ITU SG3 Focus Group Cost Modelling

Session 5: Regulatory, economic, and policy aspects impacting small islands developing states

Trinidad and Tobago Experience

9TH April 2024

Outline

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2. Overview of the Trinidad and Tobago's Telecommunications Industry
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The Telecommunications Authority of Trinidad and Tobago – About Us

The Telecommunications Authority of Trinidad and Tobago

1. The Telecommunications Authority of Trinidad and Tobago (TATT) was established in July 2004 by the enactment of the **Telecommunications Act** 2001 Amended by 17 of 2004 (the Act) as the independent regulatory body responsible for the transformation and regulation of the telecommunications and broadcasting sectors in Trinidad and Tobago.

2. TATT is responsible for managing spectrum and number resources, establishing equipment and service quality standards, setting guidelines to prevent anti-competitive practices and encouraging investment in order to facilitate the uptake of telecommunications and broadcasting services to all.

3. TATT is also responsible for resolving customer complaints, consumer advocacy, and implementing the relevant and most appropriate universal service initiatives to ensure ICTs are available, affordable and accessible.

Objects of the Act (Section 3)

Creating an Open Telecommunications Market

With Conditions for Fair Competition

Ensuring the Orderly Development of Telecommunications

To safeguard, enrich and strengthen society's social, cultural and economic well being

Protecting and Promoting the Public Interest

Accessibility | Affordability | Quality of Service

Facilitating Universal Access to Telecommunications

Encouraging Investment in Telecommunications

Regulating Broadcasting Services

Overview of the Trinidad and Tobago ICT Market

Network Category	Service Provided	Concessionaires	Technology
International Telecommunications	Network only	1	
	Network and services	8	
Mobile Telecommunications	Mobile voice and Internet services	2	GSM being phased out for voice services with GPRS and EDGE used in rural areas.; UMTS used for voice services along with HSPA and HSPA+ Evolved High-Speed Packet Access (HSPA+), Long Term Evolution (LTE) and Long Term Evolution Advanced (LTE-A). Enhanced Data rates for GSM Evolution (EDGE) offered in rural areas not yet covered by the 3G and 4G technologies
Fixed Telecommunications	Fixed telephony	6	Public switched telephone network, Hybrid Fibre-Coaxial Network, Gigabit Passive Optic Networks (GPON)
	Fixed Internet	11	ADSL2+ over copper cables, DOCSIS 3.0 technology using Hybrid Fibre Coaxial Networks,, Fibre to the Business (FTTB), Metro-Ethernet or Fibre to the Home (FTTH) topologies, using GPON access networks, WiMAX and LTE technologies
Pay TV (Subscription TV)		13	Digital and Analogue technologies
Free-to-Air Radio Broadcasting		36	
Free-to-Air TV Broadcasting		5	
TV Broadcasting via Cable		15	

Interconnection Laws

1. Telecommunications Act:

a) Section 25 (2)(e) - **promptly negotiate**, upon the request of another concessionaire of a public telecommunications network or a public telecommunications service, and endeavour to conclude, subject to paragraph (h), an agreement with regard to the prices and the technical and other terms and conditions for the elements of interconnection;

b) Section 25 (2)(m) - disaggregate the network and on a cost basis, in such manner as the Authority may prescribe, establish prices for its individual elements and offer the elements.

