violate applicable antitrust laws.[70] The *Merger Guidelines* outline the enforcement policy of DOJ and the FTC concerning horizontal mergers subject to Section 7 of the Clayton Act[71] (prohibiting mergers whose effect "may be substantially to lessen competition, or to tend to create a monopoly"), Section 1 of the Sherman Act[72] (prohibiting mergers if they constitute a "contract, combination . . . , or conspiracy in restraint of trade"), or Section 5 of the Federal Trade Commission Act[73] (prohibiting mergers that constitute an "unfair method of competition"). Second, we have reviewed a number of antitrust decisions, some of which have been cited by commenters in this proceeding, for purposes of examining the extent to which principles developed in those cases may be used to inform our assessment of CMRS competition.

46. In addressing the question of the relevance of antitrust principles to the issues we are examining in this rule making, we first need to review the goals and objectives we are pursuing in this proceeding so that we can compare them with the goals and objectives served by the antitrust rules and principles. The Communications Act requires us to regulate commerce in communications to "make available, so far as possible, to all people of the United States a rapid, efficient, Nation-wide, and world-wide wire and radio communication service . . . ."[74] This legislative mandate calls upon the Commission to play a dynamic, proactive, and forward-looking role in regulating telecommunications. Thus, our resolution of issues in this proceeding must, in part, seek to develop rules that anticipate the future course of the telecommunications marketplace so that our rules augment the ability of the marketplace to meet consumer needs and demand for facilities and services. In addition, as we have noted, Congress amended Section 332 of the Communications Act last year to establish two principal objectives for the Commission -- to create a new approach to the classification of mobile services to ensure that substantially similar mobile services are subject to consistent regulatory classification, and to ensure that an appropriate level of regulation is established and administered by the Commission for CMRS providers.[75]

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[70] *See* Department of Justice & Federal Trade Commission, *Horizontal Merger Guidelines* (Apr. 2, 1992), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,104 (Apr. 7, 1992)(hereinafter referred to as "*1992 Merger Guidelines*" or "*Merger Guidelines*"). We believe that, in some respects, horizontal mergers raise questions that are roughly analogous to the issues we consider in this Order because, for example, horizontal mergers involve the concentration of ownership among services that compete with each other.

[71] 15 U.S.C. § 18.

[72] 15 U.S.C. § 1.

[73] 15 U.S.C. § 45.

[74] Communications Act, § 1, 47 U.S.C. § 151.

[75] Communications Act, § 332(c), 47 U.S.C. § 332(c), as amended by Budget Act, § 6002(b)(2)(A)(iii). *See CMRS Second Report and Order*, 9 FCC Rcd at 1418 (paras. 13-14).

47. We recognize that the antitrust principles and case decisions we discuss have a somewhat limited applicability because they are applied in circumstances that differ in important respects from those in which this proceeding has arisen.[76] The general objectives of the antitrust statutes are somewhat different from the purposes and goals of the Communications Act. The antitrust statutes seek to prevent mergers and other anticompetitive arrangements (*e.g.*, horizontal price fixing) in specific cases if the arrangements are likely to lessen competition substantially. The analysis, therefore, centers on the prevention of anticompetitive outcomes in specific cases. As we noted in the preceding paragraph, our goals and objectives under the Communications Act are somewhat different. Nonetheless, in deciding whether reclassified private mobile radio services are substantially similar to common carrier mobile service offerings, we need to evaluate and reach conclusions regarding the extent to which commercial mobile radio services compete or may compete against each other. It is for this reason that we turn our attention to the *1992 Merger Guidelines* and to the antitrust approach of *Brown Shoe*[77] favored by some commenters: We believe that the competitive criteria that have been developed in the antitrust literature and case law are useful as a means of supporting conclusions we reach in this Order regarding the extent of actual and potential competition in the CMRS marketplace.

(3) *Framework for Evaluation*

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[76] *See* Satellite Business Systems, Applications for Authority Pursuant to Sections 308, 309 and 319 of the Communications Act of 1934 To Construct Three Domestic Communications Satellites, Memorandum, Opinion, Order, Authorization and Certification, 62 FCC 2d 997, 1074 (1977), *aff'd*, United States v. FCC, 652 F.2d 72 (D.C. Cir. 1980)(*Satellite Business Systems*)(emphasis in original):

> While we are of the view that . . . cases arising in the competitive, non-regulated sphere of the economy cannot be controlling of our disposition of [the pending applications] under our public interest standard and regulatory mandate, the standards for objective analysis of relevant markets contained therein are *useful* in our determination of the public interest and we shall apply them accordingly. It must be recognized, however, that our determination of a "market" for purposes of analyzing any potential anticompetitive effects -- one factor in the public interest -- cannot be rigidly controlled by antitrust laws.

See also Mobilecom of Alabama, 3 FCC Rcd 7115, 7116-17 (Com.Car.Bur. 1988). *See generally* FCC, Transcripts of PCS Public Forum, Apr. 11-12, 1994, at 224 (statement of D. Kelley)("[P]romoting a competitive structure is not the same thing as using a merger guidelines analysis to prevent undue concentration. Your job [*i.e.*, the Commission's job] is to promote competition[,] not to prevent bad things from happening. And in the course of doing that you should provide opportunity for new entrants because that is going to bring the most competition to the market.").

[77] Brown Shoe Co. v. United States, 370 U.S. 294 (1962).

48. We have concluded that antitrust principles and case decisions can serve our purposes here by establishing the following framework for our analysis. We believe that the "reasonable interchangeability" test is a probative means of gauging competition among CMRS offerings. This test, first articulated in the *du Pont* case,[78] was elaborated by the Supreme Court in *Brown Shoe*, in which the Court described a standard based upon "the reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it."[79]

49. We conclude that certain of the specific criteria developed by the Court in applying the interchangeability test are useful indications for our assessment of CMRS competition. In *du Pont*, the Court held that customer uses and needs met by the products or services under review, as well as the respective prices of the products or services, must be studied in order to determine whether the products or services are reasonably interchangeable.[80] For example, in *United States v. Grinnell Corp.*,[81] the Court found that the relevant service at issue was the protection of property through a central service station even though individual alarm services such as burglar alarm and fire alarm service are not interchangeable with each other. According to the Court, central station companies recognized that to compete effectively, they must offer all or nearly all types of service.[82] The Court also found that although there are substitutes for protection services provided through a central service station, none of them was reasonably interchangeable because many customers would not consider these services as adequate substitutes for a central service station.[83] Thus, customer uses and needs -- and the manner in which these uses or needs are met by a particular service or package of services -- must be a critical aspect of our evaluation of competition between CMRS services.

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[78] United States v. E.I. du Pont de Nemours, 351 U.S. 377 (1956)(*du Pont*).

[79] Brown Shoe Co. v. United States, 370 U.S. 294, 325 (1962). *See generally* D. Baker, INTERNATIONAL MERGERS: THE ANTITRUST PROCESS 453-57 (1991). Courts have recognized the difficulties involved in measuring cross elasticities of demand, and have considered surrogates for cross elasticity data. *See, e.g.*, U.S. Anchor Mfg. v. Rule Industries, 7 F.3d 986, 995 (11th Cir. 1993).

[80] *du Pont*, 351 U.S. at 404.

[81] 384 U.S. 563 (1966).

[82] *Id.* at 572.

[83] *Id.* at 573-75.

