

FOSTERING DEVELOPMENT OF ADVANCED TELECOMMUNICATIONS TECHNOLOGIES: THE F.C.C., THE PIONEER'S PREFERENCE & PERSONAL COMMUNICATIONS SERVICES*¹

FOREWORD

Interactive video, movies on demand, wireless communications—all these and more are the promise of the national information infrastructure—the so-called “information superhighway.” The merger of telephone, television, and computer will usher in the true “information age” we are told—by the industries themselves as well as by the Clinton Administration.² Indeed the high-tech path to the future is a favorite topic of Vice President Gore,³ whose attention to the issue has helped keep it in the forefront of national debate.

One of the earliest policy decisions settled in this regard was that the private sector, not the government, would be responsible for financing and building this path to our collective future.⁴ The decision as to the rate at which such development will proceed, however, is determined by market changes, corporate culture, and government regulations.⁵

As to government regulation, much of it will be in the bailiwick of the Federal Communications Commission (“FCC” or “Commission”). This raises the question, then, of how well the FCC is performing the task of formulating policies and regulations that foster this development?

A quick review of recent events yields a somewhat ambiguous answer. On the one hand, the Commission has established a preferential licensing scheme to spur development of innovative uses of the radio spectrum (the pioneer's preference).⁶ It has also, af-

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¹ Personal Communications Services, or PCS, is an umbrella term for a wide variety of communication technologies. A brief history and description of PCS begins at section 2 *infra*.

² See Edmund L. Andrews, *Sudden Synergy Among Communications Rivals*, N.Y. TIMES, Oct. 21, 1993, at D1.

³ Lawrence J. Magid, *Gore's Technology Challenge Includes White House*, WASH. POST, Jan. 17, 1994, at F19.

⁴ Steve Lohr, *An Information Detour*, N.Y. TIMES, Feb. 25, 1994, at A1.

⁵ *Id.*

⁶ The preference is discussed in depth, *infra* § IV.

ter being authorized by Congress to do so,⁷ begun to promulgate rules for the auctioning of radio licenses⁸—a move heralded by many for replacing the prior licensing methods of lotteries (criticized as a goldrush⁹) and competitive hearings (criticized as inaccurate¹⁰ and slow¹¹).

Other actions by the Commission have been less well received both by observers in the telecommunications industry and those following it. After the latest round of cable television rate (re-re-)regulation, one observer characterized the FCC's decision to shave \$1.45 off the average monthly cable bill as the Commission "delay[ing] the construction of the information superhighway for less than \$20 a year—a night at McDonald's for a family of four."¹² Indeed some blame this single decision for the collapse of the planned merger between Tele-Communications, Inc. ("TCI") and Bell Atlantic Corporation—a deal valued at \$33 billion.¹³

Of course other reasons may be responsible for the deal's failure. The clash of corporate cultures between high-risk TCI and Bell Atlantic, which pays steady dividends in the classic utility model, is quite wide indeed. Equally separated were the personal style of each company's leader. TCI's President and CEO John Malone is well-known as a "blunt spoken" businessman who practices a *realpolitik* of the boardroom.¹⁴ Raymond W. Smith, the Chairman and CEO of Bell Atlantic is equally well-known as a diplomat and for "smooth talking."¹⁵ In the final analysis, of course, it is most likely that a combination of all these things led to the deal's collapse.

But in a period of economic recovery as we are in now, one which has made the U.S. economy once again "the envy of the industrialized world,"¹⁶ Reed E. Hunt, the new Chairman of the FCC, is probably correct in declaring that "the national information infrastructure is going to be a magnet for investment."¹⁷ The likelihood that such investment will come from a combination of cable

⁷ 47 U.S.C.A. § 309(j) (West Supp. 1993).

⁸ *Sealed Bids to Predominate*, COMM. DAILY, Oct. 14, 1993, at 7.

⁹ Peter Passell, *F.C.C. 'Pioneer' Policy Under Attack*, N.Y. TIMES, Jan. 31, 1994, at D1, D7.

¹⁰ *Id.*

¹¹ *See id.*

¹² Anthony Ramirez, *Negotiators Fault Lower Cable Rates*, N.Y. TIMES, Feb. 25, 1994, at D4 (quoting John S. Reidy, a securities analyst at Smith Barney Shearson).

¹³ *See generally* Lohr, *supra* note 4.

¹⁴ Edmund L. Andrews, *Rising Doubts on a Price Finally Killed a Merger*, N.Y. TIMES, Feb. 25, 1994, at D4.

¹⁵ *Id.*

¹⁶ Sylvia Nasar, *The American Economy Back on Top*, N.Y. TIMES, Feb. 27, 1994, § 3, at 1.

¹⁷ Andrews, *supra* note 14, at 104.

television companies and any of the so-called "baby Bells"—the regional Bell operating companies—seems unlikely however. For while the cable companies have strong experience in delivering programming to consumers, and the Bells have plenty of cash, as yet investors favor those Bells that have shied away from alliances with cable operators.¹⁸ As the *New York Times* reported, "industry won't invest without [a] clear vision of profit."¹⁹ Thus, it appears that new technologies' ability to attract the huge development budgets promised by the synergy of technologically advanced cable operators and cash-rich telephone companies may have been greatly weakened.²⁰

The result of the failed merger, therefore, has clear implications for the development of the information infrastructure.²¹ The logic which drove the deal (and others like it, such as that between AT&T and McCaw Cellular) was that it "would yield both the financial muscle and technological capability to build the networks needed to supply new kinds of information services and entertainment."²² This does not mean the new "highway" will never materialize. There is no requirement that it be a one-wire system—either cable- or telephone-owned or some combination thereof. Indeed, given that the technology to utilize either industry's existing physical plant to provide voice, data, and video service now exists, we may be closer to a two-wire future than we think. Moreover, a two-wire scheme may be the wiser policy. Multiple delivery paths promise the low rates and high standards of service that market competition fosters, and which keeps government regulators at bay.

How then will these companies acquire the needed technology to make their vision a reality? An answer might be found in the example of cable operators who sought growth through vertical integration in the 1980s. Such integration can be seen in TCI's equity position in Turner Broadcasting, Inc. (among others).²³ And

¹⁸ Floyd Norris, *Malone Knows: Cable has a Rocky Future*, N.Y. TIMES, Feb. 27, 1994, § 3, at 1. While all the Bells have experienced a drop in their per share price, the average for the four Bells with a cable deal was -14%; the average for the three without a deal was only -3%. *Id.*

¹⁹ Lohr, *supra* note 4.

²⁰ Floyd Norris, *Malone Knows: Cable Has a Rocky Future*, N.Y. TIMES, Feb. 27, 1994, § 3, at 1; Geraldine Fabricant, *Cable Stocks Fall on Merger's Demise*, N.Y. TIMES, Feb. 25, 1994, at D5. Several cable-telephone deals are still on-going. For example, GTE and Apollo Cablevision, Cox Enterprises and Southwestern Bell, and Viacom and AT&T. See Edmund L. Andrews, *With Merger's Failure, an Industry Seeks a Leader*, N.Y. TIMES, Feb. 26, 1994, at 25, 41.

²¹ Edmund L. Andrews, *With Merger's Failure, An Industry Seeks a Leader*, N.Y. TIMES, Feb. 26, 1994, at 25.

²² Lohr, *supra* note 4, at D4.

²³ This raises troubling questions of its own. One need only recall TCI's ability to force NBC to cancel the launch of its own 24-hour cable news-only network (which would have

the current recovery, fueled by smaller entrepreneurial companies rather than growth in larger, existing corporations,²⁴ may well produce the cutting-edge products and services that the established communications companies are looking for. After all; it has traditionally been the smaller, faster moving entrepreneurial entity that leads development.²⁵

In the 1980s, however, innovation in the area of advanced telecommunications seemed to grind to a halt.²⁶ The pioneer's preference licensing scheme was implemented as a means to reinvigorate development in "innovative" telecommunications technologies.²⁷ The scheme has been heralded by those who have been awarded a dispositive preference²⁸—which amounts to a guarantee of a license to provide the service proposed²⁹—and criticized by others for demanding hair-splitting decisions by the Commission as to levels of "innovativeness"³⁰—decisions critics claim the Commission is ill-suited to make.³¹ Indeed Henry Geller, whose repeated petitioning of the FCC led to the codification of the preference,³² has questioned whether "[spectrum] auctions make pioneer preferences unnecessary" because the free market allows applicants to "demonstrate their convictions [that their idea is best] with their checkbooks."³³

This reversal by the "father" of the preference—a central figure at the communications bar—is paradigmatic of the re-thinking of U.S. communications policy and regulation now underway.³⁴ Whether the pioneer's preference is left as is, amended or repealed, is a question only the Commission can answer though it

directly competed with Turner's CNN) by refusing, *a priori*, to carry the NBC offering on any of TCI's systems which reach over nine million homes. *Top 100 MSOs, CABLEVISION*, June 7, 1993, at 126. Will TCI employ the same tactics as to third party programmers over TCI wire on the information superhighway? This raises several First Amendment and fair trade issues, all of which are beyond the scope of this Note.

²⁴ See Joe Vidueira, *Thumbs Down: Latino Entrepreneurs' Reaction to Bill Clinton's Tax Plan*, *HISPANIC*, Nov. 1993, at 44.

²⁵ Henry Geller, Donna Lampert and Catherine Boggs, *Petition for Issuance of Notice of Inquiry and Proposed Rule Making*, Dec. 11, 1986, at 4-5 (on file with author).

²⁶ See *infra* § IV.A.

²⁷ *Id.*

²⁸ See *infra* § V.

²⁹ See *infra* § IV.B.

³⁰ Passell, *supra* note 7, at D7.

³¹ *Id.* (quoting telecommunications consultant Chuck Jackson that "[y]ou can make a good case that nobody deserved a pioneer's preference" due to strains on the FCC's administrative ability arising from determining which applicant's proposal was truly "innovative").

³² See *infra* note 197 and accompanying text.

³³ Passell, *supra* note 9, at D7.

³⁴ See, e.g. *Medical Minitels*, *COMM. DAILY*, Jan. 15, 1992, at 4 (discussing report entitled, "21st Century Looming and Health Care in the Home: Creating a National Telecommunications Network").

does seem that some amendment is likely.³⁵ What follows is an analysis of the pioneer's preference from its codification up to the time of the first two awards of a dispositive preference in 1992. Since then, three more pioneer's preferences were awarded in December 1993.³⁶ Moreover, as mentioned above, is the provision for spectrum auctions. I have updated the section of the Note which discusses auctions because their use in apportioning the spectrum reflects a fundamental shift in how we manage the public airwaves, and because "buying" a license may well have implications down the road as to property rights, not in the spectrum, but in the license itself. The remainder of the Note is substantially as it was when submitted to the HIGH TECHNOLOGY LAW JOURNAL student competition at Boalt Hall in 1993.

I. INTRODUCTION

*Just as the 1980s were the decade of cellular, fiber optics, and digital switching, the 1990s promise to be the decade of emerging radio-based technologies.*³⁷

In the ten years since AT&T signed the Modified Final Judgment and brought an end to the era of monopolistic telephony, the field of telecommunications has blossomed. What were the toys of the rich only a few years ago—cellular phones, faxes, and modems—are becoming commonplace. As the quote above suggests, this trend will continue. Just as the cordless phone replaced the once-ubiquitous "Princess" model, so too will these emerging technologies replace what is typical today. Indeed, our entire concept of telephones and telephone services is about to undergo a revolutionary change.³⁸

The wireless arena of communications technology is exper-

³⁵ See In the Matter of Review of the Pioneer's Preference Rules, Notice of Proposed Rule Making, ET Docket No. 93-266, 8 FCC Rcd 7692 ¶¶ 13-17 (Oct. 21, 1993).

