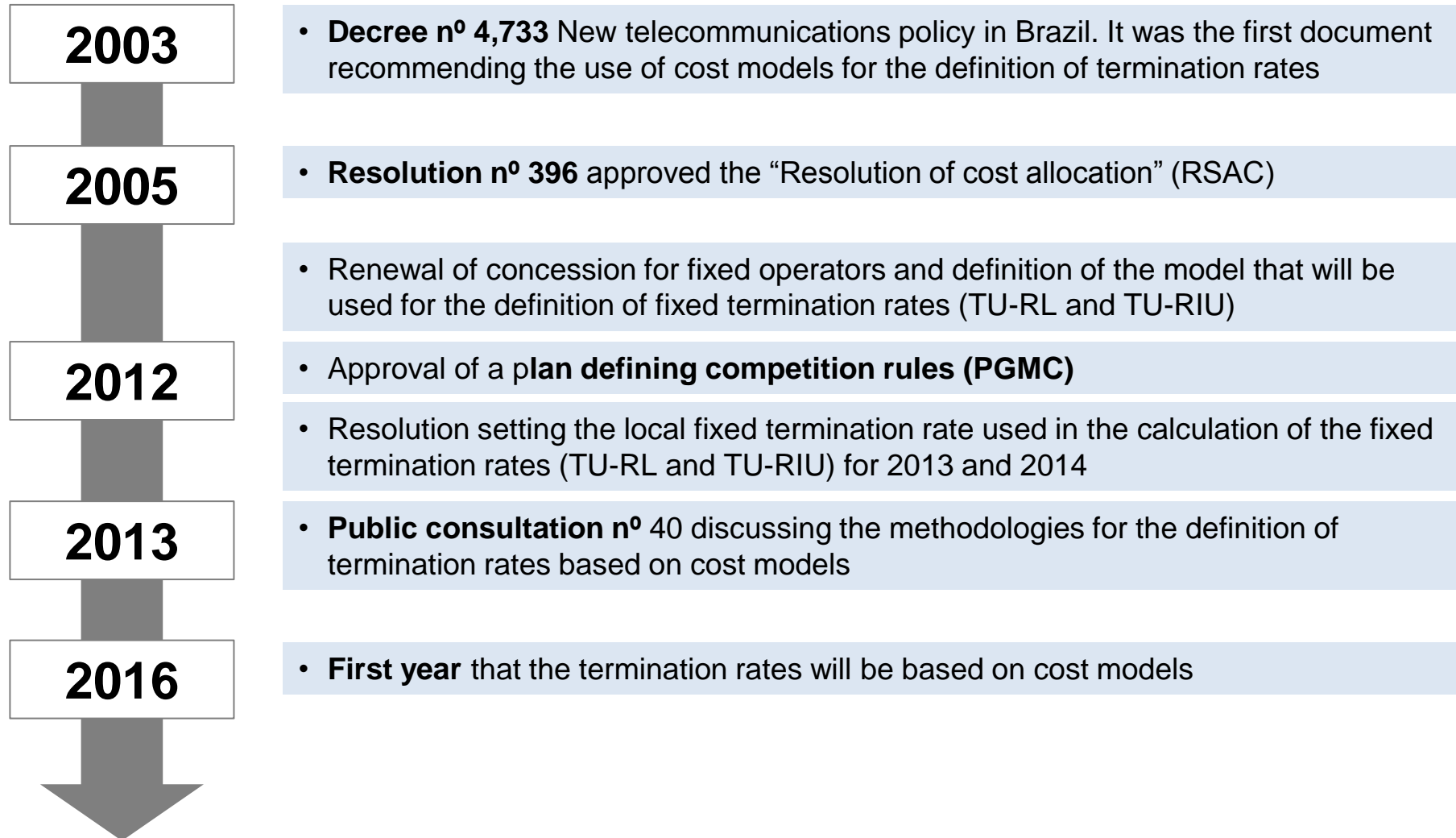


Development of Cost Modeling for Telecommunication Services - Brazil

March 11th, 2014



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



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

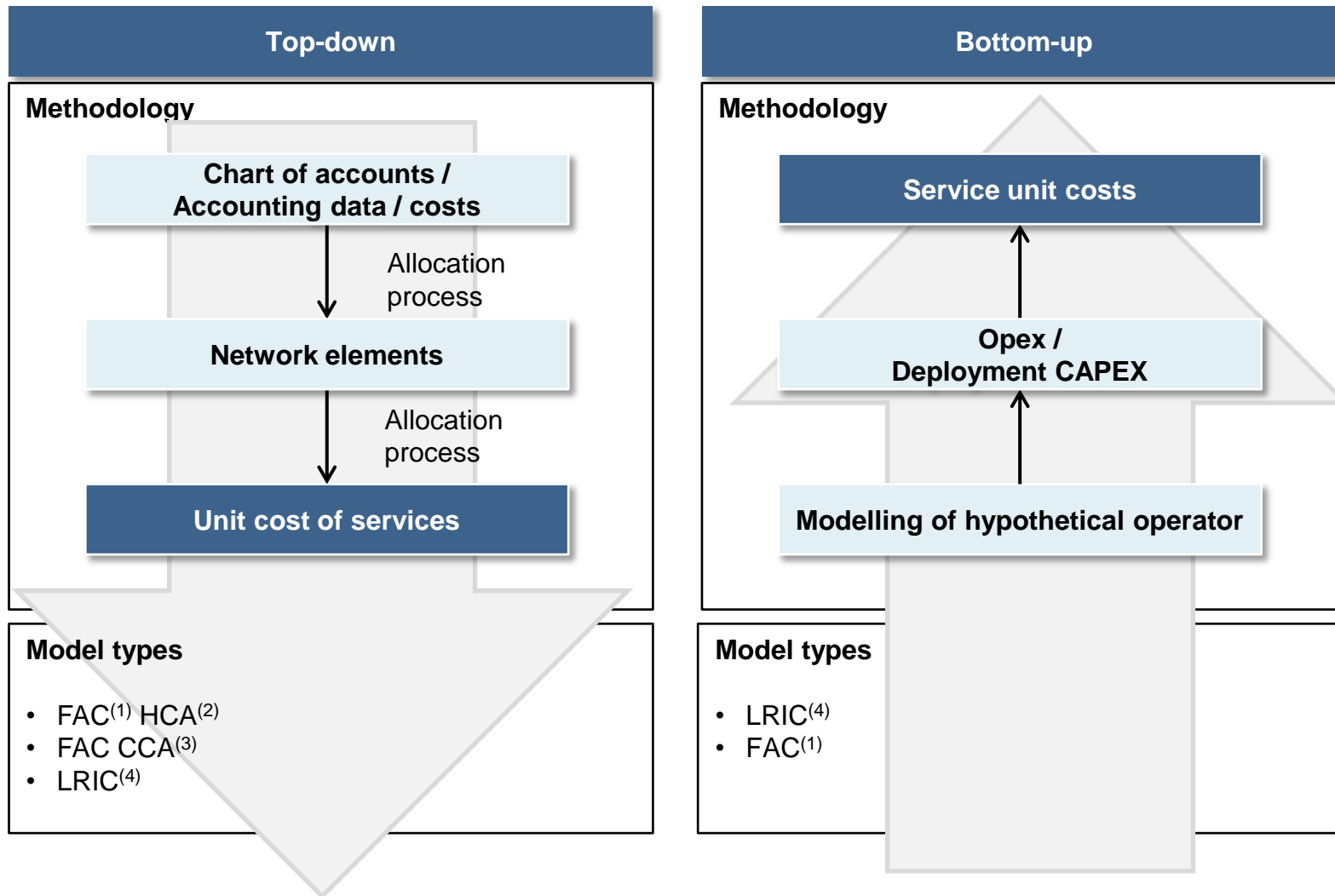


ADVISIA OC&C Strategy Consultants

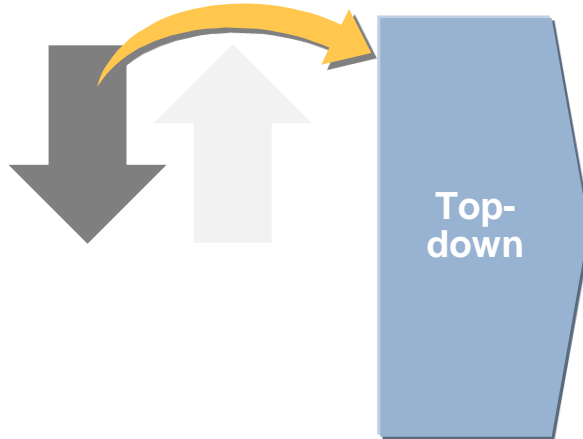
- Advisia OC&C is a change agent in leading companies, targeting value creation for its shareholders, supporting the identification of opportunities and solving complex problems
- It has over **500 consultants** in **14 offices** worldwide



