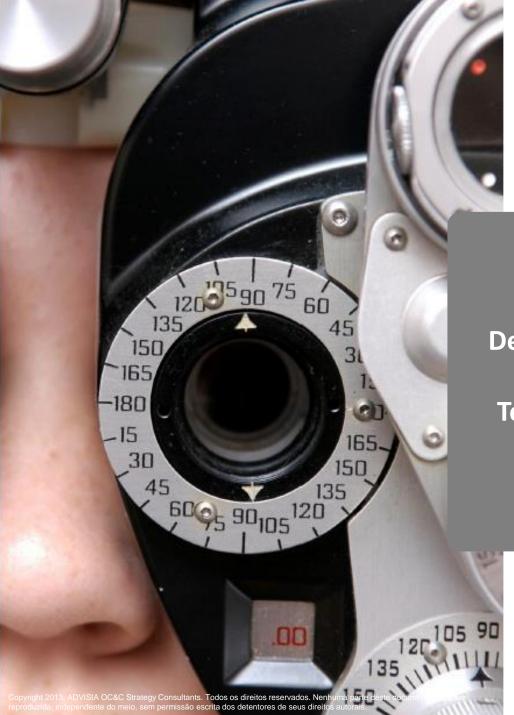


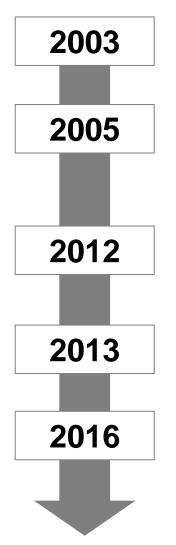
March 11th, 2014







The cost modelling topic has been discussed for more than 10 years in Brazil...



- **Decree nº 4,733** New telecommunications policy in Brazil. It was the first document recommending the use of cost models for the definition of termination rates
- Resolution no 396 approved the "Resolution of cost allocation" (RSAC)
- Renewal of concession for fixed operators and definition of the model that will be used for the definition of fixed termination rates (TU-RL and TU-RIU)
- Approval of a plan defining competition rules (PGMC)
- Resolution setting the local fixed termination rate used in the calculation of the fixed termination rates (TU-RL and TU-RIU) for 2013 and 2014
- **Public consultation nº** 40 discussing the methodologies for the definition of termination rates based on cost models
- · First year that the termination rates will be based on cost models

In the framework of a technical cooperation project between ITU and Anatel, an international consortium, led by Advisia, was contracted

Technical cooperation project - 2011



Consortium





ADVISIA OC&C Strategy Consultants

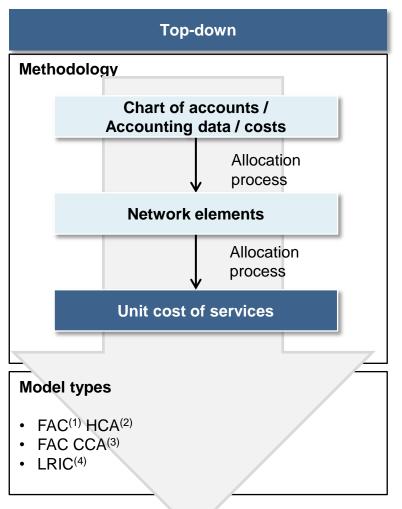
- Advisia OC&C is a change agent in leading companies, targeting value creation for its shareholders, supporting the identification of opportunities and solving complex problems
- It has over 500 consultants in 14 offices worldwide

