

Establishment of Harmonized Policies for the ICT Market in the ACP Countries

Regulatory accounting and cost modelling in Sub-Saharan Africa:

Summary report

HIPSSA

**Harmonization of
ICT Policies in
Sub-Saharan Africa**



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Foreword

Information and communication technologies (ICTs) are shaping the process of globalisation. Recognising their potential to accelerate Africa's economic integration and thereby its greater prosperity and social transformation, Ministers responsible for Communication and Information Technologies meeting under the auspices of the African Union (AU) adopted in May 2008 a reference framework for the harmonization of telecommunications/ICT policies and regulations, an initiative that had become especially necessary with the increasingly widespread adoption of policies to liberalise this sector.

Coordination across the region is essential if the policies, legislation, and practices resulting from each country's liberalization are not to be so various as to constitute an impediment to the development of competitive regional markets.

Our project to 'Support for Harmonization of the ICT Policies in Sub-Sahara Africa' (HIPSSA) has sought to address this potential impediment by bringing together and accompanying all Sub-Saharan countries in the Group of African, Caribbean and Pacific States (ACP) as they formulate and adopt harmonized ICT policies, legislation, and regulatory frameworks. Executed by the International Telecommunication Union (ITU), co-chaired by the AU, the project has been undertaken in close cooperation with the Regional Economic Communities (RECs) and regional associations of regulators which are members of the HIPSSA Steering Committee. A global steering committee composed of the representatives of the ACP Secretariat and the Development and Cooperation – EuropeAid (DEVCO, European Commission) oversees the overall implementation of the project.

This project is taking place within the framework of the ACP Information and Telecommunication Technologies (@CP-ICT) programme and is funded under the 9th European Development Fund (EDF), which is the main instrument for providing European aid for development cooperation in the ACP States, and co-financed by the ITU. The @CP-ICT aims to support ACP governments and institutions in the harmonization of their ICT policies in the sector by providing high-quality, globally-benchmarked but locally-relevant policy advice, training and related capacity building.

All projects that bring together multiple stakeholders face the dual challenge of creating a sense of shared ownership and ensuring optimum outcomes for all parties. HIPSSA has given special consideration to this issue from the very beginning of the project in December 2008. Having agreed upon shared priorities, stakeholder working groups were set up to address them. The specific needs of the regions were then identified and likewise potentially successful regional practices, which were then benchmarked against practices and standards established elsewhere.

These detailed assessments, which reflect sub-regional and country-specific particularities, served as the basis for the model policies and legislative texts that offer the prospect of a legislative landscape for which the whole region can be proud. The project is certain to become an example to follow for the stakeholders who seek to harness the catalytic force of ICTs to accelerate economic integration and social and economic development.

I take this opportunity to thank the European Commission and ACP Secretariat for their financial contribution. I also thank the Economic Community of West African States (ECOWAS), West African Economic and Monetary Union (UEMOA), Economic Community of Central African States (ECCAS), Economic and Monetary Community of Central Africa (CEMAC), East African Community (EAC), Common Market for Eastern and Southern Africa (COMESA), Southern African Development Community (SADC), Intergovernmental Authority on Development (IGAD), Communication Regulators' Association of Southern Africa (CRASA), Telecommunication Regulators' Association of Central Africa (ARTAC), United Nations Economic Commission for Africa (UNECA), and West Africa Telecommunications Regulators' Association (WATRA), for their contribution to this work. Without political will on the part of beneficiary countries, not much would have been achieved. For that, I express my profound thanks to all the ACP governments for their political will which has made this project a resounding success.



Brahima Sanou
BDT, Director

Acknowledgements

The present document represents an achievement of a global activity carried out under the HIPSSA project (“Support to the Harmonisation of ICT Policies in Sub-Sahara Africa”) officially launched in Addis Ababa in December 2008.

In response to both the challenges and the opportunities of information and communication technologies’ (ICTs) contribution to political, social, economic and environmental development, the International Telecommunication Union (ITU) and the European Commission (EC) joined forces and signed an agreement aimed at providing “Support for the Establishment of Harmonized Policies for the ICT market in the ACP”, as a component of the Programme “ACP-Information and Communication Technologies (@CP-ICT)” within the framework of the 9th European Development Fund (EDF). i.e., ITU-EC-ACP Project.

This global ITU-EC-ACP project is being implemented through three separate sub-projects customized to the specific needs of each region: Sub-Saharan Africa (HIPSSA), the Caribbean (HIPCAR), and the Pacific Island Countries (ICB4PAC).

As members of the HIPSSA Steering Committee co-chaired by the African Union’s Commission (AUC) and the ITU, all the Regional economic communities (RECs) especially Economic Community of West African Countries (ECOWAS), Southern African Development Community (SADC), Economic Community of Central African States (ECCAS), and East African Community (EAC) provided guidance and support to the consultants, Ms Saïda Ouederni, Mr Christopher Kipkoech Kemei, regional expert for East Africa, Mr Armand Lichambany, regional expert for Central Africa, Ms Hilda Mutseyekwa, regional expert for Southern Africa and Mr Alan Sawadogo, regional expert for West Africa.

ITU would like to thank all the Regional Regulatory associations in Africa and telecommunications ministries, regulators, academia, civil society, operators and the GSMA for their hard work and commitment in producing the contents of the final report.

Without the active involvement of all of these stakeholders, it would have been impossible to produce a document such as this, reflecting the overall requirements and conditions of the Sub-saharan Africa while also representing international best practice.

The activities have been implemented by Ms. Ida Jallow, responsible for the coordination of the activities in Sub-Saharan Africa (HIPSSA Senior Project Coordinator), and Mr. Sandro Bazzanella, responsible for the management of the whole project covering Sub-Saharan Africa, Caribbean and the Pacific (ITU-EC-ACP Project Manager) with the overall support of Ms. Hiwot Mulugeta, HIPSSA Project Assistant, and of Ms. Silvia Villar, ITU-EC-ACP Project Assistant. The work was carried out under the overall direction of Mr. Cosmas Zavazava, Chief, Project Support and Knowledge Management (PKM) Department. The document was developed under the direct supervision of the then HIPSSA Senior Project Coordinator, Mr. Jean-François Le Bihan, and has further benefited from the comments of the ITU Telecommunication Development Bureau’s (BDT) Regulatory and Market Environment Division (RME), particularly Ms. Carmen Prado-Warner, Senior Programme Officer Economist. Support was provided by Mr Marcelino Tayob, Senior Advisor at the ITU Regional Office for Africa, and Ms Asenath Mpatwa, ITU Senior Adviser. The team at ITU’s Publication Composition Service was responsible for its publication.

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Part 1 – Outlines

1.1 Context

ITU-EC joint project for “Harmonisation of ICT Policies in Sub-Sahara Africa” (HIPSSA) has initiated a work on regulatory accounting and cost modelling so as to develop and promote home-grown harmonized policies and regulatory guidelines as well as build human capacity in the field of cost orientation implementation through the use of appropriate tools.

The present report represents the achievement of the first part of this activity which was articulated around the following two phases.

- Phase I: Data collection through surveys and interviews with stakeholders and development of regional assessment studies on costing strategies and cost model application and processes.
- Phase II: Consolidation of the regional studies’ input in a final report providing an overview of the whole of Sub-Saharan Africa, identifying best practices (from the region and beyond) and presenting recommendations based on this and beyond.

A team of five experts has completed the first two phases of the study. This team, headed by Ms Saïda Ouederni, was as follows:

- Ms Saïda Ouederni, a senior international expert was in charge of the project overall coordination and of the consolidation of all regional reports so as to retrieve the main findings, define best practices and identify the needs in terms of building human and institutional capacity in the field of ICT through a range of targeted training. In this regard, Ms Saïda Ouederni defined the project methodology, elaborated the common questionnaire for data collection and established the common template for regional assessment studies.
- Mr. Christopher Kipkoech Kemei, regional expert for East Africa, Mr Armand Lichambany, regional expert for Central Africa, Ms. Hilda Mutseyekwa, regional expert for Southern Africa and Mr Alan Sawadogo, regional expert for West Africa. Each regional expert was in charge of collecting the required data, establishing national reports accordingly and consolidating them in a regional assessment report.

For a further insight of the project objectives and methodology, the Briefing note on common questionnaire is available on Annex 1.

The present document is aimed at providing stakeholders with key indicators of what is done and/or foreseen at the whole region level so as to favour a coherent approach on methodologies all across the region.

In order to give concrete input towards a home-grown common approach on regulatory accounting and cost modelling, a detailed common questionnaire was thought out to retrieve relevant information on:

- Adopted price control strategies, their implementation, the difficulties encountered and the foreseen evolutions
- Implemented procedures regarding cost accounting obligations and associated regulatory auditing processes
- Costing tool(s) implemented and methodology used to implement the chosen costing tool(s)

ITU/HIPSSA G5 questionnaire (see Annex 2) was sent to all NRAs from Sub-Saharan Africa countries on November, 17th 2011.

The present document is based on stakeholders’ feedback to the HIPSSA G5(s) project as detailed below.

