ATTACHMENT:

Declaration of Robert D. Willig

WT Docket No. 09-66

September 30, 2009

Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, DC 20554

In the Matter of	)	
Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993	)	
Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless Including Commercial Mobile Services	)	WT Docket No. 09-66

DECLARATION OF ROBERT D. WILLIG

TABLE OF CONTENTS

Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, DC 20554

In the Matter of	)	
Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993	)	
Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless Including Commercial Mobile Services	)	WT Docket No. 09-66

DECLARATION OF ROBERT D. WILLIG

I. QUALIFICATIONS

1. My name is Robert D. Willig. I am a Professor of Economics and Public Affairs at the Woodrow Wilson School and the Economics Department of Princeton University. Previously, I was a Supervisor in the Economics Research Department of Bell Laboratories. My teaching and research have specialized in the fields of industrial organization, government-business relations, and welfare theory. From 1989 to 1991, I served as Chief Economist in the Antitrust Division of the U.S. Department of Justice, where I led the development of the 1992 Merger Guidelines. I am the author of Welfare Analysis of Policies Affecting Prices and Products, Contestable Markets and the Theory of Industry Structure (with William Baumol and John Panzar), and numerous articles and I have served on the editorial boards of The American Economic Review, The Journal of Industrial Economics and the MIT Press Series on regulation. I have served as a consultant and advisor for the Federal Trade Commission and the Department of

Justice, for OECD, the Inter-American Development Bank, and the World Bank, and for governments of many nations.

II. Introduction and Executive Summary

A. Introduction

2. In conjunction with the preparation of its *Fourteenth Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Radio Services*, the Federal Communications Commission (Commission) recently sought comment on the analytical framework, market factors, and data that would best facilitate the Commission's assessment of competition and consumer welfare in the wireless industry.[1] This Notice of Inquiry (NOI) follows an earlier Public Notice that similarly requested comment on the Commission's examination of competition among providers of commercial mobile radio services (CMRS), as well as comment on the data and information that would support the Commission's analysis.[2]

3. A key difference between the two documents is that the *Fourteenth Report NOI* adopts a broader view of the products and services that the Commission seeks to include in its assessment of competition in the wireless industry. In particular, that view includes not only CMRS but also a variety of mobile data services such as internet access and Internet Protocol-enabled services.[3] In addition, the *Fourteenth Report NOI* does not confine itself to issues relating to competition for wireless services themselves, but rather articulates the Commission's desire to broaden its scope of inquiry to include wireless devices and software and applications that run on those devices.[4] Finally, the *Fourteenth Report NOI* specifically addresses the vertical arrangements between

---

[1] Federal Communications Commission, Notice of Inquiry, rel. August 27, 2009, WT Docket No. 09-66 ("*Fourteenth Report NOI*").

[2] "Wireless Telecommunications Bureau Seeks Comment on Commercial Mobile Radio Services Market Competition," DA 09-0170, WT Docket No. 09-66, rel. May 14, 2009 ("*Fourteenth Report Public Notice*").

[3] *Fourteenth Report NOI* at pp. 2-3.

[4] Id. at p. 3.

upstream and downstream market segments and the competitive impact of such arrangements.[5]

4. In this declaration, I provide an economic framework for the assessment of competition in the wireless industry, both among wireless service providers and among firms operating in upstream and downstream market segments. I then employ that framework to gauge the present, and likely future, intensity of competition. I also discuss various regulatory proposals recently presented to the Commission and evaluate the likely competitive effects that would result from their implementation.

B. Summary of Conclusions

5. An economically sound approach to gauging competition should reflect the following:

a. The textbook model of perfect competition is not an appropriate standard against which to determine whether it would be in the public interest to subject an industry to public-utility style regulation. The underlying conditions required for the formal model of perfect competition to obtain are rarely satisfied in practice. However, effective competition may well be prevalent without perfect competition, and the public interest under conditions of effective competition is best served with little or no regulatory micromanagement of marketplace participants. Thus, the appropriate question to ask for the policy purposes at hand is whether the marketplace is effectively competitive.

b. Competition in a given industry ultimately should be assessed with reference to consumer benefits. Because such benefits can accrue in numerous ways – for example, lower prices, higher-quality products or services, dynamic innovation, and/or greater consumer choice – the competitive interactions of marketplace participants should not be studied along only a single dimension.

c. In its recent annual assessments of competition among wireless service providers, the Commission has employed an analytical framework that properly accounts for the many ways in which industry participants vie to attract and retain customers. The Commission's focus upon four broad categories of economic indicia – namely (1) market structure, (2) provider

[5] Id.

conduct, (3) consumer behavior, and (4) market performance – is entirely consistent with a sophisticated and rigorous approach for analysis of the public interest in competition.

d. The Commission should not modify its current approach to lean more heavily on basic concentration metrics. Given the complexity and dynamic nature of the wireless industry, reliance on such metrics likely will result in shortsighted, and perhaps counterproductive, regulatory decisions.

6. An economically sound assessment of vertical relationships should be consistent with the following:

a. It is well understood in economics that vertical integration, through combination, joint venture, or contracting, can, in many settings, engender material consumer benefits. Such benefits are especially likely to arise in situations where the efficient operation of a system or network depends upon compatibility among its various elements. Needless to say, such compatibility issues are present in the wireless industry.

b. Exclusive dealing is a form of vertical integration inasmuch as it entails the formation of a substantially close business alignment or venture between two firms. Exclusive dealing can stimulate innovation and the development of new products by rendering more potent the parties' incentives to invest in targeted development and promotional activities. While exclusive dealing arrangements are not always procompetitive and consumer welfare-enhancing, they do not raise valid competitive concerns in situations where neither party enjoys a durable, dominant position.

c. Handset innovation is a key element of competitive interaction in the wireless industry, and exclusive deals between carriers and device manufacturers have increased firms' incentives to engage in such innovation, to the ultimate benefit of consumers. Regulatory proscription of such arrangements, or even limitations on their use, would be inconsistent with sound economics and public policy absent persuasive evidence of a specific overall net deleterious impact on competition and consumers.

7. Application of the Commission's current analytical framework to the wireless industry yields the conclusion that U.S. wireless customers are benefiting greatly from robust competition.

a. *Market structure metrics indicate that the wireless marketplace is highly competitive.* There are more than 150 separate wireless licensees in the U.S., including eight facilities-based providers each serving more than one million subscribers (of which four are national carriers). Nearly 95% of the U.S. population can obtain wireless service from at least four wireless carriers,

and even in the least populated areas of the country, consumers can choose from among, on average, 3.6 carriers. Moreover, market outcomes suggest entry conditions favorable to continuing competition.

b. *Provider conduct metrics evidence robust competition in the wireless marketplace.* Market-based evidence demonstrates the presence of significant rivalry among carriers on both price and non-price dimensions. Per-minute charges to subscribers continue to decline, and carriers have introduced a plethora of calling plans tailored to meet the widely varying needs of consumers. In addition, carriers today offer a number of handsets at a low or zero price (by subsidizing the phone in exchange for a service contract commitment), as well as an increasing number of ever more advanced smartphones. Non-price-based competition similarly is thriving. Wireless service providers spend heavily on advertising, and their investments in network upgrades and expansion and customer service have yielded unprecedented levels of subscriber satisfaction.

c. *Consumer behavior metrics further support a conclusion that the wireless marketplace is effectively competitive.* Wireless consumers are well-informed about available service and handset options, due to information and purchasing tools available through carriers and third-party sources. Moreover, subscriber churn levels indicate the absence of material switching costs. While churn levels have declined in recent years, this trend is entirely consistent with improvements in customer satisfaction levels and should not be considered indicative of increased switching costs.

d. *Marketplace performance metrics point to vigorous rivalry in the wireless industry.* In addition to the declining price trends already noted, growth in various measures of output are consistent with an effectively competitive marketplace. The number of wireless subscribers as of year-end 2008 exceeded 270 million and represented a year-over-year increase of nearly 15 million. Wireless minutes increased to slightly more than 2.2 trillion in 2008, from 2.15 trillion in 2007 and 1.8 trillion in 2006. Text messaging volume nearly tripled in 2008 relative to a year earlier and MMS messaging volume more than doubled over the same period. Mobile wireless high-speed subscribership reached more than 70 million by the end of January 2009, more than triple the count as of year-end 2006. And finally, to put some of these figures in perspective, a survey of the 26 OECD countries determined that U.S. consumers enjoy, on average, the lowest cost per-minute of wireless usage of any OECD country while consuming, on average, nearly twice the number of minutes on a monthly basis relative to consumers in any other OECD country.

8. There are a number of marketplace indicators that point to intense competition in the area of cellular handsets. Today, U.S. consumers can choose from among more than

600 devices manufactured by more than 30 suppliers. The smartphone segment of the marketplace has exhibited extraordinary growth and now accounts for more than 40% of handset sales in the U.S. Moreover, the success of Apple's iPhone has sparked a wave of innovation that has produced dozens of competing devices, and promises to deliver even more in the future. Given such compelling evidence of intense rivalry in cellular handsets, limitations on the implementation of exclusive handset arrangements are unwarranted, and indeed quite likely would have a stifling effect on handset innovation, to the ultimate detriment of consumers.