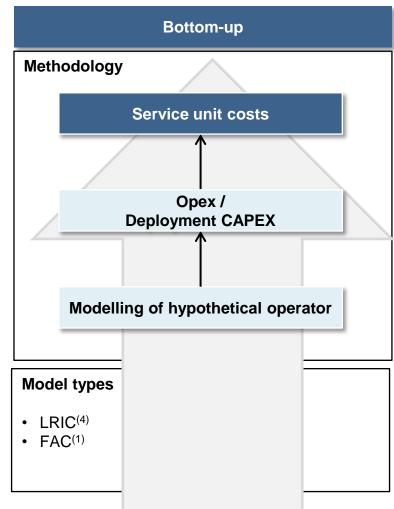




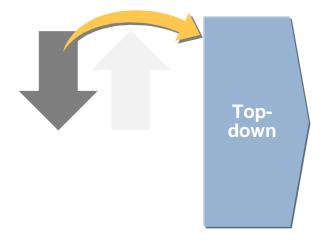


The Consortium was in charge of building *Top-down* and *Bottom-up* models of fixed and mobile operators...

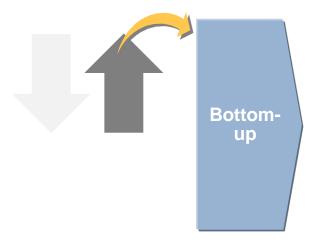




... which are methodologies that have different characteristics...



- Based on historical account data of operators and on costs forecasted according to a cost-volume relationship
- Uses as bottom line the existing operators' costs, which are broken into smaller elements for further analyses
- Incorporates intrinsic inefficiencies of existing operations



- Identifies all cost components of network and create causal relationship between cost and volume based on theoretical and practical evidences
- Design a network of an hypothetical efficient existing operator, including the transmission network, the network capacity, etc.
- Modelling of a comprehensive network that works at the maximum level of efficiency

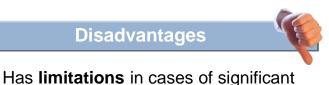


... and that have different advantages and drawbacks.

Advantages



Disadvantages



Top-down

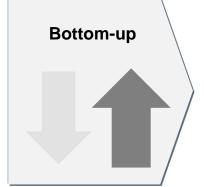


- Ensures that historical costs are not omitted
- Calculates the costs based on the accounting data of operators
- Uses actual demand data

Incorporates the actual **inefficiencies** of the operators

changes in volume or new technologies

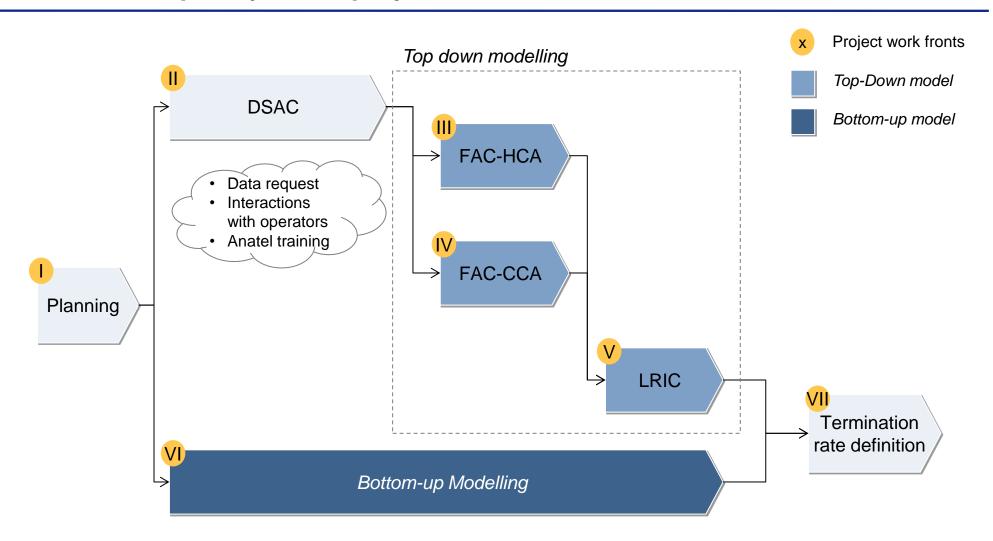
- The value of the **assets** may not represent the real economic value
- The quality of the results is strongly related to the quality of data provided by the operators