- NRAs’ feedback to the ITU/HIPSSA G5 questionnaire as of February 28th, 2012 and reported by the regional experts inside their respective regional assessment reports. 34 countries addressed ITU/HIPSSA G5 questionnaire, as presented in the table below:

Sub-Region	Countries having addressed ITU/HIPSSA G5 questionnaire	Questionnaires received
Central Africa	Burundi, Cameroon, Central African Republic, Chad, Congo (Republic of The), Equatorial Guinea, Gabon, Sao Tome and Principe	8
East Africa ¹	Ethiopia, Kenya, Madagascar, Rwanda, Seychelles, Tanzania, Uganda	7
Southern Africa ²	Botswana, Malawi, Lesotho, Mozambique, South Africa (Republic), Swaziland, Zambia, Zimbabwe	8
West Africa	Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea Bissau, Ivory Coast, Niger, Nigeria, Senegal, Togo	11

In addition, regional experts for East Africa and Southern Africa completed the survey by their own researches for the following countries: Lesotho, Mauritius, Namibia and South Africa.

- GSMA organization sent, by January 16th, 2012, a contribution to ITU/HIPSSA G5 project reflecting its Members' position arising from an ad hoc survey internally conducted³. The operating groups having participated in the ITU GSMA internal survey were: Airtel, Etisalat Group (Atlantique Telecom), MTN, Orange, Vodacom and Vodafone. GSMA contribution covered the following 22 countries:

Sub-Region	Scope of countries covered by GSMA contribution	Questionnaires received
Central Africa	Central African Republic, Chad, Congo (Republic of the), Democratic Republic of Congo, Gabon	5
East Africa	Kenya, Madagascar, Seychelles, Tanzania, Uganda	5
Southern Africa	Lesotho, Malawi, Mozambique, Republic of South Africa, Zambia	5
West Africa	Benin, Burkina Faso, Ghana, Ivory Coast, Niger, Nigeria, Togo	7

For more theoretical information on regulatory accounting and cost modelling, as well as regulatory related issues, please consult the ICT Regulation Toolkit developed by ITU in coordination with InfoDev, at the website: www.ictregulationtoolkit.org/.

Disclaimer:

The present report and its conclusions are based on NRAs feedback on ITU/HIPSSA G5 questionnaire as of February 28th, 2012 as reported by the regional experts inside their respective regional assessment reports.

¹ As reported by the regional expert for East Africa, no regulatory framework is in place in Somaliland.

² As reported by the regional expert for Southern Africa, no regulatory framework is in place in Angola.

³ GSMA Survey Report on regulatory auditing and cost modeling – Operators Survey

1.2 Executive summary

In Sub-Saharan Africa there is a positive trend toward the adoption of cost orientation as a strategy to regulate MTR. This is outlined in the results of the survey showing that cost orientation strategy represents 66%⁴ of all responses.

However, the level of implementation of this strategy across this region varies significantly and only 30% of the respondents apply the full set of regulatory tools needed to ensure an effective cost orientation implementation, namely cost accounting, regulatory auditing and cost modelling.

The present study reveals some of the key issues regarding the implementation of this set of tools for which a harmonized approach and/or capacity building are needed as the following:

Key Issue 1 –Cost orientation framework

As arising from the survey, the whole set of regulatory tools exists in only 11 countries, namely, Benin, Cape Verde, Ghana, Guinea, Niger, Senegal, Togo, Mozambique, South Africa, Uganda, Zimbabwe.

West Africa knows the highest proportion of countries having implemented this set representing 64% of the respondents whereas the countries having done so in the other 3 sub-regions represent only 17% of the respondents. West Africa position can be explained by the harmonization initiative taken by the ECOWAS through the adoption of the ECOWAS additional act on interconnection.

Harmonization initiative, like the adoption of the ECOWAS additional act on interconnection, should be taken and followed up at the regional level so as to promote the development of an appropriate framework for cost orientation implementation.

Key Issue 2 -Transparency

Cost models are not publicly available in more than 67% of the cases. Besides, the GSMA outlined that, “Albeit with considerable regional fluctuation, almost 60% of the respondents consider that the current rate setting process is neither completely transparent nor independent”⁵. In addition, the association reported that one of the main concerns reported by the operators having participated to the survey was pertaining to the model assumptions.

Transparency is a key regulatory requirement to ensure an efficient and fair consultation process with operators as well as providing visibility to stakeholders, especially investors. As such and in consistency with international best practices, cost models, associated assumptions and their underlying rationale as well as the methodology used to build up the model should be publicly available.

Key Issue 3 -Lack of skills and resources

Lack of skills and/or resources have been reported by half of the NRAs as a hindrance when regulating MTR. Such an issue has a direct and evident impact on all critical steps of cost orientation strategy implementation by NRAs: regulatory requirements especially regarding cost accounting specifications and the scope of regulatory auditing, data collection and operators’ consultation as well as cost model development and fine-tuning. As such there is a crying need in the region for common approach and guidelines as well as capacity building regarding regulatory accounting and cost modelling.

⁴ Out of 38 countries having addressed this issue

⁵ GSMA study on regulatory auditing and cost modeling in Sub-Saharan Africa

Key Issue 4 – Cost accounting specifications and audit

As arising from the survey, only 4 countries have implemented best practices in terms of cost accounting specifications, namely Botswana, Cape Verde, South Africa and Zimbabwe. Southern Africa knows the highest proportion of countries having implemented best practices on cost accounting with 37,5% of the respondents whereas the countries having done so in the other 3 Sub-Regions represent less than 4% of the respondents.

NRAs should specify detailed cost accounting requirements combined with an audit process in consistency with international best practices in order to avoid the allocation of inefficiently incurred costs. More precisely, NRAs should focus on the implementation of an exhaustive audit process covering more specifically the issues related to the scope of costs included and scope of costs allocated to MTR as well as the methodologies used regarding amortisation, cost capitalisation and assets valuation.

Key Issue 5 – Assets depreciation

Regarding assets depreciation method, 55% of the respondents use the straight line depreciation method, which is not appropriate as it leads them to take into account inefficient costs. Indeed, this method is to be used when assets prices are relatively stable over the lifetimes of the assets which are not consistent with telecommunications equipments for which prices tend to be declining.

Regarding economic lifetimes for the different types of assets, a gap is observed between the different countries particularly regarding civil works.

When opting for a given depreciation method and economic lifetime, NRAs should chose the most appropriate method and lifetime depending on the type of assets considered.

Regarding the depreciation method, NRAs of the region should consider international best practices such as economic depreciation for assets subject to rapid technologic/economic change, as implemented in Ghana, or, when this approach is difficult to implement, tilted annuity as implemented in Nigeria.

Regarding assets' economic lifetimes, NRAs of the region should investigate the possibility to define common economic lifetimes for the main network elements. Such an approach would allow capitalizing on NRAs experience and reducing the differences in the region regarding the level of network costs in MTR.

Key Issue 6 – Bottom-up

Albeit fluctuations, bottom-up approach or hybrid approach, consolidating bottom up approach with the top down one, is used by more than half of the respondents. West Africa knows the highest rate of use corresponding to 83% of the respondents whereas 37,5% of the respondents from the 3 other Sub-Regions are doing so. West Africa position can be explained by the harmonization initiative taken by the ECOWAS through the adoption of the ECOWAS additional act on interconnection.

The model's key assumptions are close to the existing operators' characteristics which lead to the inclusion of inefficient costs.

As such, NRAs using a bottom-up or hybrid model should ensure that their model is sharply calibrated with top-down data obtained under the best practices regarding cost accounting specifications. When such reconciliation is not put in place, NRAs should use best current practice cost in the region and beyond in order to calibrate and validate the model outputs.

Nota:

Unless explicitly stated otherwise:

- The present assessment report deals with mobile termination rates regulation;
- All statistical figures are based on the relevant number of respondents having addressed the corresponding issue through the ITU/HIPSSA G5 questionnaire on regulatory accounting and cost modelling. The number of relevant answers pertaining to a given statistic is indicated accordingly.

Part 2 – Legal and regulatory framework for tariff regulation

2.1 Strategy for regulatory intervention

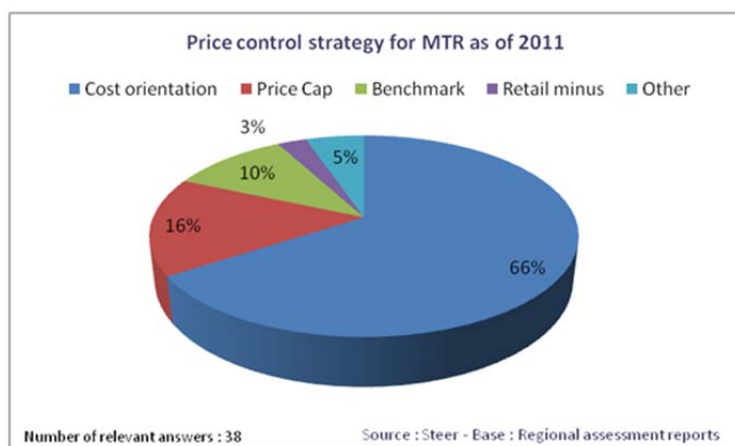
2.1.1 Purpose

The present section is aimed at

- Providing an up-to-date overview on price control strategies, their level of implementation, the type of difficulties encountered by stakeholders and the foreseen evolutions;
- Identifying main findings and trends arising from the surveys;
- Highlighting, when relevant, gaps between Sub-Regions.