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

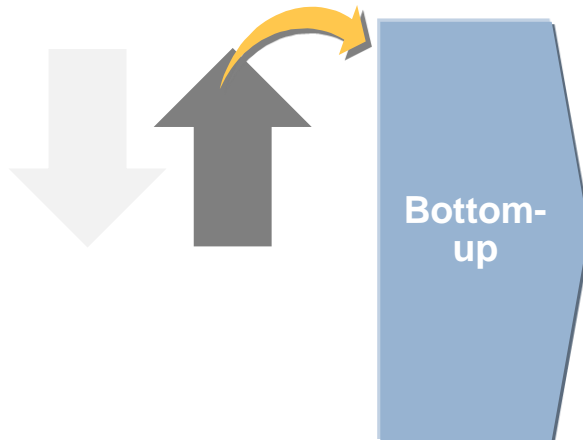


... which are methodologies that have different characteristics...



Top-down

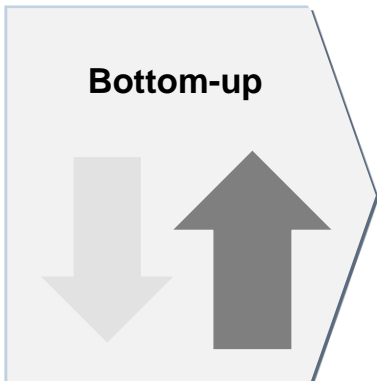
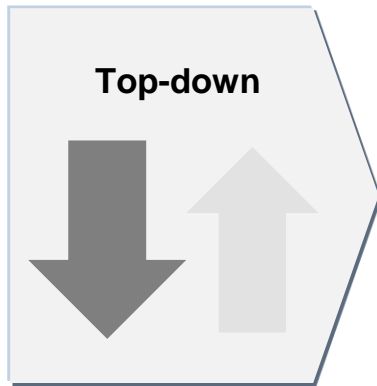
- Based on **historical account data of operators** and on costs forecasted according to a cost-volume relationship
- Uses as bottom line the existing operators' costs, which are broken into smaller elements for further analyses
- Incorporates intrinsic **inefficiencies** of existing operations



Bottom-up

- 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.



