Columbia Business School

Topics in Functional and Structural Separation Dynamics

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NETWORK SEPARATION: Models, Economics and regulatory implications

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Agenda

- **What are the different separation models?**
- **Rise and fall of separation models**
- **Conditions of separation occurrence**

Separation models in telecommunications are oriented to correct monopoly “bottlenecks” or limit market power in the value chain

ARGUMENTS AGAINST VERTICAL INTEGRATION WITHIN THE VALUE CHAIN

- Access networks represent a necessary input in the production of communciation services
- If there are no economically viable alternatives to the incumbent access network, the market is not competitive and, therefore it has a negative impact on consumer welfare and on static and dynamic efficiencies
- Substitute technologies to fixed networks (e.g. Wimax) are not viable yet
- In order to create a free competitive environment, open access needs to be reinforced with the physical and commercial separation of access network operations
- However, if the alternative platforms (e.g. cable) are deployed, the “bottleneck” argument loses economic relevance

ARGUMENTS AGAINST PLATFORM INTEGRATION

- The vertically integrated incumbent has, due to scale and scope advantages, an unsurmountable advantage over other competitors
- Market liberalization, oriented to meet consumer benefits, requires structural separation between businesses with high market share to equalize entry conditions of new operators (i.e. telco/cable; fixed/wireless)
- In this case “market power” is the most important variable in the determination of the need for structural separation

Four models of separation can be identified

<table>
<tr><th>MODEL</th><th>CHARACTERISTICS</th><th>CONTROL MECHANISMS/INCENTIVES</th></tr>
<tr><td>Accounting</td><td>• Separation of accounting books and statements
• Reporting to the regulator of key metrics</td><td rowspan="3">• Regulation
– Principle of equivalence
• Tariffs
• QoS
• Provisioning interval
– Information transparency
– Business process monitoring (accounting, operational and market information sgementation)
• Compensation based on division results and not group performance</td></tr>
<tr><td>Establishment of a wholesale division augmented with a virtual separation</td><td>• Independent management team of the wholesale unit
• Responsible for production and supply of services to alternative operators
• Regulatory agreement to abide by principles of equivalence and information transparency</td></tr>
<tr><td>Functional or Operational</td><td>• Separation of management, operations and decision making of autonomous business unit
• Consolidation of financial statementes in a single corporate results statement
• Complete equivalence imposed by the regulator and monitored by an independent entity</td></tr>
<tr><td>Physical or Structural</td><td>• Separation of assets and other elements, which reside in a different entity
• Wholesale unit of separate entity negotiates both with incumbent and new entrant customers under the same conditions
• Independent financial statements</td><td>• Independent board
• Distinct shareholder units
• Alternative Distribution Companies</td></tr>
</table>

Note: Some analysts have built different taxonomies:

- OVUM: three models (accounting, operational, structural)

- Cave: six models within a range that goes from Accounting Separation and Structural Separation (creation of a wholesale unit, virtual separation of commercial units, business unit separation with autonomous management systems, business unit separation with incentives, business unit separation with independent governance, legal separation under the same group)

Each model exhibits advantages and disadvantages

MODEL	ADVANTAGES/BENEFITS	DISADVANTAGES/COSTS
Accounting	• Allows visibility of costs in service provisioning	• Does not guarantee the elimination of discrimination • Still allows access of market information by all of the incumbent's business units, which could reinforce market power
Establishment of a wholesale division augmented with a virtual separation	• Guarantees offer of access to competing carriers while preserving the benefits of vertical integration (coordination, scale and scope)	• Does not garantee the elimination of discrimination – Lack of clear definition of equivalence objectives – Processes and systems have been designed to meet the requirements of a vertically integrated operator • Requires adjustments and process/procedures for regulatory reporting to garantee relative equivalence; however, the lack of metrics remains an obstacle to achieve clear goals • Lack of management incentives to enforce equivalence
Functional or Operational	• Provides benefits of vertical separation based on reengineering of processes needed for handling the equivalence of service • Introduces management incentives and objetives to guarantee the equivalence • Reduction of capex in redundant infrastructure	• Difficulty in defining organizational frontiers • Does not address the key topic of capital investment in the access network (e.g. fiber) • Negative impact on synergies
Physical or Structural	• Equivalence could be monitored in a transparent mode • Reduction of regulatory intervention	• Requires redefinition of business processes • Difficulty in determining the precise boundary of asset separation – Based on the market they serve? – Potential conflicts in management of network elements