2.1.2 Status of price regulation and underlying strategy

Cost orientation represents a proportion of 66% of all strategies in place in the region to control MTR, as illustrated in the graph below.



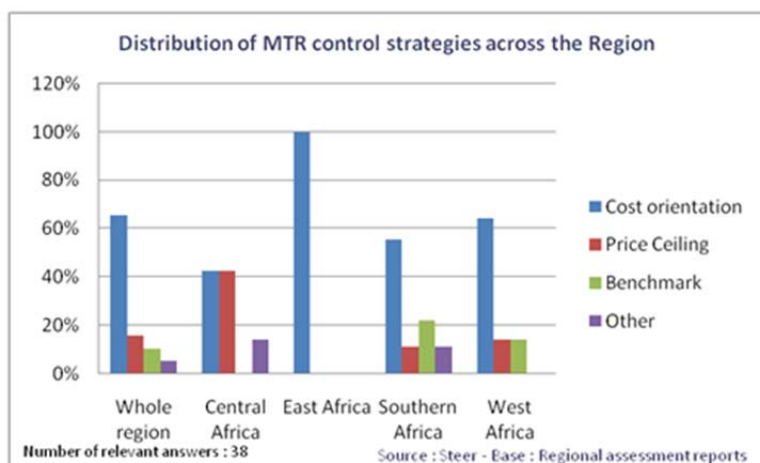
A parallel shall be drawn with the European Community where in 2008, namely 12 years after the liberalization of the ICT sector, cost orientation strategy was implemented in 65%⁶ of the countries.

What arises from the survey is that there is a clear trend toward cost orientation strategy adoption all across Sub-Sahara Africa region.

Such a result is consistent with the principle that cost orientation provides the best way to ensure that tariffs are set up on an objective and non discriminatory basis.

⁶ Source: BEREC publication

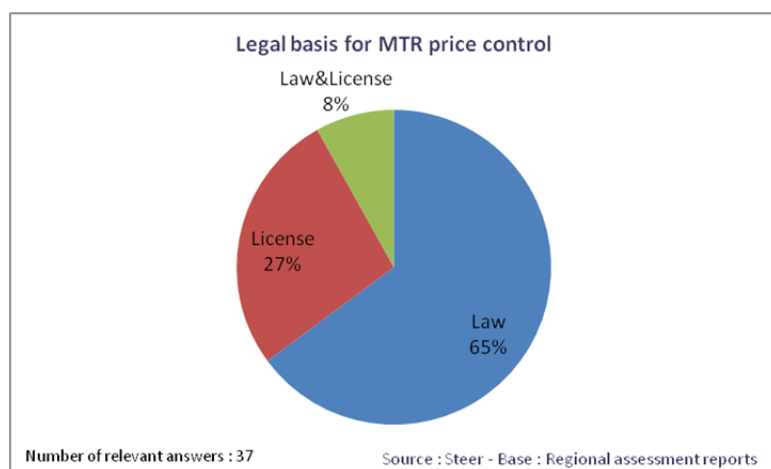
Among the Sub-Regions, the level of adoption of cost orientation approach is shown in the graph below.



The level of adoption of cost orientation approach varies across the Sub-Regions, ranging from 43% of respondents from Central Africa to 100% in East Africa.

The situation in Central Africa is expected to change shortly since Central Africa Republic, Gabon and Chad are reviewing the regulatory framework in consistency with CEMAC/ECCAS acts which promotes cost orientation and non discriminatory principles.

The main legal basis for imposing cost orientation obligation is the law and, to a lesser extent, license terms or both as illustrated in the graph below.



In Senegal⁷, Rwanda, Niger, South Africa, Nigeria, Guinea Bissau and Cape Verde, the legal frameworks state that price control is applicable to operators deemed to have SMP.

In terms of regulatory strategic goals, the main concerns expressed by the NRAs are customer interest, especially in terms of price reduction, investments attraction as well as effective and fair competition promotion.

In addition, requirements linked with economic and competition notions such as efficiency, cost recovery, cross subsidies and abusive behaviour of SMP are underlined by some NRAs.

Besides, the importance of prices comparability at the regional level has been underlined in Gambia and Swaziland.

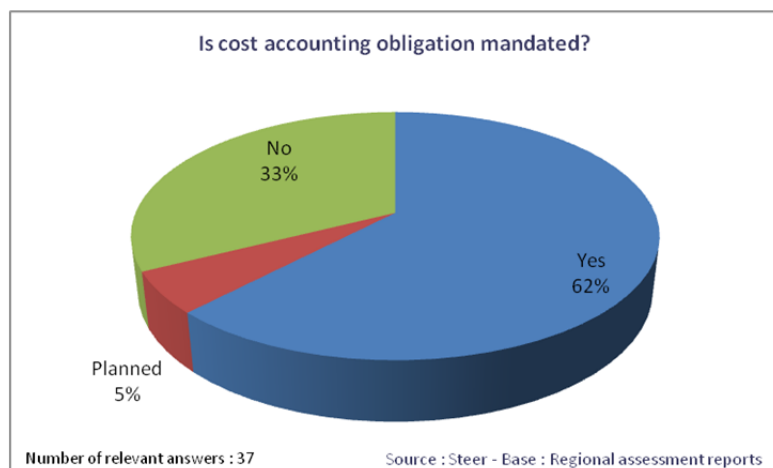
⁷ Source – World Bank – Africa's ICT Infrastructure – Building on the Mobile Revolution- 2011

Regarding the outcome and achievement of cost orientation in the Region:

- Cameroon, Zambia and Mozambique indicated that their policy led to lower MTR
- Uganda and Rwanda indicated that this policy resulted in a decline in tariff for mobile services in the country

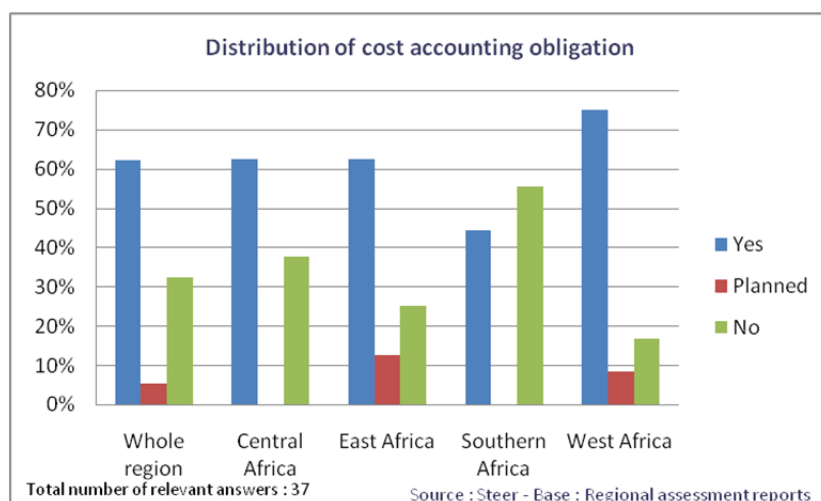
2.1.3 Cost accounting framework

Cost accounting obligations are provisioned or planned to be for most of the frameworks in place in the region, representing 68% of the responses as shown in the graph below.



The prevailing legal basis to impose cost accounting obligation to MNOs is the law and, to a lesser extent operators' licenses.

The proportion of countries where cost accounting is mandated varies from a Sub-Region to another as shown in the graph below:



Cost accounting obligation is most provisioned in West Africa representing 77% of the countries having addressed the issue.

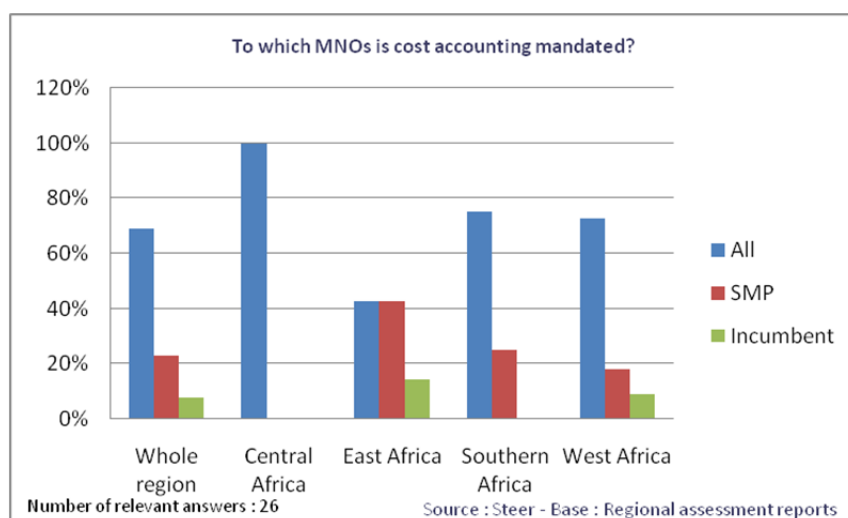
The highest level of cost accounting obligation in West Africa Sub-Region may be attributable to ECOWAS initiative. Indeed, in 17 January 2007, ECOWAS community adopted a supplementary act regarding access and interconnection. This act states a common approach regarding price regulation strategy and costing methodologies. ECOWAS stated, among other, that cost accounting obligations for the operator deemed as SMP shall be imposed by 2009 at the latest.

