

# Economic Perspectives on the Global Submarine Cable Market



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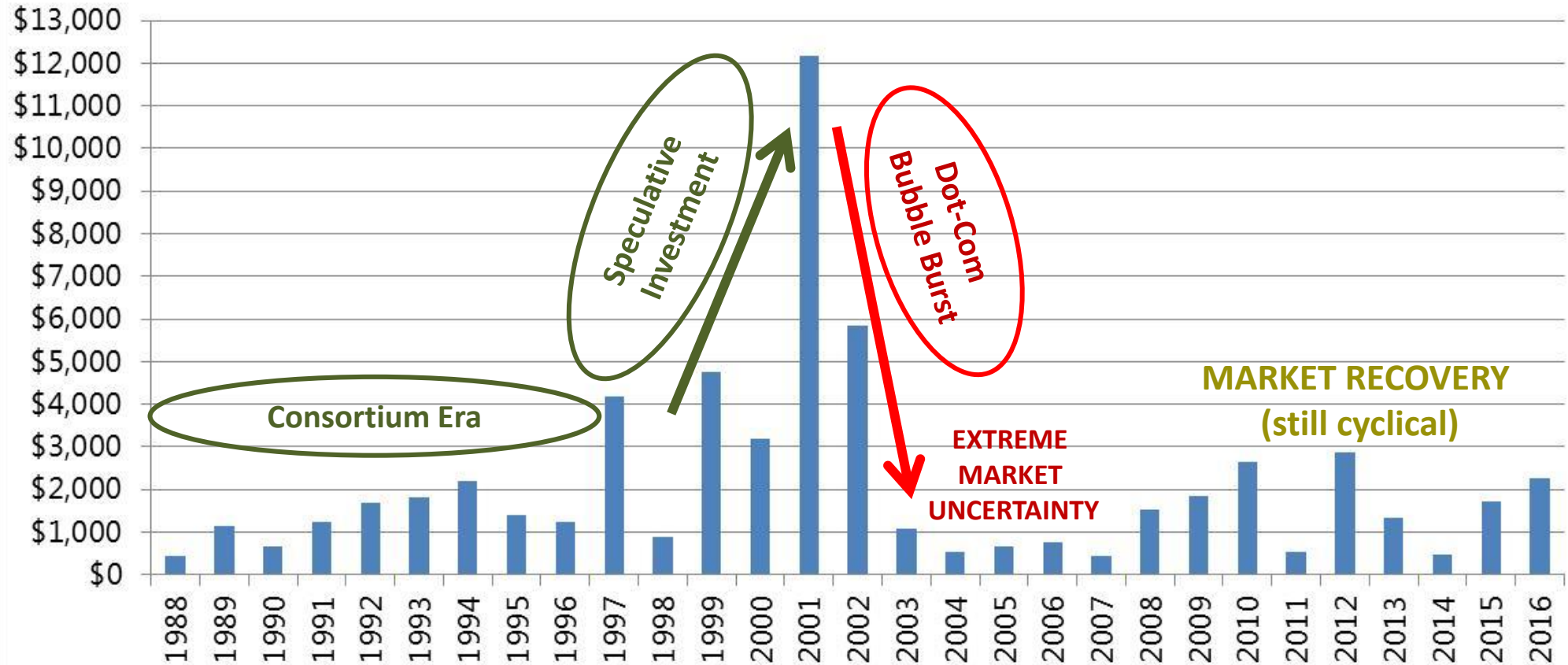
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# SUBMARINE CABLE INVESTMENT

