalities/DJs	2%		
9. Too much talk	2%		
10. Clear Channel	1%		

Local Content and Awareness of Community
Building on the theme of localism and local programming as one of the foundations of AM/FM radio, satellite radio enthusiasts were asked how informed they felt about their local communities. Seventy-seven percent (77%) indicated that they felt "very informed" or "informed" about their communities.

Table 17
How informed satellite radio enthusiasts feel about their local communities. **(N=456)**
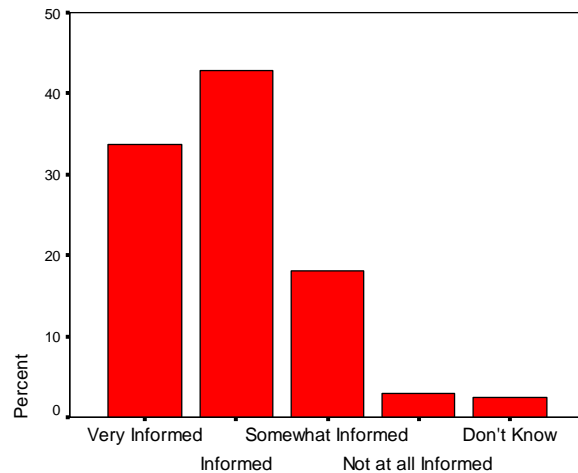
Using an analysis of variance, satellite radio enthusiasts' reported level of "feeling informed" was found to be significantly related to:
  ➢ The time spent listening to AM/FM before and after subscribing to satellite radio (more) Time spent listening to satellite radio (less).
  ➢ Time spent listening to AM/FM in their cars (higher)
  ➢ The importance of audio quality (higher)
  ➢ Cost of the satellite receiver and monthly subscription fees of satellite radio rated as more important when deciding whether or not to subscribe to satellite radio.
  ➢ Price versus value of satellite radio (lower)
  ➢ The importance of local news programming (higher).

When considering the importance of local programming among satellite radio enthusiasts, the following categories were rated the highest: local weather information, local emergency information, local news programming and local traffic information.

Table 18
How important are the following categories of local programming?

Local Content Categories	Very Important	Important	Only Somewhat Important	Not at all Important	Don't Know
Local news programming.	22	30	29	19	.2
Local sports programming.	12	19	26	42	.4
Local event coverage (i.e. local parades, festivals)	6	10	33	51	1
Local weather information.	39	31	19	11	.2
Local emergency information.	39	30	20	12	.2
Local school information.	12	16	25	47	1
Local advertising and sales announcements.	3	5	14	76	2
Local traffic information.	26	27	24	23	1

These finding suggests that local content is of considerable importance to satellite radio enthusiasts. Local AM/FM stations should carefully consider their commitment to these categories of programming and the unique role they play in providing this programming.

Of interest is the reported low importance to satellite radio enthusiasts of local advertising and sales information. Several factors outside of the control of the AM/FM industry contribute to this phenomenon as the advertising landscapes, as well as the retail industry, become less localized and more nationalized (Wolzein, 2004). As these trends continue, local broadcasters may be forced to reconsider programming and business models.

Satellite Radio Enthusiasts on the Role and Function of AM/FM Radio
Satellite radio enthusiasts were asked to indicate their level of agreement with a series of eight statements about AM/FM radio that were made by original focus group participants and respond to these statements.

The most commonly agreed upon statements were negative statements about AM/FM programming: AM/FM stations play the same songs over and over (98% agreement), AM/FM play too many commercials (96% agreement) and AM/FM announcers talk too much (85% agreement). AM/FM stations providing important local programming had 72% of satellite radio enthusiasts in agreement and a statement about poor audio quality had 63% in agreement.

Receiving much lower agreement scores was the statement AM/FM is an important part of my community (43% agreement), the likelihood of AM/FM always being a part of the respondent's listening habits (30% agreement) and AM/FM stations are serious about serving the needs of the local community (22% agreement).

Table 19
Characteristics of AM/FM radio

Indicate your level of agreement with the following statements about AM/FM radio.