9. Similarly, outcomes in the applications marketplace evidence effective competition and thus argue forcefully against regulatory oversight. Applications stores are operated by service providers, handset manufacturers, and third-parties, and many offer thousands, or even tens of thousands, of applications, including a significant percentage at little or no charge. Consumers are downloading applications by the billions on an annual basis, and the store operators have undertaken a variety of measures to facilitate the development of new applications. While it is the case that not every application is allowed distribution through every possible channel, that should not serve as a trigger for regulatory intervention. There is no indication from the marketplace that a lack of available distribution channels has impeded either the supply of innovative applications or competition in the applications marketplace. As a result, regulatory restrictions in this area are unwarranted, and quite plausibly would run counter to the promotion of competition.

10. There do not appear to be competitive issues relating to upstream (or input) markets that would justify the implementation of regulatory restrictions. With respect to spectrum inputs, it is important to note as an initial matter that the substantial degree of rivalry among wireless carriers strongly indicates that carriers have access to the upstream inputs they need, including spectrum, on terms that do not impede competition. Moreover, through spectrum aggregation, carriers have been able to expand their footprints to address the growing demand for broadband services. Nevertheless, given projections of significant additional demand for broadband services

in the future, the Commission should examine whether it can take particular steps going forward that would facilitate the continued competitive supply of spectrum.

11. With respect to special access services used for wireless backhaul, evidence from the marketplace indicates that competition is advancing, and will continue to advance, in order to serve the projected significant growth in demand for wireless broadband services. Proposals for price controls in this area should be rejected absent a clear demonstration of market failure that likely will prevent competitive provision of special access services to wireless carriers. Extant competition among wireless carriers is intense, and there is no apparent evidence that competitive issues in special access services have impeded the rivalry among wireless service providers.

12. Finally, as the Commission undertakes its assessment of wireless industry competition and considers various regulatory proposals, it is critical not to lose sight of the fact that regulation, like markets, is rarely perfect. Regulation can impede and distort competitive interactions and progress in both intended and unintended ways, and it is thus important to evaluate regulatory proposals in terms of their expected net effect on competition. Such a balancing is especially vital in a marketplace characterized by vigorous competition, where regulatory intervention can distort economic incentives and thereby harm competition and consumers.

III. An Economic Framework to Assess Competition Issues in the Wireless Marketplace

A. The Assessment of Horizontal Issues

13. Pursuant to the Communications Act, the Commission is required to prepare an annual report that examines "competitive market conditions" in the provision of CMRS and that determines "whether or not there is effective competition."[6] While the term "effective competition" might appear to be somewhat abstract or imprecise, in the

[6] 47 U.S.C. § 332(c)(1)(C).

current context it reasonably can be calibrated as competition sufficiently robust to render unnecessary (and likely counter-productive) public-utility style regulatory intervention. Or stated somewhat differently, where there is a finding of effective competition, consumer welfare and the public interest are better advanced by permitting the unfettered operation of market forces rather than subjecting marketplace participants to extensive regulation.

14. The concept of effective competition should not be misconstrued as equivalent to, or even approximating, the textbook model of perfect competition.[7] It is widely accepted among economists that the conditions necessary for the formal model of perfect competition to obtain are rarely satisfied in practice, and that real-world markets exhibit varying degrees of imperfect competition. For a variety of reasons, real-world markets differ from the "perfectly competitive" benchmark. For example, firms' products or services may differ from each other in ways that are important to some consumers but less so to others. Another reason why an actual market may not be "perfectly competitive" is that, on the supply side, there may be only a few firms. Such a situation can arise when the production technology exhibits scale economies.[8] In such a case, it is efficient that there be only a few firms so that they can each achieve an efficient scale. Nevertheless, if the market is effectively (or "workably") competitive, firms will be restrained by the forces of inter-firm and inter-product (or service) rivalry. This discussion leads to the following question: When is competition that is imperfect nevertheless effective? This is a relevant question for purposes of this proceeding,

[7] Briefly, when no single buyer or seller can influence the market price, the market is described as being "perfectly competitive." For example, a global market for wheat or soybeans approximates the "perfectly competitive" benchmark. As a general matter, economists assume that in a perfectly competitive market all participating firms offer a homogeneous product (that is, products that are perfect substitutes for one another), sell that product at the same market price, and act as if individual output decisions have no effect on market price. In addition, in the long-run equilibrium of a perfectly competitive market, free entry and exit drive to zero the economic profits of the marginal firms.

[8] Scale economies are present where the unit cost of production falls with the volume of output. This has profound implications for the pricing of the product or service.

because where there is effective competition, there should be little or no regulatory micromanagement.

15. In my view, the presence of effective competition is demonstrated through the following market indicia and outcomes:

a. Consumers have a range of effective options that enable them to switch suppliers in the event their current supplier fails to continue to offer products or services that satisfy their demands for functionality and quality on reasonable terms.

b. Suppliers justifiably are concerned about a significant loss of business to rivals should they neglect to offer attractive products or services at reasonable prices. Such concerns are justified when viable substitutes are available and consumers are not prevented from switching to such substitutes in sufficient numbers. Such concerns also are warranted when extant suppliers can, in a timely manner, expand their offerings to meet unsatisfied demand, or when new suppliers can enter the marketplace with innovative products or services to meet the needs of dissatisfied consumers.

c. It is important that the dynamics of competition discussed in points (a) and (b) above are shown to be working; *i.e.*, that the industry not only exhibits indicia of competition, but also that those indicated forces are seen to be operative and generating consumer benefits. Here, one looks to the following categories of evidence:

    i. *Active rivalry*. Assessment of the rivalrous interactions among marketplace participants on all pertinent price and non-price dimensions, and consumer movements in response.

    ii. *Supply dynamics and diversity*. Consideration of the number of sources of supply available to consumers, the degree to which there are expansions by incumbent suppliers and opportunities for new entry, and the availability of access to key inputs needed by competing suppliers.

    iii. *Impact on the marketplace and consumers*. Examination of the degree and pace of innovation in products and services, along with the rate at which quality-adjusted prices change over time.

16. As made concrete by my proposed analytical approach, the presence of effective competition ultimately is reflected in the experience of consumers in deriving material

benefits through the competitive dynamics operating in the industry.[9] Such benefits typically arise in the form of lower prices, higher-quality products or services, heightened innovation, and/or greater variety. It is important to recognize that, because consumer benefits can take numerous forms, it would be shortsighted, and possibly counterproductive to the promotion of competition, to examine the rivalrous interactions of marketplace participants along only a single dimension, such as just prices or just network reliability. Rather, a well-reasoned assessment of competition will account for the many ways in which firms vie for consumers and by which consumers can benefit from effective competition.[10]

17. In the *Fourteenth Report NOI*, the Commission notes that recent CMRS reports presented an assessment of competitive conditions based upon four broad categories of economic factors: "(1) market structure; (2) provider conduct; (3) consumer behavior; and (4) market performance."[11] These factors represent well-established metrics to gauge competitive performance and are entirely consistent with the framework I set out above. Consequently, it is a central conclusion of my analysis that the Commission should continue to utilize its current rigorous analytical approach in future assessments of competition in the wireless industry.

18. Consistent with this view, the Commission should resist strenuously a modification to its current approach that would place greater reliance upon basic concentration metrics. Any reliance on such metrics in the wireless industry, given its dynamic nature

[9] Numerous public policies, including antitrust enforcement and the Telecommunications Act of 1996, promote competition for the consumer benefits it generates. (Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996)).

[10] While harm to consumers is an appropriate concern related to the goal of promoting competition, harm to competitors is not. Intense rivalry that delivers material consumer benefits often can weaken or force the exit of certain firms that are less efficient or whose offerings diminish in value in the eyes of consumers. Such re-positioning of rivals is a natural consequence of robust competition and should not be viewed as an indicator of the need for regulatory intervention.

[11] *Fourteenth Report NOI* at pp. 4-5.

and complexity, likely will lead to misguided, and perhaps counterproductive, regulatory decisions.

19. More specifically, the wireless industry is characterized by significant economies of scale, scope, and density. In such industries, atomistic competition is inefficient, and it is unlikely that firms operating indefinitely at a small scale, limited scope, or low density will be commercially viable. In other words, in the presence of significant economies of scale, scope, and density, one would not expect to find a large number of firms pricing at or near marginal cost, nor would such an outcome be sustainable or desirable. Thus, the observation that a substantial volume of demand is being served by relatively few firms pricing significantly above marginal cost should not necessarily trigger regulatory intervention that, if implemented, likely would undermine the Commission's overarching objective – the promotion of effective competition and the consumer benefits that such competition engenders.

20. Moreover, when significant economies of scope are present, as they are in the wireless industry, suppliers typically incur fixed costs that support numerous service offerings and must be recouped. In such circumstances, the price-cost margin observed for a single service offering is not highly probative of the overall extent of the supplier's cost recovery.

21. The rapid pace of technological change in the wireless industry also renders unreliable static concentration metrics. As firms vie to surpass one another along one or more dimensions of competition, it is not surprising to find at any given point in time one or more firms with a substantial market presence. However, inasmuch as the firm grows its market share through initiatives that make its offerings more valuable in the eyes of consumers, its success should not serve as a trigger for regulatory oversight. Indeed, its success is due to its procompetitive behavior and the consumer benefits that flow therefrom. Moreover, a firm's leading market position is likely to be challenged aggressively by rivals, and consequently, its leading position will prove durable only if the firm initiates effective competitive responses. Either way, consumers are the clear beneficiaries of such robust competitive interactions.