Southern Africa has the lowest rate regarding cost accounting. The main reasons, for which cost accounting was not mandated, as underlined by NRAs in Southern Africa, are the lack of legal basis as well as the lack of resources and skills. The burden represented by the use of consultants to cope with the lack of skills is considered as an issue by some of them.

All these reasons were similarly reported by NRAs from the other Sub-Regions.

In such conditions, initiatives like ECOWAS to harmonize frameworks on cost accounting requirements as well as capacity building in cost accounting practice are needed in the whole region.

In almost all cases, when provisioned by the framework, cost accounting is imposed to all operators. The following graph shows the distribution of the different options implemented across the whole region.



The best practice consisting in imposing this obligation to operators deemed to have SMP on the relevant market is in place in some countries in East Africa, West Africa and Southern Africa representing a global proportion of 22% of all relevant answers.

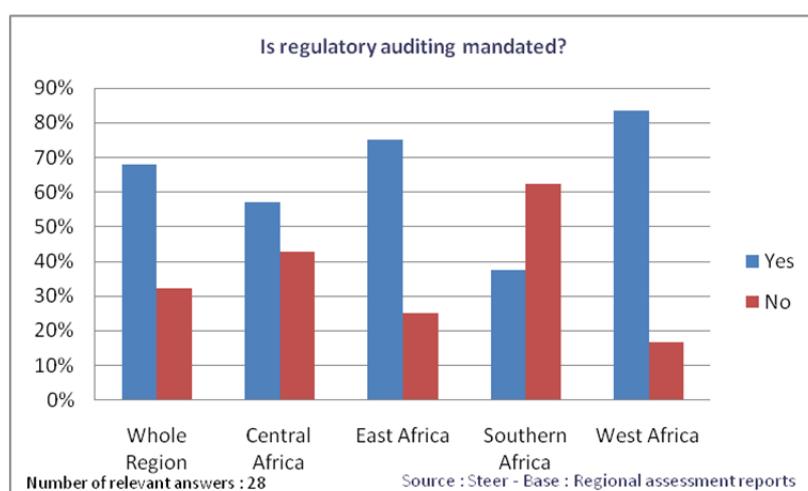
2.1.4 Regulatory auditing framework

Regulatory auditing, which consists in controlling the consistency of the mandated operators' regulatory costs reporting, is provisioned in the majority of the respondents representing 68% of the responses out of 28 relevant answers.

The main legal basis for imposing regulatory auditing is the law, representing 62% of the responses (out of 21 relevant answers).

Regarding the reasons for which regulatory auditing is not imposed, the lack of resources and skills are considered one of the key difficulty. The lack of legal basis has also been reported by the respondents.

At the Sub-Regional level, the relative proportion of countries where regulatory auditing is mandated is shown in the graph below.

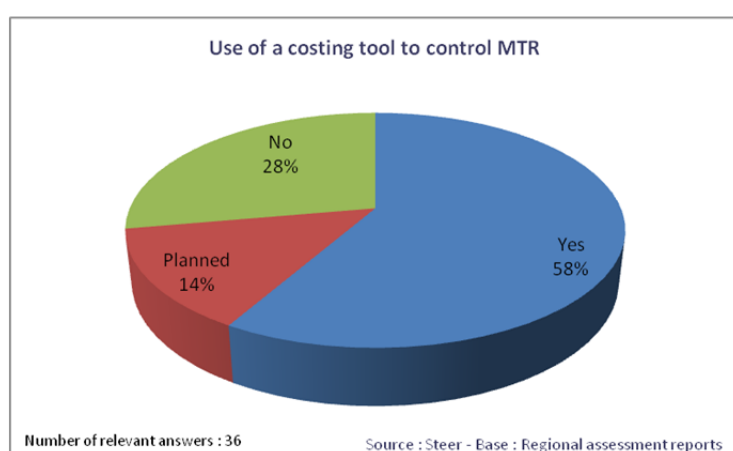


Southern Africa is the Sub-region where regulatory auditing is not provisioned by the national frameworks in more than 60% of the countries having addressed the issue.

The situation in Southern Africa where regulatory auditing is less provisioned than in the other Sub-Regions is to be put in parallel with the situation regarding cost accounting obligation in that Sub-Region. Indeed, as underlined earlier, cost accounting obligation are less imposed than in the other Sub-Regions.

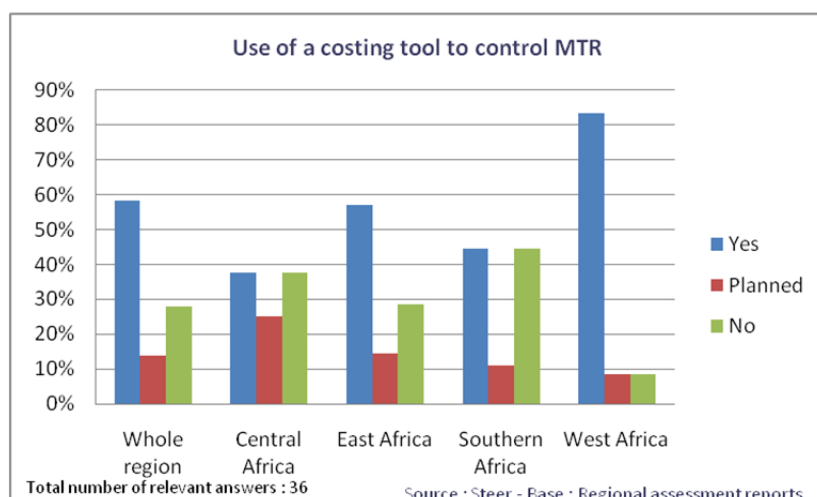
2.1.5 Status of costing tools

Costing tools to regulate MTR are used or planned to be used in the majority of the surveyed countries, representing a rate of 72% at the whole region level, as detailed in the graph below.



These costing tools apply in most cases to all mobile operators. For some respondents, it applies to operators deemed to have SMP on the relevant market for MTR.

At the Sub-regions level, the rate of use of a costing tool varies widely from one Sub-Region to another as illustrated in the graph below.



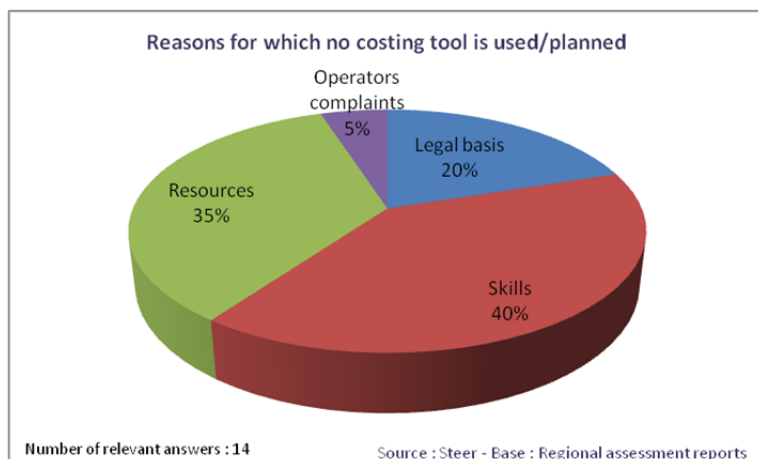
Central Africa has the lowest proportion of costing tool use and West Africa has the highest rate.

The situation of Central Africa should change as 33% of the respondents are planning to use a costing tool to control MTR.

The high level of use of a costing tool in West Africa Sub-Region is to be considered in the light of the ECOWAS harmonization initiative regarding cost accounting and cost modelling.

The main reasons for which costing tools are not used are mostly the lack of technical skills and resources, both representing 75% of the whole reasons underlined by the respondents.

The graph below shows the distribution of the different reasons for which NRAs do not use or do not plan to use a costing tool.

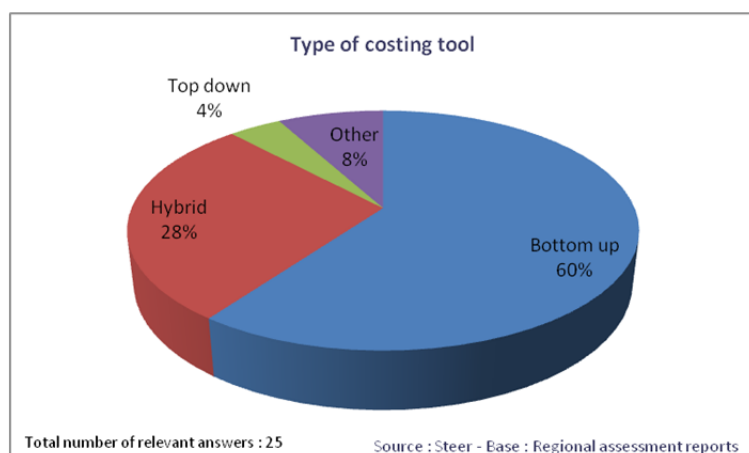


The lack of resources or skills represents 75% of all reasons for which a costing tool is not used or planned to be used by the respondents.