³⁶ *Pioneers Get 30 MHz*, COMM. DAILY, Dec. 27, 1993, at 1.

³⁷ Statement of Alfred C. Sikes, Chairman, Federal Communications Commission, Before the Subcommittee on Communications, Committee on Commerce, Science, and Transportation, United States Senate, on Allocating Radio Spectrum for New Services, Based on Emerging Telecommunications Technologies, 1992 FCC LEXIS 2964, at *13.

³⁸ Thomas A. Monheim, *Personal Communications Services: The Wireless Future of Telecommunications*, 44 FED. COMM. L.J. 335, 335-342. See also In the Matter of Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, 5 FCC Rcd. 3995, ¶¶ 2, 3 n.1 (1990) [hereinafter PCS Docket]; Apple Computer, Inc., *Petition for Rulemaking "Data PCS"*, Jan. 28, 1991 (on file with author) (describing the uses and technical requirements of a high-speed local area data network for personal computers); James C. Rosenberg, *Personal Communications: An Opportunity for the Cable Industry?*, 1-6 (unpublished manuscript, on file with the author) (describing the breadth of services and networks being planned in the emerging PCS industry).

encing the greatest innovation.³⁹ Taking notice of this,⁴⁰ the Federal Communications Commission ("FCC" or "Commission") is determined not to recreate⁴¹ the fifteen-year "legal and regulatory limbo"⁴² to which cellular technology was consigned as a consequence of the regulatory process.⁴³ With this goal in mind, and facing pressure from users⁴⁴ and would-be users⁴⁵ of the electromagnetic spectrum, the FCC has established a "pioneer's preference."

A pioneer's preference is designed to remove several of the hurdles that have delayed or prevented applicants from proposing new or significantly enhanced uses of the radio spectrum.⁴⁶ One emerging technology to which the preference seems well-suited is personal communications services ("PCS")—those devices and services which provide portable voice and data communications on a much wider scale, and at lower cost, than conventional cellular phones.⁴⁷ Within four months of one of its latest amendments of the preference regulations,⁴⁸ the FCC received 73 pioneer's preference applications from would-be licensees.⁴⁹ Of the 73, 38 were placed on public notice, and the remainder were summarily rejected without opinion.⁵⁰

³⁹ PCS Docket, *supra* note 38, ¶ 7; Monheim, *supra* note 38, at 337 (discussing PCS specifically as "one of the most creative and robust areas of communications" (quoting FCC Chairman Sikes, COMM. DAILY, Feb. 13, 1992, at 6)).

⁴⁰ PCS Docket, *supra* note 38, ¶ 7.

⁴¹ In the Matter of Amendment of Commission's Rules to Establish New Personal Communications Services, Notice for a Proposed Rule Making and Tentative Decision, ET Docket 92-100, ¶ 7 (Aug. 14, 1992) [hereinafter 1992 Decision]. See also Beresford, *infra* note 42, at 723-28 (describing the history of cellular service licensing).

⁴² John W. Beresford, *The Impact of Law and Regulation on Technology: The Case History of Cellular Radio*, 44 BUS. LAW. 721, 721 (May 1989).

⁴³ See *Id.* at 723-28.

⁴⁴ In the Matter of Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services, GEN Docket No. 90-217, Report and Order, 6 FCC Rcd. 3488, ¶¶ 14, 15 (May 13, 1991) [hereinafter 1991 Report and Order].

⁴⁵ Henry Geller and Donna Lampert, In the Matter of Spectrum Allocation Decisions and New Technologies, Application for Review (Aug. 18, 1989) (on file with author) [hereinafter Application for Review].

⁴⁶ See 1991 Report and Order, *supra* note 44, ¶¶ 6-22. See also In the Matter of Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services, GEN Docket No. 90-217, Memorandum Opinion and Order, 7 FCC Rcd. 1808, ¶¶ 2, 3 (1992) [hereinafter 1992 Opinion and Order] (discussing the background of the pioneer's preference).

⁴⁷ *Credit Card Validation Opened; FCC Sets Rules for Pioneer Preference*, COMM. DAILY, Apr. 10, 1991, at 4 (citing FCC Chief Engineer Thomas Stanley). For a discussion of PCS, see *infra* Section II.

⁴⁸ 1992 Opinion and Order, *supra* note 46.

⁴⁹ *Rejected Pioneer's Preference Applicants Seek FCC Review*, TELECOMM. REPORTS WIRELESS NEWS, July 2, 1992, at 1. By late October of 1992, the number of applicants had increased to ninety-seven of which few were chosen. *Lawsuits Seen Over FCC Preferences for APC, Omnipoint*, COX, FCC REPORT, Oct. 21, 1992, at 2.

⁵⁰ *Id.*

One of the rejected proposals was from TRW, Inc. Unhappy with this result, TRW requested and obtained agency review of the dismissal.⁵¹ The Commission, however, declined to reverse itself, and TRW sought a writ of prohibition from the U.S. Court of Appeals for the D.C. Circuit.⁵² The Court of Appeals dismissed TRW's petition without opinion.⁵³ TRW argued that their application was improperly dismissed without the full, comparative hearing mandated by section 309 of the Communications Act of 1934⁵⁴ as well as by the Supreme Court's ruling in *Ashbacker v. F.C.C.*⁵⁵ After review of this claim, the Commission determined that the pioneer's preference rules "are consistent with the Supreme Court's *Ashbacker* decision."⁵⁶

This Note will focus on the concept of a pioneer's preference, particularly as it interacts with PCS and the advancement of the broad technologies that come under the PCS umbrella. Section II will discuss the concept of PCS and describe its potential in the world of advanced telecommunications. Section III will briefly discuss the history of American broadcast regulation and the different methods available for assignment of broadcast frequencies. Section IV will examine the genesis and structure of the pioneer's preference; this section will also evaluate the effectiveness of the preference, particularly its effectiveness concerning small innovators. The Note concludes with recommendations to make the preference scheme more effective.

II. PERSONAL COMMUNICATIONS SERVICES

Personal Communications Services, or PCS,⁵⁷ is an umbrella

⁵¹ *Id.*

⁵² *Jumping Gun? FCC to TRW: Wait Until Wed.*, COMM. DAILY, Aug. 4, 1992, at 3.

⁵³ TRW's emergency petition for a writ of prohibition was denied because TRW had not exhausted other available means of obtaining relief as mandated by *Allied Chemical Corp. v. Daiflow*, 449 U.S. 33 (1980) (a copy of the *per curiam* order of dismissal is on file with the author).

⁵⁴ Act of June 19, 1934, c. 652, Title III, § 309, 48 Stat. 1085 (codified as amended at 47 U.S.C. § 309 (1989)).

⁵⁵ 326 U.S. 327 (1945). For a discussion of *Ashbacker* and the Supreme Court's holding (the "Ashbacker doctrine"), see *infra* III. B. 1. c.

⁵⁶ FED. COMMUNICATIONS COMM., PIONEER PREFERENCE RULES FOUND CONSISTENT WITH ASHBACKER DECISION, REP. NO. DC-2344, Feb. 26, 1993, 1993 FCC LEXIS 925, at *1. The FCC relied on the line of cases following *U.S. v. Storer Broadcasting Co.*, 351 U.S. 192 (1956).

⁵⁷ Some commentators have referred to the broad rubric over which I place PCS as "personal communications networks," or PCN. *Credit Card Validation Opened; FCC Sets Rules for Pioneer Preference*, COMM. DAILY, Apr. 10, 1991, at 4; Geoffrey S. Roman, V.P. Strategic Marketing, Jerrold Communications, Personal Communications Networks: A New Opportunity for Cable TV (unpublished manuscript, on file with author). Others have referred to PCN as a subset of PCS. Monheim, *supra* note 38, at 339-40.

term for advanced wireless⁵⁸ communication technologies. Some of these services are outgrowths of familiar technologies and services, while others have yet to be invented. Due to the open-ended nature of PCS, it is impossible to give a comprehensive list of the entrants in the field; rather, the aim of this section is to give the reader an understanding of what types of technologies and services may be considered personal communication services. This section will also illustrate the importance of this emerging segment of the communications marketplace in terms of the demand for PCS.

A. PCS Defined

The unifying concept which binds disparate offerings in telecommunications as "PCS" is freedom from the traditional wired public switched telephone network ("PSTN").⁵⁹ For example, with voice communication,⁶⁰ such freedom means the association of a phone number with a person, not a location:⁶¹ a phone number one could keep for life⁶² and that would "find" the owner anywhere in the world⁶³ (provided the owner wanted to be found⁶⁴).

Given this definition, cellular telephones represent a present-day, though geographically limited,⁶⁵ type of PCS; other current

⁵⁸ As used in this context, the term "wireless" does not mean a network consisting solely of radio transmitters and receivers. While base stations and handsets will no doubt be completely wireless, operators will probably utilize some form of cabling, probably fiberoptic, between microcells, and between microcells and the public telephone network. Monheim, *supra* note 38, at 339 & n. 23. *But see* COMMUNICATIONS: A GLOSSARY OF TELECOMMUNICATIONS TERMS, F.C.C. Oct. 1992, at 13 (defining PCS as encompassing "radio communications services that free individuals from the constraints of the wireline . . . telephone network").

⁵⁹ PCS Docket, *supra* note 38, ¶ 2. The F.C.C. defines PCS as "a broad range of radio communications services that free individuals from the constraints of the wireline public switched telephone network and enable them to communicate when they are away from their home or office telephone." FEDERAL COMMUNICATIONS COMMISSION, COMMUNICATIONS: A GLOSSARY OF TELECOMMUNICATIONS TERMS, Oct. 1992, at 13.

⁶⁰ Other PCS traffic will be data and eventually, full-motion video. Monheim, *supra* note 38, at 337-42; PCS Docket, *supra* note 38, ¶ 3; Roman, *supra* note 57, at 1; E.Y. Snowden, Area V.P., New Access Technologies, Pacific Bell, The Telco's Role in the Future Hybrid Network (Dec. 30, 1991) (unpublished manuscript, on file with author).

⁶¹ PCS Docket, *supra* note 38, ¶ 3; Michael Alexander, *A Future That's Foolloose and Wire-Free*, COMPUTERWORLD, Nov. 11, 1991, at 87.

⁶² Alexander, *supra* note 61; Anthony Ramirez, *Bell Atlantic Plans Service That Links Phone Numbers*, N. Y. TIMES, Mar. 7, 1992, at D1.

⁶³ Anthony Ramirez, *Lifetime Telephone Numbers That Ring Anywhere You Go*, N. Y. TIMES, Apr. 29, 1992, at 1.

⁶⁴ Andrew D. Roscoe and June K. Lee, *Positioning PCN, CELLULAR BUS.*, Feb. 1991, at 42. (Roscoe and Lee describe how a PCS customer would inform the network of their desire to be "on-line" by inserting a "smart card" in their handset; by not inserting the card, the subscriber would be unreachable.) An extension of this concept would be a smartcard with several numbers, business and personal, which could be activated or deactivated by the subscriber via the handset. This would allow the subscriber to be accessible to personal calls and not business calls while on vacation, for example.

⁶⁵ Some areas of the U.S. do not yet have a cellular service provider.

examples include paging services, especially satellite-based offerings.⁶⁶ One currently employed PCS technology, CT-2,⁶⁷ is a hybrid of cellular telephony and paging technologies.⁶⁸

But these examples seem commonplace compared with the host of new technologies and services the future may hold if PCS develops as expected. Among the varied possibilities are wireless PBX for large businesses,⁶⁹ whether in a single building,⁷⁰ or in a campus or similarly spread-out environment;⁷¹ handset-accessible databases⁷² that could be used by a salesperson to check the credit of a customer and to place an order from the road; substitution of (at least some) public pay phones with subscribers' CT-2 "originate-only" handsets;⁷³ home appliances connected to the PCS network that can be programmed or controlled in real-time via a handset;⁷⁴ a means of ordering "on-demand" cable television programming, stock market information, and home security device control;⁷⁵ and an "Intelligent Vehicle Highway System" that would automatically provide a driver with up-to-date traffic and routing information during a car trip.⁷⁶

As the foregoing illustrates, PCS has the potential to radically alter the way we communicate and the types of information we send and receive. Two questions remain: is there a demand for these types of services, and how economical will the services be?