50. We also note that antitrust case law recognizes the desirability of assessing the potential for competition as an important measurement of relevant markets.[84] As we will discuss at greater length in a subsequent section,[85] we conclude that our analysis must include an evaluation of the potential for competition among various services in the CMRS marketplace. A defining characteristic of this marketplace is the fact that technology gives carriers the means to adapt their use of spectrum, and recast the features and functions of their products, in order to respond to customer needs and demand. This ability to adapt spectrum use is augmented by regulatory policies that refrain from restricting services that carriers may provide over spectrum licensed to them.[86]

b. Comparison of Services

(1) *Evaluation of CMRS Marketplace*

(a) Overview

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[84] *See, e.g.,* U.S. Anchor Mfg. v. Rule Industries, 7 F.3d 986, 995 (11th Cir. 1993)("Defining a relevant product market is primarily a process of describing those groups of producers which, because of the similarity of their products, have the ability -- actual *or potential* -- to take significant amounts of business away from each other.")(emphasis supplied). *See also* United States v. Continental Can Co., 378 U.S. 441, 458 (1964)("The merger must be viewed functionally in the context of the particular market involved, its structure, history *and probable future.*")(emphasis supplied); United States v. FCC, 652 F.2d 72, 93 (D.C. Cir. 1980)(affirming *Satellite Business Systems*)(emphasis supplied):

> [T]he domestic satellite communications industry is in its highly risky and experimental phase. The field is rapidly changing technologically and economically. As a result the Commission's determinations must necessarily "depend to a greater extent upon policy judgments and less upon purely factual analysis." *Industrial Union Department, AFL-CIO, v. Hodgson*, 499 F.2d 467, 474 (D.C. Cir. 1974). As the Supreme Court has said, "where agency decisions are of a judgmental or predictive nature," F.C.C. v. National Citizens Committee for Broadcasting, 436 U.S. 775, 813, 98 S.Ct. 2096, 2121, 56 L.Ed.2d 697 (1978), "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.* at 814, 98 S.Ct. at 2122.

[85] *See* paras. 69-77, *infra.*

[86] *But see, e.g.,* Section 22.515 of the Commission's Rules, 47 CFR § 22.515 (establishing certain restrictions applicable to Part 22 licensees' base station communications).

51. Our task, as we have described, is to determine the range of competitors in the CMRS marketplace, because we have concluded that the presence of or potential for competition among CMRS services is the driving factor in determining whether reclassified private services are substantially similar to existing commercial services for purposes of establishing baseline technical and operational rules under Section 332 of the Act.

52. In proceeding with this task, we will first present a brief snapshot of market trends in the CMRS marketplace as a means of setting the stage for our evaluation. We will then turn to our application of competitive criteria -- reasonable interchangeability, customer uses and needs met by services, and the potential for competition -- to the CMRS marketplace. Finally, we will discuss the relevance of our conclusions in this section for our analysis of specific technical and operational rules that will follow in succeeding sections.

(b) Marketplace Features and Trends

53. Before turning to our examination of specific competitive criteria, we present here a brief review of the principal CMRS marketplace features and trends. Growth and competition are the defining features of the wireless marketplace.[87] Technology, regulatory policies, and explosive growth in consumer demand continue to propel the expansion of services in the wireless industry.[88] This growth is in part a product of emerging competition in the industry. It will lead to even more competition as various commercial service providers pursue strategies to capture new customers.

54. A review of selected wireless services illustrates the breadth of industry expansion. Recent growth in the cellular industry has continued to be strong,[89] and this growth is

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[87] *E.g.*, Standard and Poor's Industry Surveys, "Telecommunications Basic Analysis," June 2, 1994, at T38 (hereinafter cited as "S&P Survey")("Competition is coming to the wireless world and it is expected to be fierce ").

[88] *Id.* (wireless penetration expected to expand to 20 percent by the end of this century). "Wireless demand, as evidenced by the most basic provision of cordless, cellular and paging products, remains unquestioned, rather the question is whether or not there is enough managerial and engineering resources to speed delivery . . . ." F. Moran & E. Weinstein, THE WIRELESS TELECOMMUNICATIONS REVIEW 24 (Spring 1994)(Salomon Brothers publication)(hereinafter cited as "Moran & Weinstein").

[89] "The [cellular] industry's explosive growth in 1993 has spilled over into 1994, reflecting continued consumer interest, coupled with improved accessibility, as services have become increasingly more demand-driven and affordable. In 1993, the cellular industry boosted its penetration to 6% of the population by adding roughly five million net new subscribers rendering 16 million users nationwide, up from 11 million in 1992 for more than 45% subscriber growth. We project 5.5 million net new subscriber additions in 1994 to result in about 35% subscriber growth for 1994 to 21.5 million users or better than 8% penetration of the population. We believe that existing operators will

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expected to shift into new markets.[90] Cellular service is expected to reach 20 percent penetration, or approximately 54 million customers, by the year 2000.[91] The SMR industry also is experiencing significant growth.[92] Approximately 240,000 SMR units were in operation in 1984. That figure has now grown to approximately 1.5 million operating units.[93] SMR growth, which some have projected to reach 4.2 million customers by the year 2000[94] and others have projected to reach 9 million by 2003,[95] has been accompanied by a substantial amount of spectrum consolidation.[96] The paging industry is expected to have 22 million customers by the end of this year, and 41.5 million customers by the year 2000.[97] Paging

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[89](...continued)
reach 20% penetration or about 54 million users by the year 2000, despite an increasingly competitive environment." *Id.* at 4.

[90] "The greatest share of future [cellular] revenue growth . . . will be driven primarily through exploiting new market segments and distribution channels created from the pending explosion in data and consumer-oriented services." *Id.* at 6.

[91] *Id.* at 4.

[92] From 1987 to 1992, SMR units increased by 14 percent, from 628,000 to 1.34 million. L. Runyon & S. Birch, SMR IN THE UNITED STATES: A WINDOW OF OPPORTUNITY 35 (Oct. 1993) (Merrill Lynch publication).

[93] Moran & Weinstein at 9.

[94] Cellular Telecommunications Industry Association, *The Changing Wireless Marketplace*, at 8 (Dec. 17, 1992).

[95] S&P Survey at T39 (citing PCIA estimate).

[96] Moran & Weinstein at 10:

> Over recent years, and especially in recent months [in early 1994], the [SMR] industry has undergone a rapid phase of spectrum consolidation. Early consolidators, led by Nextel, envisioned that the aggregation of SMR spectrum, coupled with advances in digital technology in a network architecture utilizing a frequency reuse pattern in a cellular-like configuration, could increase system capacity and quality, thus permitting a viable alternative to cellular service. Recent spectrum aggregation, demonstration of MIRS [Motorola Integrated Radio System] technology, various other technological alliances, and potential proliferation under the MCI franchise have reduced risks and contributed heavily to increased realization of the industry's aggressive plans.

[97] *Id.* at 20:

(continued...)

growth has been driven primarily by increased competition, improved services, and declining costs.[98] Paging operators also are shifting emphasis toward nationwide and consumer markets.[99]

55. Forecasters expect that rapid growth throughout the wireless marketplace will continue in the future.[100] Technology and increasing customer demand for greater mobility and portability are identified as the principal sources of this projected growth.[101] Expansion

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[97](...continued)

> We estimate that the paging industry grew by 25% in 1993 to 18.7 million customers nationwide. The expansion marked the second year of an improved growth rate for the industry, reflecting the exploitation of the consumer marketplace. For 1994, the industry should add about 3.6 million users, bringing its total to more than 22 million or 8.5% penetration of the population. By the year 2000, penetration could approach 15% or 41.5 million users.

See also "As Paging Prices Keep Declining, Subscriber Numbers Increase," *Land Mobile Radio News*, July 1, 1994, at 8.

[98] Moran & Weinstein at 21.

[99] *Id.*

[100] Personal Communications Industry Association, *1994 PCS Market Demand Forecast* at third page (unpaginated) (Jan. 1994):

> All eight PCS Services studied [*i.e.*, new PCS, cellular, paging, ESMR/SMR, dedicated data service, satellite, wireless private branch exchange (PBX), and cordless] will continue to grow, despite increased competition. . . . Available market research indicates that there is a very high amount of unmet demand for personal communications. Decreasing prices, advanced technologies, and creation of licenses will enable service providers to fill the demand gap. . . . The complementary nature of PCS services will create a market in which users of one wireless service may adopt additional services to enhance overall functionality. For example, cellular users may adopt an alphanumeric pager for message screening and response queuing . . . . A wide array of services is developing, each with its own specific functionalities, service mix and market advantages. These services each have varying price points and levels of technical complexity.