Characteristics of AM/FM Radio	Strongly Agree	Agree	Disagree	Strongly Disagree	No Response
AM/FM radio is an important part of my community.	7	36	37	20	--
AM/FM stations play the same music over and over	84	14	1	.2	--
AM/FM stations have poor audio quality.	30	33	35	2	--
AM/FM stations provide important local information.	17	55	21	6	--
AM/FM station owners are serious about serving the needs of the local community.	2	20	44	35	--
AM/FM announcers talk too much.	60	25	12	3	--
AM/FM radio stations play too many commercials.	89	9	1	2	--
Part of my listening habits will always include local AM/FM radio.	7	23	32	38	--

These data further confirm the satellite radio enthusiasts' dissatisfaction with AM/FM's limited playlists, number of commercials and chatter by DJs. The data also reflect a perception among the majority of satellite radio enthusiasts that AM/FM is no longer responsive to local communities.

Interest in HD Radio
HD radio technology currently provides improved audio reception of AM/FM signals. Awareness, adoption and likelihood of HD radio engaging satellite radio enthusiasts were tested. Among satellite radio enthusiasts, awareness of HD radio was very high (84% aware).

This finding illustrates an overall high interest in radio among respondents.

Those that were aware of HD radio were asked if they had purchased an HD radio receiver and 1% of the sample indicated that they had (N=4). Interesting to note is that three of these four also indicated being "very dissatisfied" with AM/FM radio.

All subscribers aware of HD radio were also asked if the new technology would be likely to engage them to listen to AM/FM radio and 95% indicated "no." When asked to explain their response in an open-ended question, most indicated that the sound quality issues of AM/FM radio did not outweigh the programming issues (42%). Another 25% indicated that they were satisfied with satellite radio. In other words, they didn't need AM/FM radio anymore. Sixteen percent (16%) indicated that they did not want to purchase the hardware--that it was too expensive.

Table 20
Explain why HD radio is not likely to engage you to listen to AM/FM **(N=410):**

Top 5 Mentioned
1. Sound quality does not outweigh programming issues.   42%
2. Satisfied with satellite radio.   25%
3. Don't want to buy hardware/too expensive.   16%
4. AM/FM controlled by FCC.   5%
5. Commercials still there.   3%

These findings suggest that poor AM/FM sound quality was not the key motivation to subscribe to satellite radio. Findings also suggest that HD radio, if used to only enhance audio quality, will not be effective in reengaging satellite radio enthusiasts.

Reengaging Satellite Radio Enthusiasts with AM/FM Radio
As a final question, satellite radio enthusiasts were asked in an open-ended question if there was anything that AM/FM radio stations could do to increase their listenership. A third of satellite radio enthusiasts indicated there was *nothing* AM/FM could do to increase their listenership. Among the remaining 67% of satellite radio enthusiasts, the key suggestions include: reducing the number of commercials (25%), providing better programming variety (12%), more specialized formats (12%) and more local programming (4%). These three changes were affirmed in second mentions as well.

Table 21
Top mentioned AM/FM changes to increase listenership.

Is there anything local AM/FM radio could do to increase your listenership?

Top 10 Mentioned First Response **(N=434)**		Top 5 Second Response **(N=160)**	
1. Nothing	33%	1. Reduce commercials	24%
2. Reduce commercials	25%	2. Better programming	21%
3. Better programming/variety	13%	3. Wider/deeper playlists	8%
4. More specialized formats	12%	4. Don't cut songs short	8%
5. Localize, community programs	4%	5. Localize, community	7%
6. Wider/deeper playlists	2%		
7. Limit station ownership (Clear)	2%		
8. Reduce talk/chatter	2%		
9. Be more like satellite	2%		
10. Return to radio of past	1%		

These findings suggest that two thirds of satellite radio enthusiasts could be further engaged by AM/FM radio if commercial loads are reduced, programming variety enhanced and local content improved.

KEY FINDINGS AND OBSERVATIONS

The sampling technique was effective in identifying a group of early adopters of satellite radio enthusiastic about the service. Enthusiasts (Book, 2004) can be described as a mix of innovators and early adopters (Rogers, 1995) that have high surveillance needs associated with satellite radio and are actively engaged in discussing satellite radio with others and reading about satellite radio. The data also confirmed that the sampling technique was effective in identifying a sample consistent with satellite radio subscription rates reported by the industry.

Satellite radio enthusiasts indicated that the mass media (Internet, newspapers, magazine, television and radio) played a critical role in educating them about the service. After learning about satellite radio via the mass media, satellite radio enthusiasts considered the decision to adopt for a period of a few months to a year before subscribing. Satellite radio enthusiasts were less likely to have been engaged in the service by a change agent (car dealership, retailer) and more likely to have sought knowledge regarding the service and to have installed satellite radio on their own.