B. Demand for PCS and the Role of Competition

American society has become increasingly mobile,⁷⁷ as is clear

⁶⁶ Cf. *Dual-Mode Cellular-Satellite Services Guide Pathways to Profits*, MOBILE PHONE NEWS, Feb. 1, 1993 (Special Mobile Phone News' Subscriber Supp.) ("Terrestrial radio systems — paging . . . [is] well suited to mobile satellite communications." *id.* at 3, quoting Roger Cochetti, Vice President of Business Dev., Comsat Mobile Comm.).

⁶⁷ Cordless Telephone 2 ("CT-2")—the second cordless telephone standard—was developed in England. CT-2 handsets, which are capable of originating calls, may be used as paging devices, but cannot receive voice calls. See PCS Docket, *supra* note 38, ¶ 4 & n.2; Monheim, *supra* note 38, at 338-39.

⁶⁸ Monheim, *supra* note 38, at 338-39; William J. Franklin, *Personal Communications Services: The Next Cellular?*, CELLULAR BUS., Feb. 1991, at 6.

⁶⁹ Roman, *supra* note 57, at 1.

⁷⁰ Monheim, *supra* note 38, at 339.

⁷¹ *Id.*; Roman, *supra* note 57, at 1.

⁷² Snowden, *supra* note 60, at 4.

⁷³ Rosenberg, *supra* note 38, at 3. This service, called Telepoint, is already available in certain parts of England. The handsets cannot receive incoming calls, they may only place outgoing calls. See *supra* note 67 and accompanying text.

⁷⁴ Jerrold Communications, *PCN Interface*, at 17 (unpublished manuscript, on file with author).

⁷⁵ Nexus Engineering Corp., *Nexus PCS-Microcell Technology Hardware for FCC Field Trial Applications*, Catalogue for PCS-Microcell Hardware and Services, Jan. 2, 1992, at 1-2 (on file with author).

⁷⁶ Monheim, *supra* note 38, at 336.

⁷⁷ 1992 Decision, *supra* note 41, ¶ 25.

from the fact that cellular telephones have become so popular in so short a time.⁷⁸ From 1974, when "cellular"⁷⁹ service was first authorized,⁸⁰ until 1989, two million users subscribed.⁸¹ During the development of the first "modern" cellular system,⁸² from 1984 to 1989, another two million subscribers signed up for cellular service—a rate of nearly 1,000 per day.⁸³ As of the end of 1991, the number of cellular subscribers had burgeoned to nearly six million⁸⁴—four million additional subscribers in only three years—or roughly 3,700 per day in that period. As of January 1993, there are eleven million cellular subscribers—five million added, or nearly 17,000 new subscribers a day, in just over one year.⁸⁵

As the Commission has noted, however, cellular "will be able to provide some of the new communications requirements . . . [but] cannot meet the full range of demand for PCS within a competitive framework."⁸⁶ In other words, as the demand for mobile telecommunication services grows, at an increasing rate over time, the cellular industry will be unable to meet the challenge.⁸⁷ While this inability is mostly due to limited spectrum availability,⁸⁸ it is also due to the staggering demand anticipated for personal communications services.

The projected subscriber and penetration⁸⁹ numbers vary according to which survey is examined. All the available statistics, however, point to one conclusion—Americans want PCS. Accord-

⁷⁸ "Cellular" mobile radio service was first allocated 40 MHz of spectrum by the FCC in 1974, 46 F.C.C.2d 752 (1974).

⁷⁹ A "cell" is a small geographic area, generally a few miles in diameter, served by a single low-height, low-power antenna tower. A group of these towers comprise a cellular system. Because each system can divide its total FCC-allocated bandwidth between its towers, with one tower "handing off" a call to another tower, "a finite number of frequencies can accommodate a large, and theoretically infinite, number of customers." Berresford, *supra* note 5, at 725.

⁸⁰ See *supra* note 78.

⁸¹ Berresford, *supra* note 42, at 721.

⁸² In re Application of New York SMSA Limited Partnership, 58 Rad.Reg.2d (P & F) 525 (1985).

⁸³ *Id.*

⁸⁴ House Panel Approves Bill to Shift Airwave Frequency to Private Sector, WASH. INSIDER (BNA), Feb. 5, 1993, at 1.

⁸⁵ Anthony Ramirez, *Cellular Telephone Industry Counts 11 Million Customers*, N.Y. TIMES, Mar. 3, 1993, National ed., at C3.

⁸⁶ 1992 Decision, *supra* note 41, ¶ 25.

⁸⁷ *Id.*

⁸⁸ See Edmund L. Andrews, *Auctions Urged for Airwaves*, N.Y. TIMES, Mar. 18, 1993, at D1. In an effort to increase the amount of available spectrum for innovative services, the Clinton Administration has proposed removing the military's and other Federal agencies' control over a large amount of the useable spectrum. Edmund L. Andrews, *U.S. Seeks to Expand Airwaves*, N.Y. TIMES, Feb. 10, 1994, at D1.

⁸⁹ Penetration is defined as the percentage of households which subscribe from the total universe of households capable of subscribing.

ing to one study by market research firm Arthur D. Little, Inc., 14 million subscribers are expected within the first three to five years the services are offered.⁹⁰ This breaks down to nearly 8,000 new subscribers per day based on a five year projection. Based on a three year curve, new subscribers sign up at almost 13,000 per day. In either case, by the year 2005, Arthur Little estimates that PCS will be at the 65% penetration level.⁹¹ Compared to the cellular and cable television penetration figures,⁹² this growth is "nothing short of phenomenal."⁹³ Indeed, the FCC, pointing to another survey,⁹⁴ has pegged user demand at nearly 60 million subscribers in the U.S. alone within ten years of availability.⁹⁵

Of course a survey can shed light on what consumers may want, but consumer choices are often motivated by another overriding factor—price. As has been proven with the introduction of disparate items such as personal computers and compact disks, Americans are willing to embrace innovative technologies as soon as the price is within their means. This too, however, seems to work in PCS' favor. As was the case with cellular,⁹⁶ the FCC is committed to fostering competition in the PCS marketplace.⁹⁷ The results of that regulatory practice are evident from the increase in subscriber numbers outlined above. In addition, commentators have also noted a decrease in costs associated with cellular service⁹⁸ that is directly proportional to the competitiveness inherent in the dual service provider scheme.⁹⁹ Moreover, PCS prices are predicted, for a variety of reasons,¹⁰⁰ to be even lower than cellular,¹⁰¹

⁹⁰ Anita Taff, *FCC at Juncture in History of PCN Nets*, NETWORK WORLD, Dec. 16, 1991, at 11.

⁹¹ *PCS May be a Competitive Collision Between Many Services*, PCS NEWS, Apr. 16, 1992, at 3.

⁹² Presently, the FCC pegs cable penetration at 55.17%. *FCC Data Analyzed*, COMM. DAILY, Feb. 26, 1993, at 1. In contrast, cellular claims only a 5% penetration rate. *FCC Takes Up PCS Next Week*, COMM. DAILY, Jan. 27, 1994, at 4.

⁹³ *PCS May be a Competitive Collision Between Many Services*, *supra* note 91.

⁹⁴ See *Market Researchers See Large Demand for PCS in U.S.*, MICROCELL NEWS, Mar. 25, 1992, at 8.

⁹⁵ 1992 Decision, *supra* note 41, ¶ 26.

⁹⁶ See 86 F.C.C.2d 469, 474 (1981); Berresford, *supra* note 42, at 727 (noting that "[a] highly competitive business in cellular telephones developed, with retail prices falling . . . in two years" as a result of FCC policy to consciously increase competition within service areas).

⁹⁷ 1992 Decision, *supra* note 41, ¶ 6 (enumerating "competitive delivery" as one of the four values to "optimize and balance" in the regulation of PCS).

⁹⁸ Berresford, *supra* note 42, at 727; *Cellular Phone Moves Closer to Consumer Product*, COMM. DAILY, Dec. 2, 1988, at 7.

⁹⁹ The FCC licenses two cellular providers in each market to ensure competition. *Cellular Comm. Systems*, 86 F.C.C.2d 469, 474-82, modified 89 F.C.C.2d at 60-61.

¹⁰⁰ Several of these reasons are technical, dealing with problems of spectrum allocation, sharing and incumbent relocation. See generally Michael C. Rau, *Allocating Spectrum by Market Forces: The FCC Ultra Vires?*, 37 CATH. U. L. REV. 149 (1987) (discussing the issues surrounding spectrum allocation). Another reason is the possibility of long-distance carriers

which, the large decrease in price notwithstanding, is still too expensive for residential use.¹⁰²

These facts clearly indicate that PCS will be a large part of the emerging telecommunications marketplace. As the subscriber figures for cellular service illustrate, Americans have a strong appetite for mobile communications. Once the price is even further reduced with the introduction of a competitive PCS industry, the public will be able to satisfy this desire to a greater degree.

III. THE REGULATORY STRUCTURE BEFORE THE PIONEER'S PREFERENCE

A. *The History of Radio Regulation in the United States*

While still in its infancy, the radio industry rapidly expanded in the early years of this century. By 1922, the large number of broadcasters had caused a massive signal interference problem.¹⁰³ This was the by-product of regulations that enabled broadcasters to effectively choose any wavelength to air their programs regardless of the interference it might cause. The result was chaos. Some stations came through clearly, others became garbled by signal interference from rival stations, and some simply canceled others out. Recognizing the radio spectrum as public property that required more exacting management, Congress, through the Radio Act of 1927,¹⁰⁴ established the Federal Radio Commission ("FRC"). The FRC's task was to regulate broadcasters in a manner that would do away with the interference. However, the FRC proved ineffective and was eventually replaced by the Commission.¹⁰⁵

The FCC was created by the Communications Act of 1934.¹⁰⁶ Section 151 states the mission of the FCC as "regulat[ion of] interstate and foreign commerce in communication by wire and radio so as to make [available] . . . a rapid, efficient, Nation-wide . . .

entering the PCS business. Anthony Ramirez, *Planning & Future of Telephones Without Tethers*, N.Y. TIMES, Dec. 30, 1992, at D5. This would allow subscribers to by-pass the local loop provider and therefore the access charges such providers levy for connection to a long-distance carrier. *Id.*

¹⁰¹ Edmund L. Andrews, *AT&T Deal Signals a Shift*, N.Y. TIMES, Nov. 9, 1992, at A1, D3, Col. 1.

¹⁰² *Id.*

¹⁰³ 1 ERIK BARNOUW, *A TOWER IN BABEL: A HISTORY OF BROADCASTING IN THE UNITED STATES* 91-94 (1966).

¹⁰⁴ Ch. 169, § 6, 44 Stat. 1162, repeated by Communications Act of 1934, ch. 652, § 602(a), 48 Stat. 1064, 1102 (codified as amended at 47 U.S.C. §§ 151, *et seq.*).

¹⁰⁵ 1 ERIK BARNOUW, *A TOWER IN BABEL: A HISTORY OF BROADCASTING IN THE UNITED STATES* 211-19 (1966).