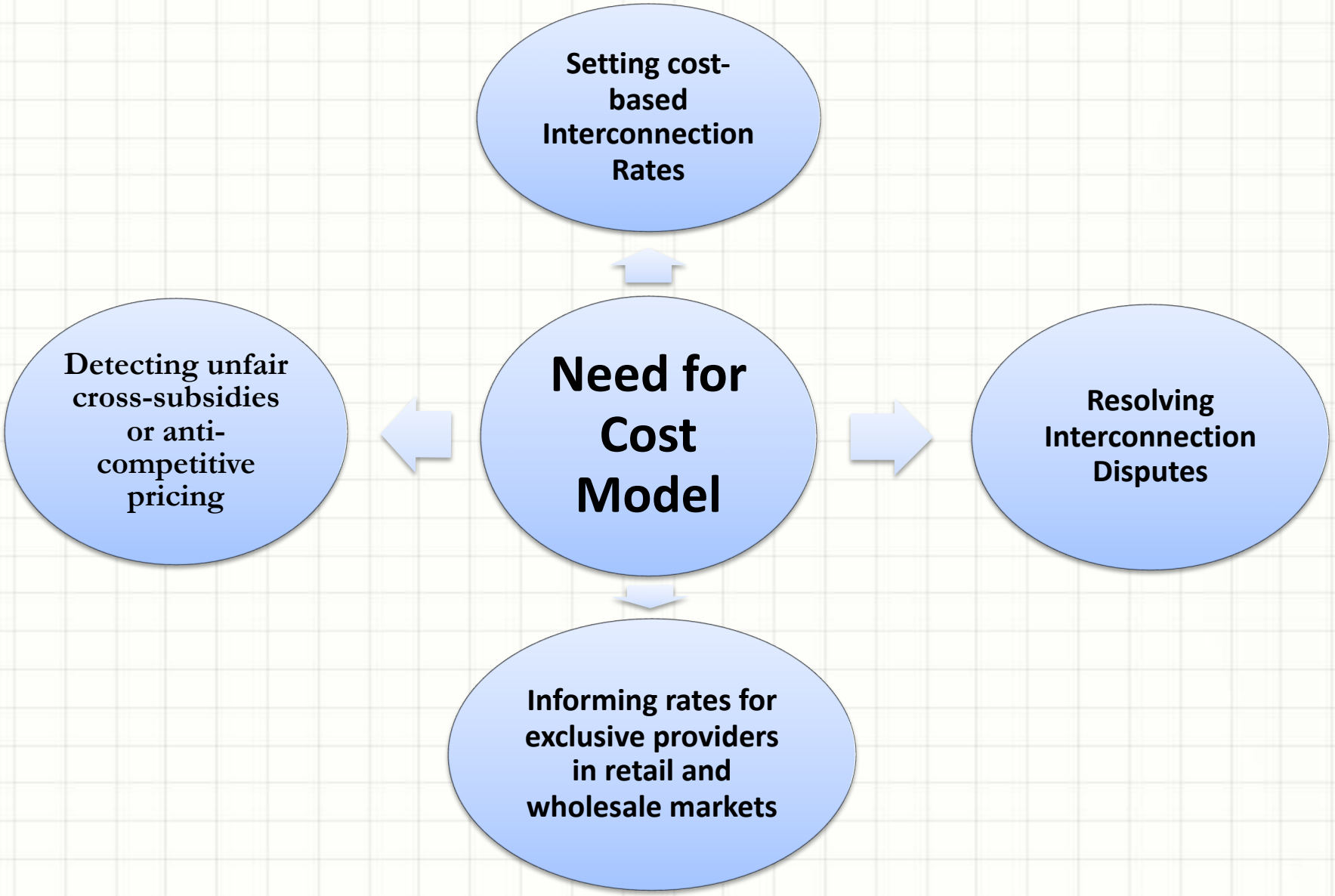
2. Interconnection Regulations:

1. Section 15 (1) A concessionaire shall s**et interconnection rates based on costs determined in accordance with such costing methodologies, models or formulae as the Authority may, from time to time, establish.**
2. Section 15 (2) Where the relevant data for the establishment of the costing methodologies, models or formulae are unavailable within a reasonable time, the concessionaire may set interconnection rates with reference to such costing benchmarks, as determined by the Authority, that comport with internationally accepted standards for such benchmarks.
3. Where a dispute arises between concessionaires with respect to interconnection, the matter may be referred to the Authority for consultation and guidance, on the agreement of both parties, prior to either party submitting the matter to the Authority as a dispute.

Disputes

1. During the liberalization of our mobile market in 2006, interconnection and access to facilities negotiations were essential.
2. TATT received its first dispute – no consensus on the interconnection rates.
3. Arbitration panel - interconnection mobile termination rate and the interconnection fixed termination rate to be paid by parties.
4. The Arbitration Panel for the interconnection dispute recommended that: **"the Authority consider developing a sector-specific cost model for the purposes of considering whether proposed charges comply with the regulatory framework, or for setting charges if so required."**
5. In the absence of a costing model, the arbitration panel determined interim interconnection rates based on the operations of an efficient provider.