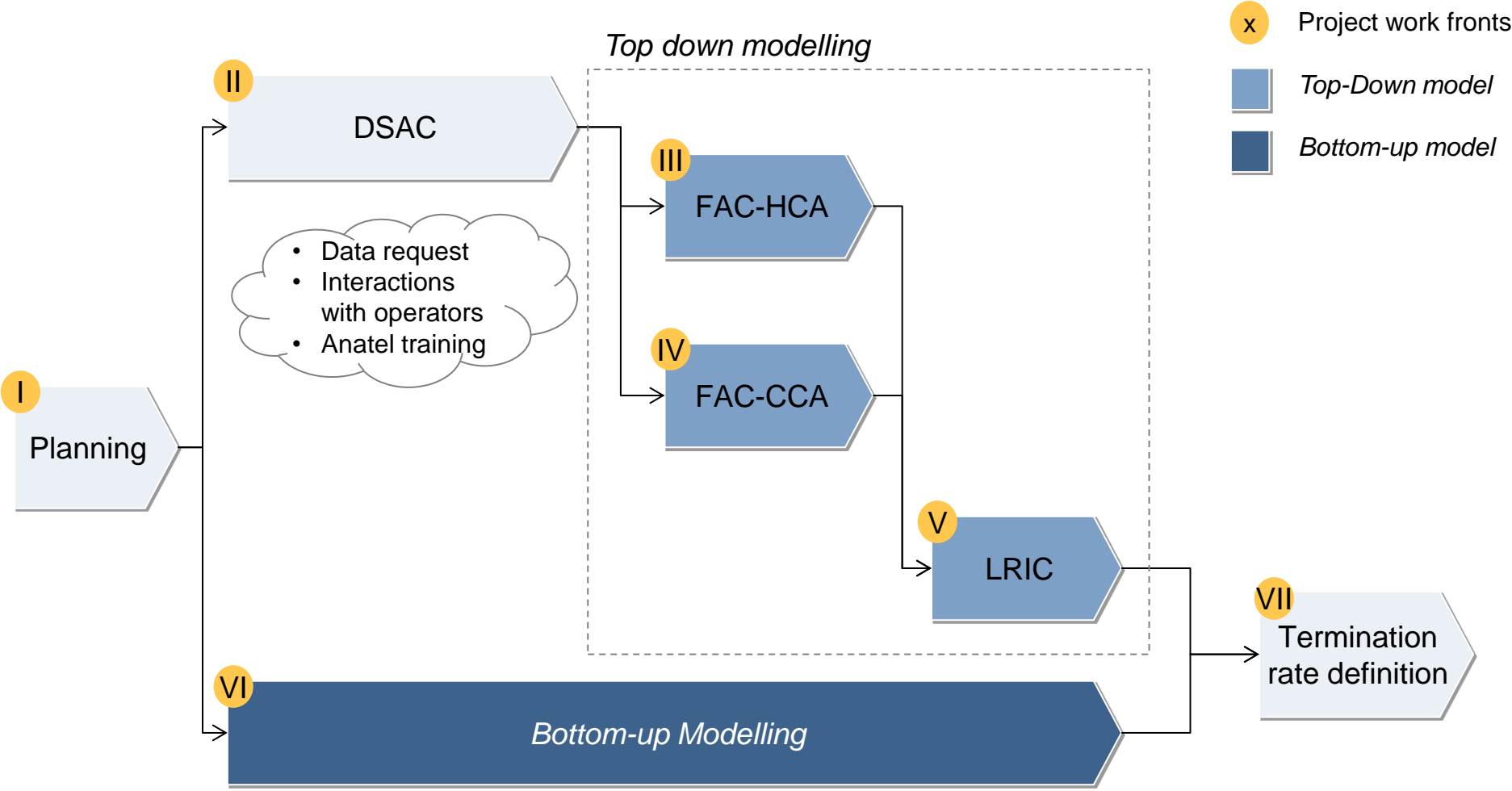
Advantages

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

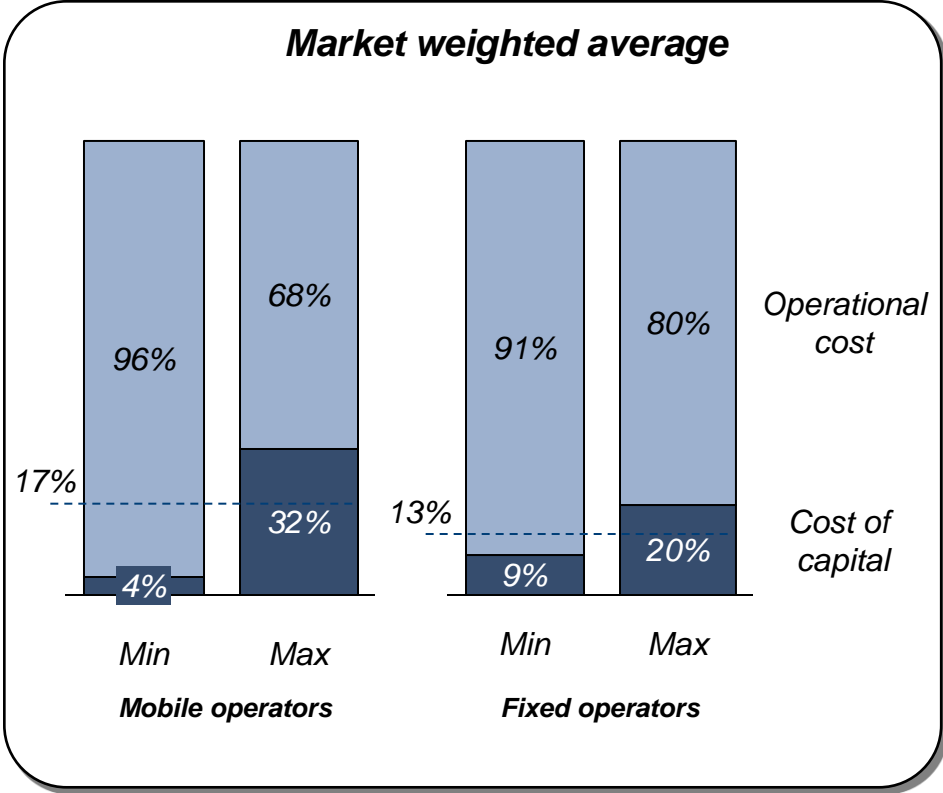
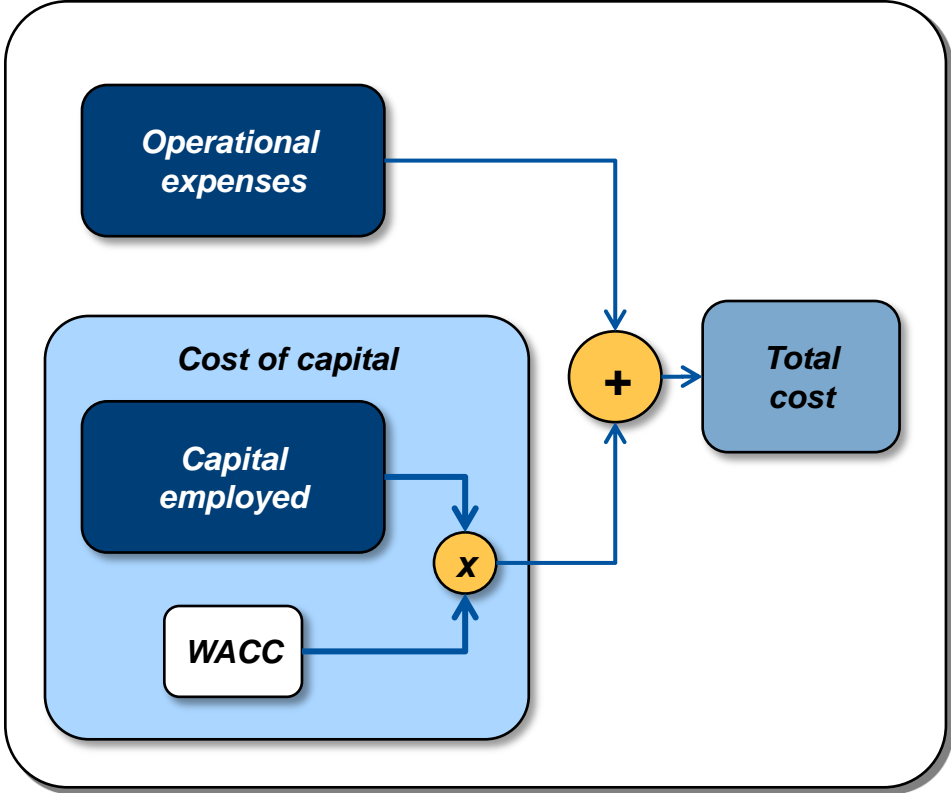
Disadvantages

- Has **limitations** in cases of significant changes in **volume or new technologies**
 - **Incorporates** the actual **inefficiencies** of the operators
 - 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**
-
- **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