22. Finally, rigid attention to static measures of concentration can be especially problematic in technologically dynamic and nascent businesses such as wireless broadband. Snapshot market share or concentration metrics often are poor indicators of current competitive and longer-run conditions in such markets, and thus are ill-equipped to inform the development of sound regulatory policy.

23. Along with avoiding the rigid application of concentration measures, so too should the Commission resist the application of artificial bright lines in delineating product market boundaries. Competition quite often proceeds along a continuum, and as a result, a rigid in-or-out approach can yield an inaccurate assessment of the competitive pressures that constrain a firm's conduct in the marketplace.[12] The wireless industry is extremely dynamic, and the appropriate "product" to analyze – it may include voice, data, broadband, business/consumer use, the device, applications, content, or other services – is fluid insofar as these boundaries constantly shift as providers seek to differentiate their offerings.

24. Finally, it is worth noting that regulation, like competition, is rarely perfect. Consequently, the costs and benefits of intervention should be evaluated and weighed before a regulatory regime is installed, including both the intervention's administrative costs and its potentially deleterious impact on market performance. In other words, it is

[12] Indeed, it is erroneous to conclude summarily that products outside of the relevant market do not exert some discipline on the products in the relevant market. It is, however, customary to create such sharp demarcations despite the fact that they could mislead about extant competitive constraints. See, e.g., Statement of the Federal Trade Commission concerning Royal Caribbean Cruises, Ltd./P&O Princess Cruises plc and Carnival Corporation/P&O Princess Cruises plc, FTC File No. 021 0041. (Limiting the relevant product market to "cruising" despite evidence that cruise ship operators view land-based vacation options as serious competitive threats, but including the constraining influence of land-based vacations in the overarching assessment of the likely competitive effects of the merger.)

For a discussion of conditions under which the market definition exercise is inherently arbitrary and thus might generate misleading conclusions regarding the state of competition, *see, e.g.*, Farrell, J. and C. Shapiro, "Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition," November 25, 2008, pp. 5-6 (available at http://ssrn.com/abstract=1313782); Carlton, D., "Market Definition: Use and Abuse," Competition Policy International, Spring 2007, pp. 3-4. The overarching lesson is that sound policy analysis must consider and take into account the full extent of the sources of competition that discipline suppliers and offer consumers viable alternatives.

not enough that a regulatory proposal, if implemented, is deemed likely to deliver certain benefits. Implementation of the proposal is only efficiency-enhancing if its net effect is positive.[13]

B. The Assessment of Vertical Issues

25. It is well-accepted among economists that vertical integration, either through combination or contracting, can engender significant benefits to consumers.[14] This is particularly true where the efficient operation of a network or system requires compatibility (interconnectivity) among its various components.[15] In the wireless industry, many such compatibility issues arise – *e.g.,* between cellular networks and handsets and between handsets and software (operating systems and applications).

26. Exclusive dealing is related to vertical integration insofar as it involves the creation of a significantly integrated business relationship between two parties. Exclusive dealing can facilitate the adoption of new products by enhancing the parties' incentives to engage in targeted development and promotional activities. In the end, inasmuch as exclusive dealing propels investment in innovation and promotion, competition is intensified and consumer benefits increase.

27. In the wireless marketplace, handset innovation is an important dimension of competitive interaction. The development and introduction of an innovative handset benefits consumers in several ways, including the expansion of consumer choice and the availability of new features or greater functionality, as well as the amplification of the

[13] Economists and policy makers have long recognized that the very process of regulating a market is costly and can (in intended or unintended ways) create its own distortions in resource allocation. *See, e.g.*, Noll, R.G., "The Politics of Regulation," chap. 22 in R. Schmalansee and R. Willig (eds.) *Handbook of Industrial Organization* (Vol. 2), North Holland (1989); Carlton, D. and J. Perloff, *Modern Industrial Organization* (3rd ed.), chap. 20, Addison-Wesley (2000).

[14] For a recent general discussion of vertical mergers and their policy implications, see Jeffrey Church, Vertical Mergers, *Issues In Competition Law and Policy 1455*.

[15] *See* Nicholas Economides, Competition and Vertical Integration in the Computing Industry, in *Competition, Innovation, and the Role of Antitrust in the Digital Marketplace*, Jeffrey A. Eisenach and Thomas M. Lenard (eds.), Kluwer Academic Publishers 1999.

incentives of rival manufacturers to invest in their own innovation efforts. Exclusive dealing arrangements can enhance handset manufacturers' incentives to innovate by rewarding them sufficiently *ex-post* for their *ex-ante* investment. Moreover, the reputation of the carrier that offers a particular handset, in terms of network reliability, customer service, and other pertinent characteristics, can generate spillover effects that improve the competitive position of the handset. In short, there are legitimate, procompetitive rationales for exclusive dealing between wireless carriers and handset suppliers, and as such, it would run counter to sound economics and public policy to impose regulatory strictures on such arrangements absent compelling evidence of an overall net adverse impact on competition and consumer welfare.

28. On the carrier side, the introduction of innovative handsets may require significant investments in network expansion and upgrades to support new features and functionality, as well as significant expenditures relating to promotion and customer support. As was the case with the introduction of new handsets, a particular carrier's investments in network expansion, promotion, and customer support deliver clear direct consumer benefits, and also engender indirect benefits by strengthening the incentives of rival carriers to undertake similar efforts. For several reasons, in the absence of exclusivity a carrier's incentives to engage in such pro-consumer activities may be greatly attenuated. First, anticipated sales volumes may be insufficient to justify such investments (as a result of what are known as *contract externalities*). Second, many of the benefits of such investments, for example those that flow from advertising and promotion, would extend to other carriers offering the same model and thereby reduce a carrier's incentive to undertake such investments in the first place (an effect commonly referred to as *free riding*). Third, once a carrier has made irreversible (sunk) investments in network upgrades or promotion, a handset manufacturer may have the ability to behave opportunistically, for example, by threatening to switch handset distribution to one or more rival carriers (a type of scenario known as a *holdup problem*). Exclusivity arrangements therefore can render substantially more potent carrier incentives to undertake investments that benefit consumers.

29. In general, exclusive dealing does not give rise to valid competitive concerns in a market setting where neither party enjoys a dominant position. Exclusive dealing might raise competitive concerns in situations where rivals are effectively foreclosed from the marketplace and there is no counterbalancing efficiency justification. For example, in theory an exclusive dealing arrangement may harm competition in a downstream market in a setting where a downstream firm gains control over a sufficiently large portion of an essential upstream input to leave its rivals with no viable alternative source of supply, and there is no offsetting efficiency rationale. Anticompetitive effects may also arise, in theory, in an upstream market if an upstream firm captures a substantial fraction of the downstream market and leaves its competitors unable to meet their minimum viable scale with the remaining, available demand. However, to reiterate, in the absence of a dominant position in either the upstream or the downstream market, such effects are implausible and exclusive arrangements under these conditions should be treated as presumptively procompetitive.

IV. Application of Framework to the Wireless Industry

A. Introduction

30. Application of the Commission's existing four-prong framework, along with my own consistent template for the assessment of effective competition that I described above, demonstrates that competition both in wireless services and in other elements of what the Commission terms the "mobile value chain" is robust, and is poised to remain so in the future. Below, I discuss the evidence and many indicia of competitive intensity that support this conclusion.

B. Competition for Retail Wireless Services

Market structure metrics indicate that the wireless marketplace is highly competitive.

31. At present, there are more than 150 separate wireless licensees in the U.S., including eight facilities-based providers each serving more than one million subscribers (of which four are nationwide carriers). There are more than 40 Mobile Virtual Network

Operators (MVNOs) that lease airtime from facilities-based operators.[16] Most carriers, through varying combinations of their own networks and roaming agreements, offer nationwide coverage. Based upon nationwide subscriber counts, no single carrier has a market share above roughly 30%.[17] Moreover, as discussed below, newer entrants have been successful at quickly acquiring significant bases of customers.

32. With dozens of providers serving the wireless marketplace, all but a small fraction of U.S. cellular customers are able to choose from among several competing carriers. According to CTIA, more than 98% of the U.S. population can obtain service from at least three wireless carriers, 94% of the population can select from among at least four carriers, and slightly more than one-half the population enjoy at least five carrier options.[18] Even in the least populated counties – defined as those with 100 or fewer individuals per square mile – consumers enjoy, on average, 3.6 wireless carriers from which to choose.

33. Consideration of entry and mobility conditions provides further compelling support for the conclusion that the wireless marketplace is effectively competitive, and that it will remain so in the future. In recent years, Commission decisions to release additional spectrum have paved the way for entry by Clearwire,[19] cable companies,[20] and other

---

[16] Comments of CTIA-The Wireless Association, In the matter of *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Radio Services*, WT Docket No. 09-66 ("*CTIA Comments*"), at pp. 2-3.

[17] "Cellphone Politics," The Wall Street Journal, July 7, 2009. While concerns have been raised about the size of the largest carriers in the U.S., and the industry's level of concentration more generally, it is worth pointing out that concentration in the U.S. is low relative to other countries. A study conducted by Merrill Lynch determined that the wireless industry in the U.S. is the least concentrated among the 26 countries examined in the study. ("What Wireless Industry Will Tell the Feds, the Wired.com Interview (Pt. 1), August 28, 2009 (available at http://www.wired.com/epicenter/2009/08/cita-interview-1/).)

