# 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?



# **THE MARKET: STRONG INTERNATIONAL BANDWIDTH DEMAND**

South Asia and Middle East Intercontinental

Australian Intercontinental

Intercontinental Bandwidth Demand, 2011-2016 Source: 2017 Undersea Cable Report, Terabit Consulting



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





- Pan-East Asian
- North America-South America

African Intercontinental

# **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





- 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





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



# LESSONS LEARNED FROM EACH CHAPTER OF THE SUBMARINE CABLE MARKET: SPECULATIVE INVESTMENT (LATE-1990S TO 2000)

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

<u>Lesson Learned:</u>

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!



Intelligence, Analysis, and Forecasting for the International Telecommunications Infrastructure Community

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