

How will the ISP market behave in the coming years? Imminent consolidation and the end of the small provider era

Como o mercado de provedores de internet se comportará nos próximos anos? Consolidação iminente e o fim da era dos pequenos provedores

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Abstract:

The Internet Service Provider (ISP) market is undergoing structural transformation driven by fixed-cost economics, increasing traffic centralization, and evolving bargaining relationships between network operators and content providers. This article analyzes the economic mechanisms underpinning projected consolidation between 2025 and 2030, emphasizing horizontal integration incentives, infrastructure sharing arrangements, and congestion-sensitive pricing strategies. Drawing on telecommunications economics and game-theoretic models of ISP–content provider interaction, the study argues that high sunk costs, economies of density, and recurrent capacity upgrade requirements generate structural advantages for large-scale operators. While infrastructure sharing can enhance efficiency without necessarily increasing concentration, acquisition-driven integration internalizes assets under unified control and alters competitive equilibria. The analysis concludes that, absent countervailing regulatory or institutional interventions, the sector is likely to experience increasing concentration in densely populated markets. However, the persistence of small providers remains contingent upon financing conditions and regulatory design.

Keywords: ISP consolidation; infrastructure sharing; telecommunications economics; buy-and-absorb strategy; broadband market structure

Resumo:

O mercado de provedores de serviços de internet (Internet Service Providers – ISPs) está passando por uma transformação estrutural impulsionada pela economia dos custos fixos, pela crescente centralização do tráfego e pela evolução das relações de negociação entre operadores de rede e provedores de conteúdo. Este artigo analisa os mecanismos econômicos que sustentam a consolidação projetada entre 2025 e 2030, com ênfase nos incentivos à integração horizontal, nos acordos de compartilhamento de infraestrutura e nas estratégias de precificação sensíveis ao congestionamento. Com base na economia das telecomunicações e em modelos de teoria dos jogos aplicados à interação entre ISPs e provedores de conteúdo, o estudo sustenta que os elevados custos irrecuperáveis (*sunk costs*), as economias de densidade e a necessidade recorrente de ampliação da capacidade geram vantagens estruturais para operadores de grande porte. Embora o compartilhamento de infraestrutura possa aumentar a eficiência sem necessariamente elevar a concentração de mercado, a integração por meio de aquisições internaliza ativos sob controle unificado e altera os equilíbrios competitivos. A análise conclui que, na ausência de intervenções regulatórias ou institucionais capazes de contrabalançar esse movimento, o setor tende a apresentar crescente concentração nos mercados mais densamente povoados. Entretanto, a permanência dos pequenos provedores continuará dependendo das condições de financiamento e do desenho regulatório.

Palavras-chave: consolidação de ISPs; compartilhamento de infraestrutura; economia das telecomunicações; estratégia de aquisição e incorporação (*buy-and-absorb*); estrutura do mercado de banda larga.

Introduction

The structure of broadband markets has progressively shifted in response to technological evolution and strategic realignment within digital ecosystems. Empirical evidence indicates that the Internet has become increasingly “flattened,” with large content delivery networks and major Internet Service Provider (ISP) establishing direct interconnections that bypass traditional

hierarchical intermediaries [1]. This topological centralization concentrates traffic flows and enhances the strategic relevance of large autonomous systems.

At the same time, competition in content delivery and media streaming markets has intensified. ISPs and backbone providers have expanded into adjacent service layers, reshaping inter-layer competition and modifying pricing strategies [2]. These developments alter bargaining power between access providers and content platforms and create structural incentives for consolidation.

Understanding how the ISP market will behave between 2025 and 2030 requires examining the interaction between cost structure, bargaining dynamics, and institutional frameworks.

Broadband infrastructure is characterized by high fixed and sunk costs combined with relatively low marginal costs. Capacity upgrades in optical core networks require substantial capital allocation and involve trade-offs between deploying new fiber and leasing existing infrastructure. Techno-economic evaluation demonstrates that hybrid solutions combining multiband and multifiber technologies can significantly reduce CAPEX while maintaining traffic admissibility targets [3]. However, the ability to implement such strategies depends on scale and financial capacity.

Infrastructure sharing mechanisms further illustrate the importance of cost structure. Comparative analysis of wireless broadband deployment models shows that passive and active sharing arrangements improve investment viability relative to standalone strategies, particularly under neutral host configurations [4]. Similarly, sharing of network infrastructure in telecommunications markets has been presented as a response to competitive pressure and capital constraints [5].

It is crucial to distinguish between cooperative infrastructure sharing and consolidation via acquisition. Sharing arrangements may preserve multiple operators while improving efficiency. By contrast, acquisition-driven integration

internalizes assets and subscriber bases under unified control, directly affecting market concentration.