[18] *CTIA Comments* at p. 3.

[19] *See, e.g.*, "Clearwire Introduces CLEAR™ 4G WiMAX Internet Service in 10 New Markets," September 1, 2009 (available at http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle_print&ID=1326282&highlight=).

[20] *See, e.g.*, "Cable firm Cox to build wireless network by 2009; Teams with Sprint Nextel to expand reach," RCRWireless, November 3, 2008 (available at

(footnote continued …)

providers, as well as expansion by existing carriers in terms of their network coverage, breadth of service offerings, and service reliability.

34. Moreover, market outcomes demonstrate that new entrants and smaller providers can grow rapidly and succeed. For example, it took only a few years for Virgin Mobile to acquire more than five million subscribers,[21] and two regional providers, MetroPCS and Leap Wireless, have grown rapidly over the past several years.[22]

35. At this point, it is worth noting that an assessment of factors relating to market structure properly is treated as nothing more than a starting point for a rigorous and sophisticated analysis of competition. In particular, concentration measures should not be relied upon to determine the need for regulatory intervention. Nor should they be given the final word when assessing proposed consolidations in the industry. As noted earlier, economies of scale and scope factor significantly into a provider's competitive viability, and consequently, consolidation represents one mechanism by which carriers can lower their costs and expand their service offerings. Ultimately, the state of competition in the industry is best gauged with reference to the delivery of consumer benefits, along with an understanding of how those benefits come about.[23]

Provider conduct metrics evidence robust competition in the wireless marketplace.

(… footnote continued)

---

http://www.rcrwireless.com/article/20081103/WIRELESS/811049972/1096/MVNO/cable-firm-cox-to-build-wireless-network-by-2009); "Cox readies wireless network," CNET News, April 8, 2009 (available at http://news.cnet.com/8301-1035_3-10215445-94.html).

[21] "Virgin Mobile USA Reports Strong Q3 2008 Results," November 10, 2008 (available at http://virginmobileusa.com).

[22] MetroPCS reported in May of this year that it has grown its subscriber base by more than 20 percent per quarter since 2007 and that the carrier now serves more than six million subscribers. *See* "Regional Carrier metroPCS To Stay Independent," May 18, 2009 (available at http://www.moconews.net/entry/419-regional-carrier-metropcs-to-stay-independent). Leap Wireless reported in the same month that its net customer additions for the first quarter of 2009 reached nearly 500,000, or more than double the amount reported a year earlier. See "Leap Reports Record Net Customer Additions of Nearly 500,000 for First Quarter 2009, May 7, 2009 (available at http://phx.corporate-ir.net/phoenix.zhtml?c=95536&p=irol-newsArticle_print&ID=1286096&highlight=).

[23] For a detailed description of competition and innovation in the wireless marketplace, *See* Gerald R. Faulhaber and David J. Farber, INNOVATION IN THE WIRELESS ECOSYSTEM: A CUSTOMER-CENTRIC FRAMEWORK ("Faulhaber and Farber"), at pp. 4-21.

36. Factors pertaining to provider conduct center around the price and non-price dimensions of competition among carriers. Looking first at price,[24] U.S. wireless carriers continue to devise and offer voice and data plans that effectively lower the prices paid by consumers on a per-unit of usage basis. Average voice revenue per minute (AVRPM) declined by more than 50% over the period 2003 to 2007,[25] and average revenue per minute (ARPM), which measures both voice minutes and data services, also declined markedly over the same period.[26] Industry information similarly demonstrates recent price declines for data services. For example, the average revenue per text message fell from $0.037 in 2005 to $0.013 by the first half of 2008.[27] Moreover, these declines do not reflect more recent wireless price wars (discussed below), which should exert further downward pressure on average prices and revenues.

37. Despite the foregoing, some consumer groups have asserted that, based upon average annual billed charges, wireless consumers in the U.S. pay higher prices than their counterparts in "most other developed nations."[28] When subjected to even mild scrutiny, it becomes evident that such claims rest on a deeply flawed comparison that makes no adjustment for the substantially more intensive wireless services usage of U.S. consumers *vis-à-vis* consumers in the other OECD countries. Put simply, the higher aggregate prices paid by U.S. consumers relative to consumers in other OECD countries reflect that the fact that U.S. consumers make greater use of their wireless devices; when adjusted for this greater usage (which itself is a sign of healthier competition), U.S.

[24] It is important to note that all of the price declines discussed in this paragraph are presented without adjusting for improvements in service quality. Quality-adjusted prices would exhibit even more pronounced downward trends.

[25] Rosston, G.L. and M.D. Topper, "An Antitrust Analysis of the Case for Wireless Network Neutrality," SIEPR Discussion Paper No. 08-840, August 2009, at p. 21.

[26] Id. at Table 2.

[27] Id. at p. 22.

[28] See Comments of Consumer Federation of America, Consumers Union, Free Press, Media Access Project, New America Foundation, and Public Knowledge, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, WT Docket No. 09-66, June 15, 2009 ("*CFA Comments*"), at p. 8.

consumers pay considerably *less* than their foreign counterparts. Moreover, these claims also fail because they do not account for variations in service quality.

38. Price-based competition is also revealed in the many innovative service plan configurations and features that have been introduced by wireless carriers, including friends and family plans; national and local calling plans; unlimited voice, data, and messaging options; unlimited, flat-rate calling plans; "pay as you go plans"; pre-paid plans; free-rollover minutes; free in-network calling; and numerous others. For example, in the last few months alone carriers have announced numerous prepaid plans that offer unlimited voice and text messaging, together with a substantial volume of data usage, at monthly prices of $40-$50. These prices represent reductions of as much as 60% relative to prevailing rates just six months ago.[29] The significant expansion of service plan configurations and features evinces a marketplace in which the carriers compete intensively to appeal most effectively to the myriad tastes of subscribers.

39. Price competition is also evident in cellular handsets. A quick review of carrier websites demonstrates that there is a wide array of handsets available at a low or zero price.[30] For example, AT&T currently offers 12 different handsets at no charge and a total of more than 30 for $50 or less.[31] Verizon's website reveals similar figures – 12 different devices available at no charge and more than 40 overall at prices below $50.[32] A wide selection of inexpensive or free phones is also available through smaller carriers. For example, Cellular South currently offers four different devices at no charge and 17 at

---

[29] *See* Comments of AT&T Inc., *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless Including Commercial Mobile Services*, WT Docket No. 09-66 ("*AT&T Comments*"), at p. 9.

[30] The device counts in the text include refurbished phones and are based upon net prices after applicable rebates.

[31] http://www.wireless.att.com/cell-phone-service/cell-phones/cell-phones.jsp?_requestid=155151&_DARGS=/cell-phone-service/cell-phones/cellPhonesBodyB.jsp.

[32] http://www.verizonwireless.com/b2c/store/controller?item=phoneFirst&action=viewPhoneOverviewByDevice&deviceType=Phones&sortOption=priceSort&lid=//global//phones+and+accessories//cell+phones#

prices below $50;[33] analogous figures for U.S. Cellular are two phones at no charge and 19 in total at prices below $50 (including two devices at $0.01 that are not part of the free phone count).[34] Moreover, individual handset prices exhibit a pronounced downward trend.[35] At its launch a little over two years ago, the least expensive iPhone, a 2G device with 4GB of storage, was priced at $499;[36] today, a 3G device with 8GB of storage can be purchased for $99, and 16GB and 32GB models sell for $199 and $299, respectively.[37] Similarly, the Blackberry Storm was introduced in November 2008 at a price of $199.99;[38] at present, prices for the device are as low as $49.99.[39] Handsets are available at these low prices due to carrier subsidies, and typically require the subscriber to agree to a two-year service contract. Customers who do not wish to enter into such agreements typically can obtain the handset at the non-subsidized market price.

40. The wireless industry also exhibits intensive rivalry along non-price dimensions. With respect to advertising spending, Nielsen reported that advertising in the wireless telephone services category exceeded $4 billion in 2007, up 12% from the prior year.[40]

---

[33] https://www.cellularsouth.com/cscommerce/products/phones/category_phones_list.jsp?_DARGS=/cscommerce/products/phones/fragments/phone_list_sort_dropdown.jsp

[34] http://www.uscc.com/uscellular/SilverStream/Pages/b_showphone.html?zip=60601&mkt=608830&tm=1&prepaid=N&sort=1

[35] Handset prices exhibit downward trends post-launch because of the availability of close substitutes, and also because of the pace of innovation, *i.e.*, the introduction of new, more advanced and feature-rich devices exerts downward pressure on the prices of relatively older devices.

[36] "AT&T and Apple Announce Simple, Affordable Service Plans for iPhone," June 26, 2007 (available at http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=24018).

[37] http://www.apple.com/iphone/iphone-3gs.

[38] "The Blackberry Storm Available in U.S. November 21 Exclusively from Verizon Wireless," November 13, 2008 (available at http://investor.verizon.com/news/view.aspx?NewsID=952).

[39] http://search.verizon.com/?tp=r&rv=r&q=blackberry storm.

[40] "Wireless Phone Advertisers Spent $4 Billion on Ads in '07," Nielsen (available at http://www.marketingvox.com/wireless-phone-advertisers-spent-4-billion-on-ads-in-07-038856/).