## New Submarine Cable Investment by RFS Date

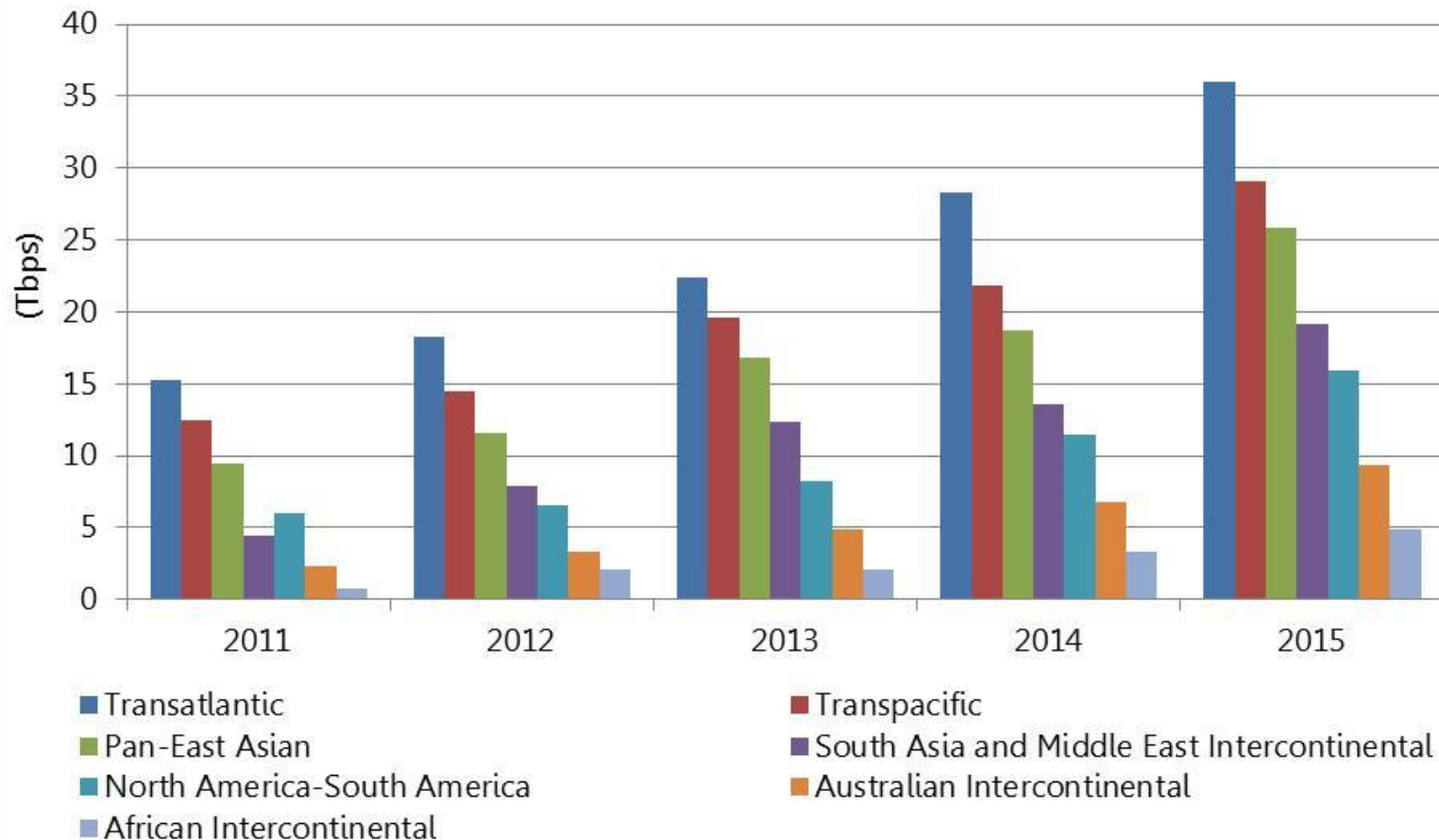
Source: 2016 Undersea Cable Report (Terabit Consulting)



# THE PRIMARY DRIVER OF NEW SYSTEM DEMAND: INTERNATIONAL BANDWIDTH

Intercontinental Bandwidth Demand, 2011-2015

Source: 2016 Undersea Cable Report, Terabit Consulting



Intercontinental submarine cable bandwidth has increased from ~50 Tbps in 2011 to ~ 140 Tbps in 2015

Growth is highest in:

- Southeast Asia
- South Asia & ME
- Australia
- Latin America
- Africa

# Q: IS THERE A CORRELATION BETWEEN A COUNTRY'S ECONOMIC GROWTH AND ITS INTERNATIONAL BANDWIDTH DEMAND?

## A: SOMETIMES.

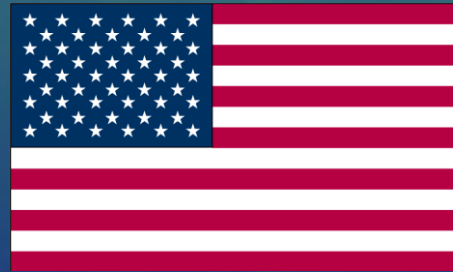
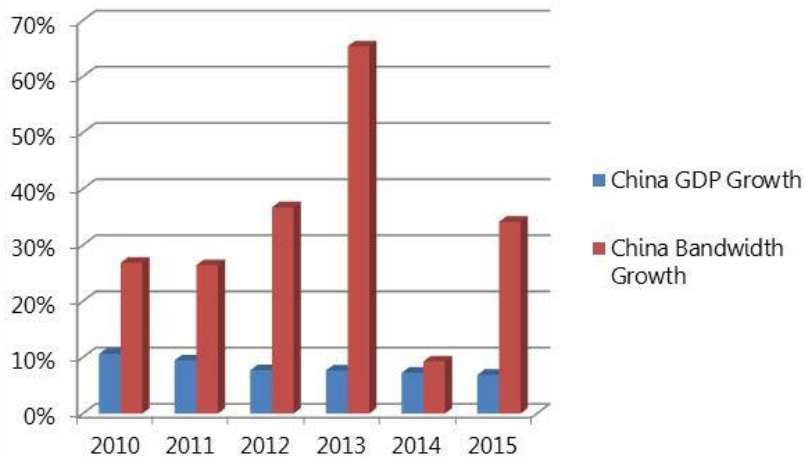
- Markets with weak or negative correlation:
  - High-income, mainland economies with strong domestic content (e.g. USA)
  - Telecommunications markets with strong government involvement (e.g. China)
  - Countries with newly-introduced connectivity that had previously been underserved (e.g. Kenya)
- Markets with moderate correlation:
  - Major island economies (e.g. Australia, Japan)
- Markets with strong correlation:
  - Developing economies with strong reliance on foreign content (e.g. India)
  - Regional transit hubs (e.g. Singapore, UAE)
  - Smaller economies, less-developed economies