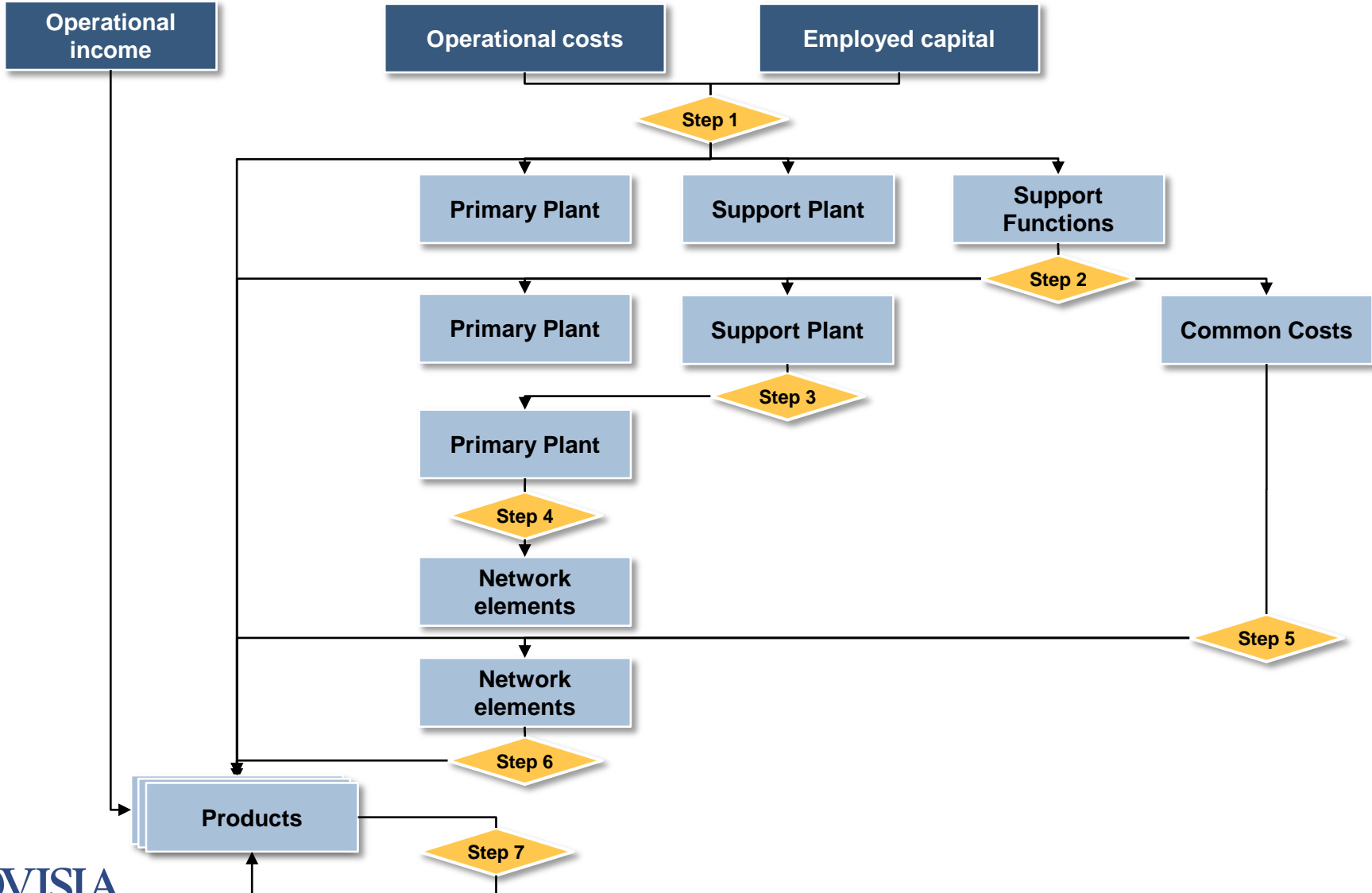


Total cost calculation incorporates operational expenses and cost of capital



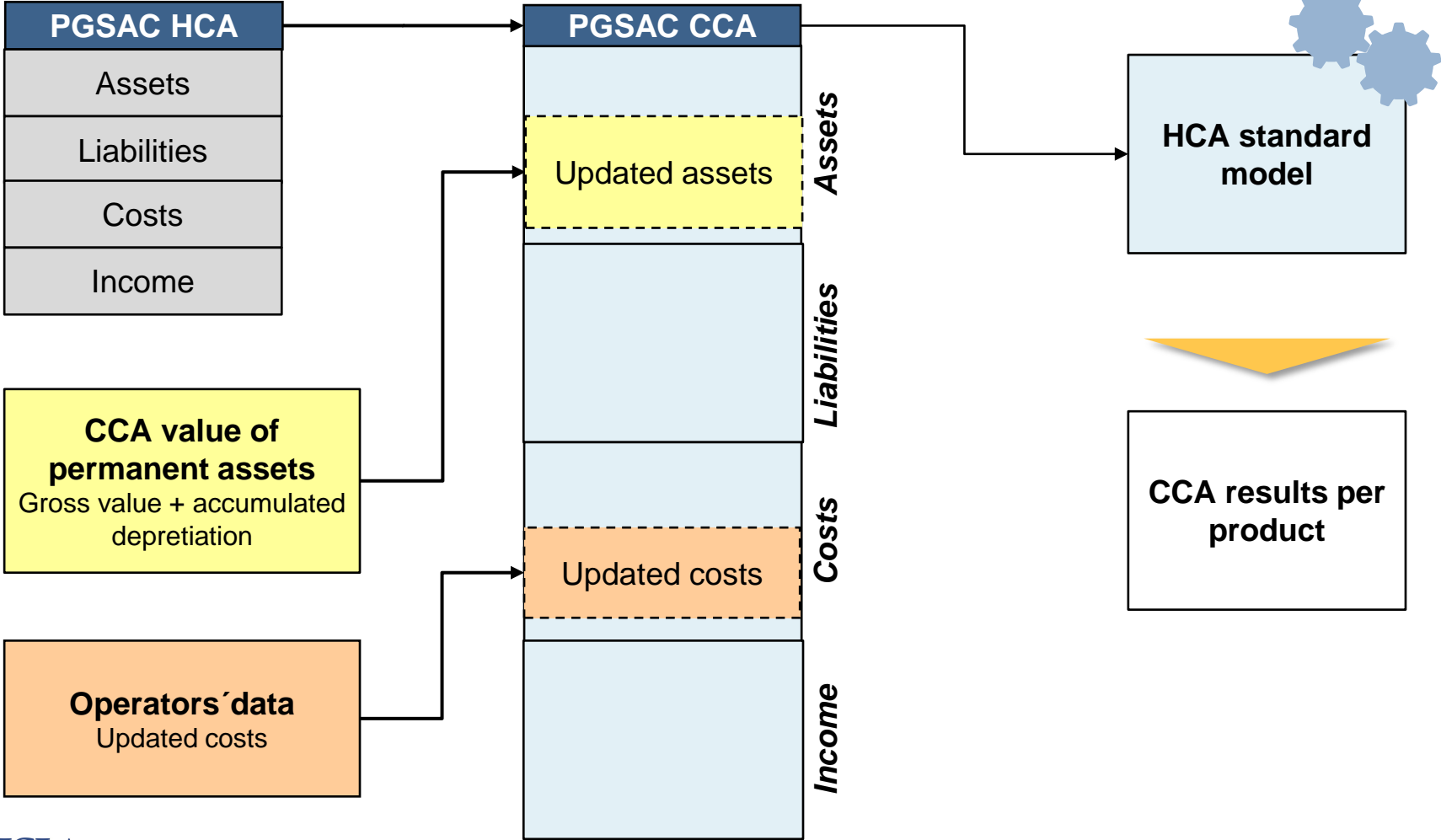
FAC-HCA total cost calculation considers, in addition to operational costs, also the capital employed for the telecommunication business

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

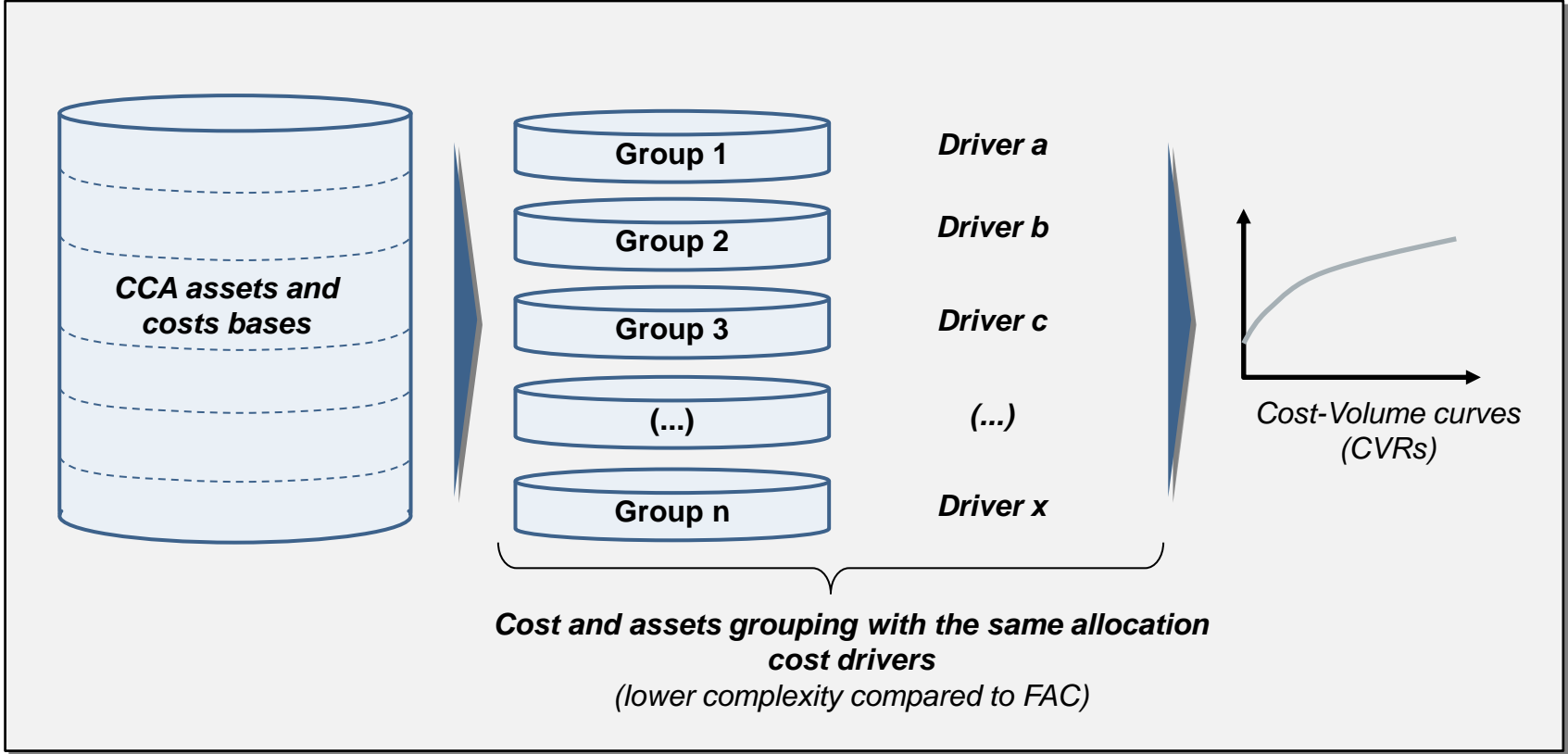


Top down FAC-CCA model leverages the same definitions of the standard FAC-HCA model