Reasons for Implementing a Cost Model



Model Outputs Required

Services Covered

- **Fixed network:**
  1. Interconnection: call origination, termination and transit
  2. Network cost of other call services
  3. Network cost of access services (broadband and narrowband)
  4. Costs of leased lines

- **Mobile Network:**
  1. Interconnection: call termination
  2. Network costs of calls, SMS and data

Format of output

1. Total and unit costs in $TT
2. Costs of network components

Modelling Principles Applied

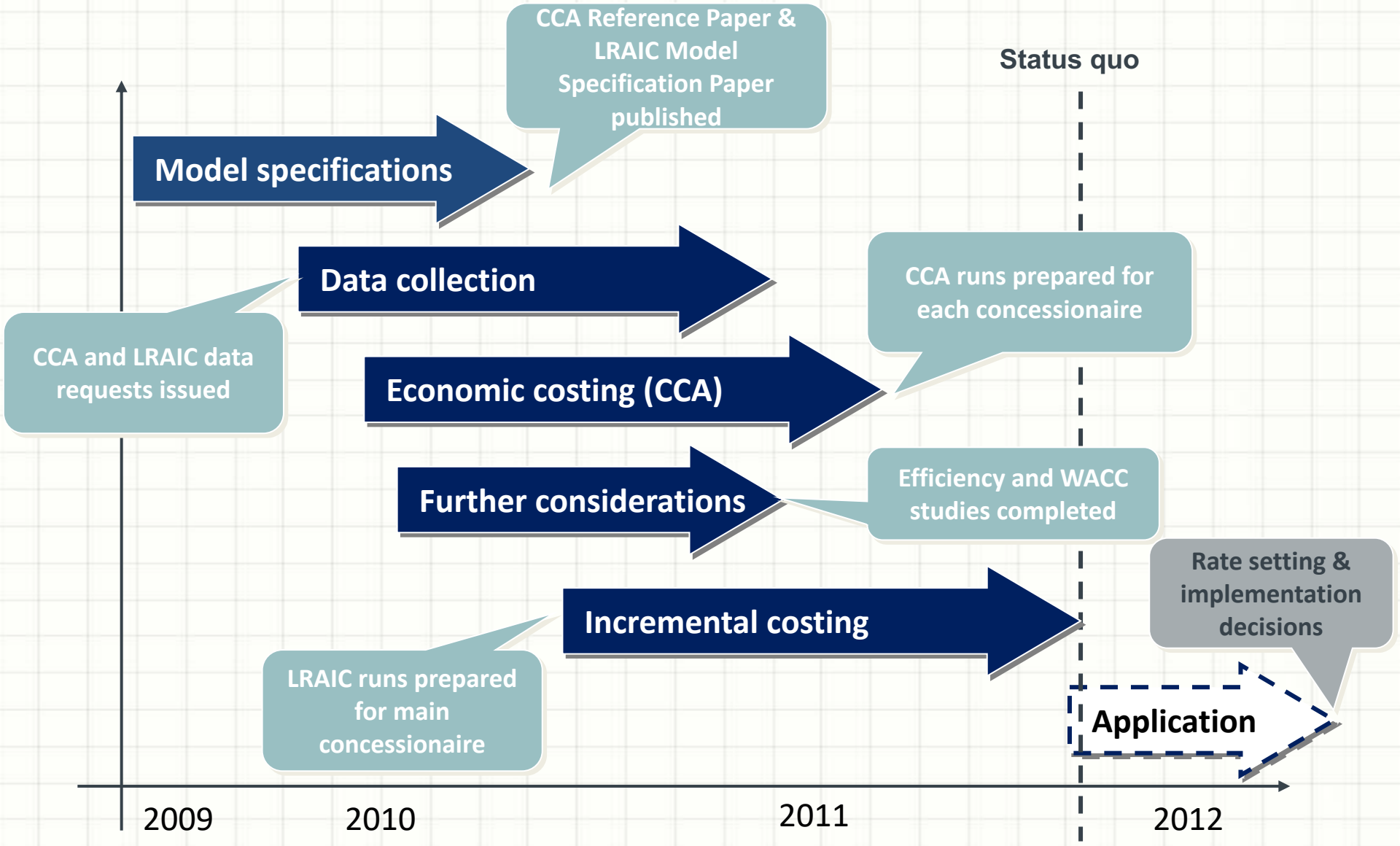
Cost Accounting Approach	1. CCA LRAIC 2. Indexation approach to be used for revaluation of assets
Modelling Approach	Top Down
Efficiency Considerations	1. Scorched node approach 2. Modern equivalent asset (MEA)
Joint and common costs	Recover as equi-proportionate mark-up (EPMU) over incremental costs
Rate of return on capital	WACC applied to mean capital employed (MCE)

Further Consideration to the LRAIC Model

1. The top-down approach required an adjustment to costs to reflect any inefficiency.
   - A separate efficiency study was undertaken to assess the need for any efficiency adjustments to the LRAIC modelling results of particular concessionaires when setting regulated charges based on the results.