Game-theoretic models of ISP–content provider interaction provide insight into consolidation incentives. Nash bargaining frameworks demonstrate that coalition formation can lead to profit outcomes approaching theoretical upper bounds when fixed costs are shared and strategic coordination occurs [6,7]. Larger operators possess advantages in such bargaining environments due to greater subscriber bases and traffic control.

Pricing behavior under network congestion further reinforces asymmetries. When congestion effects are non-linear, dominant ISPs may adopt transfer pricing strategies that either exclude competitors or strategically alter cost allocation between service layers [8]. These dynamics raise entry barriers in densely populated markets and increase the competitive vulnerability of small providers lacking bargaining leverage.

The allocation of network investment costs remains a contested issue in digital markets. The debate over fair-share payments argues that content providers may contribute to infrastructure expansion to address externalities and stimulate investment [9]. Economic analysis suggests that such mechanisms alter investment incentives and bargaining positions, potentially strengthening established operators capable of negotiating complex agreements.

Institutional financing conditions also influence market structure. Changes in public infrastructure financing arrangements can reshape capital availability for smaller operators [13]. Consequently, consolidation trends cannot be treated as purely technological outcomes; they are conditioned by regulatory design and financial architecture.

Between 2025 and 2030, broadband markets are likely to experience increasing concentration in urban and high-density regions due to economies of density, recurrent capacity upgrades, and bargaining asymmetries. Larger operators can internalize fixed costs more efficiently and negotiate favorable interconnection or content delivery agreements.

However, this trajectory is not deterministic. Infrastructure sharing frameworks may mitigate concentration effects if designed to preserve competitive entry. Similarly, regulatory interventions addressing interconnection fairness and investment incentives can influence structural outcomes.

The behavior of the ISP market in the coming years will therefore depend on the interaction between structural cost advantages, strategic coalition formation, and institutional constraints.