Both Verizon and AT&T spent well in excess of $1 billion, and Sprint Nextel rounded out the top three with spending of $756 million.[41]

41. The success of carrier efforts to improve service quality is evident in recent surveys that examine call quality performance and customer satisfaction levels. For example, in August of this year, J.D. Power reported that continued investments in network upgrades and advanced technologies has led to improvements in call quality performance.[42] The American Customer Satisfaction Index determined that in the first quarter of 2009 an unprecedented 69% of wireless consumers were satisfied with their service.[43]

42. Data on subscriber complaints compiled by the Commission further confirms the significant strides the wireless industry has made in improving service quality and the overall customer experience. For the first quarter of 2009, the Commission reported 4,299 carrier-related wireless complaints. To put this figure into context, consider that there are roughly 270 million wireless subscribers in the U.S., thereby generating a quarterly complaint rate of around 0.0015 percent. Moreover, complaint volume in the first quarter of 2009 represented a decrease of 32 percent year-over-year in absolute terms, even as the subscriber population and average usage rates increased.[44]

43. The substantial capital investments undertaken by wireless providers represent another non-price dimension along which competition occurs. In 2008, despite a faltering economy, wireless carriers in the U.S. collectively reported capital expenditures of $20.1 billion,[45] and projections for 2009 yield a similar number.[46] AT&T, Verizon,

---

[41] Id.

[42] "J.D. Power and Associates Reports: Overall, Wireless Carriers Reduce Dropped Calls, Failed Connections and Static, Driving an Improvement in Call Quality Performance," J.D. Power and Associates, August 27, 2009 ("As carriers continue to upgrade existing network infrastructure and create more robust coverage footprints, wireless customers are recognizing an improvement in performance.").

[43] Id.

[44] *AT&T Comments* at pp. 37-38.

[45] "Wireless Quick Facts," (available at http://www.ctia.org/advocacy/research/index.cfm/AID/10323).

Sprint, and smaller carriers all have announced plans to invest heavily in the expansion of their wireless broadband network footprints.[47]

44. Finally, carriers compete for subscribers through the diversity of their respective handset offerings. At present, there are more than 600 unique wireless devices available to U.S. wireless consumers that offer a rich array of functions and capabilities.[48] There are a substantial number of devices that offer Internet access, including 29 with integrated Wi-Fi capability, and an increasing number of handsets with Bluetooth capability.[49] And the availability of smartphones has grown significantly – smartphones now account for 42% of all handsets sold in the U.S., up from 27% in the second quarter of 2008.[50]

Consumer behavior metrics further support a conclusion that the wireless marketplace is effectively competitive.

45. The observed behavior of wireless consumers is consistent with an intensely competitive marketplace. To begin with, wireless consumers are well-informed about available carriers and service plan pricing and options. A multitude of sources are available to help consumers navigate the many options available to them and to determine which particular handset and/or service plan will best satisfy their requirements. For example, wireless carriers offer on-line mapping tools that provide consumers with service information in specific geographic areas, both with respect to voice coverage and wireless data applications.[51] Numerous independent sources also

(… footnote continued)

---

[46] *AT&T Comments* at p. 15-16.

[47] Id. at pp. 17-18.

[48] *CTIA Comments* at p. 32.

[49] Id.

[50] *AT&T Comments* at p. 47 & n.148.

[51] *CTIA Comments* at pp. 35-36. According to CTIA, these mapping tools are provided on the websites of the four national carriers and other service providers.

review products and offer advice relating to the selection of a wireless carrier and handset.[52]

46. Subscriber churn rates provide a further indication of significant competition. Although relatively low churn rates can in some circumstances indicate the presence of significant switching costs, there is no evidence of such costs in the highly competitive wireless industry. As of the first quarter of 2008, monthly customer churn across wireless subscribers stood at 1.9%, or more than 20% on an annualized basis.[53] This means that tens of millions of subscribers are switching carriers every year. These figures are down from prior years,[54] a trend that is consistent with improvements in customer satisfaction found by consumer surveys noted above. Declining churn rates are also consistent with the fact that wireless carriers have invested heavily to improve call quality, customer service, and other pertinent aspects that drive customer satisfaction levels.

Marketplace performance metrics point to vigorous rivalry in the wireless industry.

47. Market outcomes provide further support for the proposition that the wireless marketplace is effectively competitive. As noted earlier, prices for both services (voice and data) and handsets continue to fall even as quality continues to increase. In addition, a variety of output measurements exhibit upward trends, as summarized below:

a. The number of wireless subscribers topped 270 million at the end of 2008, an increase of almost 15 million from a year earlier.[55] The 2008 subscriber count represented wireless penetration of nearly 88% in the U.S., up from 83.2% as of the end of 2007.[56]

---

[52] Id. at p. 36. One such source is www.myrateplan.com, which provides consumers with tools to compare service plans across multiple providers, as well as assistance with the selection of both service plans and devices. (Id.)

[53] Rosston and Topper (2009) at p. 23.

[54] Id.

[55] *CTIA Comments* at p. 42.

[56] Id.

b. Despite a general industry-wide migration from voice to data, wireless minutes of use in 2008 climbed to just over 2.2 trillion. Analogous figures for 2007 and 2006 were 2.15 trillion and 1.8 trillion, respectively.[57]

c. Text messaging volume grew substantially from 2007 to 2008, rising from 363 billion to just over 1 trillion.[58]

d. MMS messaging volume reached almost 15 billion in 2008, more than double the 6.1 billion MMS messages in 2007.[59]

e. Mobile wireless high-speed subscribership has exhibited a substantial upward trajectory, increasing from 22.3 million at the end of 2006, to 51 million year-end 2007 and then to more than 70 million by the end of January 2009.[60]

48. Finally, it is worth noting that prices and usage in the U.S. wireless marketplace compare favorably to other industrialized countries. In the fourth quarter of 2008, the cost per-minute of wireless usage in the U.S. was the lowest among the 26 Organization for Economic Co-Operation and Development (OECD) countries, and 60% lower than the average cost in these countries.[61] In terms of output, the average U.S. subscriber used 829 minutes per month in the fourth quarter of 2008, which is almost twice the average usage of every other OECD country and is more than three times the average usage in all but two other OECD countries.[62]

C. Competition for Devices

49. As already discussed, there are a number of marketplace indicators that point to robust competition in the area of cellular handsets. At present, devices from more than 30 manufacturers, more than 600 devices in total, are available to U.S. consumers. Wireless carriers offer a wide range of handsets, from no-frills models targeting limited-use customers to smartphones capable of running broadband applications. Service

[57] Id. at p. 43.

[58] Id.

[59] Id.

[60] Id. at pp. 47-48.

[61] Id. at p. 50.

[62] Id. at p. 51.

providers continue to offer a significant number of phones at little or no charge, and prices for smartphones have declined substantially over the past couple of years. Price declines, as well as significant advances in functionality, have contributed to dramatic growth in the smartphone segment, which today accounts for more than 40% of handset sales in the U.S.

50. Another significant factor driving the substantial upward trajectory in smartphone sales and the proliferation of devices is the success of Apple's iPhone. By one account, the success of the iPhone spurred the introduction of more than 25 devices that attempt to compete with the iPhone in terms of technology, functionality, and style.[63] For example:

a. The Instinct, launched by Samsung in June 2008, was promoted as offering full touch-screen functionality, live TV, Bluetooth, and GPS with turn-by-turn navigation, among other capabilities.[64]

b. An October 2008 Verizon announcement of the pending introduction of the Blackberry Storm touted the device's revolutionary "clickable" touch-screen.[65]

c. In October 2008, T-Mobile released the T-Mobile G1 with Google, an Android-based device advertised as combining full touch-screen functionality, a QWERTY keyboard, a rich mobile internet experience, Android Market applications, and popular Google desktop applications such as Gmail, YouTube, and others.[66]

d. Sprint initiated sales of the Palm Pre in June of this year. A Sprint press release promoted the device as offering an innovative new WebOS that is

[63] "Wireless Emerging Devices: Smartphones to Drive the Data Rescue," Macquarie Research, March 30, 2009, at pp. 2-3.

[64] "Award-Winning Samsung Instinct™ Available Exclusively from Sprint on June 20 for Just $129.99," June 18, 2008 (available at http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1167445&highlight=).

[65] "Blackberry Takes The World By Storm With Verizon Wireless And Vodafone," October 8, 2008 (available at http://news.vzw.com/news/2008/10/pr2008-10-07g.html).

[66] "T-Mobile Launches the Highly Anticipated T-Mobile G1," October 22, 2008 (available at http://www.t-mobile.com/company/PressReleases_Article.aspx?assetName=Prs_Prs_20081022&title=T-Mobile%20Launches%20the%20Highly%20Anticipated%20T-Mobile%20G1).

fully integrated with the Internet and a new operating system that greatly facilitates the creation of applications and content.[67]

51. Of course, the iPhone itself has continued to evolve into a more powerful and feature rich device. The latest generation iPhone, the 3G S, became available in June of 2009 and offers a number of new benefits and features, including better speed and performance, a longer battery life, voice recording, hands-free voice control, and a new operating system, iPhone OS 3.0.[68] And not surprisingly, other handset manufacturers are poised to continue to compete with Apple with their own new models.[69] In particular, Google has stated that by the end of 2009 as many as 20 Android-based handsets will be available.[70] Although that figure is smaller than the number of planned introductions in Europe, Google's Senior Director for Mobile Platforms explained that the slower pace of introduction in the U.S. is attributable to the intense competition in the domestic wireless marketplace and the resulting desire of carriers and device manufacturers to obtain an advantage in the marketplace through the development of highly innovative and differentiated versions of the Android phone.[71]

52. Despite compelling evidence of intense rivalry among handset manufacturers, and among the carriers who seek to offer innovative and differentiated devices as a means to attract and retain subscribers, exclusivity arrangements between wireless carriers and device suppliers have drawn some opposition. In short, I find condemnation of these agreements, or even proposals to limit their use, to be without any sound economic basis. There is no support for the contention that exclusive deals between

---

[67] "Sprint to Offer Palm Pre Nationwide on June 6," May 19, 2009 (available at http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1289761&highlight=).