¹⁰⁶ Act of June 19, 1934, c. 652, 48 Stat. 1064 (codified as amended at 47 U.S.C. §§ 151, *et seq.* (1988)).

communication service"¹⁰⁷ While the types of services that PCS encompasses did not exist in 1924, the broad language of section 151 has been construed to give the Commission "elastic powers"¹⁰⁸ to adequately manage "dynamic new developments in the field of communications."¹⁰⁹

B. *The Selection of Licensees Not Granted a Pioneer's Preference*

The FCC, in pursuit of its section 151 goals, manages the radio spectrum by issuing renewable licenses for the use of particular channels.¹¹⁰ The criteria for determining which applicants will get a license is set out in section 309 of the Act. This section states that a license will issue if the Commission determines that the "public interest, convenience, and necessity would be served" thereby. Demand for spectrum greatly exceeds available bandwidth, however, forcing the Commission to weigh competing applications to provide service in a particular broadcast area. The Commission is the expert body that determines what types and examples of communication technologies meet this criteria.¹¹¹ Thus, the FCC's decisions in this regard are entitled to "substantial judicial deference."¹¹²

When an application is received for provision of an existing¹¹³ service in a particular bandwidth, the Commission must determine if the proposed service will interfere with an existing licensee.¹¹⁴ If the Commission finds that the proposed service will not interfere with that of an existing licensee, and all the other requirements¹¹⁵ are met to the Commission's satisfaction,¹¹⁶ it will issue the li-

¹⁰⁷ 47 U.S.C. § 151.

¹⁰⁸ *General Telephone Co. of S.W. v. U.S.*, 449 F.2d 846, 853 (1971).

¹⁰⁹ *Id.*

¹¹⁰ 47 U.S.C. § 301.

¹¹¹ *F.C.C. v. National Citizens Comm. for Broadcasting*, 436 U.S. 775, 814 (1977) (holding that a "complete factual support in the record for the Commission's judgment or prediction is not possible or required; 'a forecast of the direction in which future public interest lies necessarily involves deductions based on the expert knowledge of the agency'." *Id.* citing *F.P.C. v. Transcontinental Gas Pipe Line Corp.*, 365 U.S. 1, 29 (1961)).

¹¹² *F.C.C. v. WNCN Listeners Guild*, 450 U.S. 582, 596 (1980).

¹¹³ As used here, "existing" means a type of service for which the FCC traditionally licenses spectrum users. The purpose of a pioneer's preference is to manage situations where prospective licensees request licensure of novel or technically enhanced service. See *infra* notes 195-216 and accompanying text.

¹¹⁴ GARY J. EDLES & JEROME NELSON, *FEDERAL REGULATORY PROCESS: AGENCY PRACTICES AND PROCEDURES* 688 (2d ed. 1992). Note that applicants must also prove they are "legally, technically, financially and otherwise qualified." *Id.* Compare this with the pioneer's preference policy in this regard, *infra* notes 203-205 and accompanying text.

¹¹⁵ See *supra* note 114 and accompanying text. See also Edles, *supra* note 114, at 687-88.

¹¹⁶ "In some circumstances, the staff may grant an application without hearing pursuant to delegated authority." Edles, *supra* note 114 at 688.

cense.¹¹⁷ The process is very different if the application is for a mutually exclusive license.¹¹⁸ In this case, the Commission has three paths it may follow—award pursuant to a hearing,¹¹⁹ a lottery,¹²⁰ or an auction.¹²¹

1. Comparative Hearings: *Ashbacker* & its Limitations

Section 309 of the Communications Act of 1934¹²² directs the FCC to hold a hearing with all applicants for a license if “a substantial and material question of fact is presented or the Commission for any reason is unable to”¹²³ determine “whether the public interest, convenience, and necessity will be served by the granting”¹²⁴ of the application. Comparative hearings have been criticized due to the high associated costs both to applicants and the government.¹²⁵ In addition, hearings can be lengthy,¹²⁶ which causes “technological progress and the delivery of services to suffer.”¹²⁷ Hearings, however, are mandated by section 309(e) of the Communications Act¹²⁸ and by the Supreme Court’s decision in *Ashbacker Radio Corp. v. F.C.C.*¹²⁹ In recent years, however, *Ashbacker* has been limited in its scope.¹³⁰

As noted above, the *Ashbacker* doctrine applies only to mutually exclusive license applications. Applications are mutually exclusive if concurrent operation “would result in intolerable interference to both applicants.”¹³¹

Ashbacker dealt with two mutually exclusive applications for

¹¹⁷ Assuming no petition to deny has been filed, Edles, *supra* note 114, at 388. Remember, this process only applies to non-mutually exclusive applications, i.e. those which would not, at the time of licensure, preclude either an incumbent user nor another prospective licensee from using the same spectrum allocation.

¹¹⁸ Licenses are mutually exclusive if the granting of one precludes the granting of another due to the likelihood of interference during simultaneous broadcasts. *Ashbacker v. F.C.C.*, 326 U.S. 327, 328 (1945).

¹¹⁹ 47 U.S.C. § 309(i) (1988) (amended by Pub. L. No. 103-66, § 6002(b)(1), 107 Stat. 312, 392 (1993)).

¹²⁰ 47 U.S.C. § 309(e) (1988).

¹²¹ 47 U.S.C.A. § 309(j) (West Supp. 1993).

¹²² Act of June 19, 1934, c. 652, Title III, § 309, 48 Stat. 1085 (codified as amended at 47 U.S.C. § 309(e) (1988)).

¹²³ 47 U.S.C. § 309(e) (1988).

¹²⁴ 47 U.S.C. § 309(a) (1988).

¹²⁵ *The Emerging Telecommunications Policy Act of 1991: Hearings before the Subcom. on Communications of the Senate Comm. on Commerce, Science, and Transportation*, 102d Cong., 1st Sess. 8 (1991) [hereinafter *1991 Hearings*]; Monheim, *supra* note 38, at 353.

¹²⁶ Edmund L. Andrews, *Auctions Urged for Airwaves*, N.Y. TIMES, Mar. 18, 1993, at D1, D7.

¹²⁷ H.R. REP. No. 111, 103d Cong., 1st Sess. 249 (1993).

¹²⁸ 47 U.S.C. § 309(e) (1988).

¹²⁹ 326 U.S. 327 (1945).

¹³⁰ See, e.g., *Altamont Gas Transmission Co. v. F.E.R.C.*, 965 F.2d 1098 (D.C. Cir. 1992) and *infra* notes 131-135 and accompanying text.

¹³¹ *Ashbacker*, 326 U.S. at 328.

provision of radio service in Michigan. While both applications were pending, the FCC granted one without a hearing and designated the other (Ashbacker's) for a hearing as required by section 309(a) of the Communications Act.¹³² Ashbacker eventually appealed the case to the Supreme Court, which held "where two *bona fide* applications are mutually exclusive the grant of one without a hearing to both deprives the loser of the opportunity Congress chose to give him [sic]."¹³³ Therefore, the Commission must conduct a comparative hearing to determine which applicant should receive the license. This is the *Ashbacker* doctrine.

The Court reasoned that although the language of the statute did not mandate joint hearings, to hold a hearing after an award to the other applicant would effectively foreclose Ashbacker's ability to obtain the license sought.¹³⁴ This was due to the fact that, in its notice of hearing,¹³⁵ the FCC required petitioner to prove that it could resolve any interference between the two stations during simultaneous operation.¹³⁶ However, classification of the licenses as mutually exclusive, by definition, makes such a showing a logical impossibility. Because the applicant could not make the required showing, the hearing would never reach the issue of which applicant would better serve the public interest. Consequently, Ashbacker and applicants similarly situated are in the position of an applicant seeking to depose an incumbent licensee—"in effect . . . mak[ing] its hearing a rehearing on the grant of the competitor's license."¹³⁷ This was held to be contrary to the Commission's own policy of hearing related matters together¹³⁸ and was therefore deemed invalid.

In practice, the *Ashbacker* doctrine is still followed, and agency decisions to not hold comparative hearings have been subject to heightened scrutiny.¹³⁹ This level of judicial examination is justified because of the serious consequences such a decision could have on the public—"loss of the service of a possibly better

¹³² Section 309(a) requires the FCC to "afford such applicant an opportunity to be heard" if the Commission cannot determine, from the application itself, whether the service sought to be provided would serve the "public interest, convenience, or necessity." 47 U.S.C. § 309(a) (1940).

¹³³ *Ashbacker*, 326 U.S. at 333.

¹³⁴ "While the statutory right of petitioner to a hearing on its application has in form been preserved, it has as a practical matter been substantially nullified by the grant of the [other] application." *Id.* at 334.

¹³⁵ *Ashbacker*, 326 U.S. at 330-31.

¹³⁶ *Id.* at 330.

¹³⁷ *Id.* at 331.

¹³⁸ *Id.* at 331 & n. 5 citing 47 C.F.R. §§ 1.193-1.194 (1944).

¹³⁹ *New South Media Corp. v. FCC*, 685 F.2d 708, 715 (D.C. Cir. 1982).

licensee."¹⁴⁰

This does not mean, however, that agencies' decisions not to hold "*Ashbacker* hearings" have always failed judicial review. Courts have found that the use of the phrase "*bona fide* applications"¹⁴¹ "implies an agency power to impose a variety of reasonable threshold requirements."¹⁴² In terms of the pioneer's preference, the FCC has held that its power to "establish threshold standards that applicants must satisfy before they are entitled to be eligible for comparative consideration"¹⁴³ allows the award of a preference even if the license which might eventually be issued would be mutually exclusive.¹⁴⁴ Though there were several voices raised in opposition to this determination,¹⁴⁵ the Commission has remained firm.¹⁴⁶ It is likely that challenges to this ruling will fail, because the Supreme Court has reasoned that to read *Ashbacker* any other way would deprive the agencies of the power to determine their own procedures.¹⁴⁷

2. Lotteries

The FCC's lottery system is much like that of any state-run game of chance with several notable differences. The cost of filing for a lottery¹⁴⁸ is typically in the hundreds of dollars.¹⁴⁹ Applicants must file on a specific day, and the application must typically include explicit engineering information and a guarantee that the Commission's financial requirements can be met.¹⁵⁰ This last prerequisite is usually met with the binding commitment of a financial institution that must also certify that the proposed service plan is economically sound.¹⁵¹

After a winner is drawn, challenges may be filed with the FCC.

¹⁴⁰ *Altamont Gas Transmission Co. v. F.E.R.C.*, 965 F.2d 1098, 1100 (D.C. Cir. 1992).

¹⁴¹ 327 U.S. at 333 ("We only hold that where two *bona fide* applications are mutually exclusive the grant of one without a hearing to both deprives the loser of the opportunity Congress chose to give him [sic].").

¹⁴² *Altamont Gas*, 965 F.2d at 1100.

¹⁴³ 1991 Report and Order, *supra* note 9, ¶ 33.

¹⁴⁴ *Id.*

¹⁴⁵ See, e.g., 1991 Report and Order, *supra* note 44, ¶ 26 (discussing the objection of McCaw Cellular Communications, Inc. on *Ashbacker* grounds).

¹⁴⁶ See 1992 Opinion and Order, *supra* note 46, ¶ 8 (dismissing the National Association of Broadcasters' Argument that the preference "should be comparative rather than a guarantee of a license." *Id.*).

¹⁴⁷ *Vermont Yankee Power Corp. v. Natural Resource Defense Council, Inc.*, 435 U.S. 519 (1978); *U.S. v. Storer Broadcasting Co.*, 351 U.S. 192 (1956) ("We do not read the hearing requirement . . . as withdrawing from the power of the Commission the rulemaking authority necessary for the orderly conduct of its business." *Id.* at 202).

¹⁴⁸ Filing for the drawing is analogous to purchasing a ticket in a game of chance.