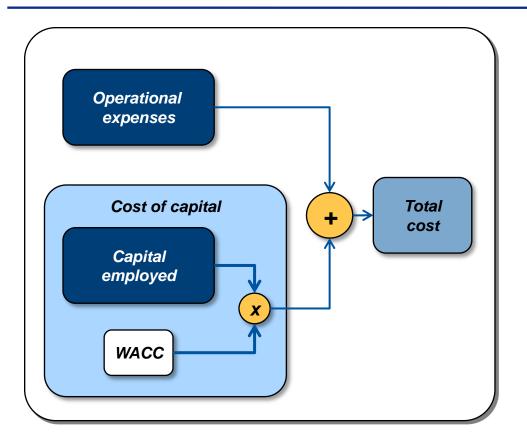
- Very flexible; the BU model provides a better understanding of the cost drivers
- Can consider new technologies and significant changes in demand volumes
- Captures existing inefficiencies, and is able to simulate an operator with the maximum level of efficiency
- Cannot be reconcilable with operators accounting data - it is difficult to compare the BU model with actual operators
- Very complex and costly to be implemented
- Uses demand estimates
- Risk of "over optimization" and omission of costs

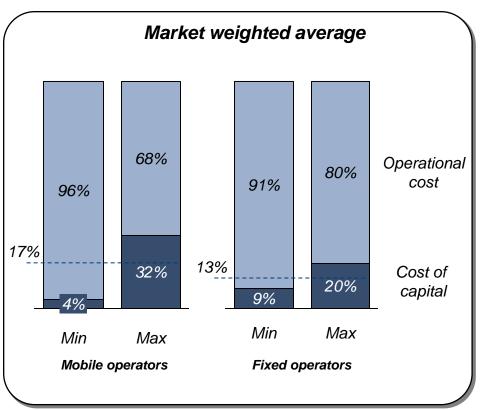