[101] "Advances in technology, coupled with increasing demand for mobility and portability, will assist in the proliferation of product to the mass market. Ultimately, offerings will be sold to the mass market not on technology, but on brand name, convenience and reliability of service, and ultimately, price." Moran & Weinstein at 7.

into consumer markets and mobile data services also is expected to continue.[102] Two features of this projected growth are relevant to the competitive analysis we are undertaking in this Order. First, competition and technology are major factors in this growth.[103] Technological advances have brought an expanding array of affordable services to the marketplace. The features and functions of these services have made them increasingly important in the business environment and have also led to their growing popularity in other consumer markets. As we approach the issue of market definition, we need to keep in focus the fact that we are striving to establish a regulatory framework that promotes competition and technological innovation in the wireless marketplace. Such a framework brings important benefits to consumers, such as innovative new services at reasonable rates.

56. Second, growth in the wireless marketplace is bringing with it an increasing degree of service convergence.[104] Technology and consumer demand, facilitated by our general policy not to restrict the services that can be provided over any particular band, are prompting commercial service providers to follow marketing strategies that blur the differences between the various services comprising the wireless marketplace. This fact must inform our assessment of competitive issues -- our policies will best be served by a definition of substantial similarity that recognizes this reality of the wireless marketplace, and that facilitates the continued progress of this service convergence.

(c) Customer Uses or Needs Met by Services

(i) *Common Characteristics of Customer Needs*

57. In approaching the issue of "reasonable interchangeability," we must first determine the types of customer uses and needs that are served in the mobile marketplace. It could be argued that the mobile marketplace is nothing more than a constellation of diverse service offerings that seldom intersect in meeting highly differentiated customer needs. Thus, it could be argued, for example, that customers desiring conventional interconnected SMR

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[102] *E.g.*, D. Connaughton, "U.S. Wireless Revolution Flourishes," *Telocator*, Apr. 1993, at 12. *See* Moran & Weinstein at 1 ("The consumer marketplace will be exploited over the next several years as wireless and telecommunications companies combine their sales expertise with enhanced service offerings and more affordable access to drive subscriber penetration."); S&P Survey at T40.

[103] *E.g.*, Moran & Weinstein at 3 ("We believe that the net effect of competition will work to create a larger market for wireless telecommunications services rather than a significant erosion of existing share away from current operators.").

[104] *See, e.g.*, Nextel Comments at 24 ("[C]onsumers are interested in services and functions; they are indifferent to regulatory categories. Even in the context of traditional SMR operations, consumers select between the full array of presently existing wireless services and, on a month-to-month basis, constantly migrate from one service to another. . . . This no doubt reflects a seamless continuum of consumer preferences based on individual evaluations of price, service and functionality."). *See also* Moran & Weinstein at 1, 24.

dispatch services would not be likely to subscribe to cellular service as a substitute. Similarly, such an argument would hold that cellular customers could not reasonably be expected to purchase one-way paging as a substitute. We do not subscribe to such a balkanized view of the CMRS marketplace. Such a narrow conception does not comport with the realities of the marketplace, does not advance our objectives under the Communications Act, and, we believe, is not consistent with antitrust principles.

58. The common characteristic of mobile services customers is their need to communicate electronically on a real-time basis (or virtually real-time basis) while they are "on the move." This is a need that cannot be met by conventional wireline telecommunications services, but it *can* be met by each service comprising the CMRS marketplace.[105] Subscribers to paging services, cellular services, SMR offerings, mobile data services, 220 MHz services, and Business Radio Services all share this common need for mobile communications. We recognize that, in today's CMRS marketplace, some of these various services meet this common communications need in *different* ways, by providing services with different features, functions, cost, and quality of service.[106] This fact, however, in no way compromises our conclusion that all of these services compete or have the potential to compete with one another to serve customers' needs.

59. One factor sustaining our conclusion is that technological innovation, currently and in the future, acts as a powerful engine in driving mobile offerings toward a convergence of similar service offerings designed to respond to customer demand for these similar services. This consideration is developed in the following section. A second factor is that, even in today's CMRS marketplace, services meeting the same customer needs in different ways can in fact be viewed as competing against each other.

60. One-way paging service illustrates this latter point. One-way paging and cellular service meet customer needs in substantially different ways: the paging subscriber can receive communications through a single tone, multiple tones, numeric messages, or alphanumeric messages.[107] The cellular customer, on the other hand, has the capability of establishing two-way voice communication. Notwithstanding these functional differences, we conclude there is a basis for finding that these services compete with one another. First, paging and cellular companies perceive themselves as competing for the same customers. For example, the industry trade press has reported that "Paging Network Inc. and Motorola Inc. have teamed up to develop a voice pager that will use digital technology to capture, store and

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[105] *Cf.* US West Comments at 4 (arguing that persons interested in initiating telecommunications while on the move cans use any "broadband" CMRS offering).

[106] We also recognize that these functional differences, as they exist in today's marketplace, have implications for our decisions regarding the need to conform differing technical and operational rules. See the discussion at paras. 78-79, *infra*.

[107] D. Rose. "Data Paging Opens a Major New Market," *Telocator*, Mar. 1993, at 8.

replay the human voice. . . [T]he device is expected to be extremely easy to use, smaller than a cellular telephone and less costly . . . ."[108] Market analysts also believe there is a basis for viewing one-way paging and cellular service providers as participants in a broadly defined wireless services marketplace.[109]

61. Second, cellular carriers are in a position to begin offering one-way paging in conjunction with their cellular offerings. For example, a cellular provider announced last year that it intended to begin offering customers in some of its service areas paging service together with existing cellular service. The carrier indicated that it would offer pagers to customers who want paging service exclusively, but would concentrate its marketing efforts on joint offerings incorporating paging and cellular services.[110] This announcement suggests

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[108] "VoiceNow Promises To Make Voice Paging More Efficient," *Radio Communications Report*, Apr. 25, 1994, at 17. *See also* "PageNet Intros Pager Service That Stores Voice Messages," *Radio Communications Report*, Apr. 19, 1993, at 11 ("Motorola Vice President Fernando Gomez noted, 'The ability to receive voice messages instantaneously and conveniently, without the additional expenses normally associated with cellular or voice mail services, is expected to intensify consumer acceptance of paging services.'"). Moreover, paging operators are recognizing the need for a fundamental change in their own perception of the position they hold in the wireless marketplace. For example, David Garrison, president of SkyTel, has argued that paging industry players need to redefine their role. Paging companies must stop concentrating on technology and how information is delivered, in order to "'move from the model of thinking you are in the paging business to recognizing you are in the information transport business.'" "Beyond the Beep: Paging Applications for the 90s and Beyond," *PCIA Bulletin*, July 1, 1994, at 8 (quoting David Garrison). *But see* D. Connaughton, "U.S. Wireless Revolution Flourishes," *Telocator*, Apr. 1993, at 10 ("'Paging is complementary not competitive with cellular,' said [George M.] Perrin [president and chief executive officer of PageNet]. 'When we took our company public a year and a half ago, cellular competition was of great concern to the investment community. However, because of lower infrastructure costs, paging is able to bring service to the market at a much lower per minute cost than cellular. That ends up as a complementary and, quite frankly, a positive synergistic benefit between the two services.'"); Moran & Weinstein at 21 ("Paging provides nearly ubiquitous communications with service currently available to about 95% of the U.S. population. The robust digital transmission signal provides high-quality, in-building penetration that ensures the subscriber that messages most likely will be received. The advantage of paging over cellular service is that the unit is smaller, has longer battery life and is substantially less expensive to use. In addition to short messaging, paging carriers offer enhanced ancillary services, including voice mail, numeric storage, automated answering services, stock quotations, sports scores, weather, and similar offerings.").