¹⁴⁹ FEDERAL TRADE COMMISSION, CELLULAR TELEPHONE LOTTERY UPDATE 2 (1993).

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

Challenges, however, must be based solely on technical or legal aspects of the application.¹⁵² If a question of fact is raised, a hearing will be scheduled.¹⁵³ If the winning application is dismissed for defects, another drawing will be held from the remaining hopefuls.

For purposes of licensing advanced technologies, however, the lottery is a flawed device. A lottery presupposes that the entrants are similarly situated. Thus, for broadcasting, where the content (already determined to be in the public interest) may vary but the technology does not, a lottery will work well as a means of choosing between rival applicants. As in the case of PCS, however, new technologies do not lend themselves to selection in this manner.

By their nature, disparate technologies are not similarly situated; thus an arbitrary selection process will fail to focus on aspects of each that might make one a better choice than the other. In short, a lottery system will only work when the pool of applicants are equally qualified in all respects. Equality makes the resort to an arbitrary selection scheme fair. Such is not the case when it is the technology itself, not the content of the broadcast, which is at issue. Different technologies interact or fail to interact with each other due to their electronic/physical characteristics; they are not similarly situated.¹⁵⁴ Thus, an arbitrary selection scheme is not fair to the applicants nor to the public interest the FCC is charged to serve.

There is a second fundamental flaw in using lotteries to license emerging technologies. It was this problem that provided the reasoning for Congress to limit the Commission's ability to employ random selection in awarding licenses.¹⁵⁵ As in the state-run lotteries, the price of a "ticket" is much less than the value of the jackpot—a license. Typically a lottery ticket costs several hundred dollars.¹⁵⁶ As a result, "[l]otteries [have] engendered rampant speculation, undermined the integrity of the FCC's licensing process and, more importantly, frequently resulted in unqualified persons winning an FCC license."¹⁵⁷ While some may have entered the lot-

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ For example: Any cellular telephone can be used in any provider's system because there is a standard for cellular technology. Conversely, CD-ROM units, a type of storage device for personal computers, are designed to work only with particular types of computer interfaces because they are not designed to a specific standard.

¹⁵⁵ H.R. REP. NO. 111, 103d Cong., 1st. Sess. 248-49 (1993).

¹⁵⁶ FEDERAL TRADE COMMISSION, CELLULAR TELEPHONE LOTTERY UPDATE 2 (1993).

¹⁵⁷ H.R. REP. NO. 111, 103d Cong., 1st. Sess. 248 (1993). *But cf.* FEDERAL TRADE COMMISSION, CELLULAR TELEPHONE LOTTERY UPDATE 2 (1993) (describing the current requirement that the winner of a cellular telephone license operate the system for at least one year before selling it).

tery without fully comprehending the technical requirements, many were simply speculating on the value of a license to one seriously determined to be a service provider. In any event, parties unable or unwilling to actually operate under their license, for whatever reason, normally seek to sell them.¹⁵⁸ As would be expected, the sellers make huge windfall profits from this strategy.¹⁵⁹ Moreover, all these machinations take time.¹⁶⁰ In rapidly developing markets such as mobile communications, time is of the essence.¹⁶¹ PCS, in particular, is unusually time-sensitive due to the European and Asian efforts to get these products and services to market.¹⁶² Indeed, as discussed above, Great Britain has already licensed CT-2 in large urban areas and is aggressively supporting its PCS industry.¹⁶³ Thus the use of lotteries, especially where emerging technologies are concerned, has the unintended effect of contributing to a failure by the FCC to meet its public interest mandate by causing "technological progress and the delivery of services to suffer."¹⁶⁴

2. Auctions

Auctioning frequency allocations as a concept has found favor in the Reagan, Bush, and Clinton Administrations.¹⁶⁵ Indeed legislation permitting the FCC to auction spectrum allocation was introduced during the Bush Administration.¹⁶⁶ On the other side of the aisle, Representative Edward Markey,¹⁶⁷ a strong proponent of spectrum auctions, has called for Congress to rescind the FCC's authority to conduct lotteries and replace it with allocation by auc-

¹⁵⁸ As Monheim points out, in the lottery for cellular telephone service licenses, many "entrepreneurs and others" sold their rights to lottery losers who offered the most for the "winning ticket." See Monheim, *supra* note 38, at n. 128, citing Alexander, *supra* note 61, at 87.

¹⁵⁹ As Monheim points out, in the lottery for cellular telephone services licenses, many "entrepreneurs and others" sold their rights to lottery losers who offered the most for the "winning ticket." See Monheim, *supra* note 38, at n.128, citing Alexander, *supra* note 61, at 87.

¹⁶⁰ Eric Fishman, *Awarding Today's Innovators With Pioneers Preferences*, N.Y.L.J., Dec. 31, 1992, at 7.

¹⁶¹ For a discussion of the size of the mobile communications markets see *supra*, § 2B at 8.

¹⁶² *Motorola Silverlink Phones in Mass Production for Europe, Asia*, ADVANCED WIRELESS COMM., May 15, 1991, at 1.

¹⁶³ Regarding CT-2, see *supra*, note 67 at 7 and accompanying text. For a critical review of the English policy, see COMM. DAILY, Oct. 22, 1992, at 7.

¹⁶⁴ H.R. REP. NO. 111, 103d Cong., 1st. Sess. 249 (1993).

¹⁶⁵ H.R. REP. NO. 111, 103d Cong., 1st. Sess. 247 (1993).

¹⁶⁶ H.R. 1407, 102d Cong., 1st Sess. (1991).

¹⁶⁷ Mr. Markey is the Democratic Chairman of the Telecommunications and Finance Subcommittee of the Energy and Commerce Committee.

tion.¹⁶⁸ Senator Daniel K. Inouye¹⁶⁹ has also sponsored legislation to conduct an experimental auction for part of the spectrum.¹⁷⁰ This proposal, however, does not go as far as the Clinton Administration would like.¹⁷¹ The White House has suggested that almost all licenses for radio services be awarded by competitive bidding.¹⁷² Both the Congress and Administration believe auctions will promote better use of the spectrum, the rapid development and deployment of new technologies,¹⁷³ (both as a result of traditional market forces), and raise much needed revenue for the Treasury.¹⁷⁴ As a result of this consensus, section 6002 of the Omnibus Budget Reconciliation Act of 1993 authorizes the Commission for a five year period to use competitive bidding to award mutually-exclusive broadcast licenses.¹⁷⁵

This is not to say that utilization of competitive bidding is not without its opponents, particularly regarding PCS and other emerging technologies. As has been argued elsewhere (in relation to PCS), license auctions

are bad public policy for several reasons. First, auctions make no effort to select the best designers, builders, and operators of PCS systems; rather, the revenue-raising considerations eclipse the public interest. Second, auctions to award PCS licenses would, in effect, be a discriminatory tax on these services because the heavy auction cost was not borne by the competing services Third, auctions encourage excessively leveraged bids. Fourth, an auction system would tend to restrict PCS licenses to the nation's largest companies.¹⁷⁶

There is no doubt, given the anticipated demand for PCS¹⁷⁷ that many potential "players" will bid in such auctions. Therefore, the successful bid will likely be very high,¹⁷⁸ and this money will flow to the federal coffers. This result may seem attractive in the

¹⁶⁸ *FCC Lottery for Spectrum License Should Be Discontinued*, DAILY REPORT FOR EXECUTIVES (BNA), Apr. 1, 1993. A lottery "was a bad idea at its inception. It has proven to be a bad idea in practice. And it would be a bad idea if we didn't get rid of it now while we're at it."

Id.

¹⁶⁹ Mr. Inouye is the senior Senator from Hawaii.

¹⁷⁰ S. 335, 103d Cong., 1st Sess. § 8(a) (1993).

¹⁷¹ Edmund L. Andrews, *Auctions Urged for Airwaves*, N.Y. TIMES, Mar. 18, 1993, at D1.

¹⁷² *Id.*

¹⁷³ H.R. REP. 111, 103d Cong., 1st Sess. 249 (1993).

¹⁷⁴ *Id.* and Edmund L. Andrews, *Auction Urged for Airwaves*, N.Y. TIMES, Mar. 18, 1993, at D1.

¹⁷⁵ U.S.C.A. § 309(j) (West Supp. 1993).

¹⁷⁶ Monheim, *supra* note 38, at 354 (citations omitted).

¹⁷⁷ Section II.B, *supra*.

¹⁷⁸ The high potential cost of the winning bid may serve to deter the type of speculation which infects the lottery system. See *supra* section 3.A.1.

short-term, especially given the current administration's stated goal of reducing the budget deficit. To permit auctions on this basis alone, however, is to sacrifice the best technology and service (and therefore the Commission's section 309 obligations and the increased tax revenue better service would presumably generate in the long-term) to immediate fiscal concerns alone. The legislative history, however, reflects the Administration's and Congress' sensitivity to the special circumstances of emerging technologies and smaller companies and entrepreneurs.¹⁷⁹ This sensitivity has not been lost on the Commission either.

As the FCC has gone about the business of promulgating rules for allocation by bidding, it has been considering regulations that would, among other things, prohibit collusive conduct between apparent rivals;¹⁸⁰ award competitive preferences to "small businesses, rural telephone companies and businesses owned by minorities and women;"¹⁸¹ and generally to set up a framework that will treat similarly situated bidders alike.¹⁸² While certain observers are pessimistic about the effect such competition will have on innovation, especially among PCS pioneers,¹⁸³ the more likely result is that this injection of market sensibilities will lead to better services at lower prices for consumers—dovetailing perfectly with the Commission's section 309 responsibilities.¹⁸⁴

IV. THE PIONEER'S PREFERENCE

A. *Genesis of the Preference*

Congress amended the 1934 Communications Act by adding section 157 in 1983.¹⁸⁵ The House Report accompanying the bill specifically stated that "[d]evelopment of new electronic technologies and services [is] . . . a significant factor in creating new jobs and providing the U.S. leadership in the new world information era."¹⁸⁶ To this end, the legislature encouraged the FCC to award "experi-

¹⁷⁹ See H.R. REP. NO. 111, 103d Cong., 1st Sess. 254-59 (1993). ("The Committee is concerned that, unless the Commission is sensitive to the need to maintain opportunities for small businesses, competitive bidding could result in a significant increase in concentration in the telecommunications industries." *Id.* at 254.)

¹⁸⁰ Implementation of Section of 309(j) of the Communications Act—Competitive Bidding, 58 Fed. Reg. 53,490 (1993) (proposed Sept. 23, 1993).

¹⁸¹ *Id.*

¹⁸² FCC Takes Up PCS Next Week, COMM. DAILY, Jan. 27, 1994, at 4.

¹⁸³ See *supra* note 176 and accompanying text.

¹⁸⁴ 47 U.S.C. § 309(a) (1988).

¹⁸⁵ Federal Communications Commission Authorization Act of 1983, § 12, P.L. 98-214, 97 Stat. 1467 (codified at 47 U.S.C. § 157 (1988)).

¹⁸⁶ H.R. Rep. No. 356, 98th Cong., 1st Sess. 6 (1983).

mental and development licenses liberally and expeditiously.¹⁸⁷ Following this mandate, the Commission has promulgated rules in accordance with section 157.¹⁸⁸ Unfortunately, the results of this policy have been disappointing.¹⁸⁹

Throughout the 1980s, only six applications per year were received for experimental licenses.¹⁹⁰ After an investigation, the Washington Center for Public Policy Research ["Washington Center"]¹⁹¹ concluded that "the allocation and authorization process, as presently implemented, inhibits rather than enhances the likelihood of venture capital flowing to technological development involving use of the [electromagnetic] spectrum."¹⁹² This is particularly true of small entrepreneurs that "fill the niches and spur development by all, including giants like IBM."¹⁹³ The Washington Center found that, especially among smaller innovators, bringing a new service or technology through the existing process enabled larger, more financially able entities to "cream skim" the best ideas and begin developing them before the real innovator could raise the money to do so.¹⁹⁴ Even if the innovator was able to get an experimental license, it may still be thwarted by the uncertainty of getting a full-fledged license to provide the service.¹⁹⁵ In other words, the Commission's own policies were preventing it from protecting and promoting "the public interest in the larger and more efficient use of radio."¹⁹⁶

In its petition, the Washington Center urged the creation of a preference for innovators. It took a number of years to happen,¹⁹⁷ but in 1991 the FCC finally agreed that something had to be done.