Separation can be either imposed or voluntarily offered by the network operator

REGULATORY IMPOSITION

- Incentive for market liberalization
- Limit incumbent market power
- Guarantees non-discriminatory access for market participants – reduces incentives and capabilities to discriminate
- Precludes the emergence of cross-subsidies
- Reduction of regulatory load
  - Allows foucs on other markets
  - Regulation of markets without bottlenecks is simpler, more efficient and less costly
- Simplifies access to cost information – more transparency
- Improves coordination with other providers for planning based on more realistic demand estimates

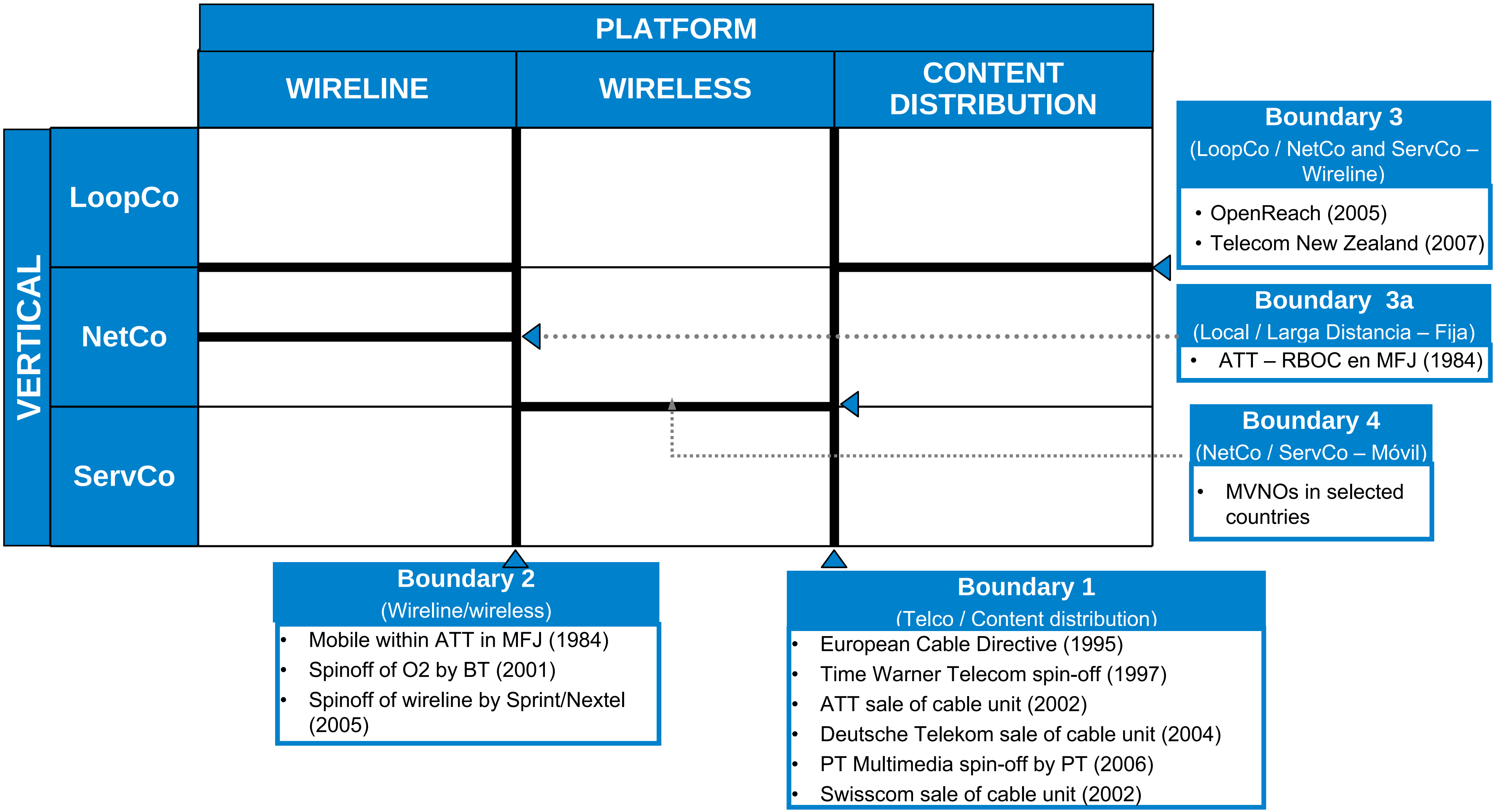
INCUMBENT DECISION*

- Financial engineering
  - Liquidity problems (O2, 2001)
  - Exit strategy for investment groups (PCCW, TDC, Eircom)
  - Holding company need (TI, PT)
- Limit regulation of retail business (quid pro quo) (BT / Openreach 2005)
- Avoid conflicts in market access (Time Warner / Time Warner Telecom 1997)
- Reduce conflicts regarding resource allocation (ATT / Lucent 1996)
- Improve flexibility and strategic focus
- Avoid imposition of a more rigid regulatory framework (BT, 2005; ATT, 1984; Rochester Telecom, 1995)

Note: Some moves can respond to more than one motive

There is no limit to the creativity of policy makers and management in defining separation boundaries

SEPARATION BOUNDARIES



The evolution of ATT since 1984 exhibits two opposing moves toward separation and vertical reintegration (both imposed and/or voluntary)

ATT – SEPARATION/INTEGRATION CYCLES

	1984 – 1989	1990 – 2000	2001 – 2004	2006
Separation Movements	• MFJ physically divides Long Distance / equipment and Local/Mobile (1984)		• ATT sells Media One (2002) • ATT sells ATT Wireless (2004) • UNE court decisions and FCC rulings (2004)	
Integration Movements		• ATT acquires Teleport to enter into enterprise local business (1990) • ATT acquires McCaw to enter into wireless (1995) • "Telecommunications Act" (1996) allows ATT to enter into the local business • ATT acquires Media One to enter into content distribution and local voice (1999) • ATT captures close to 10% of the local market via UNE		• SBC acquires ATT LD and reintegrates it within a dominant position in the local markets