[109] *See* D. Connaughton, "U.S. Wireless Revolution Flourishes," *Telocator*, Apr. 1993, at 8 ("The wireless communications market includes paging products and services [and] cellular phones and related services . . . .").

[110] "Bell Atlantic Mobile Offering Paging to Cellular Customers," *Radio Communications Report*, Dec. 6, 1993, at 9. *See also* J. Rapp, "Paging: Balancing Short-Term Profits with Long-Term Potential," *Business Radio*, June 1994, at 16 ("[P]aging operators of all sizes, even the very largest,

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that cellular operators are seeking to combine their service with one-way paging in order to compete against paging providers, hoping that customers will find the combined cellular-paging package more attractive than a "stand-alone" paging offering. Courts have held that such packaged and stand-alone products or services can be viewed as competing with each other.[111]

62. Finally, it appears that both cellular and paging companies are pursuing marketing strategies that emphasize the need to establish nationwide service[112] and to expand their offerings to meet the needs of non-business customers.[113] This commonality in marketing

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[110](...continued)
should be aware of new competition from . . . [c]ellular operators . . . ."); "PacTel, Motorola Sign Contract for CDMA Cellular System in Los Angeles," *Telocator Bulletin*, Jan. 14, 1994, at 11 ("The installation of CDMA digital technology will enable the carrier [PacTel Cellular] to expand its service to include short alphanumeric messages, voice mail notification, one-number calling, data communications and improved in-building coverage.").

[111] *See* Thurman Industries, Inc. v. Pay 'n Pak Stores, Inc., 875 F.2d 1369, 1374-77 (9th Cir. 1989); *but see* Photovest Corp. v. Fotomat Corp., 606 F.2d 704 (7th Cir. 1979). We reached a conclusion similar to the *Thurman* decision in *Satellite Business Systems*:

> [T]he particular package of offerings which form SBS' proposal are intended to be attractive to potential customers; SBS would not be seeking to enter the market if it did not feel that there would be a demand for it. However, while SBS' package of characteristics may, in the aggregate, be different in degree from competitive offerings today, in our judgment, it is not *so* different in degree as to lose its reasonable interchangeability with alternatives, and therefore establish a separate relevant market . . . .

Satellite Business Systems, 62 FCC 2d at 1086 (emphasis in original).

[112] "Paging's emphasis on nationwide networks [has] mirrored that of the cellular and ESMR industries, all of which have decided that 'every consumer in America needs to have nationwide service.' . . . [T]his [is] a major trend in wireless communications." M. Vernetti, "Nationwide Paging Networks: Wireless Links to an Array of Services," *PCIA Journal*, Feb. 1994, at 17 (quoting John L. Bauer III, vice president, Prudential Securities). *See also* D. Connaughton, "The 1990s May Be the Wireless Decade," *Telocator*, June 1993, at 16 ("'There has been a trend in the [paging] industry from local to wide-area paging and even to nationwide paging. We are now in the beginning, I think, of a transition from numeric display to alphanumeric display that will take place in the last half of the '90s and to more national versus regional markets.'")(quoting Andrew D. Rescue, chief executive officer of Economic and Management Consultants International, Inc.).

[113] P. Hopkins, "Add-Ons Make Alpha Paging Sizzle," *Telocator*, Nov. 1992, at 12:

(continued...)

strategies, coupled with the other factors described in the preceding paragraphs, suggests that one-way paging and cellular carriers are or will be competing with one another.

63. In addition, the notion that discrete classes of services, as defined by our licensing rules, are not in competition with other services in the CMRS marketplace appears to be inconsistent with congressional goals in revising Section 332 of the Communications Act. Congress has required that we conform the technical and operational rules that apply to CMRS carriers that provide "substantially similar" services. We have decided that services will be considered substantially similar if they compete against each other or have the potential to compete against each other. Thus, our governing policy objective in this context is to subject all CMRS providers that offer or could offer services in competition with other CMRS providers to the same technical and operational rules, to the extent practicable. As stated above,[114] we may apply different policy objectives, or may utilize a different competitive analysis, in other contexts.

64. Our conclusions regarding competition in the CMRS marketplace control the extent to which we require the conformance of technical and operational rules under which reclassified private carriers and other commercial carriers operate. Taking into account the uniquely dynamic nature and continuing growth of the mobile services marketplace, the powerful impact of technology in shaping carriers' options in bringing services to the marketplace, and the trend toward increasing competition among different classes of services in the marketplace, we believe that we have arrived at a reasonable and durable approach to the definition of substantially similar services. Were we to take a narrower view, disparate technical and operational rules might remain in effect, to the detriment of competition and, thus, to consumers, because differences in these rules could distort competition by providing advantages to some carriers and imposing handicaps on others. We conclude that it is well within our discretion under the Communications Act to give substantial weight to these factors and concerns because they affect our ability to achieve the objectives of regulatory

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[113](...continued)

> [C]ommunications products show explosive growth as their use expands from the business market to private use. This process is exemplified by such communication devices as pagers and cellular phones. Consumer awareness of these services and their benefits outside of the business market has created opportunities for extended market penetration and has been a major contributing factor to the explosive growth in pager sales.

See also A. Rescue, "Pagers for the Masses: The Year of Consumer Paging," *Telocator*, Jan. 1993, at 9 ("Cellular is now entering a phase in which personal use represents the majority of airtime minutes. . . . Paging, the most mature of the mobile communications technologies, began to shift to a subscriber base of personal users in 1992. This trend has important implications for future industry growth and for distribution strategies employed by carriers.").

[114] *See* para. 42, *supra*.

symmetry and the promotion of competition in the wireless marketplace. We also conclude that taking these factors and concerns into account requires the expansive characterization of competition in the CMRS marketplace that we are adopting in this Order.

65. We also conclude that antitrust principles and case law lend support for the determinations we make in this Order regarding the extent of competition among CMRS services. For this conclusion we rely in part upon *Continental Can*,[115] a case involving the acquisition of the third largest glass container manufacturer by the second largest metal container manufacturer (Continental Can Company). The Supreme Court reversed the lower court's conclusion that metal and glass containers each constituted a separate product market. The Court recognized that glass and metal containers have different characteristics which may prevent one or the other from a particular use, and that competition between glass and can companies is different than the competition between can companies themselves or between glass companies. The Court concluded, however, that the reasonable interchangeability of use standard established in *Brown Shoe* was not limited to "competition between identical products, the kind of competition which exists, for example, between the metal containers of one company and those of another or between the several manufacturers of glass containers."[116]

66. The Court pointed to the fact that glass containers had replaced metal containers as the dominant packages for baby food and that metal cans had become competitive with glass containers in the soft drink and beer packaging industries. The Court concluded:[117]

> Metal has replaced glass and glass has replaced metal as the leading container for some important uses; both are used for other purposes; each is trying to expand its share of the market at the expense of the other . . . . Thus, though the interchangeability of use may not be so complete and the cross-elasticity of demand not so immediate as in the case of most intraindustry mergers, there is over the long run the kind of customer response to innovation and other competitive stimuli that brings the competition between these two industries within [the Clayton Act].

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[115] United States v. Continental Can, 378 U.S. 441 (1964)(*Continental Can*). For subsequent decisions relying on *Continental Can*, *see, e.g.*, Fort Worth National Corp. v. Federal Savings & Loan Ins. Corp., 469 F.2d 47, 60 (5th Cir. 1972); United States v. Ivaco, 704 F. Supp. 1409, 1415 (W.D.Mich. 1989); FTC v. Owens-Illinois, Inc., 681 F. Supp. 27, 34-36 (D.C. 1988), *vacated on other grounds*, 850 F.2d 694 (D.C. Cir. 1988); Science Products Co. v. Chevron Chemical Co., Inc., 384 F. Supp. 793, 797-98 (N.D. Ill. 1974).