2. To allow concessionaires to earn a reasonable return on any investments made, the LRAIC model took their cost of capital into account.
   - A separate WACC study was undertaken to determine the weighted average cost of capital (WACC) for the main network technologies (i.e. fixed, mobile networks)
   - The resulting WACC estimates form an input to the LRAIC model

Modelling process



Outcome of LRAIC Exercise

1. The CCA and LRAIC Models were designed
2. Alpha testing completed with data from operators
3. Beta testing commenced but lack of cooperation from operators for submission of data
4. Interconnection dispute arose - Rates for Terminating Incoming Traffic on Fixed and Mobile Networks in Trinidad and Tobago
5. Arbitration Panel ruled that the current rates for terminating incoming traffic on fixed and mobile networks hold until:
   - The Authority determines the cost of fixed and mobile international termination access services in accordance with its standard industry LRAIC cost model;
   - The Authority determines the cost of fixed and mobile international termination access services by Benchmarks, as per the interim regime;
6. Interconnection Benchmarking Study implemented

Interconnection Benchmarking Study (IBS)

- The Authority implemented an Interconnection Benchmarking Study (IBS):
  1. Section 15 (2) Where the relevant data for the establishment of the costing methodologies, models or formulae are unavailable within a reasonable time, the concessionaire may set interconnection rates with reference to such costing benchmarks, as determined by the Authority, that comport with internationally accepted standards for such benchmarks.
  2. … the Authority shall require a concessionaire to … disaggregate the network and, on a cost oriented basis such as the Authority may prescribe, establish prices for its individual elements and offer the elements at the established prices to other concessionaires of public telecommunications networks and public telecommunications services.

IBS Criteria & Data Analysis

- Benchmarking Jurisdiction Selection Criteria:

1) **Regional Geography:** Only jurisdictions in Caribbean
   - Caribbean region jurisdictions considered most comparable to T&T
   - European countries used for sensitivity and cross-check purposes
2) **Physical Geography:** Only island-jurisdictions
3) **Calling Party Pays ("CPP") and Receiving Party Pays ("RPP"):*** Only pure CPP & hybrid RPP/CPP regimes
4) **# of Mobile Operators:** Only multi-mobile operator jurisdictions
5) **Availability of Interconnection Rates:** Only jurisdictions where interconnection rates are publicly available and can be independently verified
6) **Confidentiality of Interconnection Rates:** Only jurisdictions where the interconnection rates are not claimed to be commercially confidential by all operators

* *Under a CPP regime the calling party pays for calls to other subscribers (whether on-net or off-net), whereas under a RPP regime the receiving party pays to receive calls.*

Selected Benchmarking Jurisdictions*

- Anguilla (AN)
- Aruba (AR)
- Bahamas (BH)
- Barbados (BB)
- British Virgin Islands (BVI)
- Cayman Islands (CI)
- Dominican Republic (DR)
- ECTEL Member States:
  - Dominica
  - Grenada
  - St. Kitts and Nevis
  - St. Lucia
  - St. Vincent and the Grenadines
- French West Indies (FWI):
  - Guadeloupe & Martinique (G&M)
  - St Martin & St Bartholomew (SM&B)
- Jamaica (JA)
- Former Netherlands Antilles (FNA): (Curacao, St. Maarten, Bonaire, Saba, St. Eustatius)
- Turks & Caicos Islands (TCI)

In total, 23 Caribbean jurisdictions included in the benchmarking sample.