Such results underline the requirement to address the need for capacity building regarding the objectives and role of cost modelling and cost accounting in cost orientation principles implementation in the Regions.

2.1.6 Status on costing tools types

The distribution of the type of costing tools used across the region is shown in the graph below.

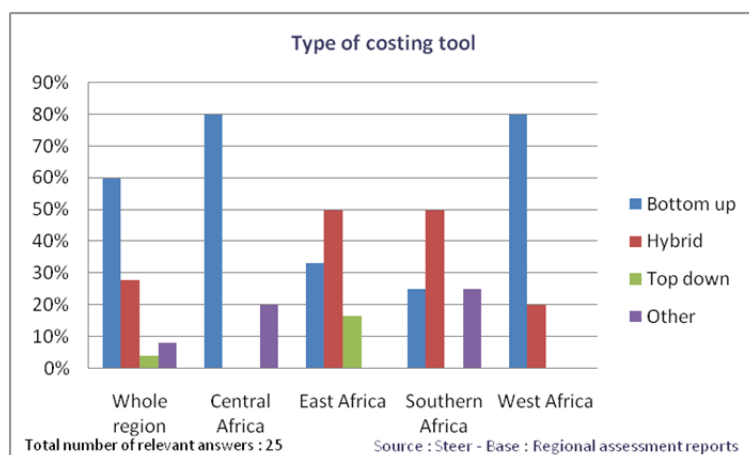


When a costing tool is used, the choice of bottom up or hybrid as the approach to control MTR is prevailing in the region representing 88% of the respondents.

What arises from these results is that, when a costing tool is used, it is mainly based on some form of cost modelling.

Besides, the significant use of bottom up approach for cost modelling shall be attributable to the difficulties encountered by NRAs to collect data from the operators as reported in the following section (see section 1.2).

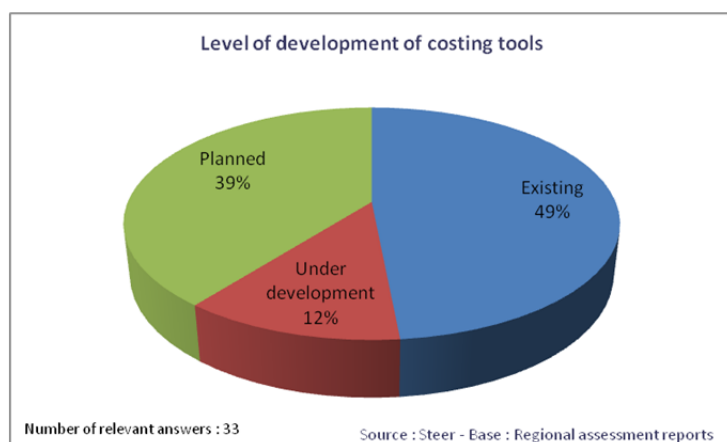
At the Sub-regional level, the distribution of the different approaches varies widely, as illustrated in the graph below.



Bottom up/Hybrid models are used by 100% of the respondents in West Africa Sub-Region (10 responses).

2.1.7 Development stage of costing tools

The distribution of the different level of development of a costing tool is shown in the graph below.

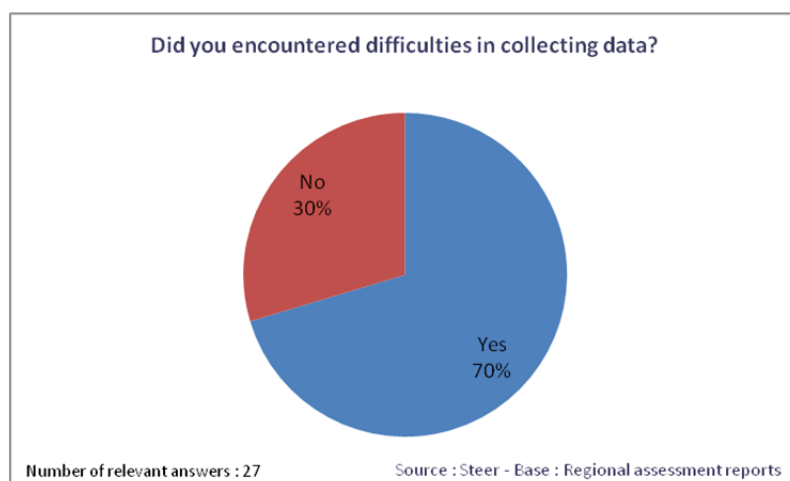


What arises from the survey is that the development of a costing tool is underway or planned by half of the concerned NRAs.

Such a situation, where the development of a costing tool is underway or planned in half of the countries having addressed this issue underlines the urgent need for capacity building in the Regions regarding regulatory accounting and cost modelling.

2.2 Difficulties encountered by NRAs regarding data collection

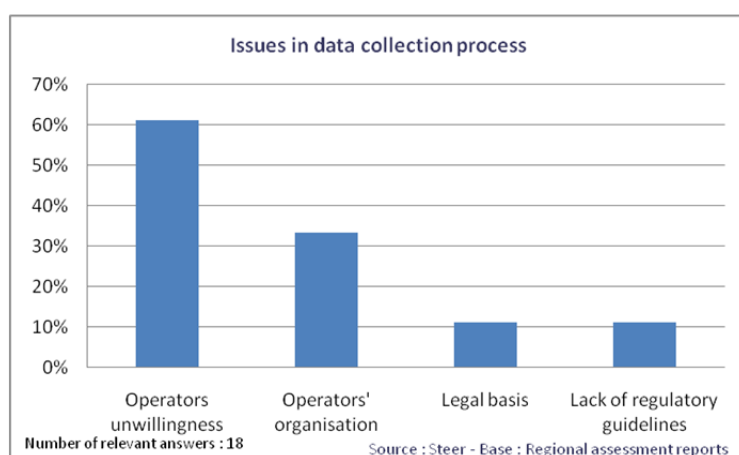
Most countries across Sub-Saharan Africa reported difficulties regarding the data collection process as illustrated in the graph below.



70% of the respondents reported that they encountered difficulties in collecting data from operators.

In all case, difficulties in the data collection process occurred at the initial stage, i.e. on the operators' side.

The underlying reasons reported by the NRA were mainly the lack of will from operators and, to a lesser extent, the difficulties for operators to provide relevant data. This is depicted in the graph below.



The lack of legal basis and regulatory guidelines are also considered as an issue, but in a lesser extent than MNOs organization or unwillingness.

In addition, several operators inside GSMA underlined the lack of regulatory guidelines regarding cost accounting systems⁸. Such an issue may explain, at least partially, operators' unwillingness and internal difficulties to retrieve the relevant data.

An ad hoc regulatory framework and clear regulatory guidelines and specifications regarding cost modelling and cost accounting would eliminate most of the difficulties encountered in the data collection process. Indeed it will give operators enough visibility and allow them to internally organize themselves to provide timely relevant data

Besides, some operators inside GSMA organization underlined the "intrusive"⁹ form of cost accounting obligation for which no impact assessment has been made prior to mandate such obligation.

This is an additional indication on the need to implement, at the whole region level, a regulation based on relevant market analysis, which implies assessing the proportionality aspect of the considered obligation.

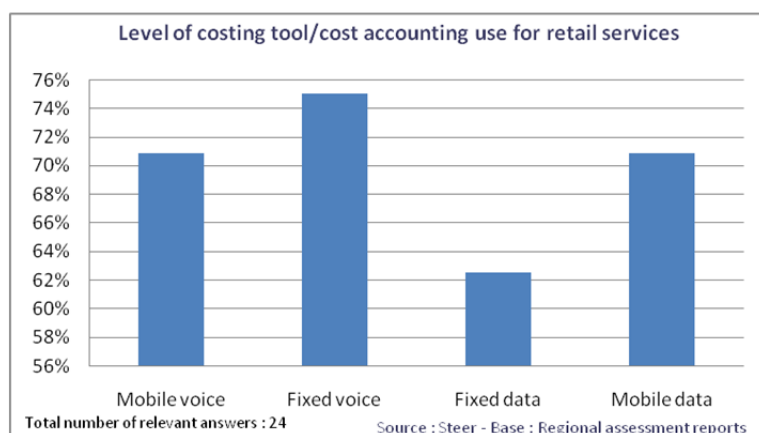
2.3 Foreseen evolutions and challenges

2.3.1 Price control regarding retail services

Regarding retail services, fixed and mobile voice as well as mobile data are regulated through the use of a costing tool or/and cost accounting obligation in the majority of the countries as presented in the graph below:

⁸ Source: GSMA report on regulatory auditing and cost modelling in Sub-Sahara Africa prepared for the ITU – January 2012

⁹ Idem.

