Determining Market Demand in the International Bandwidth Industry

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THE MANY ROLES OF THE MARKET AND TRAFFIC STUDY

1. To identify market opportunities prior to project development
2. To guide project design and structuring during development
3. To forecast the feasibility of a project that is fully conceived
4. To guide the project’s marketing strategy
5. To allow potential investors and lenders to evaluate a project
6. To serve as due diligence
WHO ARE THE CLIENTELE FOR THE STUDIES?

- Project Developers
  - Commercial / Investment Banks
  - Advisors, Arrangers, Lenders, Investors

- Private-Sector Financial Institutions

- Governments
  - Promote and Attract Projects with Incentives
    - Investments
    - SPV w/ Gov’t. Shareholding
    - SPV w/ Gov’t Contribution
    - BOT Concessions
    - Project Mgmt. Contracts

- Multilateral Development Banks
  - Identify Market Opportunity
  - Foster Incipient Projects
  - Supplier Financing

- System and Equipment Suppliers

- Network Developers
- MNOs / Fixed Operators
- ISPs
- Content Providers

- ISPs
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- ISGs
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- ISGs
Intercontinental bandwidth demand has increased from ~50 Tbps in 2011 to ~190 Tbps in 2016.

Growth is highest in:
- Southeast Asia
- South Asia & ME
- Australia & So. Pacific
- Latin America
- Africa
KEY DRIVERS OF INT’L. BANDWIDTH DEMAND

1. Mobile data, especially in developing markets, where:
   A. Volume growth is typically 75% to 100% per year; potential step change on horizon with 5G
   B. Operators’ data revenues are growing at >50% per year and compensating for falling ARPUs
   C. Rapid rollout of LTE has been facilitated by infrastructure sharing and towercos

2. Successful FTTH deployments
   A. NBNs
   B. Operator buildouts
   C. Utilities leveraging linear infrastructure

3. Content: insatiable OTT and private network demand
Content Providers’ Demand

- **Azure (Microsoft’s WAN):** As of 2017, “Over the last three years, we’ve grown our long-haul WAN capacity by 700 percent”: 91% CAGR
- **B4 (Google’s SDN WAN):** most recent published traffic figures indicated 10x increase in 3.5-year period leading up to 2015: 93% CAGR
- **Private network traffic** expected to grow considerably with further infrastructure investments (Marea, PLCN, Indigo, Monet)
SUBMARINE CABLE INVESTMENT

New Submarine Cable Investment by RFS Date
Source: 2017 Undersea Cable Report (Terabit Consulting)

Consortium Era

Extremely uncertain market

Speculative investment

Dot-Com Bubble Burst

Market recovery (still cyclical)
LESSONS LEARNED FROM EACH CHAPTER OF THE SUBMARINE CABLE MARKET: CONSORTIUM ERA (1988 TO MID-1990S)

Conventional wisdom during the consortium era incorrectly presumed that:

- Telecom market liberalization would never happen in most markets, or that it would result in only limited competition
- Infrastructure would always be controlled by the “Old Boys’ Club” (PTTs)
- Data demand would be driven by the Type IV fax machine

Lesson Learned:

Always expect disruptive business models, disruptive market shifts, and disruptive technological changes
Conventional wisdom at the dawn of the “carrier’s carrier” era presumed that:

- Carriers would outsource all of their international infrastructure requirements
- The number of capacity customers could only grow, and there would be no consolidation among operators or ISPs
- Only a small number of private, investor-led cables would be built
- Prices and margins for bandwidth would remain strong

Lesson Learned:
Beware of “irrational exuberance”
LESSONS LEARNED FROM EACH CHAPTER OF THE SUBMARINE CABLE MARKET:
DOT-COM BUBBLE BURST AND MARKET UNCERTAINTY

Conventional wisdom following the bubble burst incorrectly presumed that:

- The submarine cable industry would spiral downward to irrelevance
- All addressable submarine cable routes had been massively overbuilt and there were no more growth opportunities
- The traditional systems suppliers would remain alone in the market and there would be little incentive for technological innovation

Lesson Learned:

In the midst of chaos, there is also opportunity.
LEVERAGING THE LESSONS OF THE PAST

1. Ensure forecasts are firmly grounded in facts and reality with reliable modeling
2. If a market opportunity is real, understand the importance of timing
3. Always take competitive threats seriously
   A. Careful evaluation of new investment: announced/unannounced/rumored, likely/unlikely
   B. Other paths: satellite, terrestrial, new technologies
4. Stay “ahead of the curve” by analyzing disruptive technological change and disruptive business models at the earliest possible indication
   ➢ One timely consideration: What if the industry experiences a significant slowdown in the rate of capacity increase (Shannon Limit)?
     • Possible outcome: The end of the last-mover’s advantage among cable developers
     • Possible outcome: The end of 15-20% price erosion
     • Possible outcome: New bandwidth pricing/metering models at the consumer level
     • Possible outcome: Bandwidth shortage and cable production shortage
REALITY CHECKS & DUE DILIGENCE FOR MARKET AND TRAFFIC FORECASTS

1. Are forecasted revenues and volumes realistic compared to competitors’ past performance?
2. Does a top-down analysis reconcile with a bottom-up analysis?
3. What are the macroeconomic prospects of the target economies?
4. What factors could limit consumer demand (especially in developing markets)?
   1. Income distribution / service affordability
   2. Literacy
   3. Hardware limitations (especially during 3G-to-4G and 4G-to-5G migrations)
   4. Electrification
5. What factors could limit wholesale demand?
   1. Financial health of operators/ISPs/OTTs
   2. Industry consolidation
   3. Regulatory intervention (including management of spectrum and local loop)
Thank you!

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