

Chapter 3. The Role of Competition Policy

As the Internet matures, many governments have wound down their role as incubator and anchor tenant. In many economies, including the US, government played a pivotal role in developing the Internet and promoting the proliferation of the Internet infrastructure. Having concluded that the Internet has reached a critical mass, most governments now endorse the view that a largely commercial and private environment will best serve the public interest. Most APEC economies favour a privatised Internet, but not an environment that one could deem laissez-faire, or completely unregulated. This creates a considerable challenge to regulators and policy-makers: the boundary-free packet-switched technology of the Internet does not lend itself easily to regulatory constraints.

The privatized, commercial Internet has shows similar economic characteristics to telecommunication networks¹ Operators have accrued favourable economies of scale and scope through growth. By economy of scale we mean that a sizeable customer base served by large inventory of bandwidth typically leads to operating efficiencies and lower per-unit costs. By economy of scope we mean that ISPs have an incentive to find new profit centres in addition to monthly subscriptions, and that many operators have found they can efficiently provide many Internet-mediated services including electronic commerce and advertiser-supported access to desirable content.

In order to generate positive economies of scale and scope telecommunications and Internet operators alike have worked to expand their customer base, their available bandwidth, the number of interconnection sites, and the richness of the content they offer. Carriers and ISPs hope to profit from the perceived “high” value of the content, as opposed to providing merely carriage or access to content hosted elsewhere. Massive, multi-billion dollar mergers and acquisitions reflect this desire to achieve scale and scope in a speedy fashion; it is easier to acquire the market share of a competitor rather than winning customers and revenues from competitors.

The quest to accrue economies of scale and scope constitutes one of the major reasons the Internet has become more hierarchical², with a small set of major carriers operating the key backbone routes and capturing a large market share, however measured, e.g., by bandwidth, number of subscribers, minutes of use, revenues, number of discrete “hits” to internal web sites, number of discrete DNS sites internal to (“hosted” by) the network, etc.. The small number of major backbone ISPs, coupled with an

¹ For a helpful background on the nature of telecommunications regulation in the context of competition policy see Michel Kerf and Damien Geradin, “Controlling Market Power in Telecommunications: Antitrust vs. Sector-Specific Regulation an Assessment of the United States, New Zealand and Australian Experiences,” 14 *Berkeley Technology Law Journal*, 919 (Fall 1999).

² For additional background on the impact of a hierarchical Internet industry structure on universal service policy objectives see Rob Frieden, “Last Days of the Free Ride? The Consequences of Settlement-Based Interconnection for the Internet,” 1 *Info* No. 3, 225-238 (June, 1999); Rob Frieden, “Without Public Peer: The Potential Regulatory and Universal Service Consequences of Internet Balkanization,” 3 *Virginia Journal of Law & Technology*, 8 (Fall, 1998) available at <http://vjolt.student.virginia.edu/>.

increasingly commercial orientation, has made it possible for the Tier-1 ISPs to demand and secure payments from smaller ISPs for access to their networks and the content they host.

Without judging the merits of whether a more hierarchical Internet does achieve economies of scale and scope, we believe this concentration of market share, however measured, has made it possible for Tier-1 ISPs to secure a superior bargaining position vis-à-vis smaller ISPs.

As the cooperative, nonprofit ethos of the Internet began to fade, however, some providers began to have second thoughts about connecting directly to one another through open peering. Today, large backbone providers such as AT&T, Cable & Wireless, GTE, PSINet, Sprint, Qwest Communications and UUNET consider one another peers and don't hesitate to connect to each other. However, they often spurn smaller ISPs.³

While technical and operational factors do have an impact on the Tier-1 ISPs' interconnection decision making process, the "main reason for not peering, however, is economic".⁴ Accordingly, our analysis in Module Three applies fundamental economic and antitrust/competition policy analysis⁵ when assessing the nature of the current Internet economic structure in the Asia-Pacific region. In addition, economic analysis will serve as the primary basis for the following:

- a projection of future outcomes for the topology of the Internet in the region;
- whether and how the terms and conditions for ICAIS may change in the future.⁶

I. Does a Small Set of Tier-1 ISPs Reduce Consumer Welfare?

³ Jonathan Angel, "Toll Lanes on the Information Superhighway," 15 *Network Magazine*, No. 2, 42, 44 (Feb. 2000).

⁴ *Ibid.*, at 46.