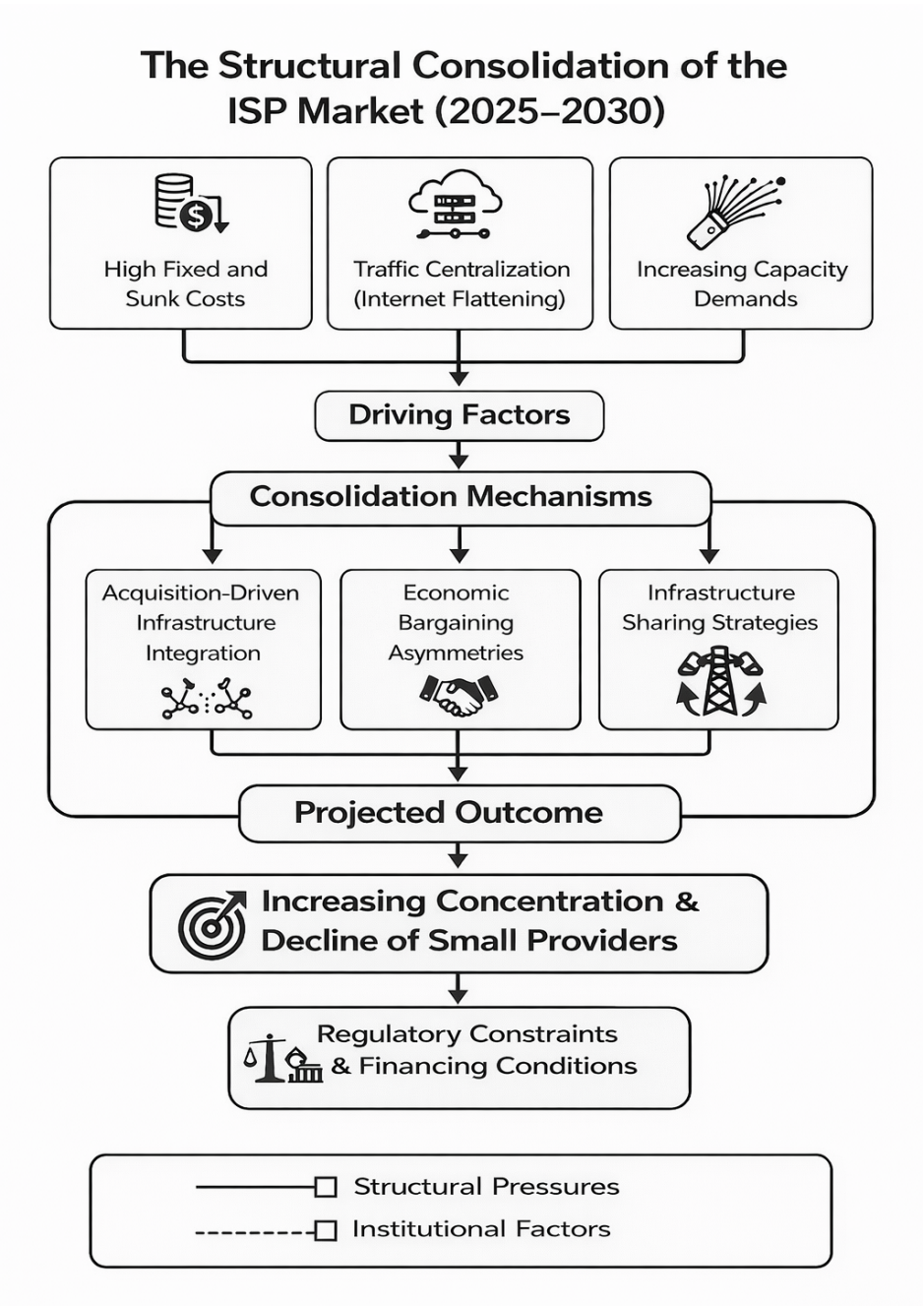


Figure 1. Conceptual Framework of ISP Market Consolidation Dynamics

Source: Created by author.

The ISP sector is undergoing structural reconfiguration driven by fixed-cost economics, traffic centralization, and evolving ISP–content provider bargaining dynamics. Economies of density and recurrent capacity requirements generate advantages for large-scale operators, creating consolidation incentives in competitive markets. While infrastructure sharing can enhance efficiency without necessarily reducing the number of market participants, acquisition-based integration alters competitive equilibria by concentrating control over assets and subscriber bases.

Absent countervailing regulatory or financial mechanisms, concentration is likely to increase in dense markets between 2025 and 2030. Nonetheless, the persistence of small providers remains contingent upon institutional design, access to capital, and the configuration of infrastructure-sharing frameworks.

References

1. Ueda K, Tagami A. Internet flattening and consolidation considered useful (for deploying new Internet architecture). *Proc ACM (de) Centralization Internet*. 2021. doi:10.1145/3488663.3493688
2. Chiang IR, Jhang-Li JH. Delivery consolidation and service competition among Internet service providers. *J Manag Inf Syst*. 2014;31(3):135–168. doi:10.1080/07421222.2014.995561
3. Jana RK, Srivastava A, Lord A, Mitra A. Optical cable deployment versus fiber leasing: an operator's perspective on CapEx savings for capacity upgrade in an elastic optical core network. *J Opt Commun Netw*. 2023;15(5):A76–A89. doi:10.1364/JOCN.483200
4. Kumar SKA, Oughton E. Infrastructure sharing strategies for wireless broadband. *IEEE Commun Mag*. 2023;61(2):46–52. doi:10.1109/MCOM.005.2200698
5. Urti MS. O compartilhamento de infraestruturas de rede no SEAC e no setor de telecomunicações. *Rev Direito Economia Soc*. 2020;6(1). doi:10.26668/indexlawjournals/2526-012x/2020.v6i1.6387

6. Mitra D, Sridhar A. Consortiums of ISP-content providers formed by Nash bargaining for Internet content delivery. Proc IEEE INFOCOM. 2019. doi:10.1109/INFOCOM.2019.8737380
7. Mitra D, Sridhar A. The case for formation of ISP-content providers consortiums by Nash bargaining for Internet content delivery. arXiv. 2018.
8. Key P, Steinberg R. Pricing, competition and content for Internet service providers. IEEE/ACM Trans Netw. 2020;28(5):2296–2309. doi:10.1109/TNET.2020.3010550
9. Condorelli D, Padilla J. Fair-share payments for network investments. Inf Econ Policy. 2025. doi:10.1016/j.infoecopol.2025.101127
10. Silva MS. Política financeira do BNDES: reconfiguração do arranjo institucional do financiamento à infraestrutura (2016–2020). Brasília: IPEA; 2023. doi:10.38116/978-65-5635-049-3/capitulo8
11. Sustainable solutions for urban infrastructure: The environmental and economic benefits of using recycled construction and demolition waste in permeable pavements. (2025). *ITEGAM-JETIA*, 11(53), 131-134. <https://doi.org/10.5935/jetia.v11i53.1886>
12. Analysis of the performance of helical piles under various load and geometry conditions. (2025). *ITEGAM-JETIA*, 11(53), 135-140. <https://doi.org/10.5935/jetia.v11i53.1887>