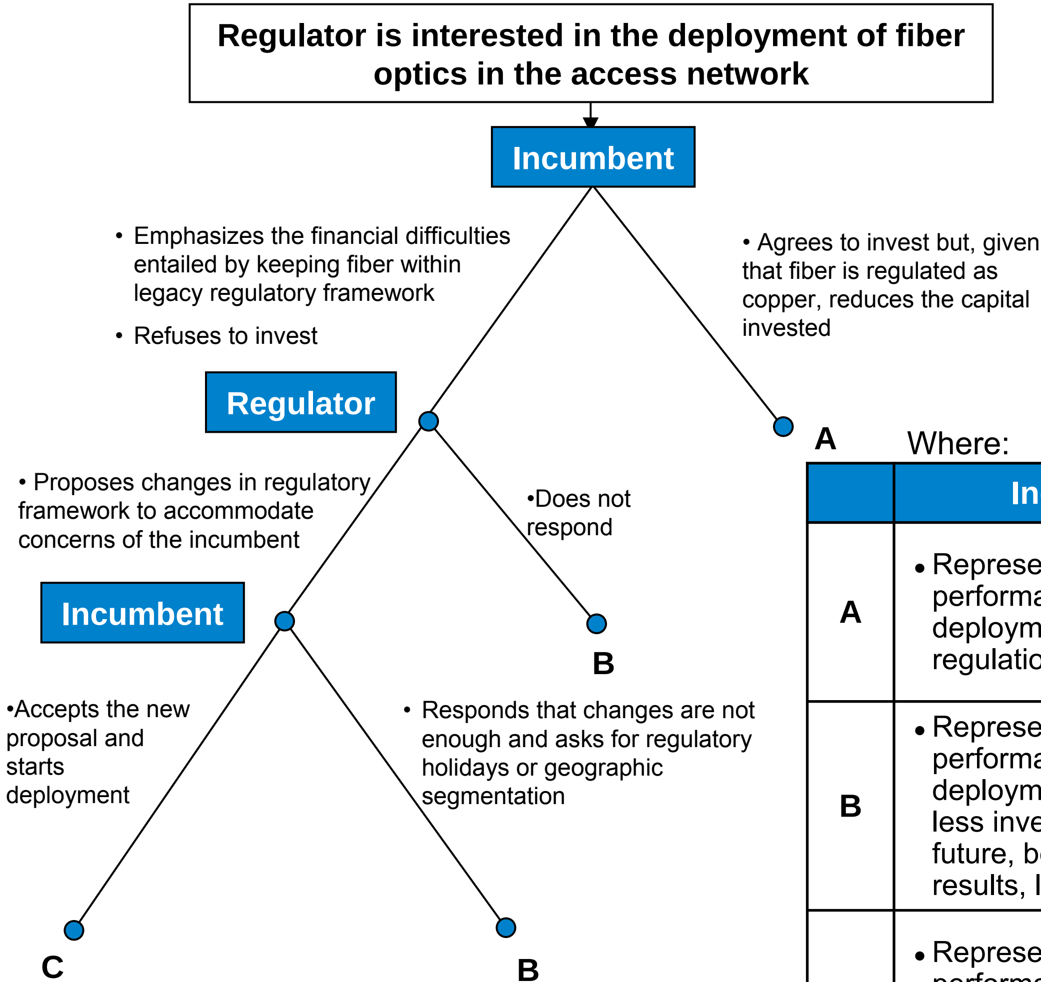
Regulatory Moves

In general, functional separation is enacted under five conditions

CONDITIONS	BT	TELECOM NEW ZEALAND	TELSTRA
• **Failure of prior liberalization moves (LLU, facilities-based)**	• Ofcom reports low level of competition in the local market (under LLU) and threatens BT with action of the Competition Commission	• The regulator reports that they have not achieved the wholesale service objetives – of 83,000 residential broadband LLU lines, only 63,495 had been achieved	• The regulator sues Telstra for anticompetitive behavior and price discrimination
• **The incumbent perceives the opportunity of migrating to a lighter regulatory framework in its core business**	• BT responds to the Ofcom pressure to avoid an imposed structural separation and reduce the regulatory pressure on the retail market	• TZN responds with proposal similar to BT's and announces that it will not wait for its approval to start implementing it	• Telstra makes progress in implementing the regulatory proposal • However, it questions the level of regulatory pressure imposed by the regulator
• **Support from policy makers**	• Ofcom approves BT's undertakings	• The regulator considers that the incumbent's proposal need to be further refined	• The government supports the incumbent's proposal without considering the oppostion's pressure to harden regulatory pressure
• **Support from investment community**	• Analysts perceive the opportunity of a future sale of Openreach	• The changes in New Zealand regulatory pressure is considered to be negative for TNZ value – who proceed to recommend the Sell from a Buy	• The regulatory tension results in a drop in share price and a Sell recommendation from analysts
• **Presence of two individuals (regulator and incumbent CEO) capable of constructing a shared vision of the future environment**	• Openreach is designed by BT's CEO and the Head of Ofcom	• The process has entailed friction between management of the incumbent and the government which has generated implementation obstacles	• Telstra has fulfilled the proposed timeframes for the submission of a separation program • However, the confrontation between the regulator and the CEO has affected the context for selling government's share