⁵ See generally, W. Kip Viscusi et al., *Economics of Regulation and Antitrust* 377 (2d ed. 1998). For background on United States antitrust law and policy see Richard A. Posner, *Antitrust Law: An Economic Perspective*, 8 (1976); Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and Its Practice* (1994); Georges J. Alexander, "Antitrust and the Telephone Industry after the Telecommunications Act of 1996," 12 *Santa Clara Computer and High Tech. Law Journal*, 227 (1996). For background on antitrust and telecommunications-specific rules in the European telecommunications markets, see Paul Nihoul, "Convergence in European Telecommunications – A Case Study on the Relationship Between Regulation and Competition Law," 2 *International Journal of Communications and Law and Policy*, 1 (1998/99).

⁶ We do not consider what might constitute countervailing, non-economic factors that APEC itself might consider. We note that "APEC is neither a formalized free-trade arrangement, such as that embodied in the U.S.-Canada Free Trade Agreement or the North America Free Trade Agreement (NAFTA), nor a policy and discussion forum such as the OECD." Merit E. Janow, "Assessing APEC's Role in Economic Integration in the Asia-Pacific Region," 17 *Northwestern Journal of International Law and Business*, 947-948 (Winter-Spring 1996-1997).

We believe that one key question in the ICAIS debate involves the impact on consumers of a more hierarchical Internet that features a small number of backbone ISPs in a position to limit SKA, “true peering” to this select group. In this Module we have assessed consumer welfare considerations in the context of operator numbers, market share and the state of competition in Asia-Pacific over all components in a complete Internet link, such as local access to the subscriber’s ISP, the local ISP’s links with other ISPs for access to the rest of the world both in terms of telecommunications carriage and content creation/dissemination.

A healthy and efficiently operating Internet industry – with caveats

In general we conclude that a healthy and efficiently operating Internet industry operates even under a hierarchical structure coupled with a limited number of Tier-1 ISPs. However, we temper somewhat this finding with the recognition that significant bottlenecks exist in the region’s Internet topology, and that some areas are seriously underserved. Likewise, we identify potential areas for monopolistic pricing and anti-competitive behaviour, i.e., the ability of one competitor to raise the costs of others for a service element needed by all competitors and supplied by one or few operators. Also we note that a hierarchical Internet industrial structure results in different types of ISPs incurring different costs for access to both content and carriage. Such hierarchical price differentials have triggered the ICAIS discussion, as some stakeholders consider this pricing differential to be evidence of price gouging by the Tier-1 ISPs, while others consider the differential the logical and reasonable consequence of unequal bargaining power. Without offering an opinion on the equities involved in different ICAIS terms and conditions, we can identify four major causes for the difference:

1. Economies of scale dictates few major players: The facilities-based, long haul telecommunications transmission marketplace has such substantial market entry and operational costs that relatively few operators can efficiently and effectively enter and remain in the market. This view, supported by our empirical analysis of the telecommunications infrastructure and its ownership in Asia/Pacific, contrasts with the comparatively low costs and low barriers to market entry in reselling the long haul services of a Tier-1 ISP;
2. High end-user expectations: The nature of Internet access, from a consumer (end-user) point of view seamlessly blends access to content and the telecommunications transport needed to acquire and deliver the content. Users expect their ISPs to deliver content quickly and effectively regardless of where the content is physically hosted;
3. Better ability to leverage other revenue streams: ISPs recover the cost of Internet-mediated content and the telecommunications transport costs without separately itemizing or disaggregating these costs. With the proliferation of Internet-mediated services triggering the need for ever increasing telecommunications transport costs, ISPs have augmented revenues from end user subscriptions with

- revenue streams from advertisers, a share of electronic commerce revenues and where possible, payments from other ISPs for transiting their networks;
4. Ability to offer or acquire content (Websites, dot.coms): Traffic flows, and more importantly, end user demand for content and Internet-mediated services, directly impact the terms and conditions for ICAIS. ISPs offering superior content and/or content delivery options can demand and fetch premium compensation, the product of commercial negotiation that factors in demand and supply elasticities as well as consumer expectations regarding quality of service.

II. Subjecting the Internet Market Structure to Traditional Antitrust/Competition Policy Analysis

Traditional antitrust/competition policy analysis considers individual firms in the context of the markets within which they operate with an eye toward determining whether and how a firm might engage in anticompetitive and market-distorting behaviour. This analysis has two major tasks:

- Macro-level definition of the relevant product/service and geographical markets; identifying long-haul data service as the heart of the ICAIS issue;
- Micro-level assessment of individual firm market share and potential to engage in practices that harm competitors and consumers.