The majority of satellite radio enthusiasts responding to the study reported living in medium to medium large markets. Perhaps the more limited availability of niche AM/FM channels in these markets, as well as the quality of locally generated programming and talent, resulted in earlier adoption of satellite radio among these enthusiasts.

Satellite Radio Enthusiasts on AM/FM Radio

One in four satellite radio enthusiasts made the decision to adopt based on negative perceptions of AM/FM radio. Specifically, perceptions generated from experiencing AM/FM during morning drive time. These same satellite radio enthusiasts also reported lower overall AM/FM listenership prior to adopting satellite radio and higher listenership of CDs and MP3s at home. These same satellite radio enthusiasts were also significantly less likely to believe that AM/FM is an important provider of local information and less likely to believe AM/FM will always be a part of their listening habits.

The key programming issues driving satellite radio enthusiasts away from AM/FM radio were described as: commercial loads, limited playlists and quality local talent. These open-ended comments were confirmed by Likert scale analysis where satellite radio enthusiasts reported high levels of dissatisfaction with AM/FM's limited playlists, number of commercials and chatter by DJs. The data also reflected a perception among the majority of satellite radio enthusiasts that AM/FM is no longer responsive to local communities.

After enthusiasts adopt satellite radio, overall reported AM/FM usage dropped, on average, 61%. However, the standard deviation on AM/FM listenership prior to adopting satellite radio demonstrated that a number of satellite radio enthusiasts had already lowered AM/FM usage prior to adopting satellite radio. Interestingly, once adopting satellite radio, listenership of AM/FM radio became more consistent across all satellite radio enthusiasts, on average listening 1.5 hours a day. These findings suggest that AM/FM listenership, while declining significantly among satellite radio enthusiasts, continues to have some role in their overall radio listening habits, specifically in the car during morning drive.

The first wave of satellite radio adoption was among highly dissatisfied AM/FM listeners. More recent satellite radio enthusiasts reported higher AM/FM radio satisfaction levels. These more recent satellite radio adopters also established patterns of radio usage that continued to include AM/FM radio.

Local content (weather, traffic, news and emergency information) is of significant importance to satellite radio enthusiasts and was the primary reason for tuning into AM/FM during morning drive. Local AM/FM stations should carefully consider their commitment to these categories of programming and their role in providing this programming that is currently unique to terrestrial radio.

AM/FM radio's assets among satellite radio enthusiasts were described as: the service is free, available to everyone and provides access to local news, talk, weather, traffic and sports.

HD Radio awareness was very high among satellite radio enthusiasts (84%), illustrating the enthusiasts' overall radio knowledge. Uniformly (95%) satellite radio enthusiasts indicated that HD radio, if used to only enhance audio quality, will not be effective in reengaging them to listen to AM/FM radio.

A third of satellite radio enthusiasts reported that they will not return to AM/FM radio. Among the remaining respondents, if AM/FM radio makes changes to reduce commercial loads, enhance programming variety and local content (specifically during morning drive), possibilities exist to continue to engage satellite radio enthusiasts.

Attributes of Satellite Radio
The key adoption attributes described as the relative advantages of satellite radio by adoption enthusiasts were its niche programming, absence of commercials and a national signal footprint that allows coast-to-coast listening. These same relative advantages were affirmed in Likert scaled questions.

One in three satellite radio enthusiasts did not experience complexities with the service, affirming the high level of satisfaction with satellite radio reported by enthusiasts. Of the remaining 68%, the most frequent complexity reported was related to reception.

Virtually all satellite radio enthusiasts recommended adoption of the service to others (98%). When doing so, the following characteristics of satellite radio were highlighted: programming choice, no commercials and nationwide signal coverage. Less mentioned were digital sound quality and no more AM/FM.

Satellite radio enthusiasts prefer niche programming not widely available on AM/FM radio, specifically, variations of rock music, talk programming, sports and jazz.

Satellite Radio Adoption and the S-Curve
The data from satellite radio enthusiasts suggest that satellite radio experienced a first wave of adoption among highly dissatisfied AM/FM radio listeners. More recent satellite radio enthusiasts report higher rates of satisfaction with AM/FM radio, although overall, AM/FM satisfaction is low. Diffusion theory suggests that the rate of adoption is slowed as the driving needs recede. In other words, the perceived innovation attributes of satellite radio diminish among more satisfied AM/FM listeners (Rogers, 1995). As one radio executive noted, "It's (AM/FM) radio's audience to lose" (Bachman, 2005).