# WEAK/NEGATIVE CORRELATION COUNTRIES



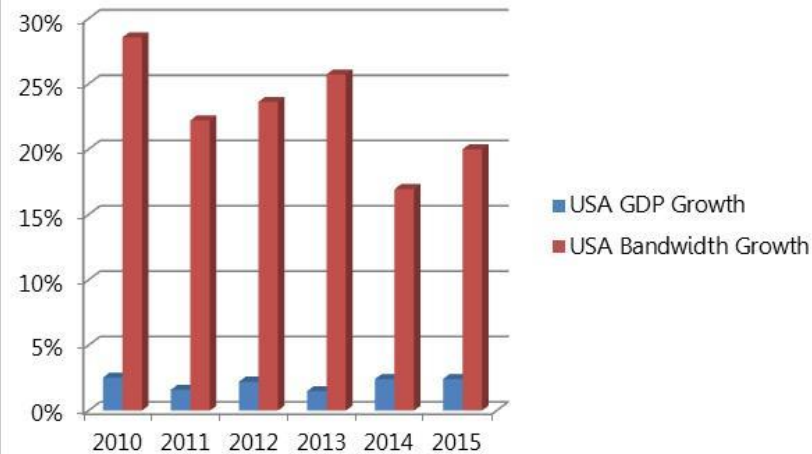
CHINA

Correlation: -0.2



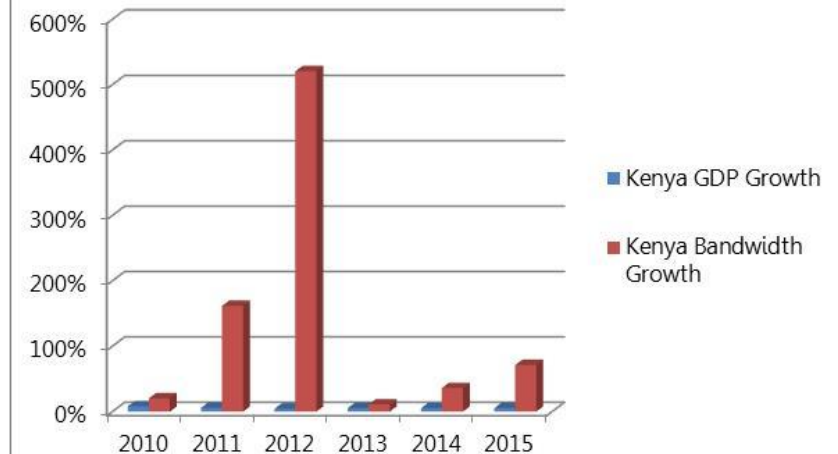
USA

Correlation: -0.2



KENYA

Correlation: -0.5



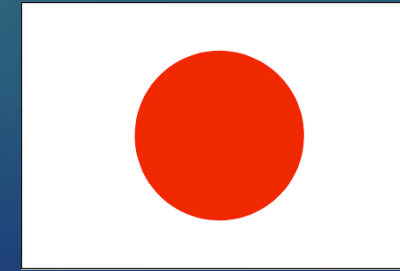
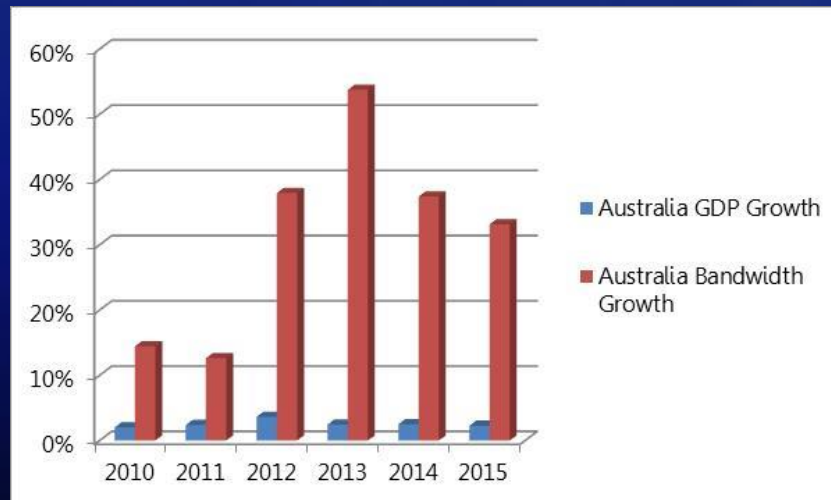