In this section we will apply traditional antitrust/competition policy definitions and concepts to the Internet in general, and then try to determine whether and how anticompetitive practices have occurred and whether the growth of the APII is hindered or harmed by this behaviour.

Defining the relevant product/service and geographical market

How one defines the market for Internet access and Internet-mediated services directly affects conclusions about whether the market is robustly competitive, or subject to market power and domination by the Tier-1 ISPs. We suggest that any definition of the scope of Internet markets apply conventional competition/antitrust analysis that typically considers the functional equivalency or substitutability of a product or service in determining the “relevant” product or service market. Markets can be defined as including all goods and services considered by consumers to constitute an alternative to the others. Economists measure the substitutability of products and services in terms of cross-elasticities.

We believe that Internet access and Internet-mediated services constitute elements of the single, broader market for bandwidth capable of transporting digital bitstreams. Digitization makes it possible to assemble and deliver a variety of different types of services. While all bits do not have the same function or value, data transport circuits, such as those owned and operated by the Tier-1 ISPs/carriers, serve as the medium for delivering a variety of Internet services and the bitstreams they generate. Accordingly,

we suggest that long haul data transport constitutes the relevant service market for our antitrust/competition policy analysis. Given the international nature of the Internet topology, we suggest the appropriateness of a global geographical market for purposes of assessing the potential for market domination and anticompetitive practices.

Individual or collective behaviour of firms: evidence of market power

Having defined the service and the geographical nature of the market, antitrust/competition policy then requires an examination of the companies serving these markets. This examination considers whether and how one or more firms have market power, the ability to affect the price or supply of one or more elements that make up international data transport services. The appearance of market power correlates with firm size and market penetration, but a finding of market power does not result simply because one firm has a large market share and has a large capitalization. It is important to note that some markets operate efficiently and competitively, despite the fact that a few quite large enterprises have captured the dominant market share. On the other hand, one small, thinly capitalized enterprise might have a near monopoly in a market narrowly defined by type, location or service niche.

Module Three requires us to examine the international data transport marketplace with an eye toward determining whether one or more firms exert market power. This assignment presents significant complexity, because a dichotomy exists in terms of market entry costs and opportunities existing between (1) local and regional ISPs, on one hand and, (2) long haul, national and international backbone ISPs on the other hand.

This dichotomy underscores the importance of the baseline market definition exercise, because one might infer market power-based high market share in narrowly defined markets while another might infer no market share based on a diluted market penetration when using a larger market definition.

The civil aviation model

Perhaps the commercial aviation marketplace provides a helpful example of a similarly dichotomous market. While airlines are expensive, compared to many other industries there are few financial or other barriers that would preclude the creation of a new airline. With a handful of airplanes, leased by a fully leveraged venture, a new airline enters the marketplace. Absent barriers to accessing airport terminal and landing space, the airline can serve a few routes and provide significant competition to incumbents. However, no one would mistake this small and incremental competition as coming close to fostering robust and full competition to what a major incumbent carrier provides. An economy such as the US has hundreds of domestic airlines, but nevertheless only six major carriers are able to control over 70% of the total market as measured by industry-appropriate criteria, e.g., “revenue miles” and “seat miles.”

Depending on one's perspective and market definitions, the commercial aviation marketplace in the US can be characterized as either robustly competitive or as an oligopoly. Despite the absence of bottlenecks in terms of access to capital, airport terminal space and runway landing slots, few airlines compete for long haul traffic, or offer a thoroughly national and international route system.

One would have a harder time justifying the view that a few ventures dominate the market for Internet access and Internet services if these markets were defined in the context of the total number of ventures pursuing some aspect or element of the multi-faceted international data transport (bandwidth) marketplace. Conversely a narrower definition of the Internet marketplace, emphasizing the market share held by Tier-1 ISPs, might support the view that these operators do indeed possess overwhelming market power and hence have the ability to extract high rates and impose "unfair" terms ("monopoly rents" in economics).

There are parallels between the Internet marketplace and that of commercial aviation. While a given economy might have hundreds, if not thousands of ISPs, the overall market breaks down into a large percentage of this large number in fact being quite small, e.g. serving single localities or regions. In every economy there is a limited number of ISPs (and sometimes only one ISP) operating the major long-haul backbone networks needed for domestic and international services.