CCA Model

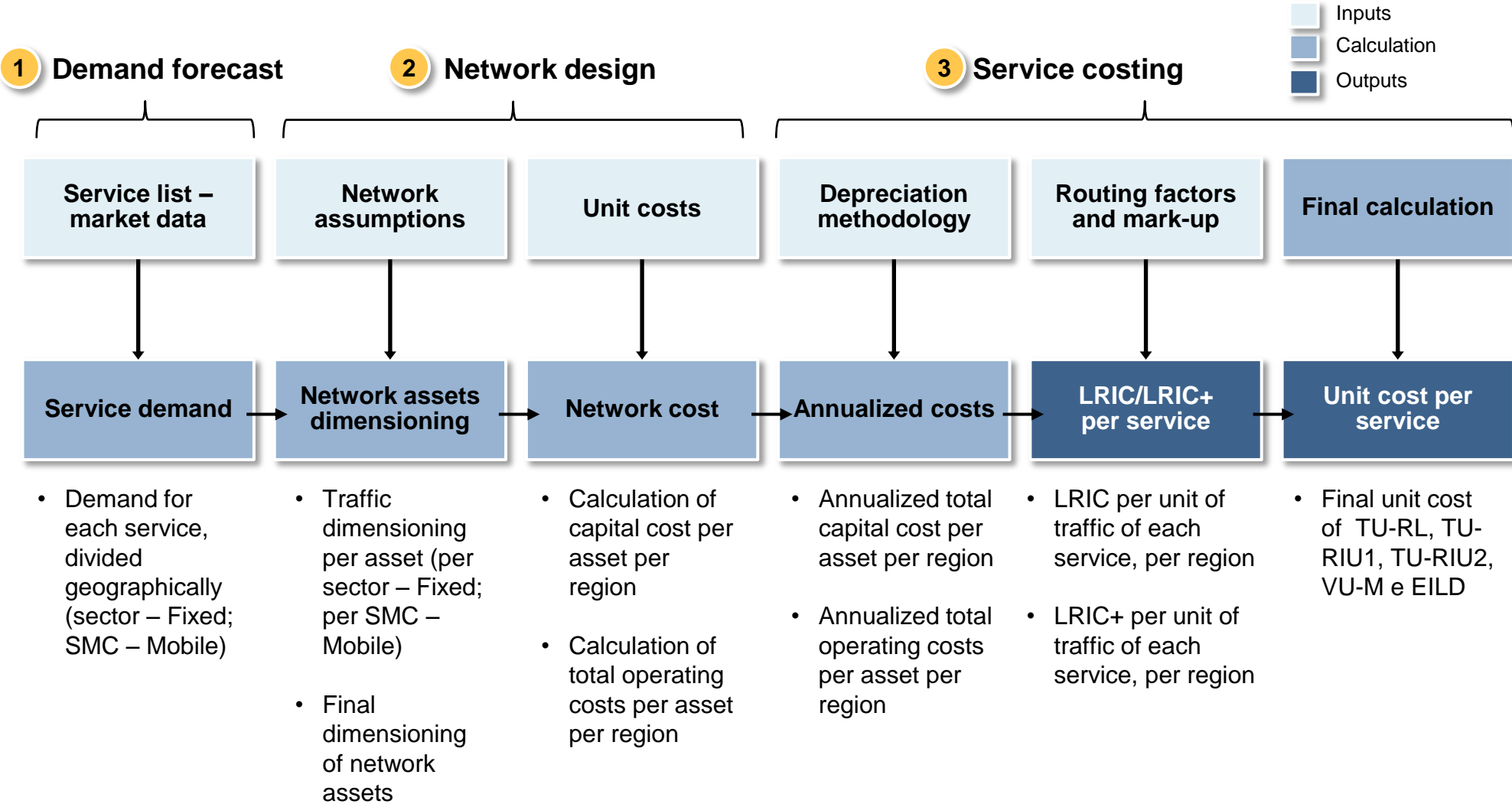


LRIC model is built upon FAC-CCA model, considering common cost drivers



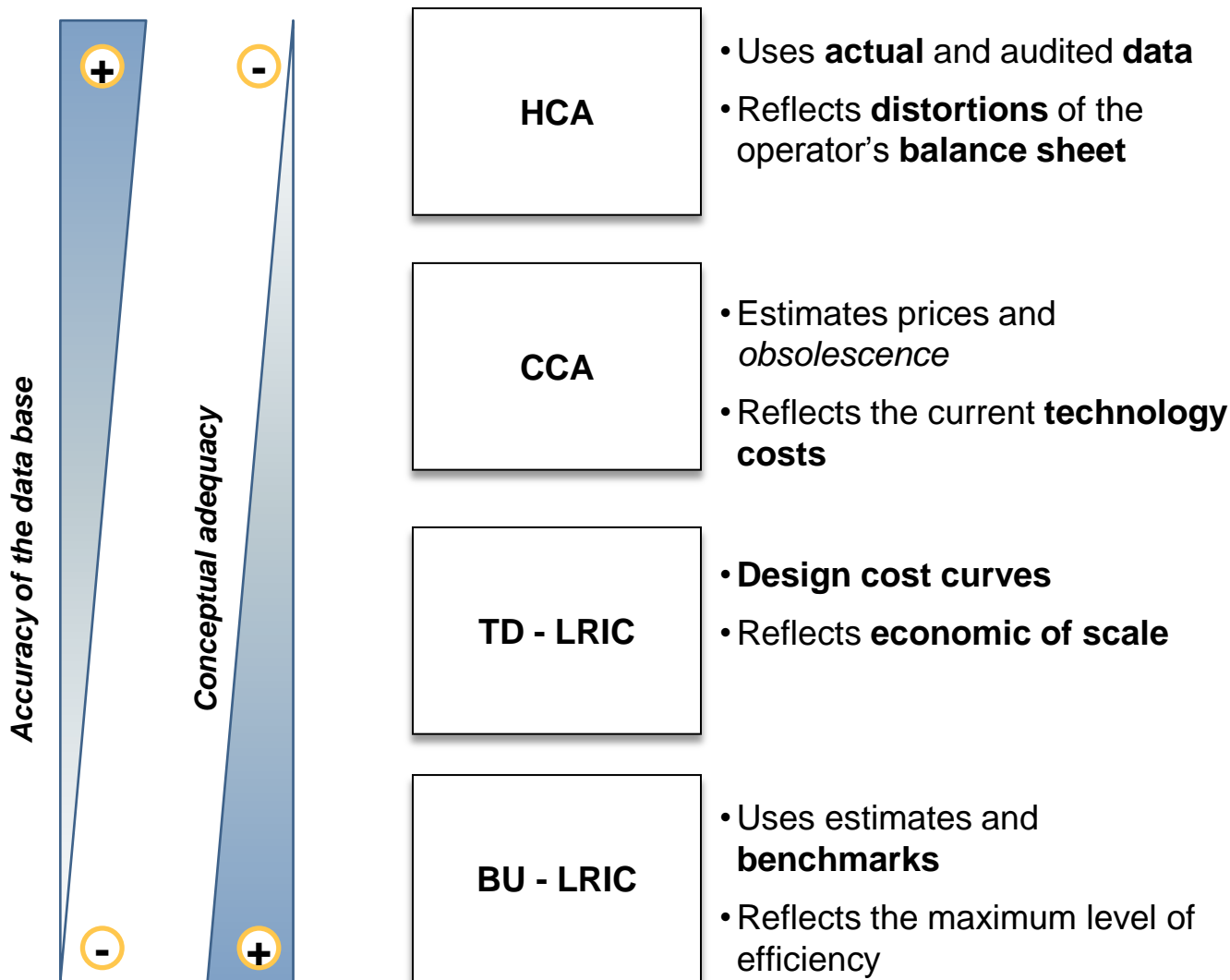
LRIC cost allocation methodology is distinct from HCA and CCA FAC, using own **drivers** and specific relationships of **cost-volume**