Given the complexity of the project, it was divided in 7 work fronts



Total cost calculation incorporates operational expenses and cost of capital

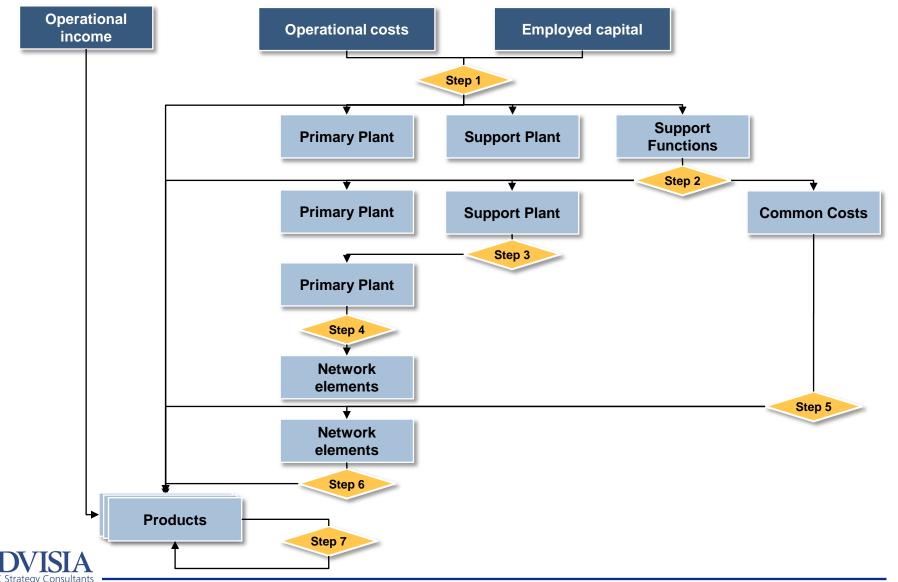




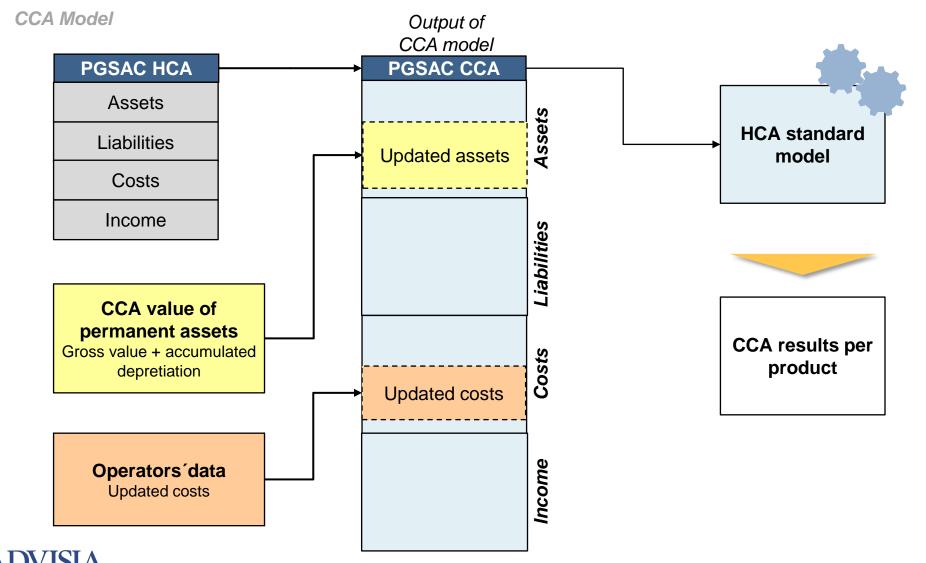
FAC-HCA total cost calculation considers, in addition to operational costs, also the capital employed for the telecommunication business



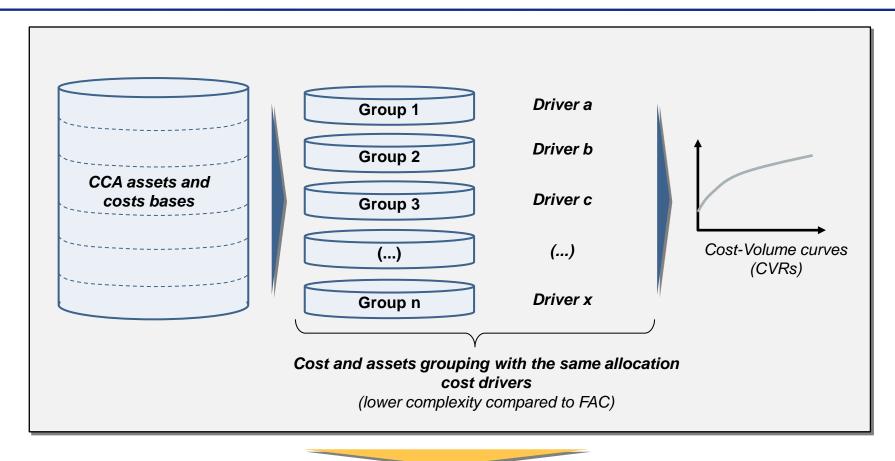
Top down FAC-HCA model follows seven steps for cost allocation



Top down FAC-CCA model leverages the same definitions of the standard FAC-HCA model