What makes an ISP an ISP

The start-up costs for a local ISP are minimal; there are quite limited barriers to market entry. A new ISP can enter the marketplace by leasing a few local trunks from the local exchange carrier which – in order to provide subscribers with access to a modem bank for access to the Internet – are interconnected to a few interexchange carrier lines that access the transit services of a larger ISP. The link continues up the hierarchy of ISP in terms of size and reach, ultimately reaching the largest global backbones for traffic to and through the world's major NAPs (although this is far beyond the immediate concern of the smallest ISPs).

On the other hand, a major backbone ISP does not appear overnight. These Tier-1 operators must have the financial and operational wherewithal to construct or lease and manage an immense network of high capacity lines. Few enterprises can amass the needed investment and skills. Accordingly, it should come as no surprise that most of the Internet Tier-1 ISPs are subsidiaries or affiliates of major telecommunication carriers.

Based upon the above, we believe that the small number of global Tier-1 ISPs can raise questions about the potential for the exercise of market power. However, we have not detected empirical evidence that such market power exists. A unilateral decision by one or more Tier-1 ISPs to eliminate open, public peering, by itself, does not evidence an exercise of market power, or any of the anticompetitive practices discussed later in this section.

Certainly, a decision by a Tier-1 ISP to eliminate public peering will raise the cost of doing business for smaller ISPs. But the Tier-1's behaviour may reflect legitimate business judgment rather than reflect any sort of concerted effort to drive smaller ISPs out of the market, thereby reducing the supply of ISP services despite the growing demand for Internet services and bandwidth. We believe that the decision whether and how to peer does not necessarily reflect the exercise of market power.

Likewise, the peering decisions of Tier-1 carriers does not necessarily have any impact on the supply of bandwidth. A peering decision is not typically related a telecommunication carrier's decision whether and when to deploy additional satellite or submarine cable transmission capacity. A peering decision may have a direct impact on the price of Internet services to consumers, but many factors impact pricing decisions and one would need to conduct further analysis to conclude that a change in peering policy constituted the primary reason for an increase in end user prices.

Exercise of market power in anti-competitive ways

We have seen that dominant market share serves as a primary indicator of potential market power. However, other indicators exist that may contribute to a finding of market power even if the computed market share typically would not point toward monopolization or market domination.

A firm may exercise market power by engaging in practices that adversely impact competitors, the robustness of competition and consumer welfare. The potential for such adverse impacts will grow when competitors need to collaborate in order to provide a service, or when competitors need to rely on access to the facilities or services of another competitor to assemble all the elements needed to provide a complete service (e.g., co-location). Internet service provision requires both collaboration (e.g., network interconnection) and cooperation (e.g., access by small ISPs to the backbone, trunks of Tier-1 ISPs on fair, cost-based terms and conditions).

Decisions by Tier-1 ISPs not to collaborate or to cooperate may result from legitimate business decisions, or may constitute an anticompetitive practice. The refusal to interconnect facilities may constitute a "concerted refusal to deal." In antitrust jurisprudence this practice refers to an attempt to drive a competitor out of business or to raise its cost of doing business with the impact of reducing its marketplace attractiveness. Even if a Tier-1 ISP continued to permit lesser ISPs to interconnect, the terms and conditions might constitute a "price squeeze," i.e., an attempt to raise competitors' costs and lower their marketplace attractiveness by increasing the cost of an essential facility, bottleneck or service element needed by the lesser ISP to provide a complete end-to-end service.

ISPs having superior bargaining power may also leverage this power to extract concessions from lesser ISPs in specific ways, e.g.:

- Agreements not to compete in certain service or geographical markets;

- Setting a price floor on the service offered by the lesser ISP;
- Linking the smaller ISP's access to a desired service, e.g., long-haul backbone trunks;
- Forcing a commitment to buy or lease less desirable and/or less competitively provisioned services.

Tier-1 ISPs may attempt to enforce these anticompetitive restraints by threatening to drive non-compliant lesser ISPs out of business with predatory prices and/or deliberate, below cost rates, or with the threat to eliminate access opportunities to the lesser ISP.

In recalling the civil aviation model, the potential for anticompetitive practices and leveraging bottlenecks exists in both the aviation and Internet sectors. In aviation, absent government ownership or effective regulation, the airport operator could discriminate in favour of one particular airline in the manner in which it assigns (or denies) access to gates in the airport terminal and landing slots. For the Internet, access to the local loop and the backbone networks of Tier-1 carriers may be viewed as constituting essential facilities, whose access terms and conditions could either kill or stimulate competition. To the extent lesser ISPs do not have alternatives to Tier-1 ISPs backbone trunks, the lesser ISPs may have to comply with unilateral or collective policies designed to "manage competition."