¹⁸⁷ *Id.* The Experimental Radio Service was established as Part Five of the Commissions Rules (47 C.F.R. § 5 (1992)) in 1963 "to prescribe the manner in which parts of the radio frequency spectrum may be available for experimentation." 47 C.F.R. § 5.1(b) (1992).

¹⁸⁸ See, e.g., *In the Matter of Technical Flexibility in the Mobile Communications Services*, 101 FCC2d 331 (1985) (proposing a specific power control approach designed to be flexible enough to allow new mobile radio technologies without requiring a rule making for each new offering).

¹⁸⁹ See *supra* notes 141-146 and accompanying text.

¹⁹⁰ 1991 Hearings, *supra* note 125, at 6. The Experimental Radio Service, codified at 47 C.F.R. Part Five, comprises fifty-eight substantive sections detailing the application and authorization requirements and processes including technical standards. This formality may explain why so few requests for experimental licenses were received.

¹⁹¹ The Washington Center is a public interest group.

¹⁹² Application for Review, *supra* note 45, at 2.

¹⁹³ Henry Geller, Donna Lampert and Catherine Boggs, *Petition for Issuance of Notice of Inquiry and Proposed Rule Making*, Dec. 11, 1986, at 4-5 (on file with author) [hereinafter *Petition for Issuance*].

¹⁹⁴ 1991 Report and Order, *supra* note 44, ¶ 12.

¹⁹⁵ *Id.* ¶¶ 6-11. See Eric Fishman, *Awarding Today's Innovators With Pioneers Preferences*, N.Y.L.J., Dec. 31, 1992, at 7.

¹⁹⁶ 47 U.S.C. § 303(g) (1988).

¹⁹⁷ The first *Petition for Issuance of Notice and Inquiry of Proposed Rule Making* was submitted in 1987. This was denied by the FCC's chief engineer. Washington Center refiled the

In what some observers hope is the beginning of an improved spectrum management scheme,¹⁹⁸ the Commission created a pioneer's preference.

B. *The Structure of the Preference*

The Commission agreed with Washington Center that the spectrum licensing process made it more difficult for innovators to create and market advanced telecommunications services.¹⁹⁹ The FCC was particularly sensitive to the economic strain these processes placed on applicants relying on venture capital to even enter the system.²⁰⁰ As a result of the rulemaking process that spawned it, the Commission identified three goals for the new preference:

1. Increase the number of applications to allocate spectrum to new communications technologies.²⁰¹
2. Provide an incentive for innovators to propose new and improved uses of the radio spectrum.²⁰²
3. Assist innovators in attracting investment capital.²⁰³

The preference itself is the vehicle to achieve these aims.

Consistent with its plans to streamline the rulemaking process for new technologies, the Commission determined that accompanying a petition for rulemaking, an applicant must submit a pioneer's preference application.²⁰⁴ The application will contain

pertinent information concerning its plan for implementing the service, the frequencies it proposes to use, the area for which the preference is sought, and must address any existing conflicting licensing rules such as multiple ownership, showing how

petition in 1989 which was again denied. On application for review the Notice was finally issued.

¹⁹⁸ See, e.g. Andrews, *supra* note 171.

¹⁹⁹ *In the Matter of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services*, GEN Docket No. 90-217, 5 FCC Rcd. 2766, at 5.

²⁰⁰ *Id.* at 4-5 & n.5. See also PCS Companies: *An Endangered Species?*, ADVANCED WIRELESS COMMUNICATIONS, Jan. 6, 1993 ("The . . . pioneer's preference was seen as a way to reward companies large and small for their innovations."). *But cf.* VIDEO NOTES, Dec. 14, 1992, at 7 (reporting the Commission's decision to deny a pioneer's preference to Suite 12 Group even though Suite 12 "clearly meets the criteria for pioneer's preference" because the company already held a license to provide the services at issue (microwave video and data broadcasting) in New York City and should not be licensed in two major cities). *Id.* For a discussion of Suite 12 (later renamed Cellular Vision of New York, Inc.) see *infra* notes 235-251 and accompanying text.

²⁰¹ See *In the Matter of Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services*, Notice of Proposed Rule Making, GEN Docket No. 90-217, ¶ 4 (Apr. 12, 1990) [hereinafter NPRM].

²⁰² *Id.*

²⁰³ *Id.*

²⁰⁴ 47 C.F.R. § 1.402(a) (1991).

these rules should or should not apply. The petitioner must demonstrate that it . . . has developed the new service or technology; *e.g.*, that it . . . has brought out the capabilities or possibilities of the technology or service or has brought them to a more advanced or effective state. The petitioner must accompany its preference request with either a demonstration of the technical feasibility of the new service or technology, or an experimental license application, unless an experimental license application has previously been filed for the new service or technology. If the petitioner files or has filed an experimental license application, it must specify the area in which the applicant intends to conduct its experiment and whether that is the area for which a preference is sought.²⁰⁵

Notably, applicants for a pioneer's preference are not required to show financial ability.²⁰⁶ Indeed, the Commission reasoned that the preference would attract venture capital and thus help assure the success of the preference in promoting new technology.²⁰⁷ Another noticeable "non-requirement" is a showing of technical qualification that illustrates the applicant's capabilities. The Commission believes that the preference should be awarded on the merits of its innovativeness, and to the degree that technical qualification is an issue, the applicant's petition for rulemaking, in describing the innovation itself, will reveal the applicant's technical credentials.²⁰⁸ This is distinct from the required showing of "technical feasibility of the new service or technology."²⁰⁹ This latter burden goes to the proposal itself—will it work? The prior question asks whether the applicant is capable of making it work.

The question that the petition is designed to answer is "does the proposed rule establish a new use for the radio spectrum or a meaningful improvement to existing services?"²¹⁰ If the Commission is persuaded that the answer is "yes," it will issue a tentative preference.²¹¹ If new rules are adopted, and they "follow from the proposal,"²¹² then the petitioner is considered the pioneer, and the

²⁰⁵ *Id.*

²⁰⁶ 1991 Report and Order, *supra* note 44, ¶ 40.

²⁰⁷ *Id.* This is because the preference will allow the holder an effective guarantee of a license in the proposed service "assuming it is otherwise qualified." *Id.* ¶ 32 and *supra* note 143 and accompanying text. This aspect is discussed in more detail, *infra*.

²⁰⁸ 1991 Report and Order, *supra* note 44, ¶ 41.

²⁰⁹ 47 C.F.R. § 1.402(a) (1991).

²¹⁰ "In determining whether to grant a preference, the FCC will consider a variety of factors, including, but not limited to, whether the innovation provides: an added functionality; a different use of the spectrum than previously was available; or a change in the operating or technical characteristics of a service." Fishman, *supra* note 160, at 7.

²¹¹ *Id.*

²¹² 1992 Opinion and Order, *supra* note 46, ¶ 3.

preference will be awarded.²¹³ This dispositive award effectively guarantees the pioneer a license in the service area it desires so long as it meets the general requirements of a provider of the type of service in question.²¹⁴

One caveat to this general policy is the FCC's commitment to "not grant pioneer's preference requests casually."²¹⁵ The Commission intends the preference to increase the available choices of advanced communications services.²¹⁶ Therefore, a pioneer must propose "more than just a minor variation of an existing service."²¹⁷ This standard was purposely designed to be unstructured, requiring a case-by-case determination of the merits of each proposal "based on a public interest determination."²¹⁸

The most important aspect of the preference, however, is that its receipt allows the innovator to file a license application²¹⁹ "without being subject to competing applications."²²⁰ This effectively guarantees the pioneer a license to provide the new service. It is this guarantee that is designed to compel innovators to develop new means of electronic communication, and venture capital to be attracted to these efforts, thereby fulfilling the Commission's goals.

V. THE PIONEER'S PREFERENCE EXPERIENCE TO DATE

On January 14, 1993, the FCC awarded its first finalized pioneer's preference.²²¹ From the first Notice of Proposed Rule Making²²² to the final award,²²³ nearly two years have passed. In order

²¹³ *Id.*

²¹⁴ Fishman, *supra* note 160, at 7. For example, if petitioner proposed to offer a new service which would be classified as "mass media," it would be required to fulfill the threshold criteria for a broadcaster.

²¹⁵ In the Matter of Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, 7 FCC Rcd. 7794, ¶ 2 (1992).

²¹⁶ *Supra* note 192 and accompanying text.

²¹⁷ NPRM, *supra* note 201, ¶ 8.

²¹⁸ 1991 Report and Order, *supra* note 44, ¶ 43.

²¹⁹ This assumes the proposed service is eventually authorized. *Id.* ¶ 32, in a form close to that proposed by the innovator, 1992 Opinion and Order, *supra* note 46, ¶ 3.

²²⁰ 1991 Report and Order, *supra* note 44, ¶ 32. Several commentators advocated a "head start" period in which other applicants' petitions to provide service to the same area would be deferred for six months after the petitioner was awarded a license or construction permit. *Id.* ¶ 2. However, the Commission determined that a head start was not needed because the preference itself awarded a "de facto" head start (during the time others would need to file for a license) and that to do so explicitly would be to grant a "temporary service monopoly" to the pioneer. This would go beyond the purpose of the preference (*see supra* section 3.B.1, *supra*) and "would not appear to be justified at this time." *Id.* ¶ 34.

²²¹ *Little LEOs Set FCC Milestone*, MOBILE SATELLITE NEWS, Jan. 20, 1993, at 6.

²²² Notice of Proposed Rule Making, GEN Docket No. 90-217, 5 FCC Rcd. 2766, No. 9 (1990).

²²³ *See* FED. COMMUNICATIONS COMM., FCC ALLOCATES SPECTRUM FOR LOW-EARTH ORBIT MOBILE-SATELLITE SERVICE, REP. NO. DC-2306, Jan. 14, 1993.

to evaluate whether the new policy has been successful, the investigation will focus on whether the designers' goals have been met—is the purpose of the rule being achieved through its application?

The pioneer's preference was designed to achieve three goals: provide an incentive for innovators to propose new and improved uses of the radio spectrum; ensure that innovators whose ideas are adopted are rewarded for their vision; and increase the flow of investment capital to those entrepreneurs who need it to continue their work.²²⁴ Analysis illustrates that while the pioneer's preference system has been largely successful, room for improvement still exists.

A. *Goal One: Increase Applications for Innovative Uses*

As noted earlier, only six experimental license applications were received from 1980 to 1989.²²⁵ This stands in stark contrast to the seventy-four pioneer's preference applications received between February and June, 1992 in the PCS docket alone.²²⁶ Though thirty-eight of these were summarily rejected for lacking the requisite "innovativeness,"²²⁷ thirty-five remained for consideration—a seven-fold increase over the preceding ten-year period. An analysis of this docket proves that the Commission is experiencing an increase in applications for new uses of the radio spectrum. As to its first aim then, the preference is working as designed.

B. *Goal Two: Ensure the Reward of a License to the Innovators of New and Improved Services*

The FCC awarded the first, and to date the only, dispositive pioneer's preference on January 14, 1993 to Volunteers in Technical Assistance ("VITA").²²⁸ VITA²²⁹ was competing with two other applicants, Orbcomm and Starsys to provide communications services using a type of satellite called a "little LEO."²³⁰ As the FCC's

²²⁴ See *supra* notes 201-03 and accompanying text.