The data collected in this study, coupled with recent national assessments of satellite radio listeners (Rose & Lenski, 2005) suggest that the S-curve of satellite radio adoption could be slowed by implementing AM/FM radio strategies related to commercial load and programming adjustments in relation to playlists and disc jockeys. The findings of this study concur with the recent observation by Arbitron and Edison Media Research, "It is very important for commercial radio to address spot load issues as more consumers consider subscribing to satellite radio" (p. 20). This appears to be especially true among rock formats (i.e. Top 40, CHR, Alternative, Classic) and during morning drivetime.

While the change agents (discussed in the analysis section of this report), such as car dealerships, will continue to fuel the adoption of satellite radio, their efforts to convert listeners to satellite will be more difficult among more satisfied AM/FM radio listeners. Additionally, satellite radio, unlike AM/FM radio, is limited in the amount and type of advertising it can introduce on its service. As a result, satellite radio's revenue growth will be limited to new subscribers for the immediate foreseeable future.

As the AM/FM radio industry addresses the key *complexities* of its use and adopts more effective programming strategies, diffusion theory suggests that satellite radio adoption will be slowed.

HD Radio and AM/FM Radio's Future
A discussion of the lack of interest expressed in HD Radio is merited. Satellite radio enthusiasts were aware of HD Radio, but rejected the technology's ability to improve sound quality as a reason to return to AM/FM radio. In other words, satellite radio enthusiasts are more interested in content than improved sound quality. No one can argue the improved quality of radio signals will continue to keep AM/FM radio competitive. As more consumers adopt digital audio devices (iPods, MP3 players), AM/FM's ability to sound as good or better will be critical. However, poor or marginal audio quality of AM/FM signals was not the driving need among satellite radio

enthusiasts. Instead, AM/FM radio's commercial loads and formula based, limited content were cited as the compelling reasons to adopt satellite radio.

The data collected in this study suggests that more important than HD Radio to enhance sound, is its potential abilities to bring a variety of digital content and opportunities to the consumer via AM/FM radio. These include, but are not limited to the following: multicasting of AM/FM signals into niche formats; digital *fluidity* of AM/FM radio content that allows listeners to personally record, then time shift and *device* shift AM/FM music; and digital visual displays for content information and perhaps advertising.

While this study was not designed to provide programmatic suggestions, the data collected suggest that using these new digital features of AM/FM to make adjustments in commercial loads, strategies related to disc jockeys and wider, deeper playlists by genre will disrupt demand for satellite radio. The significant interest expressed by satellite radio enthusiasts in nationwide signal coverage could also be considered by AM/FM radio programmers in a multicast radio environment. Perhaps, AM/FM radio stations could partner to link local signals, creating a coast-to-coast signal environment on a portion of its multicast spectrum.

Rather than the satellite radio model, AM/FM might consider moderate changes to existing formats. The following chart illustrates a potential divergent (departing from convention) radio model.

Table 22
Divergent AM/FM Radio Model

Terrestrial Radio	Satellite Radio	Divergent Radio
Analog Signals	Digital Signals	Digital Signals
One Signal Model	Multichannel Model	Multicast Model
Commercial Loads	No or Few Commercials	Strategic Commercial Loads (Multicasting)
No Fluidity (Not online, not digital)	Extreme Fluidity (Online, DAR, MiFi)	Moderate Fluidity (DAR)
Heavy disc jockey use during drivetime.	No local talent. Limited, but specialized disc jockey use.	Reconsider disc jockey models, local content and new programming opportunities with multicasting (i.e. a no DJ version on one subchannel.)

Local Programming
Even among satellite radio enthusiasts, morning drive time continues to be a key time to listen to AM/FM radio. Satellite radio enthusiasts tune to AM/FM radio for local news, traffic and weather. These fundamental areas of local content are of critical value and the data collected in this study indicate that the pursuit of clarifying federal policies related to satellite radio's encroachment in these areas are of key importance to AM/FM radio's future.