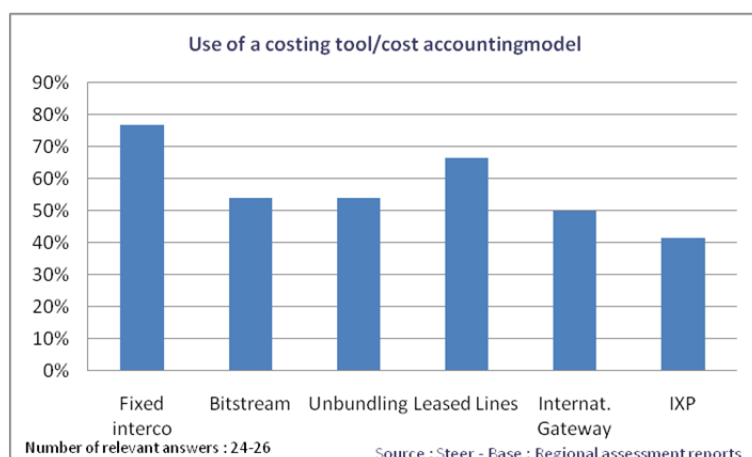


71% of the respondents having addressed the issues of retail services price control reported they use costing tools/cost accounting model to control mobile voice.

Regarding mobile voice, most of NRAs use costing tools to control the prices probably whatever the level of competition that prevail in the market. Such a situation may partially be attributable to the nascent context for relevant market analysis which, among others, takes into account the level of competition to mandate or not price control obligations.

However, the current situation gives NRAs a valuable opportunity to gain information regarding market conditions. As such, in the perspective of the implementation of relevant market analysis leading to levy the regulation on the retail market, NRAs shall ensure that the framework for cost orientation, cost accounting, regulatory auditing is sufficient to empower them to obtain timely relevant data from the operators.

Concerning wholesale services, more than half of the respondents use or plan to regulate the main wholesale services through the use of a costing and/or cost accounting obligation as illustrated in the graph below.



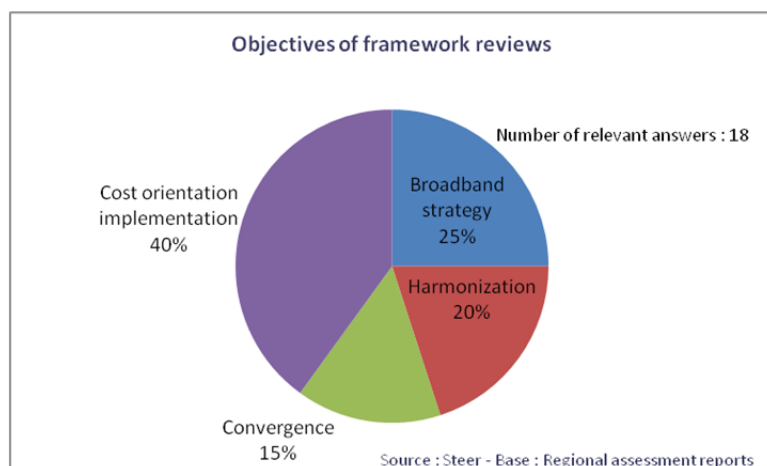
54% of the respondents having addressed the issue reported they use costing tools/cost accounting model to control bitstream or unbundling prices. Regarding access to the international gateway, 50% of the respondents use such tools.

The use of costing tools/cost accounting systems to control wholesale rates is relatively low for services where the incumbent has a quasi-monopolistic situation namely unbundling and bitstream.

In the case of international gateway or IXP, according to local circumstances such services may or may not be offered exclusively by the incumbent. In case of the existence of exclusivity, price control by using costing tools and/or cost accounting models should be implemented so as to prevent anti-competitive behaviour, especially in the context of 3G based services and NGN developments.

2.3.2 Foreseen changes in regulatory framework

66,6% of the respondents (out of 21 relevant responses) indicated that a regulatory review is planned or underway. The graph below shows the distribution of the main objectives underlying such reviews.

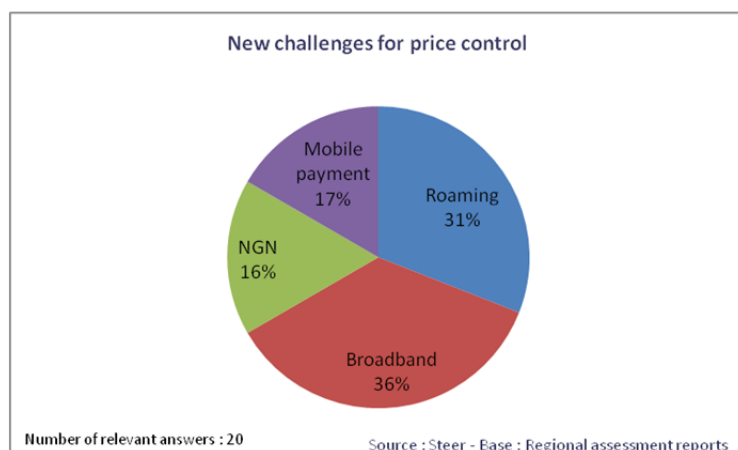


What arises from the survey is that cost orientation implementation in terms of cost modelling, cost accounting or NRA empowerment is the first motivation for the review of the frameworks in the region.

For several countries including Central African Republic, Rwanda, Botswana, Malawi, Mozambique, Zimbabwe, the objectives of the planned/under way framework review concern new challenges brought about by broadband, submarine cables deployments, ICT convergence and NGN developments.

2.3.3 Regulatory strategies for new services and associated challenges

The distribution of the new challenges for price control beyond the scope of services already under regulatory control is shown in the graph below.



NGN and broadband infrastructures represent more than 50% of the new challenges considered by the NRAs.

This trend is attributed to the fact that, with the roll out of submarine cable networks to serve the region regional project infrastructure development will stimulate the development of broadband infrastructure and NGN. Gambia, for instance, reported that almost all the operators are deploying NGN networks.

The development of cost models is perceived as a key regulatory strategy to address these new challenges. Such a result illustrates the significant level of awareness from NRAs on the key role of costing methodologies in ensuring price regulation, particularly in the context of the important technology move toward IP based technologies.

The main regulatory challenges associated to new services regulation, as perceived by the NRAs, are to harmonize regulation at the regional level and to cope with the lack of resources recurring issue.

2.4 Conclusion and recommendations

As arising from the survey, the whole set of regulatory tools exists in only 11 countries, namely, Benin, Cape Verde, Ghana, Guinea, Niger, Senegal, Togo, Mozambique, South Africa, Uganda, Zimbabwe.

West Africa knows the highest proportion of countries having implemented this set representing 64% of the respondents whereas the countries having done so in the other 3 sub-regions represent only 17% of the respondents. West Africa position can be explained by the harmonization initiative taken by the ECOWAS through the adoption of the ECOWAS additional act on interconnection.

Harmonization initiative, like the adoption of the ECOWAS additional act on interconnection, should be taken and followed up at regional level so as to promote the development of an appropriate framework for cost orientation implementation.

Part 3 – Cost accounting and regulatory auditing

3.1 Cost accounting

3.1.1 Purpose

Cost accounting systems aim at providing the NRA with an in-depth and reliable knowledge of operators' costs. This is commonly viewed as key inputs to NRAs' regulatory intervention to ensure consumer welfare and sustainable competition and market development. For an insight on cost accounting key principles addressed in the present section, kindly refer to the briefing note on common questionnaire (see Annex 1).

The present section is aimed at:

- Providing an up-to-date overview on implemented routines regarding cost accounting;
- Highlighting best practices in the region and beyond
- Identify potential gaps between Sub-Regions

3.1.2 Data collection process

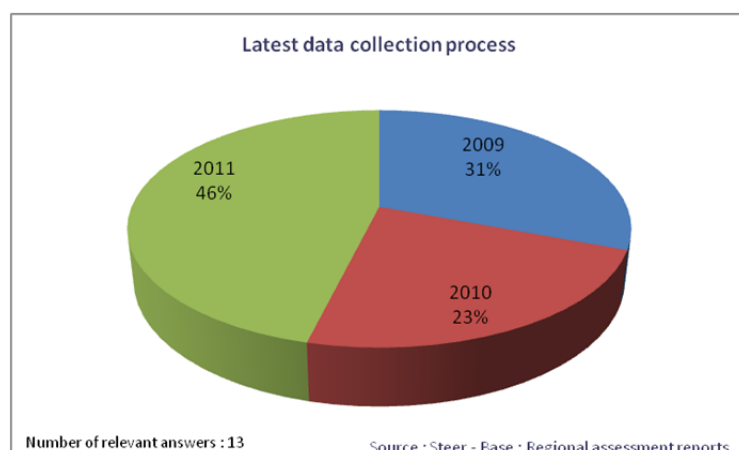
NRAs' feedback on data collection frequency is summarized in the table below.

Data collection process frequency			
On application of new pricing/change	Annual	Every 2 years	One off
4	8	1	2
No of relevant answers: 15			

Source: Steer – Base: HIPSSA G5 Regional assessment reports

What arises from this survey is that the best practice consisting in collecting data on an annual basis is implemented in more than half of the countries having addressed this issue.

When cost accounting is mandated, the latest date of data collection process undertaken by NRAs is shown in the graph below.



The latest data collection process took place in 2011 for almost half of NRAs having addressed this issue.

3.1.3 Scope of costs and cost preparation

The degree of regulatory prescription regarding the scope of cost and cost preparation need to be detailed enough to provide clear guidance for operators and ensure that cost accounting data are prepared in consistency with price regulation strategic goals (cost orientation, non discrimination, ...).

