

Economics of DSL: To Regulate or Not?

A joint research study by E-Business Strategies and Electronic Commerce Institute at GSU highlights the comparative market structure and evolutionary dynamics of the DSL market. The proposed legislation must recognize and position itself around the macro and micro facets of the industry. The study has implications for legislators, Baby Bells, and CLECs. This brief presents the main points of the study. For further information, email contact@ebstrategy.com.

Conflicts and Shakeout in the DSL Space

The Digital Subscriber Line (DSL) market is undergoing a severe shakeout. This is attributed to the battle for market position between the Competitive Local Exchange Carriers (CLECs) – e.g., Covad; and the Incumbent Local Exchange Carriers (ILECs) – e.g., BellSouth.Net. The DSL providers or the CLECs who piggyback on the Baby Bells' last-mile local loops are alleging that the monopolies are abusing their power. The allegations include lower quality of service and higher prices.

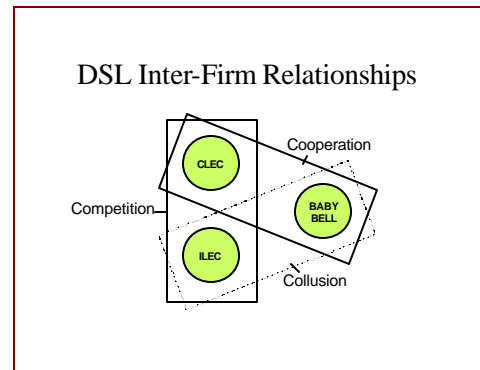
These allegations are raising the specter of more anti-trust regulation. The Baby Bells are required by the 1996 Telecom Act to open their networks to competition. The Bells argue that they have spent billions of dollars upgrading their voice systems to support DSL, the benefits of which their competitors enjoy. They say forcing them to lease their lines at below-market prices would destroy their economic incentives to build broadband networks, asserting that their CLEC competitors should be required to pay for some of these investments. To understand the conflict, it is important to understand the Inter-Firm Relationships in the DSL marketplace.

Inter-Firm Relationships

- *What is the DSL market structure?*
- *How do we explain the current tension in the market?*

With DSL technology threatening to cannibalize their lucrative T-1 services, the Bells jumped into the business and started their own DSL units. These units, the ILECs, compete directly with startup DSL companies, the CLECs. But the CLECs are dependent on the Baby Bells for last-mile infrastructure. This leads to an interesting game: **competition** (between CLECs and ILECs), **cooperation** (CLECs and Baby Bells), and **collusion** (between ILECs and Baby Bells).

The industry's performance (producing benefits for consumers) depends on the conduct (behavior) of firms, which, in turn, depends on this three-way market structure (factors that determine competitiveness). Proposed legislation (see below) neither acknowledges the market structure nor completely separates the economic incentives of Bells and ILECs. Such separation has occurred in other regulated industries – airlines cannot own airports.



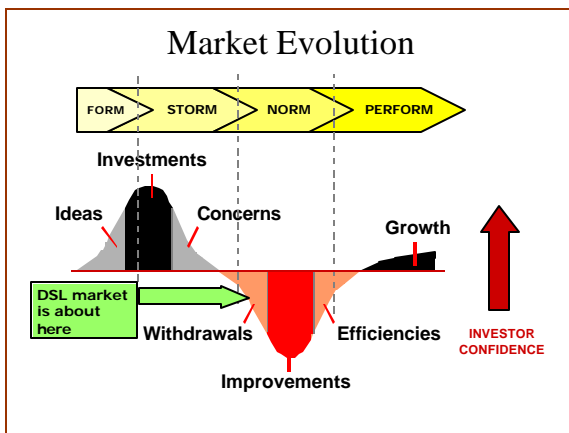
Legislation must consider market structure

Proposed Legislation

- *Is the Tauzin-Dingell bill the appropriate remedy for the current DSL environment?*
- *Are the Conyers-Cannon and Cannon-Conyers bills proposing the correct remedy?*
- *How does one analyze the right remedy?*

In favor of the Baby Bells, a bill called the Tauzin-Dingell bill is working its way through Congress. It would strip Baby Bells of their current obligation to lease DSL loops. By doing so, the bill aims to address a specific dimension of the digital divide, the gap in Internet penetration rates that exists between rural and metropolitan areas. By providing the Baby Bells with monopoly rents in the broadband market, it hopes to encourage them to build out their networks to rural and inner city areas.

Favoring the CLECs, two related bills, Conyers-Cannon and Cannon-Conyers, have been proposed. They prohibit the Bells from entering the long-distance market in data services and boost the penalties they pay for failing to open their networks. The bills also provide \$3 billion for loans to broadband providers to encourage them to deploy high-speed networks in rural and underserved urban areas. To assess the correctness of the proposed remedies, it is important to understand where we are in the evolution of the market.



Legislation must consider market evolution

Market Evolution

- *How do markets evolve?*
- *Where is DSL market in its evolution?*

We found that technology markets evolve in four phases – forming, storming, norming, and performing. Each phase represents the number of players in a market and their rate of entry or exit. Phase shifts occur in sync with oscillation in investor confidence from optimism to pessimism to realism eventually.

We also found that the DSL market is in the norming phase. This implies that a shakeout is underway due to cutthroat competition, low venture investments and decreased interest from capital markets.