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

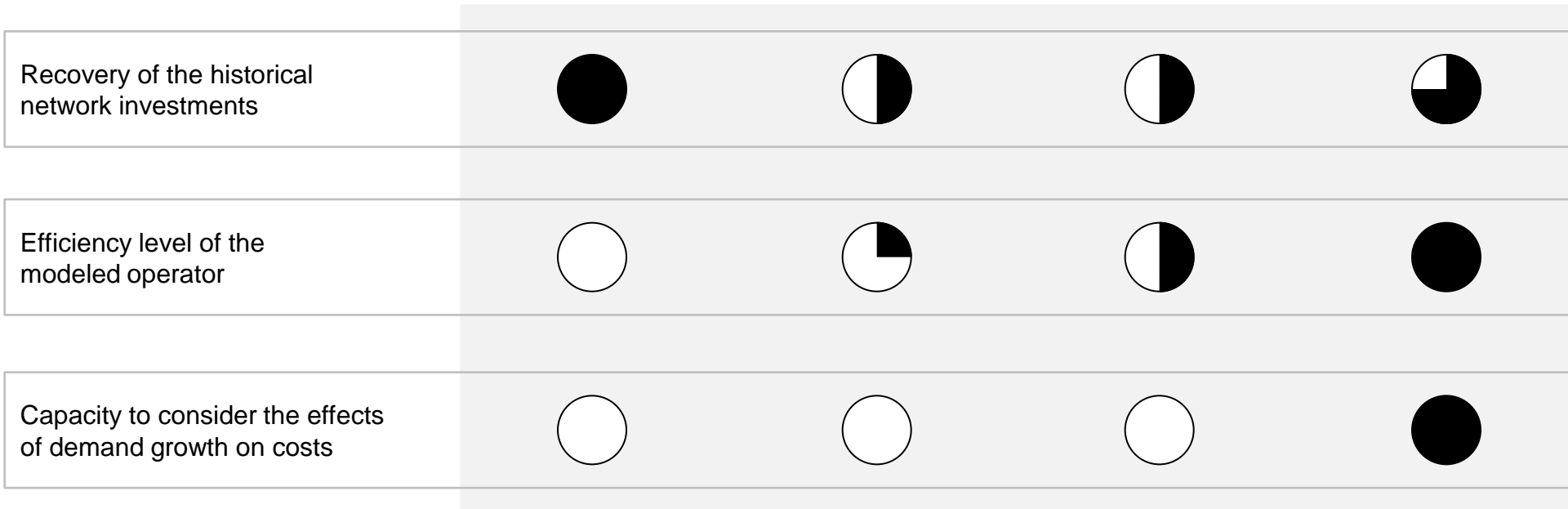
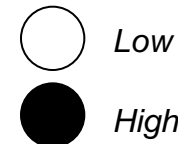


Each model should be interpreted independently...

Accuracy of the models



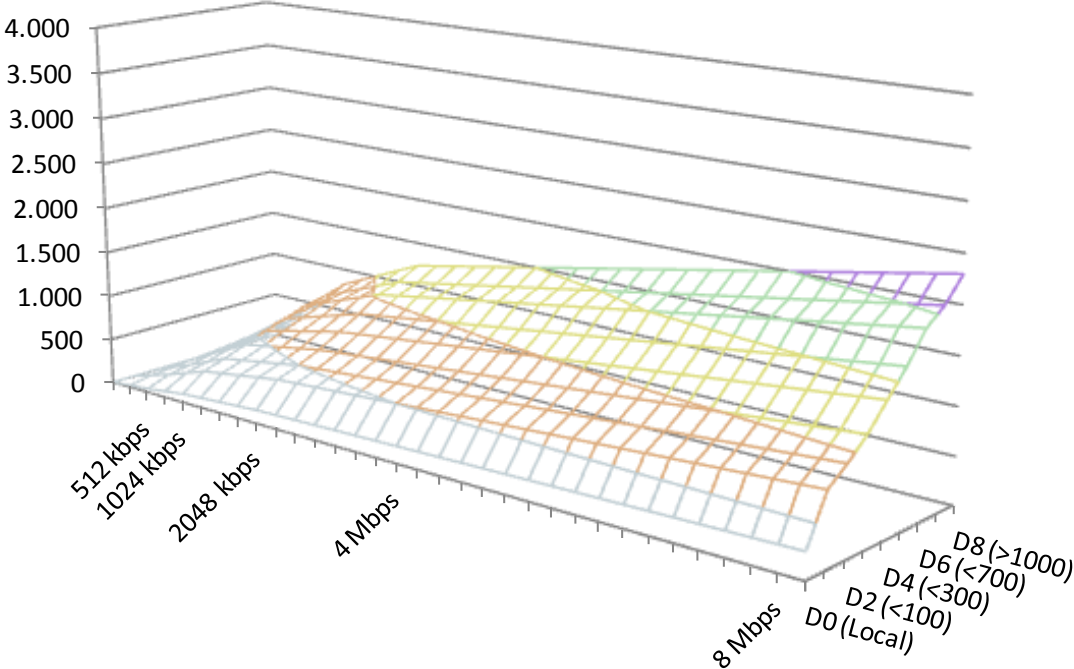
... and the results of the different methodologies have clear different characteristics