Final Thoughts
Unlike cable and satellite technologies, broadcasters historically have not engaged with its listeners with home visits, telephone support and direct billing. For broadcasters, the audience may have occasionally called the station or participated in contests, but beyond these interactions, the audience is limited to activities surrounding ratings. Moving forward in a more competitive environment with new distribution models for radio programming, perhaps forces a fundamental change in AM/FM radio's approach to its audience. Tomorrow's relationship with the audience may need to be more intimate--one household at a time. For example, in order for HD Radio to succeed, radio stations will need to become "change agents" selling the attributes of the service to radio listeners. Rather than this happening one radio station at a time, one promotion at a time, an argument could be made that local radio markets combine energies and connect with audiences as an industry to educate and inform them about the attributes of AM/FM radio. The National Association of Broadcasters might consider coordinating such an effort. AM/FM broadcasters can learn from their television counterparts' transition to digital television. Not until cable and satellite began offering HD programming, did adoption rates of digital television receivers begin to climb (Book, 2004), in a large part due to cable and satellite's ability to directly "sell" to the consumer. By joining forces the AM/FM radio industry might be able to build momentum for HD Radio and multicasting of radio signals.

Diffusion theory seeks to understand technology adoption; the theory is not a marketing or economic forecasting model. Predicting the future of any new technology is risky business. The data collected in this study paints a picture of satellite radio among a specific group of innovators and early adopters—enthusiasts. Radio stakeholders can learn from the findings of this study and use the information as they respond to today's dynamic radio environment. Terrestrial radio remains the delivery system of choice for radio programming among the vast majority of Americans. The future of the AM/FM industry rests in the retention of that audience by continuing to be a dynamic service, responsive to new distribution systems for radio programming.

WORKS CITED

Arbitron (2005). Persons using radio. Retrieved online April 30, 2005 from
        http://wargod.arbitron.com/scripts/ndb/ndbradio2.asp.

Arbitron (2004). Radio Today 2005 Edition. New York: NY. Retrieved online April 30,
        2005 from www.arbitron.com.

Arbitron (2004a). Internet and Multimedia 2005: The on-demand media consumer.
        Retrieved online April 1, 2005 from www.arbitron.com.

Atkin, David J., Jeffres, Leo W., Neuendorf, Kimberly A (1998, Fall). Understanding
        Internet adoption as telecommunications behavior. *Journal of Broadcasting and
        Electronic Media*, *42,* 475-490.

Bachman, K. (2005, April 19). Radio under siege. *Mediaweek,* Retrieved online from
        Lexis-Nexis April 30, 2005.

Bachman, K. (2005, May 17). Clear Channel applauds its "Less Is More" initiative.
        Billboard. Retrieved online May 17, 2005 from
        http://billboardradiomonitor.com/radiomonitor/search/article_display.

Book, C. (2004). Digital Television: DTV and the Consumer. Ames, IA: Blackwell
        Publishing.

Charney T. & Greenberg B. S. (2002). Uses and gratifications of the Internet. In C. A.
        Lin & D. J. Atkin (Eds.), *Communication technology and society: Audience
        adoption and uses* (pp. 379-407). New Jersey, Hampton Press.

Dotinga, R. (2005). Radio industry hits shuffle. *Wired.* Retrieved online June 10, 2005
        from http://www.wired.com/news/digiwood/0,1412,67727,00.html.

Downey, K. (2005, May 30). The HDTV revolution takes its time: Many talk about
        high-def; few have it. *Broadcasting & Cable. 135,* (22): 30.

FMQB. April 27, 2005. "Infinity Set to Debut First Podcasting Radio Station."
        Retrieved 4/30/05 from: http://www.fmqb.com/Article.asp?id=81411

iBiquity. (2005, April 19). "NRSC Approves Digital Radio Broadcasting Standard,"
        Retrieved April 30, 2005 from
        http://www.iBiquity.com/press/pr/NRSCDigitalRadioStandard.htm

iBiquity(a). (2005, April 21). Personal interview with marketing specialists. NAB
        Convention, Las Vegas, NV

iBiquity(b). (2005, January 5). Clear Channel radio now offering digital broadcasts on
        65 of its radio stations. Retrieved online April 30, 2005 from
        http://www.iBiquity.com/pres/pr/010505ClearChannel/htm.

iBiquity(c). (2005, April 19). Consumer electronics industry leaders to join iBiquity
        digital at NAB 2005 to outline support for HD Radio rollout. Retrieved online
        April 30, 2005 from http://www.iBiquity.com/press/pr/NABFinal_000.htm

LaRose, R. & Atkin, D. (1992). Audiotext and the reinvention of the telephone as a mass
        medium. *Journalism Quarterly*, *69*, 413-421.

Lin, Caroline A. (1999). Predicting online service adoption likelihood among potential
        subscribers. *Journal of Advertising Research. 39*(2). 1-11.