[68] "iPhone 3G S Available at AT&T Tomorrow," June 18, 2009 (available at http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26868).

[69] AT&T Comments at p. 37.

[70] "Google: Expect 18 Android Phones by Year's End," *The New York Times*, May 27, 2009 (available at http://bits.blogs.nytimes.com/2009/05/27/google-expect-18-android-phones-by-years-end/).

[71] Id.

carriers and device suppliers have foreclosed competition. Because there are literally hundreds of handsets available in the marketplace, including a wide variety of smart phones, and device innovation continues to advance at a dizzying pace, any particular exclusive deal cannot validly be said to foreclose other carriers from accessing a rich array of devices, and thus does not threaten any carrier's competitive viability.

53. Nor do exclusive deals have the effect of lessening competition among device manufacturers. As discussed above, the wireless marketplace is served by a large number of competing carriers through which handset suppliers can obtain distribution. Moreover, to the best of my knowledge, no exclusive deal between a carrier and a device manufacturer restricts the carrier's ability to distribute the devices of other manufacturers, and therefore these agreements do not prevent device manufacturers from obtaining distribution for their handsets. For example, the agreement between Apple and AT&T involving the iPhone places no restrictions on AT&T's right to distribute any handset from any manufacturer. And more generally, I am not aware of any exclusive arrangement that places limitations on either party that extend beyond the device covered by the agreement. Indeed, there are many examples where a device manufacturer has entered into separate exclusive arrangements for separate handsets with multiple carriers.[72]

54. To conclude this discussion, I wish to address briefly a theoretical argument that consumer welfare would be enhanced if the exclusivity provisions in handset distribution agreements were relaxed in those areas not covered by the contracting carrier's network, such that one or more carriers with network coverage could offer the handset in question. From the standpoint of sound economics, such an argument should not compel relaxation of an agreement's exclusivity provisions. Indeed, because

[72] *See, e.g.,* Katz, M.L, "An Economic Analysis of the Rural Cellular Association's Petition for Rulemaking Regarding Exclusivity Arrangements between Commercial Wireless Carriers and Handset Manufacturers," February 2, 2009, at pp. 19-20 (Noting LG agreements with AT&T, Alltel, Sprint Nextel, and Verizon Wireless, and Samsung agreements with AT&T, Alltel, T-Mobile, Sprint Nextel, and Verizon Wireless.)

of the intense rivalry in the wireless service and handset markets, the incentives of carriers and device suppliers to form and implement their exclusive deals do not diverge from the public interest on net. Consequently, regulation of the details of their agreement is unwarranted.

55. Moreover, as noted earlier, handset manufacturers have incentives, unrelated to their contractual commitments, to limit the set of carriers with which they contract. Such incentives arise because of the nexus between a carrier's network reliability, customer service, and other factors, and the manufacturer's sales, profits, and reputation. Even without an exclusive arrangement, it cannot be assumed that a given handset manufacturer would elect to distribute the handset in question through carriers with network coverage in the area that the contracting carrier's network does not reach. Among other reasons, any given carrier's expected sales volume in the area in question may be too low to make economical the investments in promotion and customer support that the manufacturer would consider necessary to promote its own business interests.

56. Finally, with respect to AT&T's business interests, it plausibly is the case that AT&T's national brand name reputation is enhanced by virtue of its status as the only carrier offering the iPhone. Accordingly, the carrier would have legitimate, procompetitive reasons not to surrender that status by allowing Apple to make the iPhone available to other carriers in areas in which AT&T currently does not offer service.

D. Competition for Applications

57. Coincident with the significant growth in smartphone penetration, the cellular handset applications marketplace has reached an unprecedented level of competitive intensity. Moreover, the current pace of innovation, coupled with the many available channels through which applications can obtain distribution, strongly suggest that competition in the applications segment will remain robust. Consequently, and as explained in more detail in the next section, there is no sound economic support for the

proposition that regulatory intervention would improve outcomes in the applications marketplace.

58. The magnitude of applications available to wireless service customers, and the downloading activity of these customers, are two persuasive indicators of a highly competitive applications marketplace. As discussed in detail in AT&T's comments, a number of handset manufacturers, wireless service providers, and third-parties operate applications stores.[73] Many of these stores offer thousands, or even tens of thousands, of applications, with a significant number available for download at little to no charge.[74] Equally impressive is the rate at which applications stores have added content. For example, Apple launched its applications store on July 10, 2008 with 500 third-party applications available for download.[75] By the end of May 2009, less than one year later, the store offered more than 45,000 applications;[76] the applications count today exceeds 85,000.[77] Moreover, download activity at these stores is substantial. For example, it was reported in September of this year that cumulative downloads from Apple's store has passed 2 billion.[78]

59. Consistent with their economic incentives, operators of applications stores have undertaken measures to foster innovation on the development side. For example, to facilitate the development of third-party applications, Apple provides software

[73] *AT&T Comments* at pp. 65-67.

[74] Id.

[75] "Catch-22: The Price vs. Popularity Dilemma of Pricing iPhone Applications," May 22, 2009 (available at http://www.razorianfly.com/2009/05/22/catch-22-the-price-vs-popularity-dilemma-of-pricing-iphone-applications/).

[76] Id.

[77] "Apple Passes 2 Billion App Downloads," *Reuters*, September 28, 2009 (available at http://www.reuters.com/article/technologyNews/idUSTRE58R2P120090928).

[78] Id.

development kits and related support to independent programmers.[79] Similarly, AT&T offers support to programmers in a number of ways. AT&T's Universal Design guidelines, available to developers through AT&T's website, facilitates the development of applications that can be distributed through AT&T's Media Mall (or through other channels).[80] In addition, AT&T provides applications developers with, among other resources, software development kits from several device and operating system suppliers, testing tools for mobile applications, simulators for testing applications, white papers containing developer insights, recommendations, and technical information, and venues through which developers can submit their applications to select customers for testing and feedback.[81]

60. From the above, I do not mean to suggest that any particular application can obtain distribution through every available channel. As discussed below, certain platforms, Apple's iPhone being one example, employ pre-certification procedures before accepting applications for distribution. However, the presence of such procedures in no way signals the need for regulatory intervention. First, there may be legitimate reasons underlying the decision by an applications store owner to assume this role – for example, to protect against viruses or other security threats, to ensure efficient operation of the device, or to guard against distribution of objectionable or poor-quality content.[82] Beyond that, it is undeniable that there exist a number of available channels through which an application can secure distribution. The many tens of thousands of applications available today in the marketplace, together with the

[79] Thirteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 24 FCC Rcd 6185 (2009) ("Thirteenth Report"), at ¶ 166.

[80] Id.

[81] Id. at pp. 50-51.

[82] An applications store owner legitimately may also decline to distribute an application because it competes directly with the store owner's products. Consistent with sound economics, antitrust policy in the U.S., except in quite limited circumstances, imposes no duty upon a firm to deal with its rivals. There is no reason for the FCC to stray from this policy and mandate openness requirements in the applications marketplace.

frenzied pace of innovation, provide ample evidence of widespread distribution alternatives and thriving competition in the applications marketplace.

E. Competition for Inputs

61. The *Fourteenth Report NOI* broadens the Commission's assessment of wireless industry competition to include "upstream markets" for spectrum and non-spectrum inputs.[83] With respect to non-spectrum inputs, in particular special access services, evidence from the marketplace indicates that competition is increasing. In addition, there is no apparent lack of availability of special access that has hampered competition among wireless carriers. I discuss these conclusions, and their underlying support, later in this declaration.

62. Turning to spectrum inputs, it is worth noting at the outset that the substantial degree of rivalry among wireless carriers strongly suggests that carriers have access to upstream inputs, including spectrum, on terms that do not stultify competition.[84] Specific indicia from the marketplace also suggest that competition among service providers has not been impeded by competitive issues relating to spectrum supply. First, carriers have been able to aggregate spectrum in order to expand their footprints and to meet the growing demand for broadband services.[85] Second, the recent 700 MHz auction allocated a substantial amount of additional spectrum, much of which has yet to

[83] *Fourteenth Report NOI* at ¶¶ 9, 23.

[84] Moreover, exclusive spectrum rights are key to encouraging investment in communications networks. Such investment is likely to foster the ability of all carriers to offer advanced features and services. (*See* the Declaration of Thomas W. Hazlett on behalf of AT&T, September 30 2009 ("Hazlett Declaration"), at ¶ 34.