# MODERATE CORRELATION COUNTRIES



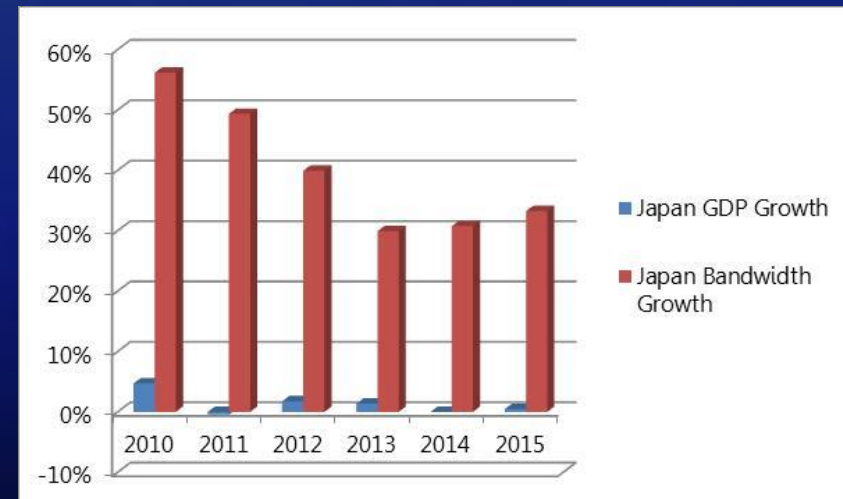
AUSTRALIA

Correlation: 0.4



JAPAN

Correlation: 0.5

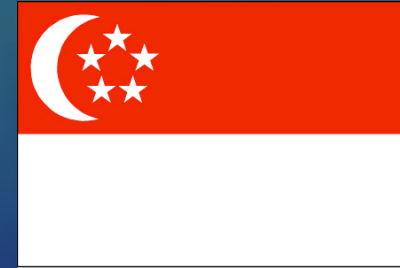
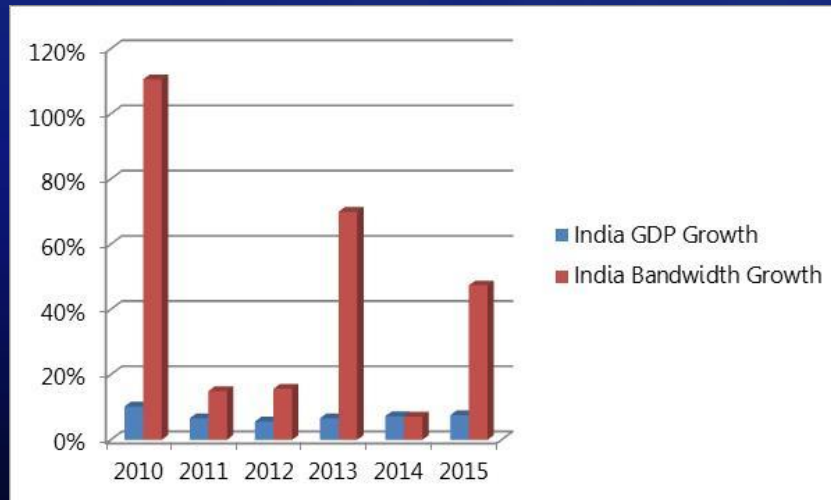


# STRONG CORRELATION COUNTRIES



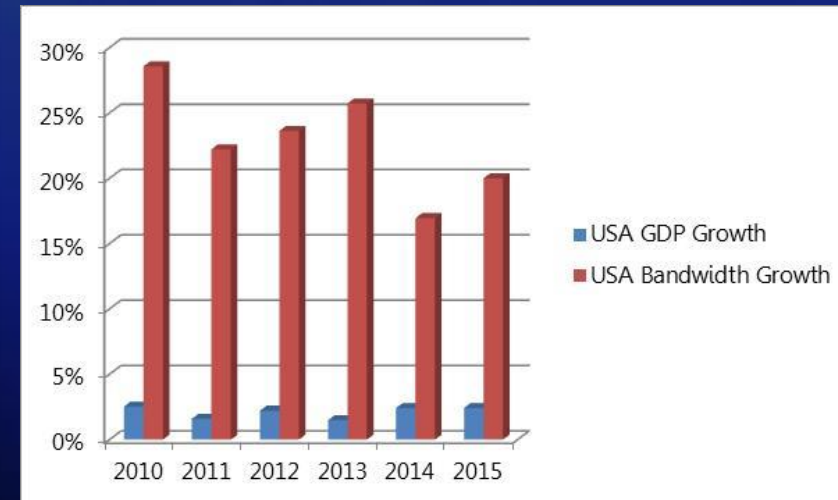
INDIA

Correlation: 0.8



SINGAPORE

Correlation: 0.5 (t-1=0.8)



# HOW ECONOMIC SENSITIVITY TRANSLATES TO SUBMARINE CABLE ROUTES

## LOW SENSITIVITY

- Transatlantic
- European regional
  - Historically-underserved routes

## MEDIUM SENSITIVITY

- Transpacific
- East Asian Regional
- Australian Intercontinental
  - North America-South America

## HIGH SENSITIVITY

- Europe-Middle East-Asia
- Sub-Saharan Africa
  - Caribbean

*At the system supply level,  
the correlation between global GDP growth  
and submarine cable investment  
was 0.3 between 2010 and 2015.*