This is a key step to allow the transparency and quality of cost accounting systems elaborated by the considered operator.

Best practice 1 – Scope of costs and cost preparation

The best practice in the region and beyond consists in:

- Establishing beforehand a cost and revenues nomenclature
- Imposing a set of specifications on cost preparation methodology

Such a practice is in place, among the countries having addressed the questionnaire, in Botswana, Mozambique, South Africa, Zimbabwe, Kenya, Uganda, Benin, Cape Verde, Ghana and Ivory Coast.

Best practice 2 – Minimum set of specifications

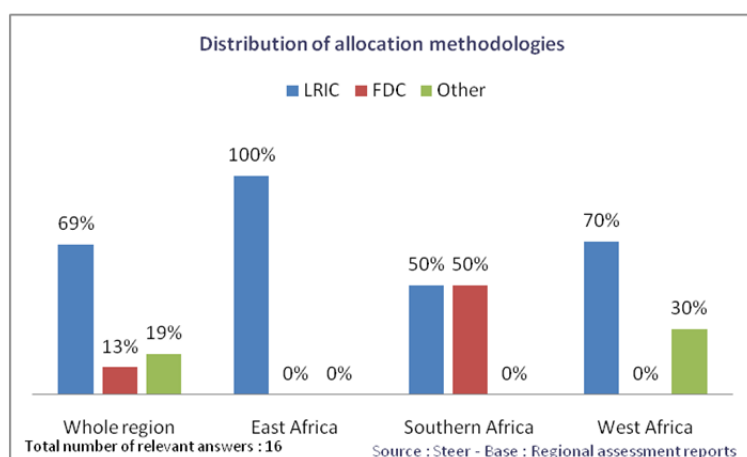
The minimum set of specifications should include requirements on:

- Principle of cost causality which implies that the undertaken justifies the relevancy of each item of costs, revenue and cost of capital
- Cost preparation methodologies e.g. reference to cost base and standards, valuation and allocation methodologies, identification and treatment of shared and common costs.
- Basis on which assets are valued: asset lives, depreciation methods.
- Attribution methodologies used to attribute revenues, costs, assets, capital employed ...
- Basis used to set internal transfer charges
- Handling of the costs that are not attributed to the valued services

This best practice is in place in Botswana, Cape Verde, South Africa and Zimbabwe among the countries having addressed the questionnaire.

3.1.4 Valuation and allocation methodologies

The distribution of cost allocation methodologies in the whole region and inside Sub-Regions is illustrated in the graph below.



What arises from the study is that LRIC allocation methodology prevails in the regions.

NB: No data were available for Central Africa.

West Africa knows the highest rate of use for LRIC. This result is to be seen in the light of the ECOWAS supplementary act on access and interconnection which recommend the use of LRIC allocation methodology and, in case of the use of FDC instead, the need to move to LRIC before a period of 3 years.

The relatively high use of FDC in Southern Africa, compared with the other Sub-Regions, may be attributable to the historical use of top-down models initially based on FDC methodology.

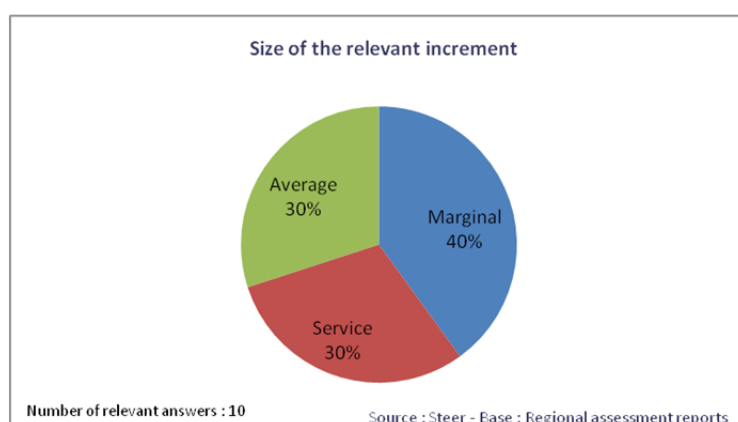
Yet, there is a trend to the adoption of LRIC in the Sub-Region. For instance, in Zimbabwe, the NRA is moving from a cost accounting system based on the COSITU Model¹⁰ to a cost accounting model based on LRIC¹¹.

3.1.5 Size of the relevant increment

The use of LRIC accounting methodology implies the definition of the relevant increment. NRAs should opt to, among others, the following approaches:

- Marginal corresponding to an increase in costs following the introduction of a small unit of the service;
- Service increment corresponding to an increase in total costs following the introduction of the service;
- Average increment corresponding to an increase in costs following the introduction of a group of services.

The distribution of use of the three approaches among NRAs having addressed the issue is shown in the graph below.



Out of the 3 NRAs opting for a service increment, one of them opted for a pure LRIC approach.

Best practice 3 – Size of the relevant increment – Pure LRIC approach

The EC recommends a pure LRIC approach “whereby the relevant increment is the wholesale call termination service and which includes only avoidable costs, namely the costs which would be avoided if a wholesale call termination service was no longer provided to third parties.”¹²

This approach is implemented in Kenya.

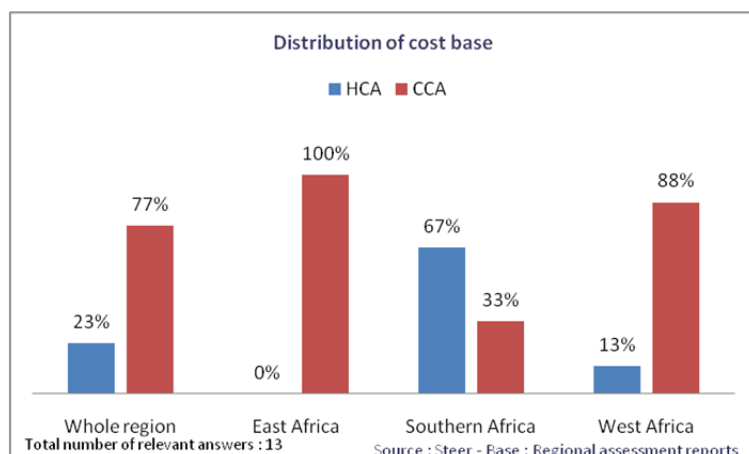
¹⁰ See www.itu.int/ITU-D/finance/COSITU/

¹¹ Source: Regional assessment report for Southern Africa

¹² Commission recommendation of 7.5.2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU

3.1.6 Cost base

The distribution of cost base standards in the whole region and inside Sub-Regions is illustrated in the graph below.



What arises from this survey is that the best practice consisting in using CCA as a cost base standard is used by the majority of the NRAs having addressed the issue.

Best practice 4 – Cost base – Current Cost Accounting

As stated by the EC in its recommendation¹³ on CCA: “In a competitive environment, operators would compete on the basis of current costs and would not be compensated for costs which have been incurred through inefficiencies. Historic cost figures therefore need to be adjusted into current cost figures to reflect the costs of an efficient operator employing modern technology.”

In addition, the EC argues that operators compensated for actual costs incurred for call termination have few incentive to increase efficiency. The development of a bottom-up model is seen to be in line with the approach of “developing a network for an efficient operator whereby an economic/engineering model of an efficient network is constructed using current costs”. According to the EC “It reflects the equipment quantity needed rather than that actually provided and it ignores legacy costs”.

This trend is observed inside East Africa and West Africa region. In Southern Africa, HCA still prevails. This shall be attributable to the fact that in these regions, the use of top-down approaches based on HCA prevails.

Regarding the transition from HCA to CCA, the case of Zimbabwe may be highlighted: the NRA reported that both CCA and HCA are used according to the following rule: “CCA is used for networks assets whereby network element prices are adjusted in line with current obtaining prices for the MEA approach, HCA is applied for all operational costs and demand figures”.¹⁴

When using CCA, OCM is used by 56% of the respondents (out of 9 relevant answers).

Regarding the valuation methodology for network assets, the best practice consisting in adopting modern equivalent asset or MEA¹⁵ methodology, is in place in Kenya (for all assets) and in Zimbabwe (for assets that are affected by technological changes).

¹³ Commission recommendation of 7.5.2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU

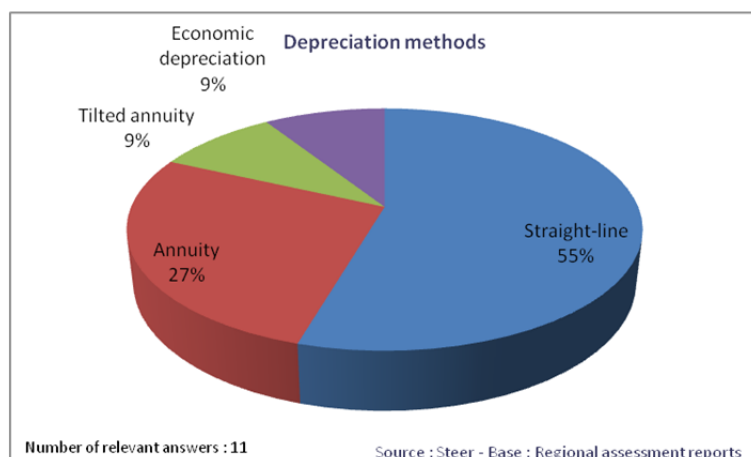
¹⁴ Source: Regional assessment report for Southern Africa

¹⁵ The MEA is the lowest cost asset, providing at least equivalent functionality and output as the asset being valued.