[116] *Continental Can*, 378 U.S. at 452.

[117] *Id.* at 453-55 (footnote omitted).

67. Our assessment of the commercial mobile radio services marketplace[118] leads us to conclude that the types of competitive relationships described in *Continental Can* exist between reclassified private services and other existing commercial services:

- Some services, such as private carrier paging and common carrier paging, have been and continue to be in direct competition with each other. Each service is trying to expand its market share at the expense of the other.

- Direct competition between services based on similar functionalities provided by the services, *i.e.*, cellular service and wide-area SMR service, has also begun and is likely to grow.

- Other services, such as one-way paging, are competing against other commercial mobile services for at least some customers, even though currently there are demonstrable differences in the features and functions of the competing services.

- Still other services, such as local SMR, 220 MHz offerings, and Business Radio Service, have the potential to compete with other commercial mobile offerings as technology evolves and the offerings begin to gain commercial acceptance.

68. With regard to all of these competitive relationships, "though the interchangeability of use may not be . . . complete and the cross-elasticity of demand [may] not [be] immediate[,]"[119] we believe that reasonable conclusions and expectations regarding customer demand and technological innovation support our conclusions regarding CMRS competition.

(ii) *Technological Innovation*

69. In addition to our assessment that existing CMRS licensees all compete to meet subscriber needs to transmit or receive communications while on the move, it is important to consider the potential for competition among CMRS providers due to technological innovation. We believe that in the climate of rapid technological innovation and dynamic growth in the mobile services marketplace, all CMRS providers should have the potential to utilize any CMRS spectrum in a manner that can adapt the nature of the service they provide to meet specific customer needs. Our current regulations have allowed various CMRS licensees to

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[118] We have limited our assessment to the current mobile services marketplace and do not include PCS because there are no licensed PCS providers with operational systems. We recognize, however, that in the near future, PCS licensees may offer services in competition with existing CMRS providers, *e.g.*, two-way voice, data and messaging services, and paging services.

[119] *Continental Can*, 378 U.S. at 455.

employ new technologies to offer services, other than their traditional service, that meet particular customer demands.[120] Thus, even if CMRS providers offer differing services today, if consumers desire particular services or combinations of services in the future, a variety of CMRS providers should have the opportunity to use different technological configurations to meet this customer demand in competition with other CMRS carriers. As explained earlier,[121] examining potential competition, in addition to current competition, serves the Commission's objectives of creating an enduring regulatory regime under which substantially similar services are subject to symmetrical regulation and the marketplace shapes the development of mobile services to meet customer demands.[122]

70. We also find support in antitrust law and policy for examining potential competition. For example, the horizontal merger guidelines state that in identifying firms that participate in the relevant market, DOJ and the FTC will identify other firms not currently producing or selling the product involved in the relevant area if their inclusion would more accurately reflect probable supply responses. These firms are called "uncommitted entrants."[123] The guidelines explain that uncommitted supply responses may occur in different ways: (1) by the switching or extension of existing assets to production or sale in the relevant market; or (2) by the construction or acquisition of assets that enable production or sale in the relevant market.[124]

71. In addition, the courts, in applying U.S. antitrust laws, have recognized that one product, and another that might compete with it if prices were changed, can be included in the same product market. Courts have said that "defining a relevant product market is primarily a process of describing those groups of producers which, because of the similarity of their products, have the ability -- actual or potential -- to take significant amounts of business away from each other."[125] In *FTC v. Procter & Gamble,*[126] for example, the Court

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[120] The best example of this phenomenon is the development of wide-area SMR systems. *See* paras. 72-73, *infra.*

[121] *See* paras. 39-41, *supra.*

[122] *See Continental Can*, 378 U.S. at 455 ("long run . . . customer response to innovation and other competitive stimuli . . . brings the competition between these two industries within [the relevant market for Clayton Act purposes]").

[123] *1992 Merger Guidelines* at § 1.32, *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,104 at 20,573-3.

[124] *Id.* at § 1.32, *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,104 at 20,574-3.

[125] SmithKline Corp. v. Eli Lily & Co., 575 F.2d 1056, 1063 (3d Cir. 1978), *cert. denied,* 439 U.S. 838 (1978) ("A market definition must look at all relevant sources of supply, either actual rivals or eager potential entrants to the market."); *see also* General Industries Corp. v. Hartz Mountain

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agreed with the FTC that the acquisition of Clorox by Procter & Gamble (Procter) violated Section 7 of the Clayton Act because the merger eliminated Procter as a potential competitor to other liquid bleach producers. The Court found, *inter alia,* that "Procter was engaged in a vigorous program of diversifying into product lines closely related to its basic products. Liquid bleach was a natural avenue of diversification since it is complementary to Procter's products, is sold to the same customers through the same channels, and is advertised and merchandised in the same manner."[127] Thus, the Court concluded, "[i]t is clear that the existence of Procter at the edge of the industry exerted considerable influence on the market."[128] In *FTC v. Owens-Illinois, Inc.,*[129] the court said that most users of glass containers had reasonable alternatives if the price of glass containers rose. The court examined extensively specific end uses for glass containers[130] and then concluded that a combination of new and existing technologies, products, marketing, and changing consumer preferences indicate that all but a few end use segments have a largely elastic demand for glass. Thus, the court found that the relevant product market in which to assess the merger between two competing glass container manufacturers was rigid wall containers, including glass, plastic, metal, and paper.[131]

72. There is evidence that supply-side substitutability of the type described in *Procter* and *Owens-Illinois* is present in the CMRS marketplace -- it is reasonable to conclude that changing technology and flexible regulation have allowed mobile service licensees to use existing spectrum allocations to provide innovative services, in competition with providers licensed under different rules, to respond to customer demands. Wide-area, digital SMRs offer a prime example of this phenomenon. In 1990, Fleet Call, Inc. (now Nextel) filed a petition for waiver and other relief to permit creation of wide-area, digital SMR systems in six markets.[132] The Commission concluded, however, that our rules already afforded Fleet

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[125](...continued)
Corp., 810 F.2d 795, 805 (8th Cir. 1987); U.S. Anchor Mfg. v. Rule Industries, 7 F.3d 986, 995 (11th Cir. 1993).

[126] 386 U.S. 568 (1967).

[127] *Id.* at 580.

[128] *Id.* at 581.

[129] 681 F. Supp. 27, 45-46 (D.D.C.), *vacated on other grounds,* 850 F.2d 694 (D.C. Cir. 1988).

[130] *Id.* at 38-46.

[131] *Id.* at 46.

[132] Fleet Call, Inc., 6 FCC Rcd 1533 (1991) (*Fleet Call*). The Fleet Call proposal was to combine all of its channels in each market into a multi-site, low-power base station configuration employing
(continued...)

Call most of the latitude it required to construct wide-area, digital SMR systems. Therefore, we granted only a waiver of the one-year construction requirement for trunked SMRs.[133] Today, there is general agreement that wide-area SMR service is developing as a competitor to the cellular industry.[134] Nextel has successfully begun offering wide-area digital SMR service in competition with cellular carriers in California markets.[135]

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[132](...continued)
digital technology and frequency reuse throughout the system. Fleet Call claimed that its system would offer greater capacity which would improve capacity to interconnect to the public switched network, allow for automatic hand-off of calls as mobile units travel throughout a market area, and offer location-specific sub-fleet or single mobile dispatch services in which a dispatcher identifies the specific mobile units closest to a desired location and calls only those units. *Id.* at 1533-34.