# SUBMARINE CABLE INVESTMENT MAY BE A FUNCTION OF ECONOMIC GROWTH, *BUT ECONOMIC GROWTH CAN ALSO BE A FUNCTION OF SUBMARINE CABLES*



- Submarine cables are the world's primary path for international communications, international e-commerce, and international digitally-enabled services
  - Satellite handles less than 0.5% of international traffic
  - International terrestrial fiber optic networks, while a key complement to submarine connectivity, do not currently offer coherent, cost-effective international capacity

# THE ECONOMIC AND DEVELOPMENTAL IMPACT OF SUBMARINE CABLES

- Economic Growth: submarine cables stimulate the following:
  - Increased demand for output (demand multiplier), new opportunities for production (supply multiplier), new goods and services for consumers (final demand)
- Benefits to Consumers
  - Increased international bandwidth
  - Increased consumer affordability of broadband services
  - Increased reliability of international Internet and data services
- Increased Government Revenue
  - Growth in output as a result of increased ICT investment (tax revenue, employment)
- Regional Stability
  - Improved political, economic, and intercultural relations
  - Opportunities in educational, healthcare sectors



# A NEW DEVELOPMENT-ORIENTED MODEL OF INTERNATIONAL FIBER INVESTMENT

Private Investors

Governments

Multilateral  
Development  
Banks and Other  
IFIs

System and  
Equipment  
Suppliers

Network  
Devel-  
opers

Fixed &  
Mobile  
Opera-  
tors

ISPs

Content  
Providers

## PPP Structures

- **SPV w/ Gov't. Sharehold**
- **SPV w/ Gov't Contribution**
- **BOT Concessions**
- **Project Mgmt. Contracts**



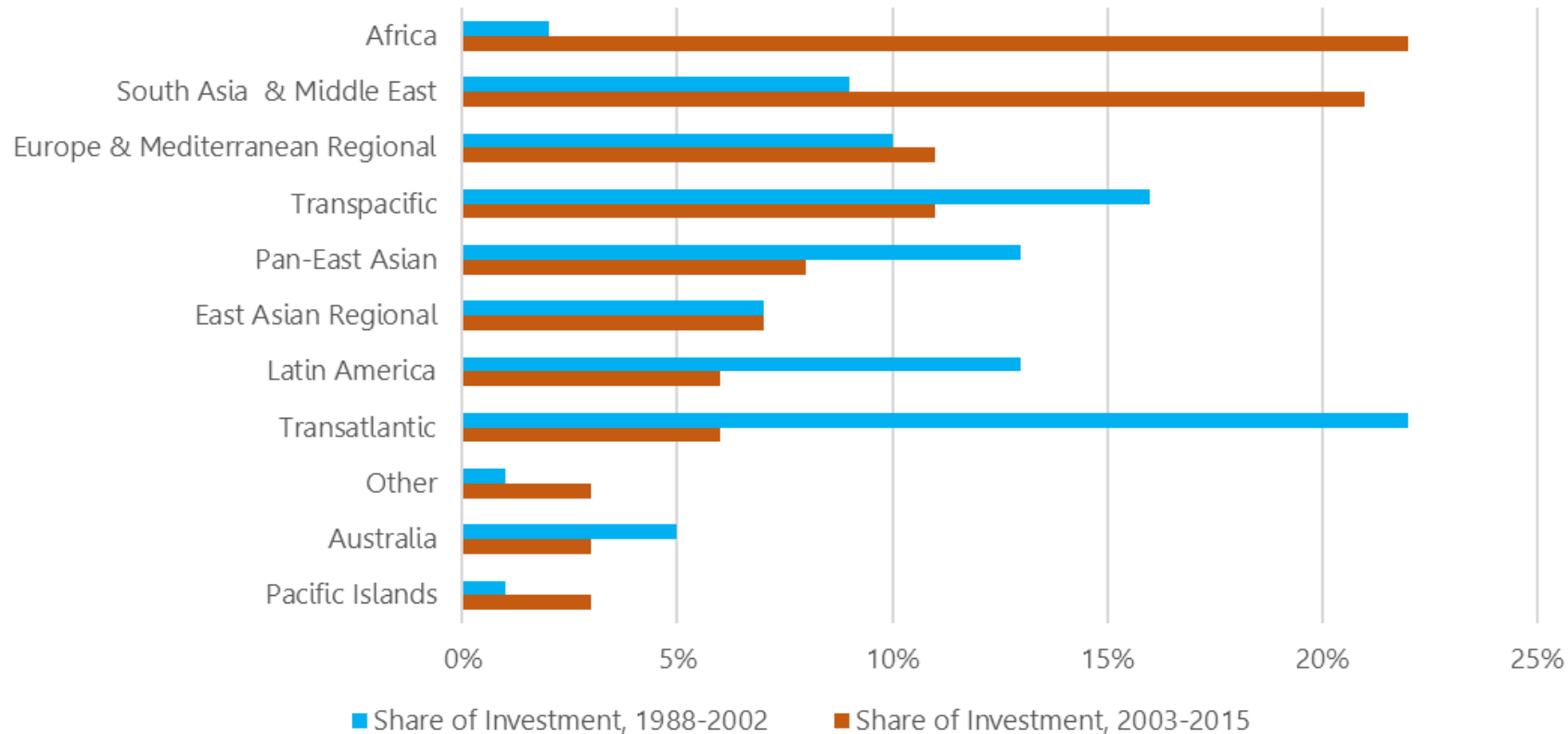
Appropriate  
Cost-  
Sensitive  
Solutions