Example: dedicated circuits / leased lines

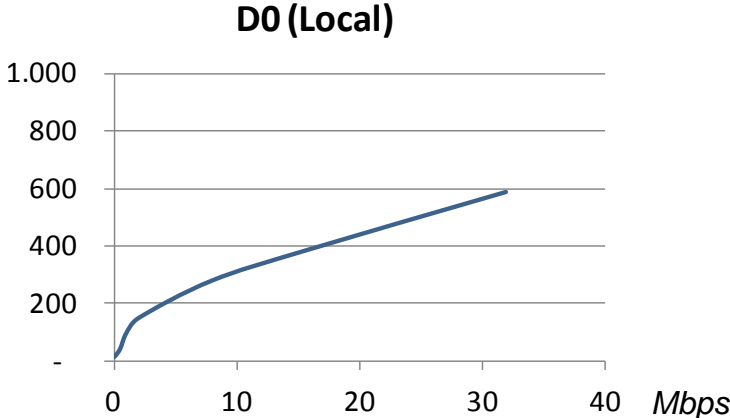
Cost per speed and distance

Cost per circuit

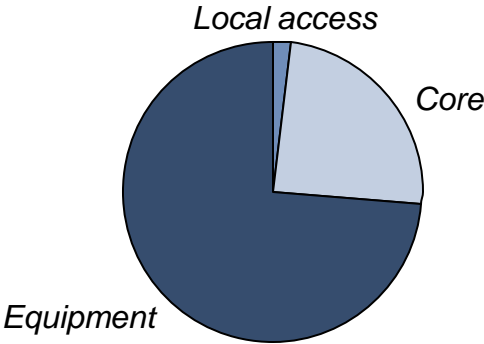


Cost per speed – Distance D0

Cost per circuit

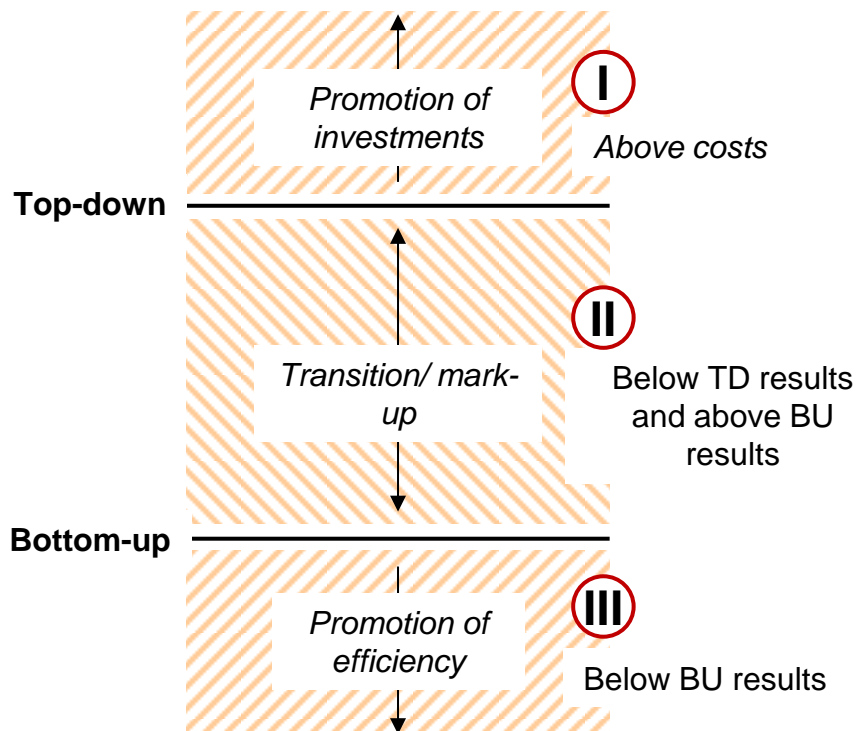


Breakdown of costs

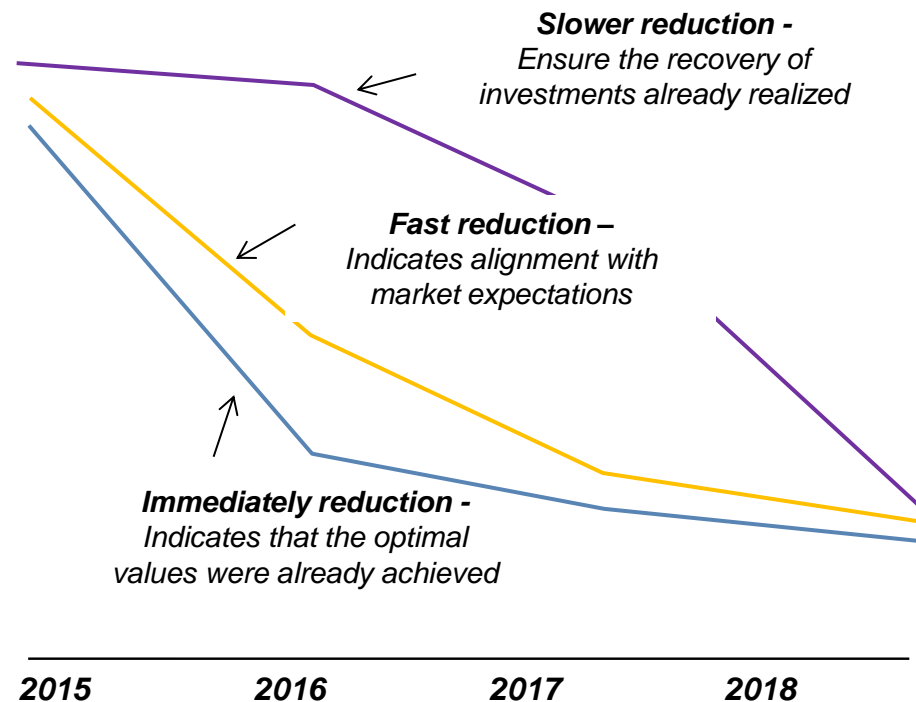


Strategies for the definition of the termination rates

Convergence of termination rates

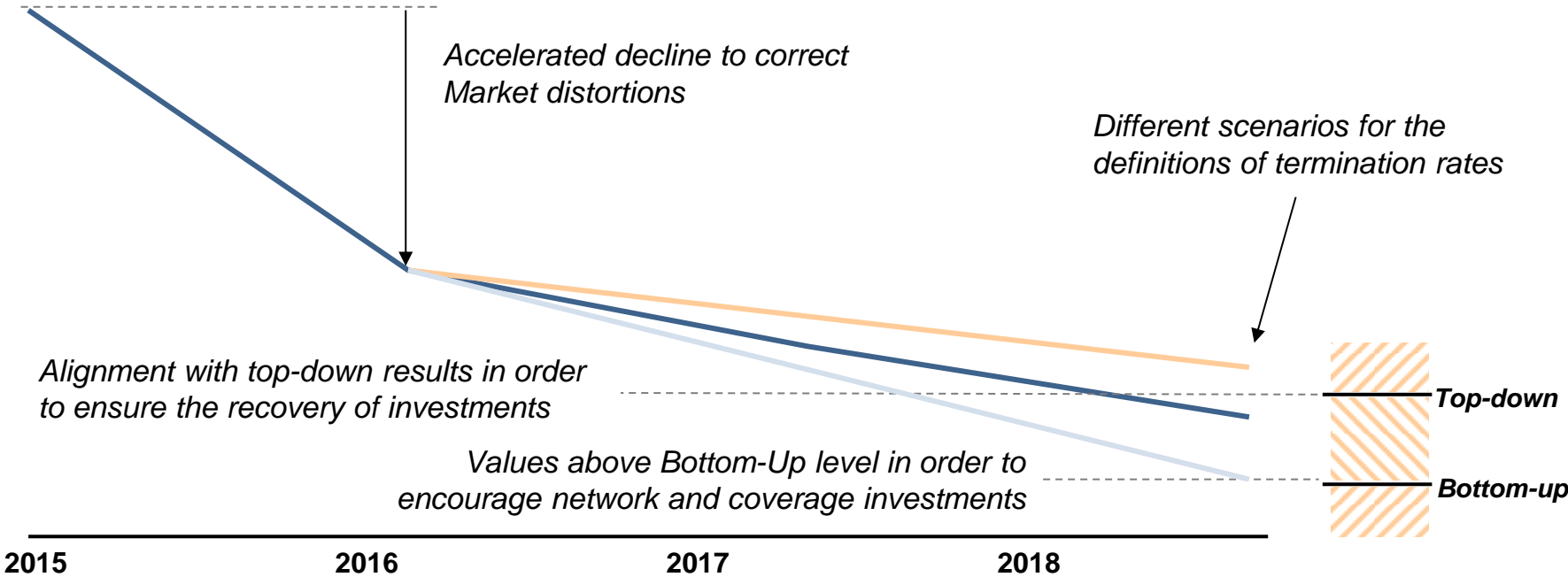


Curve format



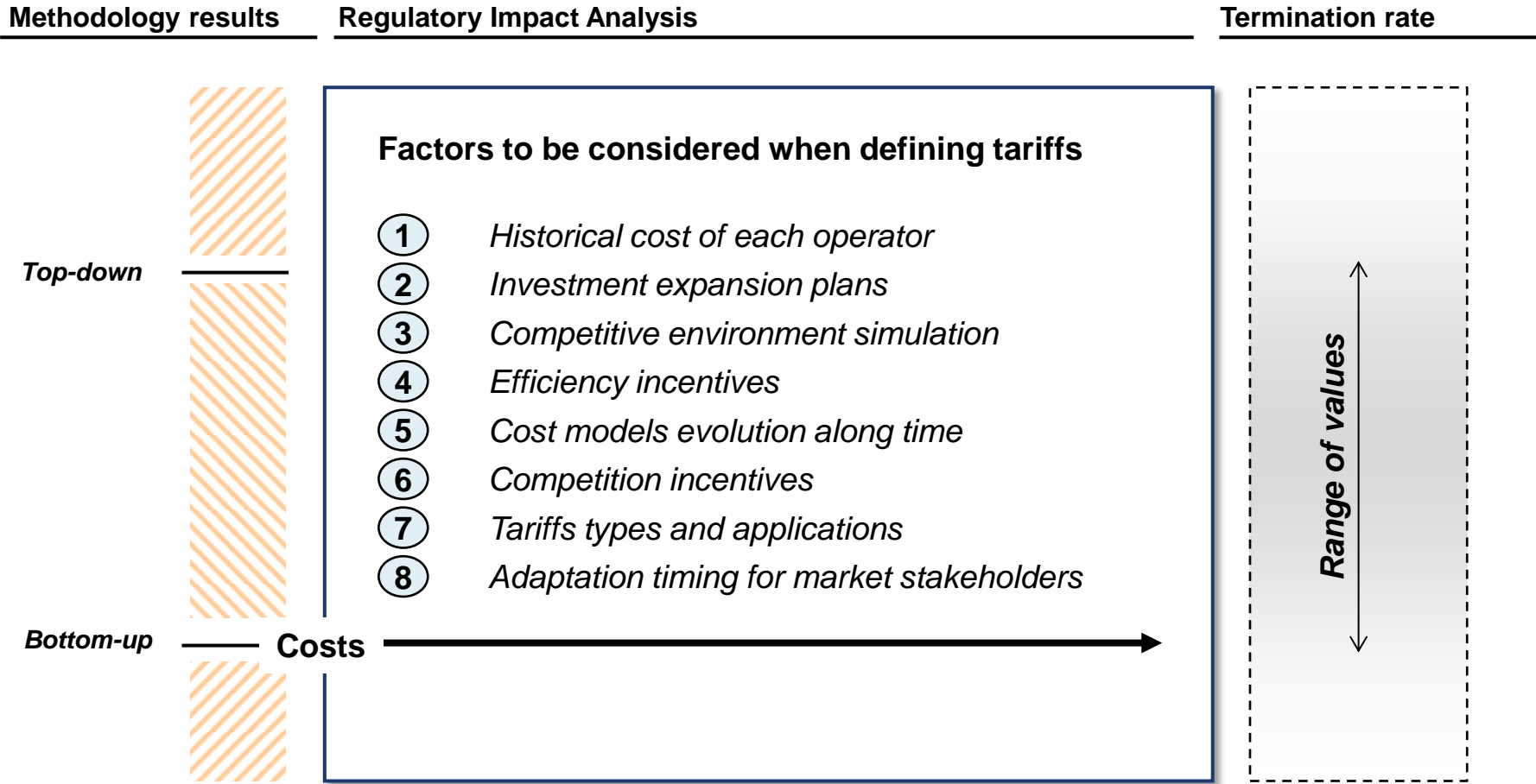