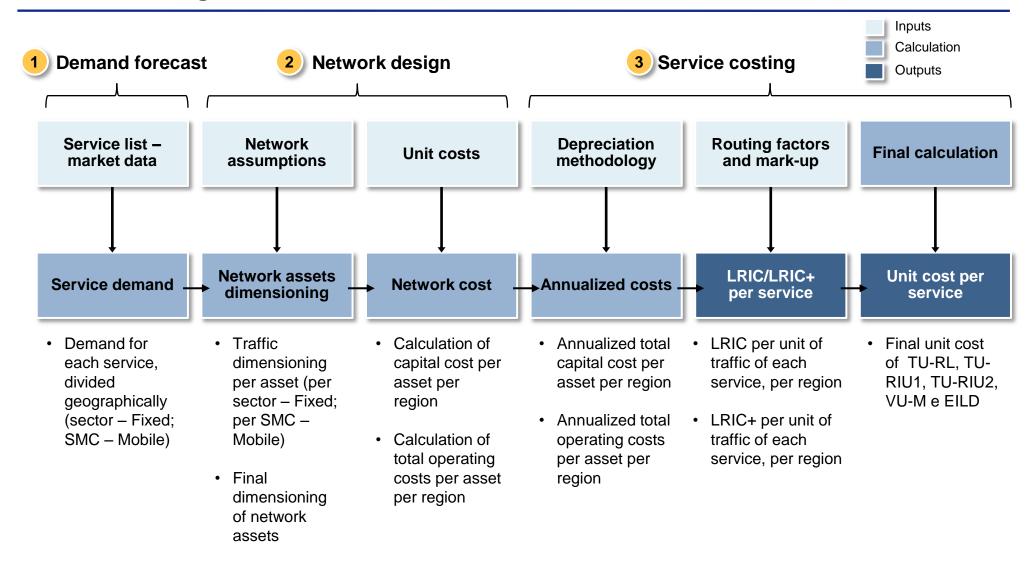
LRIC model is built upon FAC-CCA model, considering common cost drivers



LRIC cost allocation methodology is distinct from HCA and CCA FAC, using own drivers and specific relationships of cost-volume



Bottom up model starts with demand forecast, design network and then service costing



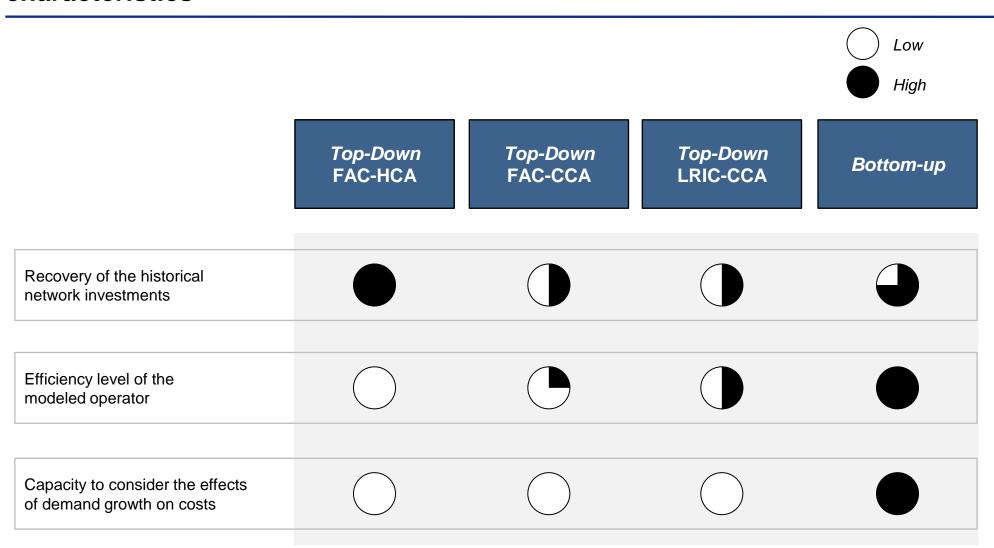


11

Each model should be interpreted independently...