[85] Thomas W. Hazlett notes in his declaration that the rivalry among carriers is already driving a burgeoning market in spectrum access. Mandates that impose new spectrum sharing requirements on competitive carriers utilizing liberal licenses are not likely to produce net benefits, while risking major disincentives for further investments in network capacity. (*See* Hazlett Declaration at ¶ 59.) For specific examples, *See, e.g.*, "AT&T pays Sprint $59M in spectrum swap," FierceWireless, August 5, 2009 (available at http://www.fiercewireless.com/node/47061/print); "Clearwire Completes Transaction With Sprint Nextel and $3.2 Billion Investment to Launch 4G Mobile Internet Company," December 1, 2008 (available at http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1231029&highlight=).

be developed.[86] And finally, observed new entry, and the rapid growth of certain entrants, indicate the absence, at present, of material spectrum constraints.

V. Regulatory Intervention in the Wireless Industry Poses a Significant Danger of Dampening Investment, Inhibiting Competition, and Harming Consumers

A. Introduction

63. Competition in the wireless industry has emerged and thrived over time in the face of a procompetitive, minimally intrusive regulatory approach. The fact that past policies have worked so well means that new requests for regulatory oversight should be viewed with great skepticism, and ultimately rejected, absent compelling evidence that there exists a significant and persistent market failure that likely will derail a continuing state of effective competition.

64. The Commission has recently seen a number of proposals for regulating the wireless (or a related) industry. Such proposals address, among other areas, open access, limitations on handset exclusivity, special access rate regulation, and mandatory roaming requirements. None of these proposals is supported by credible arguments proving market failure, and each threatens to harm consumers by muting the investment incentives of marketplace participants and, more generally, dampening competition. In short, most of these proposals properly are viewed as requests for special concessions designed to protect the interests of certain competitors, at the expense of competition and consumer welfare.

[86] *See, e.g.*, "FCC: Verizon Wireless a big 700 Mhz auction winner; Now what?" March 20, 2008 (available at http://blogs.zdnet.com/BTL/?p=8276); "Verizon completes initial testing of 4G wireless service," August 15, 2009 (available at http://topnews.us/content/26580-verizon-completes-initial-testing-4g-wireless-service); "CenturyTel Joins LTE Movement," February 20, 2009 (available at http://www.telecompetitor.com/centurytel-joins-lte-movement/).

B. Open Access

65. Proposed open access requirements refer generally to rules that would proscribe limitations on the "openness" of cellular networks and cellular handset platforms. In short, there is no evidence of market failure that would support regulatory intervention in this area.[87] As noted previously, the wireless industry exhibits a broad array of key indicia consistent with an intensely competitive marketplace – declining prices, increasing output, improving service quality, and substantial capital investment, among others.

66. A regulatory mandate governing the degree of openness is particularly ill-advised in markets, like wireless, that are "two-sided." In a two-sided market, a platform serves both consumers and suppliers (or in some cases two distinct groups of consumers), and indirect network effects are present: each additional consumer increases the benefit of suppliers, while each additional supplier increases the benefit of consumers.[88] A wireless network properly is viewed as a two-sided market because it provides a platform that connects users on one side and application and device developers on the other side.

67. Different platforms vary substantially in numerous ways, including, importantly, the extent to which they are "open" to developers, consumers, or rivals. In most two-sided markets, and in particular in the nascent marketplace for mobile broadband services, it is unclear which institutional arrangements likely will prove most effective in balancing the two sides of the market to the benefit of all participants. In fact, the economic literature shows that in some circumstances closed platforms may be more socially desirable than open platforms. In an open platform, each supplier of a given input takes into account the effect of its price on its own sales, but does not take into

[87] For a discussion regarding the lack of necessity in mandating "openness," *See* Faulhaber and Farber at pp. 25-27.

[88] A familiar example of a two-sided market is a newspaper: the newspaper publisher seeks to attract readers, and as the population of readers increases, the newspaper becomes more attractive to advertisers. At the same time, as the amount of information conveyed through advertising increases, the newspaper becomes more valuable to (at least some significant number) of readers.

account the effect of its price on *total* user demand for the platform. This lack of internalization can tend to induce too little usage, which in turn – through indirect network effects – leads to too little supplier entry. In contrast, closed platforms can more effectively balance the two sides of the market, and operators of such platforms have a greater ability and a greater incentive to devise pricing and other policies that internalize indirect network effects between users and suppliers. This "balancing" between the two sides of the market may lead to higher user adoption and higher total social welfare compared to an open platform.[89] Given the uncertainty about the optimal degree of openness, there are substantial risks associated with a regulatory approach that prematurely condemns any particular strategic approach along the continuum.

68. Rather than fixate on where along the continuum a particular platform resides, sound competition policy should focus on the degree of competition across platforms and whether suppliers seeking to obtain distribution are able to do so. To illustrate this point, consider magazines, which are a familiar example of a two-sided platform. Magazines employ different policies with respect to the types and breadth of advertisements they are willing to run, which means that any given advertiser may be foreclosed from placing an ad in particular magazines. However, the fact that a family-oriented publication may be unwilling to run an advertisement for lingerie or cigarettes in no way implies that regulatory intervention is warranted. For one thing, there exist a multitude of alternative advertising vehicles through which the excluded advertisers in this example can peddle their wares. And moreover, the magazine's decision to place restrictions on the types of ads it will run presumably flows from a recognition that its target audience could very well find such ads offensive or otherwise undesirable. In other words, the restrictions are procompetitive insofar as they facilitate the publisher's ability to attract its target group of readers.

[89] Hagiu, A, "Proprietary vs. Open Two-Sided Platforms and Social Efficiency," working paper.

69. A study of the wireless marketplace reveals a wide range of policies that deliver choices to consumers all along the open-to-closed continuum, including, most importantly for this discussion, options tailored to meet specific consumer demand for an open environment. Google's Android policy, for example, is a self-described "open" operating system, by which Google means that there is no pre-certification required before an application can be made available for the Android operating system (though if a sufficient number of users "flag" an application as problematic, Google will review and potentially remove the application from its app store). On the other hand, Apple reviews and approves applications for security and other reasons before making them available in its applications store. To condemn Apple's approach (relative to Google's Android) would ignore the fact that the iPhone offers a certain level of security and quality that Google's policy presumably cannot. More importantly, forcing Apple to ease or eliminate its applications certification process would do away with an attribute of the iPhone platform that is valued by some consumers.

70. Initiatives adopted by the major service providers also include examples of products and services that would appear to meet particular consumers' desire for an open environment. For example, AT&T for some time has allowed customers to utilize compatible GSM wireless devices on the company's network.[90] With AT&T's "Bring Your Own Device" program, consumers can use a non-AT&T phone, running the operating system of the consumer's choice, simply by acquiring a Subscriber Identity Module (SIM card) from the company, selecting a rate plan, and configuring the device for voicemail, Internet browsing, and text messaging.[91]

71. Certain provisions governing the 700 MHz Upper Band C Block provide yet another example. In the 700MHz spectrum auction conducted in March 2008, the FCC

[90] See http://choice.att.com/flash.customerdevices.aspx ("You've got the choice: either conveniently get a phone through AT&T for guaranteed worry-free functionality, or bring any GSM phone and we'll connect it to our network.").

[91] Id.

mandated that one band of the auctioned spectrum – the C Block – must have an open platform for devices and applications, subject to "reasonable network management." While it is still too early to evaluate fully the impact of the C Block openness provision, the existence of these provisions will ensure the availability of this model in the marketplace and provide empirical experience on which the Commission can base future regulatory decisions. At this stage, particularly given the nascent state of the broadband wireless marketplace and the explosive growth of applications in the last two years, it is at least premature and perhaps generally problematic to consider the imposition of more widespread open access provisions.

72. While much of the discussion in this section is focused on open platforms, I cannot emphasize enough that in the context of two-sided markets, it is the competition between platforms – and not necessarily the degree of openness that characterizes each particular platform – that is central to consumer welfare. For this reason (among others), it is important to resist regulatory proposals based upon a claim that complete "openness" inexorably produces the best market outcomes from a consumer welfare perspective. Such claims are not valid.

73. A final point to make is that an open access mandate could unnecessarily constrain the ability of carriers to offer value propositions that target specific consumer preferences and trade-offs. The Kindle is perhaps the best example – customers pay a flat fee for the device and varying prices for content downloads, but no monthly fee for wireless network access and usage (which is provided by Sprint). Customers also agree not to use the Kindle for anything other than its intended purpose. And it is not difficult to imagine other new products that would be priced low to target value-oriented consumers whose demand for more advanced functions is highly elastic. Importantly, if the developer of such a device were unable to place limitations on the ways in which it was used, its low price might also attract users who, but for the device's availability, would select another, higher-priced device that satisfied their requirements. If this hypothesized cannibalization effect were projected to be sufficiently potent, the

developer could determine that the required investment in the new device would not be recouped, and hence the new device would never get off the ground.

C. Limitations on Handset Exclusivity

74. Several relatively small wireless carriers have taken the position that exclusive distribution agreements between national service providers and cellular handset manufacturers are injurious to competition. Alternatively, some small carriers have advocated that the Commission consider the installation of limitations on the ability of device manufacturers to participate in such agreements. As explained earlier in this declaration, exclusivity agreements often sharpen competition and advance consumer welfare. Such agreements conceivably can lead to market failure only when particular criteria are satisfied, and as discussed earlier, these criteria are not satisfied here.

75. Consequently, curtailment of a provider's ability to join forces with a handset supplier would be expected to diminish the intensity of competition among service providers and among handset manufacturers. In particular, as explained above, such a mandate would dilute provider incentives to invest in their networks, in customer support, and in promotional activities. Additionally, the incentives of handset manufacturers to invest in the development and deployment of innovative devices and technologies would be adversely affected insofar as limitations on handset exclusivity threatened to undermine their ability to recoup those investments.