²²⁵ See *supra* note 190 and accompanying text.

²²⁶ *Rejected Pioneer's Preference Applicants Seek FCC Review*, *supra* note 49, at 1.

²²⁷ See *id.*

²²⁸ FEDERAL COMMUNICATIONS COMMISSION, REP. NO. DG-2306, FCC ALLOCATES SPECTRUM FOR LOW-EARTH ORBIT MOBILE-SATELLITE SERVICE 1 (1993).

²²⁹ VITA is a non-profit organization dedicated to providing technical assistance to developing countries.

²³⁰ Low Earth Orbiting satellites ("LEOs") are new types of communications equipment. The LEOs are divided into two categories, those which operate between 700 to 800 miles above the earth ("big" LEOs) and those which operate 500 miles above ground. The primary functional difference between the two is that big LEOs can transmit voice and data while little LEOs can accommodate data only. The LEOs may also be divided based on their frequency assignments. Big LEOs operate in bandwidths above, and little LEOs be-

Report²³¹ stated, "VITA was the first to develop and demonstrate the utility" of little LEOs.²³² Indeed the Commission awarded the tentative preference because it was VITA's "pioneering efforts which led to [the authorization of] spectrum for LEOs,"²³³ thus its "R&D efforts should not go without the benefit of a pioneer's preference."²³⁴

The plain meaning of this language is clear: VITA developed a new use of the radio spectrum. The Commission, pursuant to VITA's Petition for Rule Making, allocated bandwidth to the new service; therefore, because VITA was the innovator, it was awarded a dispositive preference for a license to provide the new service. In other words, the pioneer's preference has been used to reward VITA for increasing the available methods of communications.

The experience of Cellular Vision of New York, Inc. ("CV"), however, is not so clear. CV owns the rights to technology that permits television signals²³⁵ to be broadcast at the high end of the spectrum.²³⁶ Utilizing FM (frequency modulation) rather than AM (amplitude modulation) signals, CV has improved the reception quality of wireless broadcast to rival, if not equal, that of cable television.²³⁷ Rather than the familiar three-foot dish antennae used to receive satellite-fed broadcasts, CV's technology requires an antennae only 4.5 square inches.²³⁸

When the FCC proposed establishment of this new "cable-less cable," dubbed "local multipoint distribution service" or "LDMS" by the FCC,²³⁹ industry observers would have expected CV to be awarded a tentative preference. Indeed the Commission found that CV "clearly meets [the] criteria for [a] pioneer's preference."²⁴⁰ No preference was awarded, however, because CV already had a

low, one gigahertz. *FCC Proposes National SMRs, Little LEO Rules*, ADVANCED WIRELESS COMMUNICATIONS, Jan. 20, 1993.

²³¹ FEDERAL COMMUNICATIONS COMMISSION, REP. NO. DC-2306, FCC ALLOCATES SPECTRUM FOR LOW-EARTH ORBIT MOBILE-SATELLITE SERVICE 3 (1993).

²³² Neither of VITA's competitors resisted or appealed the preference award. *Id.*

²³³ *Id.*

²³⁴ *Fight to Win LEO Pioneer's Preference Shapes Up*, COMM. DAILY, Oct. 30, 1991, at 6 (quoting Henry Norman, President, Volunteers in Technical Assistance).

²³⁵ John Holusha, *Trying to Take the Cable Out of Cable Television*, N.Y. TIMES, Dec. 16, 1992, at D1, D5. VC's technology also allows efficient data transmission. For the sake of convenience, referrals in this Note to CV's television broadcasts also refer to the carriage of data unless otherwise specified.

²³⁶ *Id.* (broadcasts are transmitted between 27.5 and 28.5 gigahertz ("GHz") (one GHz equals one billion cycles per second)). *Id.*

²³⁷ *See id.*

²³⁸ *Id.* at D5. This is due to the small wavelengths used at the frequencies employed. *Id.*

²³⁹ *Video Notes*, VIDEO WEEK, Dec. 14, 1992, at 7. (Note that this source uses the original name of CV, "Suite 12 Group.")

²⁴⁰ *Id.*

license to provide the service in New York City.²⁴¹ The FCC determined that, even as the pioneer, CV should not be licensed in two major cities.²⁴²

On first blush, the decision may not seem to correspond with the stated purpose of the pioneer's preference.²⁴³ The aim of the preference is to make innovative communications services available.²⁴⁴ In a proceeding such as this, however, the award of a preference is of no value.

In this case, CV was the only party seeking to allocate the high portion of the spectrum to television. The technology it owns has not been licensed, and CV has no plans to do so.²⁴⁵ Thus, the Commission's allocation as requested effectively guaranteed CV a license without the need for a preference. Compare this scenario to VITA's (three applicants vying for a license²⁴⁶), and to the PCS docket generally²⁴⁷ (over 90 entrants and counting²⁴⁸). In addition, CV had a secure and dedicated financial component six years before the FCC's actions in this regard.²⁴⁹ Finally, CV has been providing LMDS to its subscribers since the late 1980s.²⁵⁰ As to the three goals of the preference system, they have all been met without resort to a further determination mandated by the pioneer's preference procedure.²⁵¹ Therefore, administrative efficiency dictated that no further inquiries were required in this proceeding. Viewed in this light, the CV case does not raise any valid questions as to the use of a pioneer's preference to reward innovators of new and improved services.

This is not to say that the Commission has been able to recognize true "innovation" when it looks for it.²⁵² Indeed, from the very first pioneer's preference docket, those denied a tentative preference have charged that the FCC's awards "represent[] a qual-

²⁴¹ *Id.* CV is presently providing LMDS to its subscribers in Brighton Beach, Brooklyn. Holusha, *supra* note 235.

²⁴² *Video Notes*, *supra* note 239.

²⁴³ *Supra* notes 201-03 and accompanying text.

²⁴⁴ *Id.*

²⁴⁵ *See generally* Holusha, *supra* note 235.

²⁴⁶ *Supra* note 230 and accompanying text. The other two applicants (Orbicomm and Starsys) are both likely to receive licenses to provide little LEO service as well. *See* COMM. DAILY, Jan. 15, 1993, at 1. Indeed, it has been noted that a pioneer's preference may be of little value when all applicants are likely to eventually be licensed. *Id.*

²⁴⁷ *Supra* notes 48-50 and accompanying text.

²⁴⁸ *Rejected Pioneer's Preference Applicants Seek FCC Review*, TELECOMM. REPORTS WIRELESS NEWS, July 2, 1991, at 1.

²⁴⁹ Holusha, *supra* note 235, at D5.

²⁵⁰ *Id.* at D1. Provision of the service was pursuant to an experimental license.

²⁵¹ *Supra* notes 199-220 and accompanying text.

²⁵² *Rejected Pioneer's Preference Applicants Seek FCC Review*, TELECOMM. REPORTS WIRELESS NEWS, July 2, 1991, at 1-3.

itative decision by the Commission regarding the merits of each application . . . contrary to the established procedures and rules of the Commission."²⁵³

This only underscores the difficulty faced by the Commission. Its decisions must be reasoned to withstand administrative and judicial attack. Yet determinations such as which proposal contains a higher quanta of innovativeness cannot be reliably made. And any scheme which attempts to establish a workable scale to do so will likely prove very difficult, if not impossible, to codify.

C. Goal Three: Assist Innovators in Securing Investment Capital

In its 1990 Notice of Proposed Rule Making that spawned the pioneer's preference,²⁵⁴ the FCC demonstrated a keen interest in aiding small innovators who lack either the desire or ability to risk a great deal of their own money in developing cutting-edge communications technologies.²⁵⁵ Nearly three years later, small PCS companies, "among the pioneers of personal communications services,"²⁵⁶ have formed an association²⁵⁷ to prevent their larger, and better financed, competitors from driving them out of business.²⁵⁸ Has the Commission been successful in attracting venture capital to the entrepreneurs, or is the perception of the small PCS companies closer to the truth? Analysis shows that while several entities have successfully employed a pioneer's preference to help finance their plans, there is room for improvement in this area.

Even before award of its dispositive preference, VITA received "a lot of entrepreneurial interest"²⁵⁹ as a result of its tentative pioneer's preference. According to a company spokesperson, even the tentative preference "kept [VITA] in the running,"²⁶⁰—in other

²⁵³ *Id.* at 3.

²⁵⁴ NPRM, *supra* note 201.

²⁵⁵ *Id.*, ¶ 4 & n.4 ("our concern herein addresses primarily the adverse effects our processes may have on parties less willing or able to accept the costs associated with the increased risk that results from these processes.") *Id.* at n.4. See also *PCS Companies: An Endangered Species?*, ADVANCED WIRELESS COMM., Jan. 6, 1993, at 1 (discussing the FCC's sensitivity to small businesses' concerns in the early stages of the PCS proceeding) [hereinafter *PCS Companies*].

²⁵⁶ *PCS Companies*, *supra* note 255, at 1.

²⁵⁷ The Small Business PCS association, ("SBPCS"), composed of ten members, has filed a statement with the Commission in the latest PCS comment round. *Id.* Note, however, that the views of the membership are not homogenous; at least one member joined, not due to fear of a biased playing field, but "to be sure like-minded companies have a voice." *Id.* at 2.

²⁵⁸ *Id.* "[S]ome small PCS companies worry the FCC is about to let them be trampled by larger members of the telecommunications herd." *Id.* at 1.

²⁵⁹ Telephone interview with Joseph Sedlak, Director of Governmental Relations, Volunteers in Technical Assistance (Feb. 10, 1993).

²⁶⁰ *Id.*

words, kept VITA financially able to pursue its little LEO plans.

The award of a dispositive preference convinced the private sector that VITA is serious and has attracted new investors.²⁶¹ In addition, VITA has found a customer base for its unused transmission capacity.²⁶² While the majority of VITA's funding is still from governmental sources,²⁶³ the additional income from private organizations, generated by the award of the dispositive preference, has encouraged VITA to plan for the expansion of its satellite network.²⁶⁴

In July 1992, Mobile Telecommunication Technologies Corp. ("Mtel") received a tentative pioneer's preference for its work developing "significantly improved [data] transmission rates."²⁶⁵ In January of the following year, Mtel announced that it had received a six million dollar investment to develop a nation-wide wireless network ("NWN") for PCS-type services.²⁶⁶ The source of this funding was Kleiner Perkins Caufield & Byers ("Kleiner Perkins"), a leading venture capital firm in the high-tech market.²⁶⁷

Did Mtel's tentative preference have anything to do with Kleiner Perkins' decision to invest? According to Kevin Compton, a partner with the venture capital firm, had Mtel not received the tentative preference, it would not have gotten the investment either.²⁶⁸ Kleiner Perkins followed Mtel's Motion for Proposed Rule Making²⁶⁹ for nearly two years.²⁷⁰ Once satisfied that Mtel's proposal was sound,²⁷¹ and the tentative preference was awarded, Kleiner Perkins committed themselves.²⁷²

²⁶¹ Telephone interview with Joseph Sedlak, Director of Governmental Relations, Volunteers in Technical Assistance (Apr. 12, 1993).

²⁶² *Id.*

²⁶³ *Infra* note 283 and accompanying text.

²⁶⁴ Telephone interview with Joseph Sedlak, Director of Governmental Relations, Volunteers in Technical Assistance (Apr. 12, 1993).