Accuracy of the models Uses actual and audited data -• Reflects distortions of the **HCA** operator's **balance sheet** Estimates prices and obsolescence **CCA** Accuracy of the data base Reflects the current technology Conceptual adequacy costs Design cost curves **TD - LRIC** Reflects economic of scale Uses estimates and benchmarks **BU-LRIC** Reflects the maximum level of efficiency

... and the results of the different methodologies have clear different characteristics

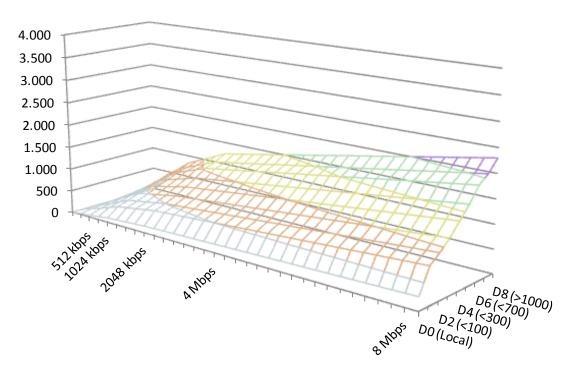




Example: dedicated circuits / leased lines

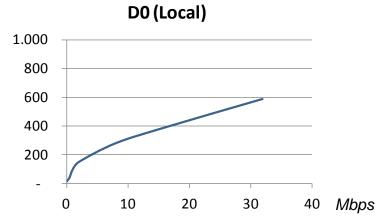
Cost per speed and distance

Cost per circuit

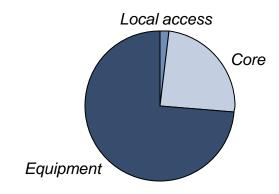


Cost per speed – Distance D0

Cost per circuit



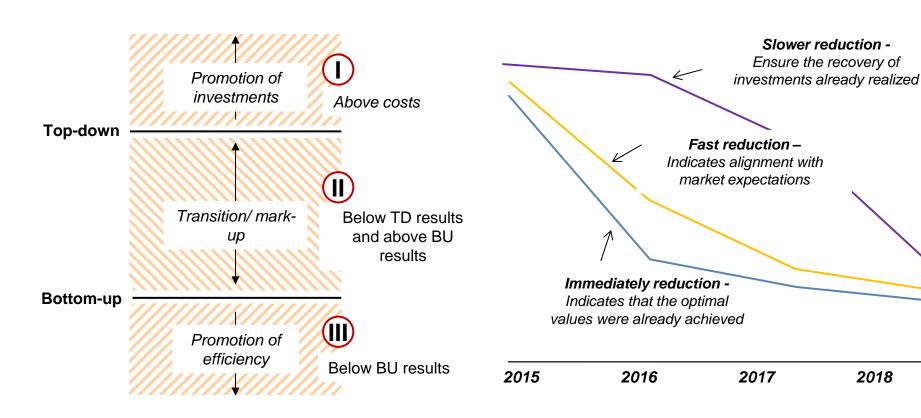
Breakdown of costs





Strategies for the definition of the termination rates

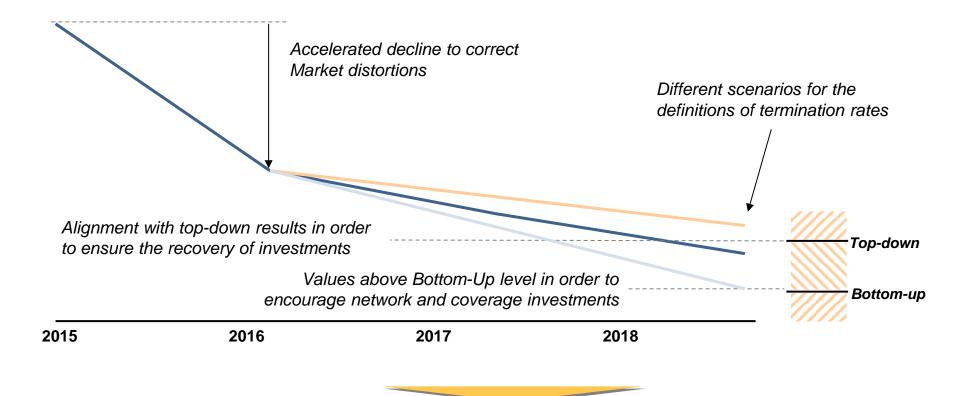
Convergence of termination rates Curve format