Any proposed regulation must take the state of market into account. They cannot introduce remedies that might be appropriate for the forming or storming phase. The misalignment between the market phase and proposed remedy has the potential to cause more turmoil in the markets.

To explain and predict behavior of the players in the market we analyzed the inter-firm relationships in the various phases. The key results from the model are presented below.

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Explaining Behavior in the Current Storming Phase

- *Are the allegations that Baby Bells charge CLECs more than ILECs for service justified?*
- *Are the allegations that Baby Bells set lower QoS levels for CLECs than ILECs justified?*

Low Quality of Service (QoS)

The Baby Bell offers as low a QoS as possible for both the CLEC and the ILEC. In the storming phase, the end users are not fully cognizant of the nuances of DSL technology and, hence, not very sensitive to QoS issues. They are mainly price-sensitive. This insensitivity to QoS means no value creation in the end-user market from maintaining high QoS levels but, instead, only costs for a Baby Bell. Further, a lack of "technology maturity", that is, a lack of understanding of the operational complexities of DSL on behalf of the Baby Bell does not justify any investments by it to raise QoS.

Service Fees and QoS Disparity

The Baby Bell charges the non-affiliate CLEC a greater service fee and offers lower QoS than the affiliate ILEC. With the CLEC, the service fee is the only revenue source for the Baby Bell, while with the affiliate ILEC the end-user market is also a source. Thus, for same QoS level, the Baby Bell charges the CLEC a higher service fee. Further, for same QoS level, the Baby Bell appropriates only a portion of the overall value creation in the end-user market with the CLEC whereas with the ILEC it appropriates all of it. Since cost of QoS is the same in both cases, the Baby Bell has an incentive to lower QoS for the CLEC.

End-User Pricing

The CLEC subsidizes its service to sustain market share. The CLEC should optimally charge the end-users a higher price than the ILEC to cover the higher service fee it pays to the Baby Bell. But with higher price (and lower QoS), why would price-sensitive (and any QoS-sensitive) users choose the CLEC over the ILEC? The CLEC simply has to subsidize its service below its cost (and be competitive with the ILEC's pricing) in order to sustain market share.

Predicting Behavior in the Norming & Performing Phases

- *How will the QoS level change as the market matures?*
- *Will there be differential pricing to DSL providers?*

Increase in QoS

The Baby Bell will optimally increase its QoS level to both the CLEC and the ILEC. However, the disparity in QoS offered to the two parties will continue. Consumers are more sensitive to QoS in the norming phase than in the storming phase. In the case of the CLEC, the Baby Bell increases its QoS to capitalize mainly on the value creation to end-users from a higher QoS. In the case of the ILEC, it does so both to capitalize on the value creation and to avoid reduction of DSL demand or leakage to the competing CLECs and broadband cable technology.

Greater Disparity in Service Fees

The Baby Bell will charge the non-affiliate CLEC increasingly more than the affiliate ILEC. Greater sensitivity to QoS by end-users means opportunity for value appropriation in the end-user market from high QoS levels. Since service fee is the only source of revenue when dealing with the CLEC, the Baby Bell capitalizes on the value appropriation opportunity for the CLEC by increasing the service fee (compared to storming phase). But the Baby Bell has no such incentive with its affiliate ILEC.

End-User Pricing

The CLEC will optimally engage in lower pricing than the ILEC. With QoS-sensitive users, the CLEC has to lower its pricing mainly to prevent leakage of demand to the competing ILEC that offers a higher QoS. Otherwise, why would end-users choose a service that both offers a low QoS and charges a high price? A "forced" vertical differentiation in the marketplace is imminent with the CLEC compelled to cater to the lower-end of the market with low QoS and the ILEC servicing the higher-willingness-to-pay end-user base.

Implications

- *What must legislators and regulators do?*
- *How should the Bells adjust their QoS and pricing? Should they differentiate between CLECs and ILECs?*
- *How should the CLECs avert the potential vertical differentiation scenario?*

Legislators and Regulators

Legislation must be viewed as a control mechanism or a roadmap for migrating the DSL industry from where it is today to where it should be tomorrow.

Understanding and accepting where the industry is today in its phase evolution is an essential part of such a migration map. In addition, understanding the incentives of market players as influenced by the underlying market structure is another essential component, for legislation might want to change that market structure itself.

Finally, if problems in the industry are at a micro-level (as is the case with QoS and price disparities), legislation must get to the micro-level rather than solving problems at the macro-level.

Baby Bells

Baby Bells are justified in offering lower QoS and charging higher prices to the CLECs. But as the market evolves to norming and later to the performing (mature) phase, the Bells must increase their QoS levels to both CLECs and ILECs.

They must do this to increase customer satisfaction and prevent mass customer exodus to competing cable and broadband services. The other reason is to increase the utilization of their upgraded networks and thereby recover costs of upgrading.

CLECs (DSL Providers)

CLECs must steadily build customer loyalty and a strong brand. If they don't do this they will be relegated to the lower end of the market where they will be competing solely on the basis of price.

To get a higher QoS, CLECs might be better off paying for access. By entering bilateral agreements with the Baby Bells, the CLECs can look to reach a middle ground where the QoS to their customers will be higher (than without the agreement) and control how low the lower-end is.