However, Tier-1 ISPs can exercise market power only if their single or collective (collusive) behavior forecloses competitive alternatives. Whether Tier-1 ISPs can discipline lesser ISPs into submission and acquiescence to unilaterally set terms and conditions on such key matters as interconnection and transit pricing depends on whether and how the lesser ISPs can resort to alternatives, including:

- self-help, e.g., the construction and operation of their own backbone facilities;
- the lease of such facilities from telecommunication carriers who do not also operate as a Tier-1 ISP.

How anticompetitive practices may occur: Tier-1 ISPs bear limited regulatory burdens

Tier-1 ISPs might have the opportunity to engage in anticompetitive practices, because of lax antitrust/competition policy enforcement and a general predisposition not to regulate the Internet. In addition, governments might not consider matters like interconnection and peering policy as constituting anticompetitive practices. In this examination of how governments engage in regulatory oversight, the analogy between ISPs and commercial airlines breaks down somewhat.

ISPs incur substantially less government oversight than their airline counterparts, for four primary reasons:

1. Transport is regulated: governments regulate the telecommunications transport function performed by the carriers who lease facilities to Tier-1 ISPs;⁷
2. The Internet is not a “utility”: notwithstanding its growing importance, the Internet has not approached the status of public utility or functional equivalent to telecommunications;⁸
3. The Internet is largely unregulated now: most governments have purposefully embraced a hands-off strategy with an eye toward promoting entrepreneurialism and private initiatives;
4. ISPs have neglected the economics of the emergent hierarchy: until recently ISPs themselves have emphasized connectivity and global reach even if the network interconnection, access and pricing policies employed to reach that goal, e.g., open peering and SKA reduced profitability and resulted in the possibility that some ISPs would bear disproportionately greater financial burdens to build the network infrastructure than others.

III. Rationale for Regulatory Asymmetry between Telecommunications Regulation and the Lack of Internet Regulation

Historically, domestic regulatory authorities have adopted an inconsistent and dichotomous regulatory regime, in which the Internet and telecommunications are not linked. ICAIS issues currently lack a regulatory forum, because governments have largely refrained from interfering with a commercial, self-regulating system. Accordingly, domestic telecommunications regulatory authorities lack jurisdiction to adjudicate an ICAIS dispute containing an allegation of marketplace abuse or anticompetitive practices. Other adjudicators, including courts, may provide a substitute forum, but it may prove helpful to explore the reason governments have refrained from creating a uniform regulatory regime and forum for addressing both telecommunications and Internet disputes.

⁷ For example in the European Union, Council Directive No. 90/387/EEC, art. 3, O.J. L 192/1, at 2 (1990) establishes baseline principles that facilities-based telecommunication carriers must apply when leasing lines and interconnecting with enterprises providing value added services. While the carriers do negotiate terms and conditions in a commercial, arm’s length atmosphere Open Network Provision principles direct the providers of the underlying transmission capacity to offer access on terms and conditions based on objective criteria, that must be transparent, and published in an appropriate manner and that guarantee equal and non-discriminatory access in accordance with Community law. See Gunter Knieps, *Interconnection and Network Access*, 23 *Fordham Int’l L.J.*, 90 (2000).

⁸ Regulatory asymmetry can work when the products or services involved do not constitute functional equivalents. However, proliferating and developing Internet services have begun to include features that consumers may consider as unregulated substitutes for regulated telecommunication services, e.g., Internet telephony. “In general terms symmetric regulation means providing all suppliers, incumbents and new entrants alike, a level playing field on which to compete: the same price signals, the same restrictions, and the same obligations But all forms of asymmetric regulation contain an intrinsic bias toward some firms or technologies” Mark Schankerman, “Symmetric Regulation for Competitive Telecommunications”, 8 *Info. Econ. & Policy* 55 (1996).

The Internet is considered a contestable or competitive market

Simply put, governments have not installed a regulatory regime for the Internet because they believe one is not needed. An argument against this orthodoxy is that governments have neglected the issue, and that there is a need for closer antitrust/competition policy scrutiny using a better calibrated market definition. Following this argument, consolidation in the long haul market segment would give the Tier-1 ISPs the power to distort the bargaining process and to extract “supracompetitive,” overly generous compensation for access to and transit through their networks. In such an instance, the competitive playing field has tilted in favour of the Tier-1 ISPs who can exploit the inelastic demand for their transport service and the content they have available.