D. Special Access

76. The Commission has received numerous demands for price controls in special access, a type of dedicated high-capacity transmission used by businesses and communications providers, including for wireless backhaul. As an initial matter, there is no indication in the marketplace that either a lack of availability of special access services, or the prices at which they are offered, have impeded the ability of wireless carriers to compete. As discussed below, there is evidence that strongly suggests competition in special access services is advancing overall, and that competition for wireless backhaul is particularly robust. While I have not undertaken a sufficiently involved assessment of competition in this area to state unequivocally that regulation in

this area is no longer warranted, I would nevertheless oppose the present requests for price controls on a wholesale input based upon my earlier observation that there is no apparent evidence that that there are competitive issues in special access services that have dampened the rivalry among wireless carriers.[92] Indeed, as demonstrated above, competition among wireless carriers and among participants in related market sectors is thriving.

77. Insofar as I have examined the present state of competition in special access services, I have seen no evidence of market failure with respect to the provision of such services to wireless carriers. According to a recent study prepared by USTelecom, investment and innovation in special access services is strong and prices are declining.[93] An average of six fiber-based competitors operate in each of the top 50 MSAs, and competitive providers have deployed over one hundred thousand route miles of fiber that connect tens of thousands of office buildings.[94]

78. Competition is not limited to traditional fiber-based entities, but rather includes cable operators and fixed wireless providers.[95] Cable operators today offer voice, video, and high-speed data services. Next generation cable broadband technology, scheduled to be available throughout the U.S. by 2013, will be capable of transmission rates as high as 100 megabits per second.[96] The top five cable operators collectively already earn roughly $3 billion annually in business services revenues (including high-capacity

[92] It is also worth noting that if it were determined that providers of special access services enjoyed significant and durable market power, the appropriate remedies would not be specific to wireless carriers as customers, but rather would apply more generally and thus be subject to the corresponding process for consideration of available regulatory measures.

[93] "High-Capacity Services: Abundant, Affordable, and Evolving," USTelecom, July 2009 ("USTelecom 2009"), at p. ii.

[94] Id. at p. v.

[95] Id. at p. iv.

[96] Id. at p. iv.

services), and they have announced planned investments on the order of several billion dollars to expand business services.[97]

79. Similarly, fixed wireless providers represent a significant source of competition in the provision of special access services. There are more than a dozen fixed wireless providers offering service in regions throughout the U.S., including nearly all of the top 50 MSAs.[98]

80. Looking ahead, special access services appear to represent a significant growth opportunity for existing providers and potential new entrants. In particular, with respect to wireless backhaul, there are more than 240,000 wireless cell sites throughout the U.S. that must be connected to transport networks. Given projections of increased wireless data usage, industry analysts forecast that wireless backhaul revenues will increase three-fold or more relative to today's $3 billion figure over the next two to four years.[99]

81. Similarly, the bandwidth required to satisfy future demand for wireless broadband services is projected to grow at a compounded annual rate well in excess of 100% through 2012.[100] To keep pace with the projected growth in demand, incumbent wireless providers and new entrants alike will have no choice but to deploy new fiber. I have seen no indication that any particular carrier has, or likely will have, a material advantage *vis-à-vis* its rivals in terms of the deployment of new facilities. Consequently, implementation of price regulation very well could undermine the incentives of both incumbents and new entrants to invest in such deployment.

82. Self-supply should also be counted among the viable competitive alternatives in the area of wireless backhaul. Clearwire has reported that by the end of 2010 its

[97] Id.

[98] Id.

[99] Id. at p. v.

[100] Id. at p. 3.

WiMAX network will reach 120 million people, including 75% of the top 50 cellular markets.[101] The company has more than 18,000 cell sites under development, and has stated that it plans to rely almost entirely on microwave transmission for its backhaul needs. [102]

83. In sum, requests for price controls in the area of special access should be viewed for what they are: appeals for price concessions that would benefit certain marketplace participants, but dampen incentives to invest in new facilities and thereby unnecessarily curb the growing competition presently observed in the marketplace. Indeed, the linkage between mandated lower prices for special access and investment incentives raises more than a theoretical concern. For example, Sprint has stated that it opts not to use microwave in the U.S. precisely because special access is already so inexpensive.[103] Lower than competitive prices for special access generated by inappropriate regulation would only heighten firms' incentives to reply upon legacy technology, at the expense of new competition and investment.

E. Roaming

84. The Commission has been presented with several requests to impose an automatic data roaming obligation on service providers, and to apply that obligation to both current and future data transmission technologies.[104] For several reasons, these requests, if granted, likely would be detrimental to competition.

---

[101] Id. at p. vi.

[102] Id. Clearwire's ability to reach its goals is enhanced greatly by the more than $3 billion in investor capital that it has been able to secure. (*See* the Declaration of Thomas W. Hazlett on behalf of AT&T, September 30 2009, at ¶ 31.)

[103] "Sprint Picks Wireless Backhaul for WiMAX," Industry Standard, July 9, 2008 (available at http://www.thestandard.com/news/2008/07/09/sprint-picks-wireless-backhaul-wimax). According to Sprint's Chief Technology Officer, the reason the penetration of alternative, high-capacity technologies such as fixed wireless in the U.S. lags other nations is because "relatively abundant and inexpensive T1 lines have stifled the technology here."

[104] The Commission also received requests to expand the automatic roaming rule to eliminate the so-called "in-market exception." The current automatic roaming rule requires a serving carrier to provide automatic roaming (limited to voice, SMS and interconnected PTT) to a requesting carrier anywhere outside of a requesting carrier's

(footnote continued …)

85. First, a principal means of competitive differentiation in wireless markets is network coverage. Network coverage, in turn, is a direct function of carriers' substantial investments to build out their networks, even in areas where their prospects for a significant base of customers are slim. If a service provider is compelled to share particular segments of its facilities with competing carriers, its facilities will lose at least some of their potency as a source of competitive differentiation, and its incentives to invest in its facilities will correspondingly erode. The economic logic behind this conclusion is straightforward. A duty to deal obligates a carrier to make portions of its network available to rival carriers, and in the process those rivals likely become more formidable competitors. Because the expected rewards from its network investments are reduced – some fraction is transferred to rivals – its incentives to invest likewise decline.

86. Second, the wireless marketplace historically, and without regulatory intervention, has been successful in promoting roaming agreements between facilities-based carriers and partners on terms consistent with each party's economic self-interest. Importantly, such agreements, by definition, do not interfere with a carrier's incentives to undertake network investments. However, the imposition of regulation with respect to data transmission carries a significant risk that the required pricing will disrupt carrier investment incentives – such an effect would arise if the pricing were set at levels at which the facilities-based carriers would not be willing to enter into roaming agreements but-for the regulatory requirement to do so.

87. A third and related point is that a roaming obligation can deleteriously impact the investment incentives of carriers positioned to capitalize on their access to the facilities

(… footnote continued)

licensed service area. The proposal the Commission is considering would eliminate this "in-market exception" and require the provision of roaming to a requesting carrier anywhere it did not have facilities, even in areas where the requesting carrier was licensed to provide service but had not built facilities to do so. The conclusions in this section, while presented with respect to the proposal to mandate automatic broadband data roaming agreements, apply with equal force to the proposed elimination of the so-called "in-market exception."

of rivals. This potential consequence becomes more likely, and more likely significant, the lower are the prices at which service providers are required to grant access to their networks. Indeed, the public comments of at least one carrier, Leap Wireless, suggests a business strategy to forego facilities investment in rural areas and instead to rely upon roaming arrangements.[105] Compulsory data roaming will solidify a strategy to piggyback on the network investments of rivals, rather than promote efficient incentives to invest in the deployment of data networks in rural and other underserved areas.

88. Finally, data networks at present appear to be under stress, and this situation would only worsen, to the potential detriment of service quality, with roaming obligations that add to existing traffic burdens.

VI. Concluding Remarks

89. Historically, the Commission has examined competition in wireless services through application of a sophisticated and rigorous analytical framework that affords due weight to a number of pertinent economic indicia. The resulting assessments of competition have yielded the correct determination that the provision of wireless services is effectively competitive and should not be subject to extensive regulatory oversight. Looking ahead, there is no reason for the Commission to alter its approach. In particular, the Commission should resist any temptation to lean more heavily on basic concentration metrics that disguise the significant degree of rivalry observed in the marketplace.

90. Application of the current framework to today's wireless industry leads inexorably to the conclusion that the marketplace is effectively competitive, both in the provision of wireless services and in other sectors within the "mobile value chain." Consequently,

[105] Corporate Profile of Leap Wireless: "Leap keeps costs low by engineering high-quality, efficient networks covering only the urban and suburban areas of our markets where most of our potential customers live, work and play. Leap does not incur the cost of maintaining a network or purchasing licenses simply to provide continuous geographic coverage across broad areas." (Available at http://phx.corporate-ir.net/phoenix.zhtml?c=95536&p=irol-homeProfile&t=&id=&.)

proposals for regulatory intervention, if implemented, would be expected to distort the economic incentives of market participants and thereby undermine competition and the delivery of consumer benefits.

I declare, under penalty of perjury, that the foregoing is true and correct.

Robert D. Willig

September 30, 2009