²⁶⁵ In the Matter of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, ET Docket No. 92-100, Notice of Proposed Rule Making and Tentative Decision, July 16, 1992, ¶ 149, at 36. Mtel developed and demonstrated the technology necessary to transmit twenty-four kilobits per second (a kilobit is a thousand bits) in a fifty kilohertz channel. Called "Multi-Carrier Modulation," this technology represents a ten-time increase over existing state-of-the-art systems. *Id.*

²⁶⁶ *Mtel Receives Investment in its Proposed Two-Way Nationwide Wireless Network*, PR NEWSWIRE, Jan. 15, 1993, at 1 [hereinafter *Mtel Receives Investment*].

²⁶⁷ *Id.* Kleiner Perkins "was an original investor in Lotus, Compaq, Sun Microsystems and over 130 other technology based ventures." *Id.* at 2.

²⁶⁸ Telephone interview with Kevin Compton, Partner, Kleiner Perkins Caufield & Byers (Apr. 7, 1993).

²⁶⁹ ET Docket No. 92-100; PP-37.

²⁷⁰ *Mtel Receives Investment*, *supra* note 266, at 2.

²⁷¹ *Id.* at 1. "[W]e are convinced Mtel understands the market and can effectively deliver wireless communications to customers." *Id.*

²⁷² Telephone interview with Kevin Compton, Partner, Kleiner Perkins Caufield & Byers (Apr. 7, 1993).

What effect has this investment had? According to Mtel's president, it "will enable [Mtel] to accelerate the development of an innovative two-way network" for use by individuals and business.²⁷³ This is the practical result of infusing the enterprise with six million dollars of anybody's money. The investor here, however, is Kleiner Perkins Caufield & Byers—a firm that "was an original investor in Lotus, Compaq, Sun Microsystems and over 130 other technology-based ventures"²⁷⁴ making it one of the world's most successful high-tech venture capital firms.²⁷⁵ It does not strain credulity to suggest then, that such a commitment may cause other investors to seek out Mtel or other preference holders. In fact, Kleiner Perkins reports that it is watching the remaining preference candidates in anticipation of other such investments in the telecommunications field.²⁷⁶

The fears of the small entrepreneurial companies²⁷⁷ can not be discounted however. That these smaller firms have formed an organization—the Small Business PCS association ("SBPCS")²⁷⁸—to present a united voice to the Commission is illustrative of their concerns. Moreover, as the SBPCS has stated, of the over one hundred preference applicants for PCS, only three were awarded, and none of the recipients are considered small.²⁷⁹ Cox Enterprises (a large, privately held company with holdings in the broadcast, cable, and print media), American Personal Communications (The Washington Post Co. owns 70%) and Omnipoint (a manufacturer of communications hardware), all of which are seeking a preference, are all large corporations (or their subsidiaries) as well as leaders in their respective fields.²⁸⁰ Likewise, Mtel, with assets in the area of seventy-one million dollars,²⁸¹ cannot be described as "small."²⁸² VITA, too, with over one and a half million dollars in donations in 1992,²⁸³ has financial resources far in excess of most

²⁷³ *Mtel Receives Investment*, *supra* note 266, at 1.

²⁷⁴ *Id.* at 2.

²⁷⁵ *Id.*

²⁷⁶ *Id.*

²⁷⁷ *PCS Companies*, *supra* note 255, at 1 ("Some small entrepreneurial companies . . . fear that FCC [sic] has relegated them to an uneven playing field against their better-financed competitors . . .").

²⁷⁸ *PCS Companies*, *supra* note 255; see also *supra* text accompanying note 257.

²⁷⁹ *Id.*

²⁸⁰ *Id.*

²⁸¹ See Jerry Mitchell, *MobileComm, Mtel Continue to Lead Paging Industry*, *Miss. Bus. J.*, Dec. 14, 1992, at 19.

²⁸² It is noteworthy, however, that Mtel's assets rose from fifteen million dollars at the end of the first quarter of 1992 (just before award of its tentative preference) to seventy-one million dollars at the end of that year. *Id.* In addition, its stock price almost doubled from its 1991 close—from six dollars to over ten dollars per share. *Id.*

²⁸³ According to company spokesman Joseph Sedlak, the U.S. Agency for International

start-up operations.

In contrast, Advanced Cordless Technologies ("ACT"), with only a few hundred thousand dollars of its principals' money,²⁸⁴ was denied a preference because its use of CT-2 technology²⁸⁵ was not innovative according to the FCC.²⁸⁶ ACT's President believes "there is little future for ACT" without the ability to attract investors a preference would afford.²⁸⁷

The prospects for companies such as ACT and American Telezone, which has only one employee,²⁸⁸ have not been improved by the implementation of the pioneer's preference program. It is particularly in this area—increasing the attractiveness to venture capital of entrepreneurial activity involving innovative uses of the radio spectrum—that the Commission must focus as it begins to analyze and improve the preferential licensing scheme.

VI. IMPROVEMENTS

As the above analysis shows, award of a preference has assisted recipients in financing their work. None of the organizations recognized as pioneers thus far, however, have been the type of small entrepreneurs which "fill the niches and spur development by all, including giants like IBM."²⁸⁹ It was these types of small, visionary firms and individuals that the preference was originally designed to assist.²⁹⁰ To meet its policy goal of increasing the available means of communications,²⁹¹ the Commission must amend its rules to put a pioneer's preference within the grasp of these financially marginal players. To this end, I endorse a clarification to the existing scheme, and propose the addition of an inventor/investor registry to assist entrepreneurs and venture capital to come together to finance innovation.

Development donated \$700,000 and the U.S. Department of Energy donated \$850,000 to VITA. Additional funds were received from the National Science Foundation, NASA, various United Nations offices as well as private sources. Telephone interview with Joseph Sedlak, Director of Governmental Relations, Volunteers in Technical Assistance (Feb. 10, 1993) (notes on file with the author).

²⁸⁴ *PCS Companies*, *supra* note 255, at 2.

²⁸⁵ *Supra* note 67 and accompanying text.

²⁸⁶ *PCS Companies*, *supra* note 255, at 2.

²⁸⁷ *Id.* quoting Marv Hirschberg, President, Advanced Cordless Technologies (ACT).

²⁸⁸ *Id.*

²⁸⁹ *Petition for Issuance*, *supra* note 193, at 4-5.

²⁹⁰ The philosophy underlying the pioneer's preference is discussed *supra* at notes 206-20 and accompanying text.

²⁹¹ See *supra* note 199 and accompanying text.

A. Clarification of the Preference Rules

Under the current rules, an applicant may include a written demonstration of technical feasibility with its request for a preference.²⁹² Alternatively, an applicant may opt to file for an experimental license to provide the new service.²⁹³ If the application is accompanied by a written demonstration, consideration of the innovation for a preference may begin immediately.²⁹⁴ If, however, the applicant has filed for an experimental license, preliminary results must be forwarded to the FCC before the applicant will even be considered for a tentative preference.²⁹⁵

As the Commission itself points out, this can delay consideration of the preference application ninety days or more pending issuance of the experimental license.²⁹⁶ Once it has been issued, the applicant must then commence experiments to provide the FCC with the "preliminary"²⁹⁷ showing required, further delaying consideration of the preference application.

Strother Communications, Inc. ("SCI") originally proposed that a preference applicant with an experimental license be permitted to seek a tentative preference without submitting preliminary experimental results.²⁹⁸ In denying SCI's petition, the FCC correctly pointed out that if an applicant did not file a written demonstration of feasibility, without experimental data the Commission would have no technical evidence with which to judge the applicant's claims.²⁹⁹ The simple answer is for applicants to not seek an experimental license. Investors, however, especially those investigating smaller companies, entrepreneurs and start-ups seeking funding, may be more at ease doing business with the holder of an experimental license rather than a report which merely describes the proposed innovation as technically feasible. The practical result then is to favor larger, more financially self-sustaining entities to whom a ninety day delay does not pose a threat to survival.

To level the playing field, the FCC should amend the prefer-

²⁹² 47 C.F.R. § 1.402(a) (1991). See also *supra* notes 208-09 and accompanying text.

²⁹³ 47 C.F.R. § 1.402(a) (1991). See also *supra* note 205 and accompanying text.

²⁹⁴ See 1992 Opinion and Order, *supra* note 46, ¶ 11 (setting forth the requirement that an applicant which has opted for an experimental license instead of written proof of feasibility must supply the FCC with at least preliminary results).

²⁹⁵ *Id.*

²⁹⁶ *Id.*

²⁹⁷ "Preliminary" is an undefined quantity, therefore, use of this "standard" may well lead to litigation.

²⁹⁸ Supplement to Petition for Reconsideration, Strother Communications, Inc., GEN Docket No. 90-217, June 28, 1991, ¶ 6, at 3.

²⁹⁹ 1992 Opinion and Order, *supra* note 46, ¶ 11.

ence rules to allow only a written demonstration of technical feasibility from all parties in the tentative preference stage. To preserve the value of the preference, recipients of a tentative preference ought to be required to obtain an experimental license within a specified period of time and forward the resulting data to the Commission to be considered for a dispositive preference.

This amendment would force the analysis at the tentative award phase to focus on the innovativeness of the proposal rather than its concrete capabilities. Investment capital might then flow to the innovator based on the concept, not on the applicant's financial ability to withstand a three month or longer delay before their preference application becomes eligible for consideration. Once the tentative award has been made, the recipient, now able to attract outside investment, would be able to conduct an experiment in the proposed service and report the results to the Commission for consideration of the applicant's dispositive preference request. By statutorily requiring a lower standard of proof of feasibility at the tentative preference stage, the FCC would remove yet another barrier to introduction of innovative communications systems—the purpose for which the pioneer's preference was designed³⁰⁰—by all applicants including those which require outside funding.

B. *Inventor/Investor Registry*

My final recommendation requires no amendment of the pioneer's preference rules. What I envision is nothing more than a method of getting together investors and those who require their help in the development of innovative communications systems. This could be in the form of a register where investors list themselves, the type of system or systems they would consider investing in and contact information. On the other side, innovators seeking third-party funding would be able to list themselves and a brief description of their work in hopes of attracting capital to ideas investors might not otherwise know existed. By periodically consulting such a listing, parties would be able to identify and contact potential counterparts.

Critics of this plan may be quick to suggest that the description of the innovators' work would of necessity be very vague to protect their intellectual property rights. Such criticism, however,

³⁰⁰ See 1991 Report and Order, *supra* note 44, ¶¶ 6-22; see also 1992 Opinion and Order, *supra* note 46, ¶¶ 2,3 (discussing the background of the pioneer's preference). Additionally, see the discussion *supra* notes 201-20 and accompanying text.

is misplaced. Threats of disclosure pervade all preliminary negotiations such as these. By a variety of devices attorneys attempt to minimize these risks to acceptable levels. In this proposal, this model is unaltered. All that changes is the creation of a source for those seeking strategic financial alliances to locate their counterparts. Particularly for the smallest of innovators, such a listing may be the only place to learn of investors seeking to finance the type of work proposed. In this manner, the Commission would further assist the smallest and most financially vulnerable innovators, furthering the aims of the pioneer's preference scheme.³⁰¹

VII. CONCLUSION

To foster innovative uses of the radio spectrum and remove obstacles which have inhibited especially smaller organizations and individuals from proposing such new uses, the FCC has instituted a policy which provides innovators with a preference to provide the new service they propose. While analysis of this policy illustrates its effectiveness as to financially secure entities, the less secure, smaller, entrepreneurial firms and individuals have not been successful in their attempts to gain such a preference. Therefore, for the Commission to meet its own goal of increasing the available means of communication, it must clarify the pioneer's preference rules to require only a statement of technical feasibility at the early stages of the preference process. As a result of such an amendment, these smaller entities will be assisted in making innovative uses of the spectrum a reality. In addition, creation of a method for innovators and investors to identify and contact one another would further the Commission's efforts in this regard.

John Friedman

³⁰¹ *Id.*