Favorable conditions

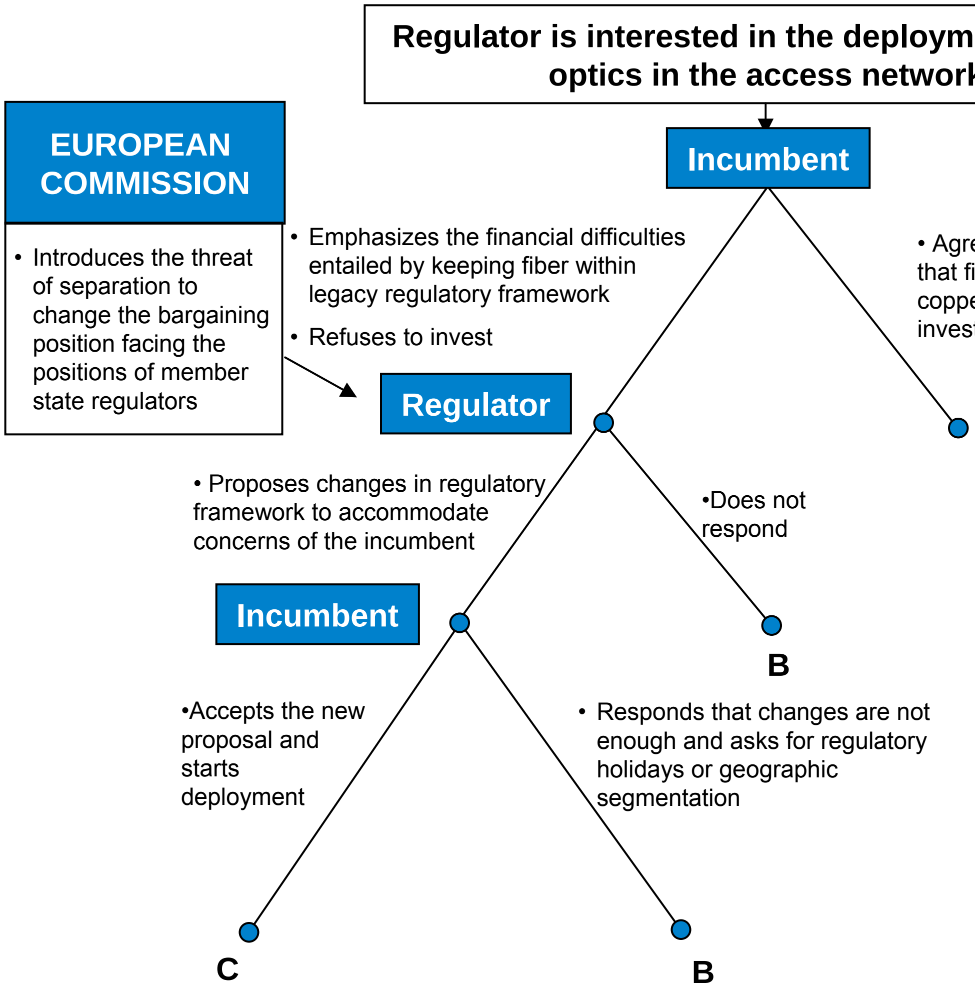
The investment in fiber optics in the access network introduces a negotiation between incumbents and regulators



Where:

	Incumbent	Regulator
A	• Represents financial performance of fiber deployment under price regulation	• Subjective valuation of welfare benefit of having imposed regulatory framework but slowed down investment
B	• Represents financial performance with no fiber deployment (less capex, less investment for the future, better short term results, loss to cable)	• Delay in fiber deployment raises socio-economic issues (impact) and potential loss of sujective value
C	• Represents financial performance reflecting different wholesale prices for copper and fiber	• Subjective valuation of welfare benefit of new framework, comprising fiber deployment but higher pricing

The separation threat is a measure aimed at altering the regulator's bargaining power in NGAN negotiations



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Separation will continue to exist as a concept as long as the telecommunications industry lives

- So far adopted in different flavors by:
  - Functional: UK, Sweden, New Zealand, Australia
  - Layer 1: Singapore
  - Network: Italy
- Momentary slowed down in Europe and Asia/Pacific due to the current economic circumstances
- Could re-emerge in the near future if a combination of government investment, consolidation and open access create a strong drive toward limitation of market power
  - Option 1: Local access functional separation
  - Option 2: Fixed/mobile
- However, no shareholder upside in any separation moves except for private equity holders searching for exit strategies (Eircom, TDC)