Different strategies for the definition of the termination rate can be chosen according to the regulator objectives and to values that the curves will achieve



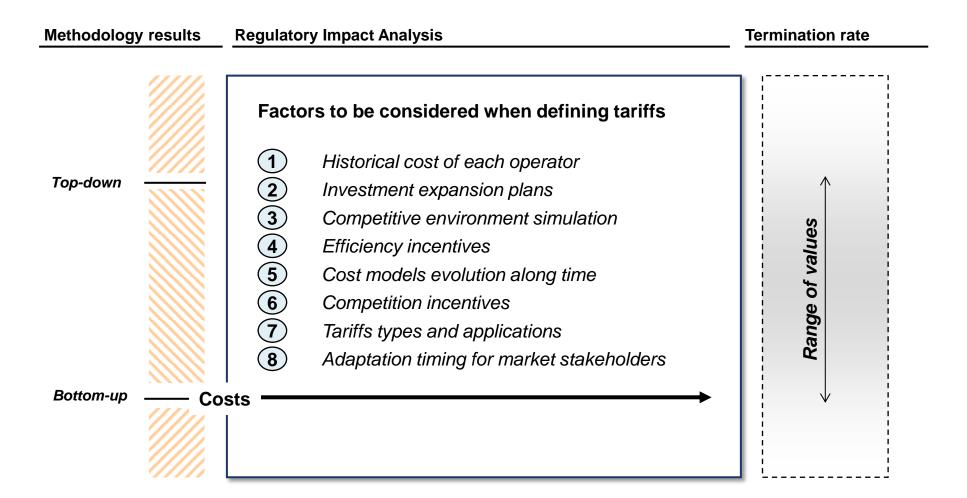
Example: termination rate definition strategy



Depending on each strategy, the termination rates can be determined using the results of the Top-Down and Bottom-Up models



The process for termination rates definition shall consider other factors beyond costs





Top-down and Bottom-up models can be leveraged by operators and regulators for many other activities

Total operators' costs Interconnection Leased lines **Project focus** Retail costs Network elements **Product inputs** Cost model possibilities Cost per activity Support costs Taxes and fees (...)

Regulators usages

- Support for the definition of termination rates
- Quantitative understanding of costs of expansion plans, new regulatory rules, etc.
- Support for the determination of auction values for concessions, spectrum licenses, etc.
- Support for understanding of impacts of regulatory obligations – network expansion, quality improvement, etc

Operators usages

- Support for the budgetary and financial management for short and long term
- Performance analysis and creation of business plans of projects and services
- Mapping of expenditures of processes, departments, and services – continuous improvement cycles
- Grounds for intragroup transfer costs and shared services implementation



Main challenges, project approach and lessons learned

Main challenges

Project approach

Management of several stakeholders

- Structuring of a dedicated team at Anatel
- Support of other areas of Anatel
- Support of ITU
- Operating model with the consortium: in-presence meetings, conference calls, video conference
- · Participation of agents from telecommunication sector

Interaction with telecommunication sector and society

- Bilateral meetings: in-presence, conference calls, video conference
- Multilateral meetings
- Consultation to operators: data, information and clarifications
- Consultation to society: including Public Consultation and questionnaires to sector's specialist (Agency, Operators, Governmental bodies, associations, suppliers, academic institutions, research centers).

Continuity and applicability

- Training of Anatel team during project execution
- Continuous follow-up and meeting with the Consortium
- Anatel's internal structuring for applicability of the cost models
- Review and update of the models after project finalization (Area/Structured team)



Contact details

Thanks! Questions?

Contacts:

Daniel Wada

daniel.wada@advisia.com

Phone:

+55-11-96843-1663







London • Paris • Rotterdam • Hamburg • Düsseldorf • Warsaw • Mumbai • Delhi Hong Kong • Shangai • Boston • Miami • São Paulo • Belo Horizonte

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