[133] *Id.* at 1538 (para. 36). A trunked system is a method of operation in which more than one radio frequency channel pairs are assigned for use by any mobile and base stations in the system. *See* 47 CFR § 90.7.

[134] *See* note 39, *supra.* In addition to the record established in this proceeding, other information supports our conclusion that wide-area SMR operators are in competition with cellular carriers. "It is our assessment that cellular telephone and digital ESMR will become direct competitors in a normalized marketplace (i.e., ex-construction and acquisitions)." Smith Barney Shearson, Bulletin: Initiating Coverage on the Wireless Industry, Jan. 13, 1994. "[T]he three largest specialized mobile radio operators -- Nextel, OneComm Inc. and Dial Page Inc. -- have positioned themselves to provide a viable alternative to cellular service." "Cellular Stocks Surging," *Radio Communications Report*, Apr. 11, 1994, at 43. "Aggressive companies hoping to offer Enhanced SMR service, which will compete against cellular service for mainstream customers, are establishing their game plans." "Recent Frenzy of Consolidations Reshaping Bold New SMR World," *Radio Communications Report*, Nov. 8, 1993, at 1, 21. *See* "Nextel To Buy Wireless Competitor," Washington Post, Aug. 6, 1994, at D1 (Nextel acquisitions move toward creation of nationwide network to compete with cellular operators).

[135] Nextel began ESMR service in Los Angeles in early 1994 with 125 base stations. Nextel also plans to begin providing ESMR service in New York and Chicago in 1994. "MCI To Buy 17 Percent of Nextel, Will Market Wireless under MCI Brand Name," *PCIA Bulletin*, Mar. 4, 1994, at 5. Nextel also has announced commercialization of its all-digital, integrated wireless network in the San Francisco Bay area and in California's Sacramento Valley. "Together with the recently inaugurated network in Los Angeles [and networks scheduled for central California and San Diego], these systems will provide integrated telephone, private network dispatch radio, paging and messaging services throughout most of the state of California." Business Wire, July 8, 1994. "Nextel Communications Inc. has commercialized its fully digital network in Los Angeles. The company is expanding the network to northern California and the Central Valley . . . ." Nextel also has ordered $200 million in infrastructure equipment to expand the system to San Diego, New York, Chicago, Boston, Detroit, Baltimore, and Washington, D.C., before the end of 1994. The Los Angeles system has approximately 1,000 paying subscribers. "Nextel Starts Full Commercial Service in Southern California," *PCIA Bulletin*, May 20, 1994, at 10. There have been reports that the "breakneck" expansion of Nextel has
(continued...)

73. Moreover, other SMR operators also are positioning themselves to compete against cellular carriers.[136] Although many local SMR licensees primarily provide dispatch service, all SMR licensees that are classified as CMRS offer service that is interconnected to the public switched network. Therefore, these licensees have the potential to compete with cellular carriers if they acquire a sufficient amount of spectrum and employ digital technology. For example, many existing local SMR licensees have made filings in this proceeding criticizing Nextel's proposal for wide-area SMR licensing because they believe the Nextel proposal would preclude them from offering wide-area digital SMR service.[137]

74. Another aspect of technological innovation affecting competition in the CMRS marketplace involves an increasing demand for data services.[138] CMRS providers that

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[135](...continued)
caused it some "growing pains," and that the company has faced supply shortages of new wireless telephones for the operations Nextel has activated in California. "Nextel Taps Xerox's Hicks for Top Posts," Wall Street Journal, July 27, 1994, at B7.

[136] "Pittencrieff claims it competes directly with cellular carriers in its markets for interconnected service to the [PSN]. . . . But unlike other fast growing regional SMRs that are beginning to challenge cellular carriers, Pittencrieff is avoiding large metropolitan markets and has no immediate plans for conversion from analog to digital technology." "Pittencrieff Communications Sets Offering To Fund Growth," *Radio Communications Report*, June 21, 1993, at 22.

[137] *See, e.g.*, Letter from J. Cutshaw, Jr., to Secretary, FCC, filed July 8, 1994; Letter from DCL Associates, Inc., to Secretary, FCC, filed July 8, 1994; Letter from W. Keith, to Secretary, FCC, filed July 8, 1994; Letter from B. Pratt, to Secretary, FCC, filed July 8, 1994; Letter from J. Robbins, to Secretary, FCC, filed July 8, 1994. Letters regarding the proposal in Nextel's comments have been placed in GN Docket No. 93-252.

[138] "Wireless data services have assumed growing importance in the mobile radio industry. Approximately one-half of the operators surveyed were offering some type of mobile data service, compared with about 45% in 1992." L. Smith, "1994 *Telocator* Almanac of Wireless Communications Markets," *Telocator*, Jan. 1994, at 26 (citing survey conducted by Economic and Management Consultants International, Inc.) "[I]t is reasonable to conclude that data applications will drive the growth of wireless usage by business. . . . Overall, almost two-thirds of the respondents see substantial growth in data versus only 20% for voice. Respondents . . . identified wireless capabilities which they prefer in any system they adopt. These included . . . full two-way capability ([a preference of] 74% [of respondents]) -- as opposed to outgoing only or outgoing with incoming paging capability . . . ." *Mobile Product News*, 1993 Executive Report: The Impact of Mobile and Wireless Communications on Business, at 10-11 (undated). The information in the report was gathered as part of the Telecommunications and Electronic Services Program of Deloitte & Touche. The survey explored the views of nearly 7,000 chief information officers and other senior managers with responsibility for purchasing telecommunications products and services. Over 50 percent of the business users surveyed were located in the United States. *Id.* at 4. *See* S&P Survey at T40 ("Growth of the [mobile data services] market is anticipated to be rapid. Dataquest, a San Jose market research
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traditionally offered voice service are using new technology to offer data services. For example, cellular carriers have developed cellular digital packet data (CDPD) systems to provide data services.[139] "Although voice transmission accounts for the vast majority of current cellular revenues, many industry observers predict that within the next six years data transmission will account for about one-half of all cellular revenues, amounting to more than 10 million users."[140] These data services will compete with more traditional data services offered by other CMRS licensees,[141] and they will face competition from newer technolo-

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[138](...continued)
firm, estimates that revenues from wireless data networks could surge to $2 billion in 1998 on 3.4 million customers, from the $260 million market serving 380,000 customers in 1993.").

[139] Bell Atlantic Mobile "announced the start of commercial Cellular Digital Packet Data (CDPD) service that it hopes will be the start of an overall wireless data business including circuit switched data generating as much as one-fifth of its revenues by 2000. The 'AirBridge Packet Service' is available in the Baltimore/Washington and Pittsburgh markets for reasonable packet fees that are competitive with existing offerings . . . from Ardis or RAM Mobile Data. . . . BAM's major and national corporate accounts are asking for wireless data along with a variety of mobile services such as cellular voice and paging 'and we intend to deliver them all,' [Dennis Strigl, president and CEO of BAM] says." "BAM Predicts up to 20 Percent of Revenues from Data by 2000," *Mobile Data Report*, May 9, 1994, at 4. McCaw Cellular is developing a CDPD system that will be capable of a variety of applications. "CDPD provides a fast system -- its raw speed is 19.2 kilobits per second -- and from the carriers' point of view it offers the advantage of being an add-on to their existing cellular infrastructure." "Comdex Gives Industry Buffs a Taste of Wireless Data Communications," *Telocator Bulletin*, Nov. 19, 1993, at 8. *See also* Moran & Weinstein at 6:

> Late 1994 should welcome the introduction of Cellular Digital Packet Data (CDPD), packet-switching technology, which uses the intervals between voice traffic on cellular channels to send packets of data, rather than tying up specifically dedicated cellular channels. The development of wireless data applications will lead to such offerings as wireless fax, E-mail and on-line database services. Data delivery over cellular results in favorable coverage, capacity, reliability, and low-cost structure advantages relative to dedicated wireless data operators, which may more be suitable for users requiring less robust services.