# SUBMARINE INVESTMENT HAS SHIFTED TOWARD EMERGING AND LESS-DEVELOPED MARKETS

Regional Share of Total Investment in New Submarine Systems

Source: 2016 Undersea Cable Report (Terabit Consulting)



- Since 2003, the share of submarine investment serving less-developed and emerging markets has increased from 33% to more than 60%.



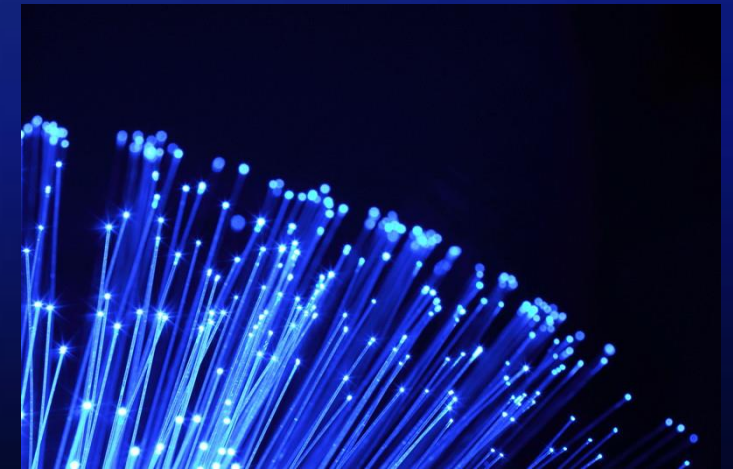
# SOLUTIONS FOR ECONOMIC GROWTH THROUGH IMPROVED SUBMARINE CONNECTIVITY

1. Multilateral participation in project development
2. Pan-regional cooperation, coordination, and harmonization
3. In cases of market failure: promotion of open access and non-discrimination
4. Elimination of downstream obstacles that prevent bandwidth utilization
  - Greater competition in backhaul, int'l. gateway
  - Development of intercity and metro fiber networks
  - Promotion of advanced broadband services
  - Programs to encourage ICT adoption
  - Investment in supporting rural infrastructure (e.g. electricity)



# MARKET OUTLOOK: PRELIMINARY FINDINGS FROM TERABIT CONSULTING'S 2017 UNDERSEA CABLE REPORT

1. \$2.5 billion worth of systems currently under construction
2. Additional \$22.4 billion worth of systems under active development
3. \$6.3 billion worth of “high-activity” systems  
(51 projects)





# Thank you!



**TERABIT**  
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