Different strategies for the definition of the termination rate can be chosen according to the regulator objectives and to values that the curves will achieve

Example: termination rate definition strategy

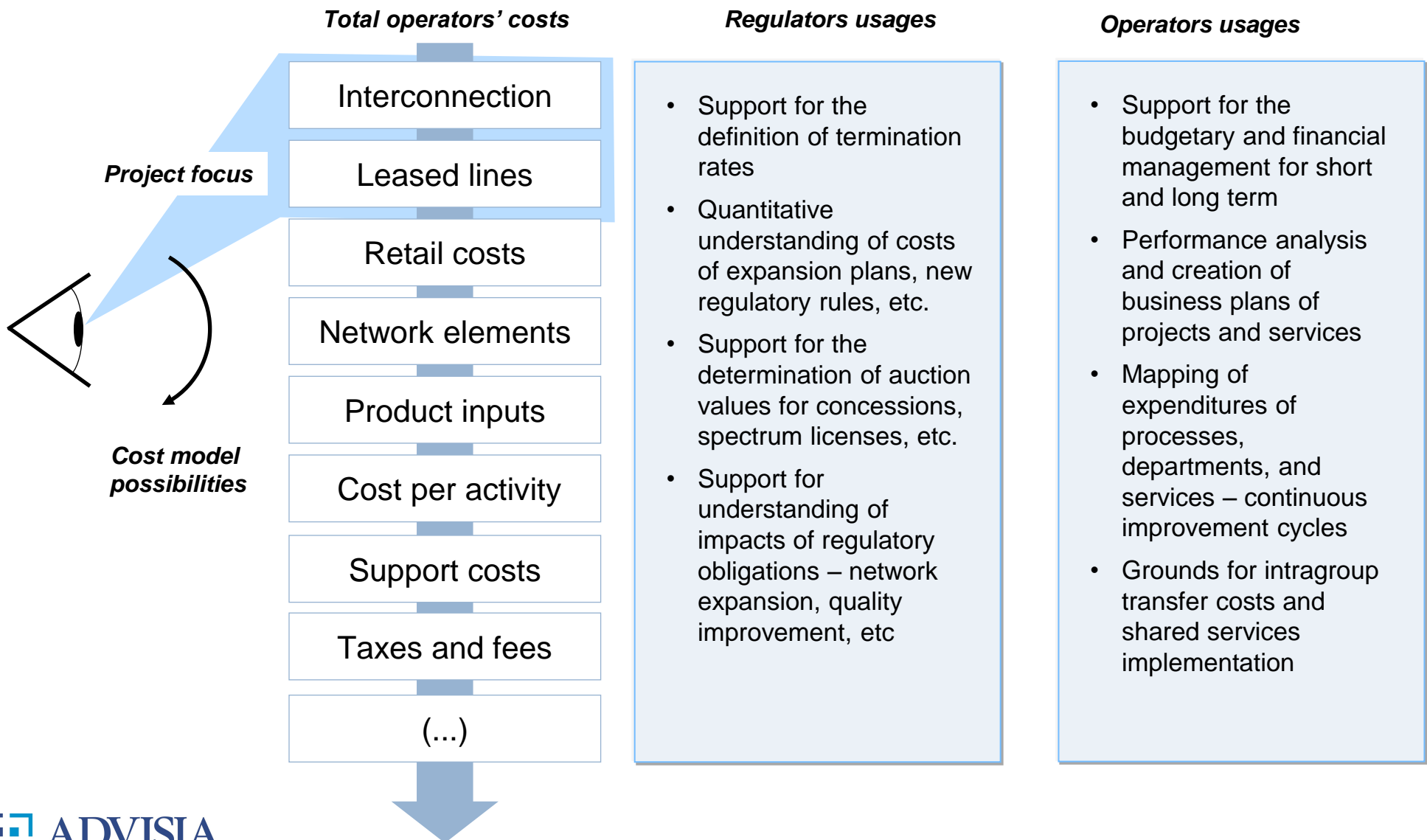


Depending on each strategy, the termination rates can be determined using the results of the Top-Down and Bottom-Up models

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



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:

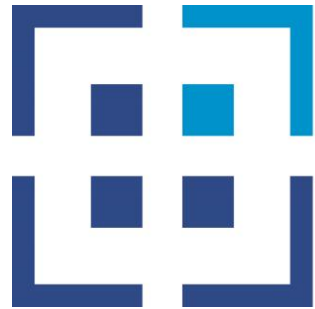
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