[140] U.S. Industrial Outlook 1994 -- Telecommunications Services, at 29-15.

[141] "CDPD, backed by eight major cellular carriers, will compete against Ardis Co. and Ram Mobile Data Inc., the country's two wide-area metropolitan data network operators." "Data Rivals Trade Barbs in Battle for Competitive Edge," *Radio Communications Report*, June 21, 1993, at 1. "Mobile data operators, such as ARDIS, RAM and the cellular industry, are investing hundreds of millions of dollars in infrastructure and product development in hopes of capturing the expected burgeoning mobile data market. . . . [H]owever, . . . paging services, especially alphanumeric paging, currently meet many companies' mobile data needs and are well positioned to continue to be a dominant player in the mobile data marketplace." E. Hamilton & S. Virostek, "Paging: Stepchild or Cinderella of Mobile Data?" *Telocator*, May 1993, at 8.

gies.[142] On the other hand, CMRS providers who traditionally have offered data services may use new technologies to offer voice services.[143] New entrants to the CMRS marketplace, such as 220 MHz licensees, also will use a variety of technologies to provide both voice and data

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[142] "US West is concerned that upcoming digital cellular technologies will surpass CDPD before it can even be commercially implemented. . . . Any digital system . . . could offer much higher data rates than CDPD, [according to Allyn Hall, director-wireless data at US West NewVector]." "BellSouth, US West Keeping an Eye on CDPD Development," *Radio Communications Report*, Feb. 28, 1994, at 16.

[143] Motorola has announced its plans to acquire IBM's 50 percent interest in the Ardis wireless data network. The four-year-old Ardis venture currently has approximately 40,000 customers. Bob Growney, president and general manager of Motorola's Messaging, Information, and Media Sector, stated that the Motorola investment illustrates the company's commitment to the two-way wireless data industry. There also is the possibility that Motorola will follow the strategy of using the Ardis network to provide voice as well as data. "'If Motorola . . . adds voice, Ardis starts to look like a third cellular carrier,' pointed out Richard Siber, director of wireless communications for Anderson Consulting." "Motorola To Acquire IBM's 50 Percent Share of Ardis," *PCIA Bulletin*, July 8, 1994, at 2-3. Ardis provides data systems in more that 400 metropolitan areas and ranks among the first commercial wireless packet data providers. *Id.*

services.[144] Carriers using 220 MHz spectrum have the potential, for example, to compete with cellular carriers in providing package tracking systems.[145]

75. Technological innovation also affects competition by providing CMRS licensees with the ability to offer an array of mobile services to customers. The development of new equipment allows CMRS providers to offer a package of services that all use the same piece of equipment. For example, new digital mobile telephones integrate pagers.[146] This allows wide-area SMRs to offer mobile telephony, dispatch service, and paging service.[147] Many

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[144] "'Equipment for 220 MHz has greater data capabilities [than equipment for 800 MHz SMR trunking]. The technology also makes more efficient use of the spectrum. . . . The 220 band has all the advantages of today's SMR plus data and capacity improvements. The [220 MHz] band is geared heavily toward dispatch users that also have a need for telephone interconnect. . . . I believe dispatch on ESMR is not going to be practical or economical. The 220 band will be more economical for a large dispatch user -- fleet trucks, construction and delivery services." "E.F. Johnson's Jeff Fuller Describes 220 MHz from Equipment Vendor's View," *Land Mobile Radio News*, Apr. 29, 1994, at 6 (quoting Jeff Fuller, vice president for marketing, E.F. Johnson). Growth of approximately $700 million is projected for the 220 MHz market over the next five years. Operators are concentrating on high-quality dispatch service. Initial propagation studies show 220 MHz channels providing excellent quality in comparison to 800-900 MHz systems. E.F. Johnson is expected to be a significant early market entrant, having consolidated a block of 50 to 100 channels in most top-20 metropolitan markets. "Many operators are interested in offering such basic data services as fax and messaging, but are delaying development of these services until they have a core subscriber base using dispatch services . . . . 'New 220 MHz operators will attempt to compete with entrenched cellular carriers, SMR operators and future mobile services such as PCS . . . .'" "Court's Pending Decision Could Trigger Race in 220 MHz Market," *Land Mobile Radio News*, Jan. 14, 1994, at 3 (quoting from "The State of SMR and Digital Mobile Radio," a 1993 study conducted by Malarky-Taylor Associates/EMCI and AMTA). "Marcia Miller, director of marketing for 220 MHz at Uniden of America Corp., explains [that] '[w]ith modern modulation techniques, it is possible to get excellent voice quality [with 220 MHz] in an extremely narrow bandwidth signal.'" "Technology: New Product Bonanza," Communications, Dec. 1993, at 27.

[145] "Technology: New Product Bonanza," Communications, Dec. 1993, at 27.

[146] "Digital capability allows a cellular operator to offer integrated paging (including vibrating alerts) into very small portables. The next step will be offering a separate but integrated pager with each phone sale." P. Partridge & L. Smith, "Trends in the Paging and Cellular Industries," *PCIA Journal*, Feb. 1994, at 26.

[147] Nextel claims that its wide-area SMR services provides customers with mobile telephone, paging, and dispatch services all in a single handset along with improved clarity and reception and a host of enhanced features. Nextel Comments at 4. Nextel's wide-area SMR system (called ESMR by Nextel) in Los Angeles is based on a Motorola Integrated Radio System which "can be used to provide four services: mobile telephone, enhanced dispatch, short messaging (a form of paging), and wireless data transmission. Moreover, the customer can access all of these services through a single

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cellular companies are responding with similar, integrated service offerings.[148] Another example of this phenomenon is the development of equipment such as a facsimile reader, using "virtual display" technology, for use with cellular phones and pagers.[149] The ability to offer a combination of services allows a CMRS provider to compete with a greater number of other CMRS providers.[150]

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[147](...continued)
subscriber unit. . . . These improved features are important because they allow ESMR service providers to compete head-to-head with cellular systems." D. Hatfield, "MIRS Under the Microscope," *Business Radio*, Feb. 1994, at 19. Motorola has introduced a new phone for wide-area SMR subscribers that will enable them to utilize voice, alphanumeric paging, data transmission, and dispatch services. The phones feature a menu-driven screen, automatic answer, call waiting, speed dialing, and call forwarding. Sixteen 140-character text messages can be stored. The phones also are equipped with internal modems for data transmission. Voice dispatch capabilities include unlimited group calling, private conversation, and call alert. "Motorola Introduces 'Lingo,' with Four Functions in One ESMR Phone," *PCIA Bulletin*, Apr. 15, 1994, at 8.

[148] "In response to Nextel Communications' launch of commercial Enhanced SMR service in Southern California, AirTouch Cellular has introduced new integrated paging and voice mail services on its analog cellular systems in San Diego and Sacramento, Calif. It plans to introduce the services in the Los Angeles market later this year . . . ." The AirTouch service package will allow cellular subscribers to consolidate their services into a single phone. AirTouch seeks to respond to the fact that "the digital technology of Nextel's Enhanced SMR systems allows it to provide alphanumeric paging, known as 'short messaging,' along with mobile voice and data services." "AirTouch Cellular Adds Digital-Type Messaging to Purely Analog Systems," *PCIA Bulletin*, June 3, 1994, at 7. The cellular and paging subsidiaries of BellSouth recently introduced a new class of "personal digital assistant" that combines a cellular phone, pager, fax transceiver, and organizer. The LCD screen of the phone displays numeric pages, which can be sent over the cellular system or MobileComm's network. (MobileComm is the paging arm of BellSouth.) "BellSouth Introduces 'Simon' for Cellular, Paging, Wireless E-Mail," *Telocator Bulletin*, Nov. 5, 1994, at 5.