Lin, C. (2001). Audience attributes, media supplementation, and likely online service
        adoption. *Mass Communication & Society. 4 (1):* 19-38.

Lin, C. (2004). Webcasting adoption: Technology fluidity, innovativeness and media
        substitution. *Journal of Broadcasting & Electronic Media. 48 (3):* 446-465.

Manly, L. (2005, April 5). As satellite radio takes off, it is altering the airwaves. *New
        York Times,* A1, 16.

Martin, H. (2004, July 1). The NAB attacks satellite localism. *Radio.* Retrieved online
        April 30, 2005 from
        http://www.findarticles.com/p/articles/mi_m0OUK/is_7_10/ai_n6103989

Neuendorf, K. A., Atkin, D. J., & Jeffres, L. W. (1998). Understanding adopters of audio
        information innovations. *Journal of Broadcasting & Electronic Media*, 42, 80-93.

Nielsen (2005). Retrieved online from www.nielsenmedia.com.

NPR. (2005, April 18).   NPR's tomorrow radio initiative brings multicasting to
        digital radio." Retrieved online April 30, 2005
        from:http://www.npr.org/about/press/050418.tomorrowradio.html

Podcasting News. April 9, 2005. Pew tells critics of podcast report, 'Read the data
        memo.' Retrieved 4/9/05 from:
        http://www.podcastingnews.com/archives/2005/04/pew_tells_criti.html

Poole, B. (1993, August). Digital radio: linking the global airwaves. *Omn*i. Retrieved
        online April 30, 2005
        http://www.findarticles.com/p/articles/mi_m1430/is_n10_v15/ai_13990102.

Quick Takes (2005, May 25). SIRIUS chief vows fewer Stern ads. *Los Angeles Times*,
        E5.

Radio: Economics (2005). Radio: Economics as reported in *The State of the News Media*. Retrieved online on April 1, 2005 from www.stateofthemedia.org/2005/narrative_radio_economics.asp.

Rafaeli, S. & LaRose. (1993). Electronic bulletin boards and 'Public Goods' explanations of collaborative mass media," *Communication Research*, *28* (2), 277-297.

Reagan, J., Pinkleton, B., Chen, C., & Aaronson, D. (1995). How do technologies relate to the repertoire of information sources? *Telematics and Informatics, 12*, 21-27.

Regan J. (1996). The repertoire of information sources. *Journal of Broadcasting and Electronic Media. 40*, 112-121.

Rogers, Everett M. (1995). *Diffusion of Innovations*. 4th ed. New York: Free Press.

Rose, B. & Lenski, J. (2005). Spot load study 2005: Managing radio commercial inventories for advertisers and listeners. Retrieved April 1, 2005 from http://www.arbitron.com/downloads/spotloadstudy2005.pdf.

Sarnoff, David. (1915-1916), "The Vision of David Sarnoff: Memorandum to E.J. Nally." In *Documents of American Broadcasting*, 4th Ed. Kahn, Frank J., ed., Prentice-Hall, Inc., Englewood Cliffs, NJ (1984).

Schramm, W. (1988). *The story of human communication: cave painting to microchip*. Harper Row: New York.

SIRIUS Satellite Radio. (2005). SIRIUS satellite radio reports strong subscriber and revenue growth in first quarter of 2005. Retrieved online April 30, 2005 from http://2www.shareholder.com/SIRIUS/ReleaseDetail.cfm?ReleaseID=161720&cat=&newsroom=yea.

Taylor, C. (2005, April 6). Live for the first time: HD Radio multicasting. Billboard: Radio Monitor. Retrieved online April 30, 2005 from http://www.billboardradiomonitor.com/radiomonitor/news/business/digital/article_display.jsp?vnu_content_id=1000873178.

Wellman, B. & Gulia, W. (1995). *Net surfers don't ride alone: Virtual communities as communities*. *Communities in Cyberspace*. University of California Press.

Woolley, S. (2004, September 6). Broadcast bullies. *Forbes.* Retrieved online December 12, 2004 from http://www.forbes.com/forbes/2004/0906/134_print.html.

XM Satellite Radio. (2005). XM satellite radio holdings inc. announces first quarter 2005 results. Retrieved online April 30, 2005 http://www.xmradio.com/newsroom/screen/pr_2005_05_27.html

Wolzein, T. (2004). Capacity Explosion! Digital & capital change the industry.
Presentation to the International Radio and Television Society. New York, NY.