In this case, Tier-1 ISP networks are seen as “essential facilities”⁹ and “bottlenecks,” because all long haul Internet traffic must traverse these facilities in much the same way as this traffic might have only one local loop (tail) routing option provided by an incumbent local exchange carrier monopoly. If governments adopted the view that Tier-1 ISPs networks constitute essential facilities or bottlenecks, then these governments have an economic and legal rationale for applying regulatory instruments aimed at “improving” the terms and conditions for access, including the interconnection/access charges imposed by Tier-1 ISPs on smaller ISPs.

Notwithstanding market consolidation by the Tier-1 ISPs, governments have yet to adopt the view that the long haul Internet access marketplace is oligopolistic and incontestable. First, neither governments nor the consultants have found evidence of absolute denials of access to Tier-1 ISP facilities. Advocates for government intervention dispute the terms and conditions for such access, not that ISPs lack access opportunities.

Similarly, we have uncovered no evidence that the Tier-1 ISPs have conspired or coordinated efforts to hinder smaller ISPs through imposing discriminatory ICAIS terms and conditions. Tier-1 ISPs, operating in the US, now require access and transit payments from smaller ISPs, regardless of their location. However, the imposition of higher, distance sensitive charges on ISPs operating in the Asia-Pacific region imposes a comparatively greater financial burden than that borne by ISPs closer to or within North America.

⁹ The “essential facility” doctrine in antitrust/competition policy supports government intervention to mandate access by competitors to a facility or service provided by one competitor based on the following assumptions: 1) that the competitor has the ability to exert monopoly power over the essential facility, i.e., to deny access, or provide discriminatory access including the imposition of higher access rates on competitors thereby leading to a price squeeze; and 2) that competitors cannot practically or reasonably duplicate the facility. See Daniel Glasl, “Essential Facilities Doctrine in EC Antitrust Law: A Contribution to the Current Debate”, 6 *European Competition Law Review*, 306 (1994); William B. Tye, “Competitive Access: A Comparative Industry Approach to the Essential Facility Doctrine”, 8 *Energy L.J.*, 337, 346 (1987). But compare with Phillip Areeda, “Essential Facilities: An Epithet in Need of Limiting Principles,” 58 *Antitrust Law Journal* 841 (1989); Allen Kezsbom and Alan Goldman, “No Shortcut to Antitrust Analysis: The Twisted Journey of the ‘Essential Facilities’ Doctrine,” 1996 *Columbia Business Law Review*, 1 (1996).

Lastly, we have detected no indication that Tier-1 ISPs have engaged in a strategy to raise smaller ISPs' costs of doing business with an eye toward driving them out of the market. Tier-1 ISPs have not entered Asia-Pacific markets with lower predatory rates. In fact the prevailing market entry strategy of Tier-1 carriers in the region involves acquisitions on terms deemed quite generous, e.g., America On-Line's acquisition of OzMail.

The strongest case for government intervention lies where self-correcting marketplace outcomes cannot be relied upon to remedy short-term problems: a cautious approach would be to reject any possibility of mandatory access except where it is "essential" to the existence of competition. If applicants for access can plausibly invent around the network monopoly, establish their own competitive networks, or join other networks that may not be equivalent but are acceptable alternatives to the dominant network, that arguably might eliminate any consideration of court-ordered access.¹⁰

Advocates for a "hands-off" approach to ICAIS issues emphasize the suitability of marketplace remedies. Following this logic, any discriminatory or unfair terms and conditions regarding access should generate incentives for smaller ISPs to set up their own competitive networks, or collectively join with other smaller ISPs to create a rival long haul network. Likewise, the "hands-off" argument says the profits accruing to Tier-1 ISPs are appropriate rewards for risk taking and achieving marketplace success. Expropriating some or all of the monetary fruits of Tier-1 ISPs' labors simply rewards free-riders and risk-averse players. Also, this approach frees government of the difficult, if not impossible task, of resolving equity and operational issues for which governments may not have any particular skill nor necessarily have a completely impartial interest.¹¹

¹⁰ Robert Pitofsky, "Antitrust Analysis in High-tech Industries: A 19th Century Discipline Addresses 21st Century Problems," 4 *Texas Review of Law & Politics*, 129, 138 (Fall, 1999); see also David J. Teece & Mary Coleman, "The Meaning of Monopoly: Antitrust Analysis in High-Technology Industries," 43 *Antitrust Bulletin*, 801 (1998).

¹¹ See Leonard W.H. Ng, "Access and Interconnection Issues in the Move Towards the Full Liberalization of European Telecommunications," 23 *North Carolina Journal of International Law and Commercial Regulation*, 1 (Fall 1997).