* *Note that 36 European countries are also considered in the benchmarking analysis for sensitivity and cross-check purposes.*

Domestic Interconnection Rates

- **Primary Interconnection (IC) Services**
  1. The term "primary" was used to denote IC services for which extensive historical data is available:
     - i.e., covering the period 2008-2017 for the universe of selected Caribbean benchmarking jurisdictions
  2. Primary IC services included "domestic":
     - mobile termination rate
     - fixed termination rate
     - transit rate
  3. Therefore, a very comprehensive primary IC services benchmarking database was established

Primary Service Recommendations

- **Methodology**

To develop recommended benchmark IC rates, the following factors were considered:

1. **Vintage of Interconnection Decision**
   - Some current IC rates in the benchmark sample were set years ago and, consequently, were currently out of date
   - Therefore, only jurisdictions with IC rates set in 2012 or later were included in the preferred benchmark sample - i.e., the "Post-2012 Sub-Sample"
2. **Cost-Based Rate Jurisdictions**
   - Consideration of jurisdictions with cost-based rates were also considered – i.e., the "Cost-Based" Post-2012 Sub-Sample
3. **European IC Rates**
   - Regulatory authorities in Europe have a long history of reviewing and reducing interconnection rates to cost-based levels; therefore, extensive European IC rate data readily available
   - While European countries differ in demographic and economic terms compared to Caribbean jurisdictions, they can be used as useful secondary or cross-check source of IC rate data for benchmarking analysis purposes

Primary IC Service Recommendations

- **Methodology (cont'd)**
  4. **Trends used to project forward-looking rates**
     - Interconnection rates in the Caribbean have consistently trended downwards, as found for the both the entire benchmark sample and Post-2012 Sub-Sample
     - Similarly, IC rates in Europe have also consistently trended downwards over time
     - IC benchmark rate Recommendations , therefore, are based on projected downward trends over the three-year forward-looking period
  5. **Three benchmark sample averages projected :**
     - Post-2012 Sub-Sample
     - Cost-Based Post-2012 Sub-Sample
     - European historical average (as a cross-check)
  6. **MTR, FTR, TR Recommendations**
     - Recommended IC rates are developed based on the consideration of the trends in these three benchmark average projections
     - The recommended end-point rate is generally based on projected Post-2012 Sub-Sample average, subject to the recommended rate being at or above the projected Cost-Based and European averages

Secondary Interconnection Rates

- **Secondary Interconnection (IC) Services**
  - The term "secondary" pertains to all other IC services in the benchmarking study, which include:
    - International call termination services, which include fixed/mobile domestic termination + international carriage charges (ICC):
      - Fixed: I-FTR = FTR + fixed ICC (or FICC)
      - Mobile: I-MTR = MTR + mobile ICC or (MICC)
    - Short Message Service (SMS)
    - Other: emergency services access, national and international DQ, national and international freephone services

Recommendations & Implementation

- **Implementation**
  - **Three-year glide path to Recommended end-point**
    1. For each of the primary IC service rates, a three-year glide path to recommended end point was proposed
    2. The three-year phase-in period is intended to allow for a gradual and more managed transition to the recommended end-point rates in order to mitigate impacts on the affected operators
    3. The use of such a phase-in approach is common in other jurisdictions where adopted changes in IC rates are significant in scale

Summary of the Implementation of Cost Model

2008-2010

- The Costing Methodology for the Telecommunications Sector was developed in 2008

  In consultation with the sector, a top-down long-run average incremental cost (LRAIC) model was selected and developed

2010-2012

- Initial LRAIC data collection with operators
- Model was populated and a meeting held with operators to discuss the results

2013-2014

- Meeting held with the CEOs of operators to identify the phases of model access, updated model runs, beta testing, model finalisation, model publication and implementation of the modelling tool.
- Model access and alpha testing sessions were held with operators
- Summary report sent to operators

2015

- Public consultations on LRAIC and CCA reference papers
- Initial modelling results on 2009 data were available for some concessionaires.
- Input data limitations made the model result insufficiently robust to inform interconnection rates
- 2012-2014 data requested from operators to conduct further model testing.

2017-2019

- Results of an Interconnection Benchmarking Study for the Telecommunications Sector of Trinidad and Tobago in 2019

2021

- Results of an Interconnection Benchmarking Study for the Telecommunications Sector of Trinidad and Tobago in 2021

Cost Models in other Caribbean Jurisdictions

Country	Model Adopted
Barbados	LRIC for fixed and mobile services
Eastern Caribbean (through ECTEL) - Commonwealth of Dominica, Grenada, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines	LRIC+ bottom-up approach for fixed and mobile services
Jamaica	LRIC+ bottom-up approach for fixed services

The Way Forward

1. Determination implemented based on the IBS where operators must abide by the interconnection rates contained in the report.
2. The outcome of this focus group will assist in the development of a new updated model.

Thank you