[149] Fax messages comprise 12 percent of wireline communications, but only about 0.1 percent of cellular traffic. Reflection Technology Inc. believes that the scanned linear array display used with its fax reader will make the remote retrieval of fax messages practical and affordable. "Reflection Technology Introduces Its 'Virtual Display' to Cellular Industry," *PCIA Bulletin*, Mar. 4, 1994, at 6.

[150] *See* AMTA Reply Comments at 14. Trade press reports further illustrate this point. "[P]aging operators of all sizes, even the very largest, should be aware of new competition from three other areas: 1. Cellular operators will also offer paging, 2. PCS telephones will offer built-in pagers, 3. Enhanced specialized mobile radio (SMR) operators who offer paging." J. Rapp, "Paging: Balancing Short-Term Profits with Long-Term Potential," *Business Radio*, June 1994, at 16. "A study by Nextel on its existing dispatch customer base shows 64 percent of users have cellular phones in addition to SMR dispatch, and another 53 percent of Nextel's customers use paging services. 'We can offer them all those services with one handheld device,' said McAuley, [Nextel's president]." "Nextel Hits SMR Mother Lode in Deal for Motorola Systems," *Radio Communications Report*,
(continued...)

76. It also is important to note that at least one factor that may increase the potential for competition results from regulatory changes rather than technological innovation. The Communications Act prohibits common carriers from providing dispatch service on any frequency allocated for common carrier service, except to the extent such dispatch service is provided on stations licensed in the domestic public land mobile radio service before January 1, 1982, or the common carrier was treated as a private land mobile service providers prior to the Budget Act.[151] The Act, however, grants the Commission authority to terminate the prohibition, in whole or in part, if it is in the public interest.[152] This issue was raised in the first Notice in this proceeding, but the Commission concluded that we needed a definitive record to evaluate this issue.[153] Therefore, the Commission recently requested comment on whether to lift the prohibition on common carriers providing dispatch service.[154]

77. Before turning to the issue of the relationship between our findings regarding substantial similarity and the conformance of our existing technical and operational rules, we reiterate our conclusions regarding the basis for our findings. In the previous section we assessed documentation regarding the state of competition in the CMRS marketplace and concluded that a significant degree of competition already exists among various existing and reclassified common carrier mobile radio services. In this section, we examined trends in the CMRS marketplace, particularly with regard to technological innovation and regulatory policies, and concluded that these trends illustrate a strong potential for further competition among all CMRS services. These two conclusions, taken together, buttress our view that all reclassified private services should be defined as substantially similar to existing commercial offerings.

(2) *Technical and Operational Rules*

78. It is important to explain the effect of our decision that all commercial mobile radio services are "substantially similar" to each other on our subsequent analysis of existing technical and operational rules. First, the statute requires the Commission to alter technical and operational rules "as may be necessary and practical."[155] Therefore, in the following

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[150](...continued)
Nov. 22, 1993, at 3. *See* note 139, *supra*, regarding the offering of "AirBridge Packet Service" by Bell Atlantic; para. 61, *supra*, regarding Bell Atlantic Mobile's combined paging and cellular offering.

[151] Communications Act, § 332(c)(2), 47 U.S.C. § 332(c)(2).

[152] *Id.*

[153] *CMRS Second Report and Order*, 9 FCC Rcd at 1455-56 (para. 105).

[154] *See Dispatch Notice*.

[155] Budget Act, § 6002(d)(3)(B).

sections, we will determine whether to alter technical and operational rules based upon whether changes are necessary and practical to achieve our stated goals: regulatory symmetry and a competitive CMRS marketplace. If we find that a particular Part 90 service has a technical or operational rule that is different from a Part 22 rule, we will examine whether changing the Part 90 or Part 22 rule will assist us in achieving our stated goals. If such a change would thwart, rather than facilitate our purpose, then we will not adopt that rule change.

79. Second, we do not believe that all substantially similar services must have identical technical and operational rules, especially if the imposition of such identical rules would require carriers to reconfigure their services in ways that could adversely affect their ability to compete. Rather, our goal is to give carriers offering substantially similar services the flexibility to compete in whatever manner they choose. Thus, we are adopting technical and operational rules that are intended to be sufficiently flexible to enable licensees to respond to changing customer needs and demands. This approach is consistent with our statutory mandate to assure, to the extent necessary and practical, that substantially similar services are subject to "comparable" technical requirements. Many commenters support this approach.[156] This flexibility will allow CMRS providers to respond to the needs and demands of consumers. Therefore, we are revising our technical and operational rules to afford the maximum flexibility consistent with protecting licensees from interference by other operators.

C. TECHNICAL AND OPERATIONAL RULES

80. The Budget Act requires the Commission to modify its rules, to the extent "necessary and practical," to ensure that substantially similar services are subject to "comparable" technical requirements.[157] As we mentioned in the *Further Notice*, the Budget Act also confers substantial discretion on the Commission to determine how this objective should be accomplished.[158] The statutory language indicates that the Commission is not compelled to modify existing rules if such modification is unnecessary to achieve regulatory symmetry or is otherwise impractical. In addition, even where the Commission determines that inconsistencies in Part 90 and Part 22 should be conformed, the statute does not compel the rigid application of a uniform rule but affords the Commission discretion to fashion "comparable" rules.

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[156] *See, e.g.,* BellSouth Comments at 4-5 (urging the Commission to apply the least restrictive of the relevant service specific rules); GTE Comments at 6-7; NABER Comments at 5-6. In particular, many commenters encourage the Commission to extend the flexibility of our PCS rules to all CMRS licensees. *See, e.g.,* Bell Atlantic Comments at 4-5; Bell Atlantic Reply Comments at 3; CTIA Comments at 2-3; GTE Comments at 4-6.

[157] Budget Act, § 6002(d)(3).

[158] *Further Notice*, 9 FCC Rcd at 2864-69 (paras. 1-22).

81. The *Further Notice* focused primarily on identifying and conforming differences in technical and operational rules in Part 90 and Part 22 that may otherwise lead to arbitrary and inconsistent treatment of substantially similar CMRS licensees. The *Further Notice* also sought to address whether these technical and operational rules should be fashioned to ensure a basic level of consistency with our PCS rules, which potentially provide another avenue for the development of CMRS applications that are "substantially similar" to existing Part 22 and Part 90 services.[159]

82. We stated that we would be attentive to whether various options might have effects on the future course of competition between providers of substantially similar services. We also stated that we would assess whether a rule revision would harm competition.[160] In those instances where it is determined that changes to technical and operational rules could promote competition, the *Further Notice* also sought comment on the extent to which it would be "necessary and practical" at this time to revise specific technical and operational rules to ensure that licensees in reclassified private land mobile services and licensees who provide "substantially similar" common carrier services are subjected to comparable technical requirements. We also stated that there may be instances where the Commission should not change existing rules, either because the differences in the rules applicable to competing services have a reasonable basis unrelated to competitive considerations or because changing the rules would be impractical.[161]

83. Commenters generally support our proposals to conform Part 22 and Part 90 technical and operational rules. Commenters also suggest that these rules should be made consistent with our rules for PCS[162] or PMRS,[163] maximize flexibility,[164] take into account the differences between shared and exclusive use of frequencies,[165] and reflect recent changes in the SMR industry, including the number of mergers and license applications filed.[166]

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[159] *Id.* at 2868-69 (para. 22).

[160] *Id.* at 2869 (para. 23).

[161] *Id.* (para. 24).

[162] *See, e.g.*, Vanguard Comments at 9; Bell Atlantic Comments at 3-4; GTE Comments at 4, 6.

[163] *See, e.g.*, RAM Tech Comments at 9.

[164] *See, e.g.*, BellSouth Comments at 12-13; PCIA Comments at 14.

[165] *See, e.g.*, Celpage Comments at 6.

[166] *See, e.g.*, OneComm Comments at 5-7.