3.1.7 Depreciation method

Once the basis of assets valuation has been established, NRAs have to choose the depreciation method to be used to derive the annual charge. Depreciation is an important component of costs as telecommunications networks are capital-intensive and most telecom equipments face significant decrease in current assets values due to rapid technological development. Accordingly, the choice of the depreciation method and assets lifetime (depreciation duration) to be used is important.

Straight line method is used by half of the NRAs having addressed this issue in the questionnaire as illustrated in the graph below:



As per the straight line method, the annual charge is calculated by dividing the asset's purchase value by the asset's lifetime.

Such a result is attributable to the fact that straight-line depreciation method is easy and straightforward to implement, particularly for NRAs lacking resources and technical skills. This method is to be used when assets prices are relatively stable over the lifetimes of the assets which is not consistent with telecommunications equipments for which prices tend to be declining.

In principle, economic depreciation is the most appropriate depreciation method as it incorporates an appropriate allowance for the cost of capital. This method shall be defined as follows:

"Economic depreciation is the change in economic value during the year. Economic value is the asset's earning power, i.e. the discounted present value of expected future revenues from the output produced by the asset, less the present value of associated future operating costs"¹⁶

Hence, economic depreciation is used in Ghana and beyond the region in, among others, the United Kingdom, Belgium, and Greece.

This method is information intensive and is complicated to be applied especially when NRAs face resources and skill issues. When economic depreciation is not implemented, NRAs shall use tilted annuity.

Best practice 5 – Depreciation method – Tilted annuity

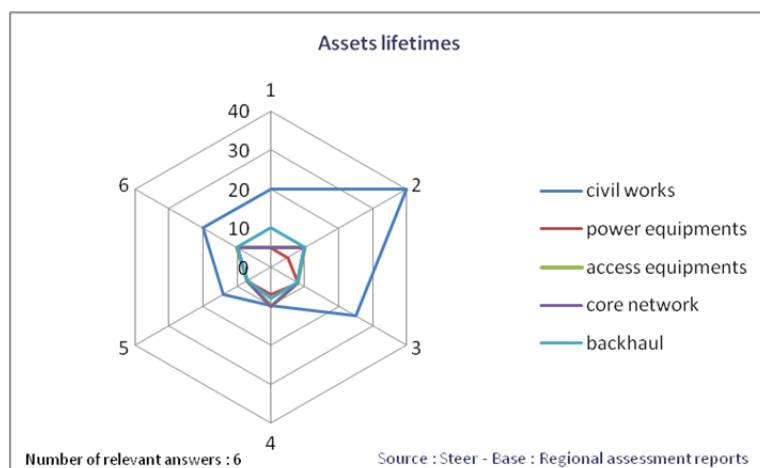
Tilted annuity depreciation tilts the annuity depreciation calculation charge by adding a factor to take into account the average annual change of assets price.

This method is implemented in, among others, Nigeria, France, Italy and Romania.

¹⁶ Source: OFCOM

3.1.8 Depreciation duration

Regarding depreciation duration, variations arise in economic lifetimes inside a same category of network asset as shown in the graph below:



The gap is the widest for civil works, ranging from 10 years to 40 years.

Assets economic lifetimes have a significant incidence on the valuation of mobile termination cost. Consequently appropriate economic lifetimes should be defined depending on the type of assets. The gap observed between the different countries particularly regarding civil works indicates that this is not the case.

NRAs of the region should investigate the possibility to define common economic lifetimes for the main network elements. Such an approach would allow capitalizing on NRAs experience and reducing the differences in the region regarding the level of network costs in MTR.

3.1.9 Allowed rate of return

The Weighted Average Cost of Capital (WACC) methodology is a widely accepted method for calculating the allowed rate of return. WACC is calculated by applying cost of debt and cost of equity respectively on the proportion of debt and equity in the capital employed.

All NRAs having addressed the allowed rate of return issue use WACC methodology.

When using WACC, the cost of equity, which is affected by risk, need to be estimated as, contrary to cost of debt, it is not known or easily derived. To this end Capital Asset Pricing Model (CAPM) is usually used.

All NRAs except one use CAPM.

Concerning allowed rate of return calculation, some operators belonging to GSMA expressed concerned on the appropriate value retained by the NRA arguing that the risk factor specific to the country is not taking into account or that the NRA did not base their calculation on international financial institutions references.

Besides, GSMA reported that the assumptions regarding WACC methodology application was one of the main concerns arising from the operators regarding regulatory auditing and cost modelling¹⁷.

Given the high sensitivity of cost model results on the calculated allowed rate of return it shall be appropriate to assess and identify, at the whole region, the routines employed and all the underlying factors so as to provide NRAs with an international reference and achieve a common approach on this critical topic.

¹⁷ Source: GSMA survey report on regulatory auditing and cost modeling in Sub-Sahara Africa – Operator survey

3.2 Regulatory auditing

3.2.1 Purpose

To ensure and guarantee regulatory cost accounting relevancy, regulatory auditing is required. Regulatory auditing is the process of verification and validation of the regulatory accounting reports issued by operators.

The present section is aimed at:

- Providing an up-to-date overview on implemented routines regarding regulatory auditing;
- Assessing best practice level of implementation in the region

3.2.2 Scope of regulatory audit and issues addressed

The scope of regulatory audit as indicated by almost all the respondents concerned by regulatory auditing is:

- Reconciliation with statutory accounts
- Scope of costs and costs allocated,
- Cost valuation and allocation including correctness of data (volumes, technological parameters)
- Cost capitalization, assets valuation and amortization
- Transfer charges

The European best practice consists in conducting a regulatory audit regarding at least, the whole items as indicated above¹⁸. 3 NRAs out of the 9 having addressed this issue reported that regulatory auditing in place in their respective countries (Mozambique, Uganda and Cape Verde) covers all these items.

2 countries reported that reconciliation with statutory accounts, which is a key pre-requisite to ensure the consistency between regulatory accounting and costs really incurred by operators, is out of the scope of the regulatory auditing process. This shall be attributable to the lack of operators' organization and/or a lack of regulatory specifications taking into account operators' constraints.

One respondent from Southern Africa indicated that network assets were also audited.

3.2.3 Operators obligations

For all 12 countries where regulatory auditing is in place

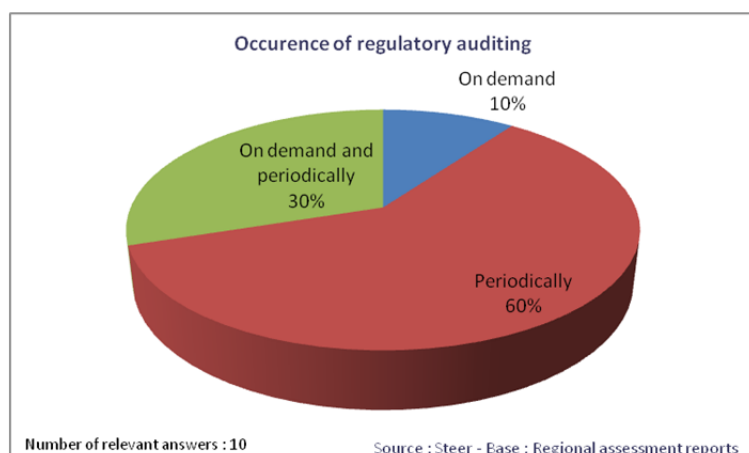
- The obligation for operators to respond in a predefined timeframe to any question is implemented in 8 countries
- The obligation for operators to give access to all internal supporting data is implemented in 10 countries

What arises from these results is that, when regulatory auditing is implemented, in most cases, operators have to respond in a predefined timeframe and give access to all internal supporting data.

¹⁸ See ERG Guidelines for implementing the Commission Recommendation C (2005) 3480 on Accounting Separation & Cost Accounting Systems under the regulatory framework for electronic communications – ERG 05/29

3.2.4 Overall regulatory auditing process

Regarding regulatory auditing occurrence, NRAs feedback is illustrated in the graph below.



90% of the respondents do regulatory auditing on a regular basis.

In 10% of the cases, regulatory auditing is exclusively done on demand either during tariff approval process or cost modelling exercises.

Best practice 6 – Regulatory Auditing process – Occurrence

As per the European recommendation of 19 September 2005 on accounting separation and cost accounting systems¹⁹, regulatory auditing “should take place annually and as soon as *possible after the end of the accounting (reporting) year. Publication of the statement must take place no later than two months after the completion of the regulatory audit or no later than the current practice as specified by regulatory obligations.*”

In most cases, regulatory auditing is conducted by an independent auditor commissioned by the NRA. 2 NRAs indicated that they conducted the audit themselves which is less appropriate both for objectivity reasons and regarding NRAs’ lack of resources and skills whose focus is rather to be done on regulatory accounting rules specifications and cost modelling.

Regarding the cost of regulatory auditing, it is supported by operators in 55% of the cases (11 relevant answers) and by NRAs in 45% of the cases (11 relevant answers).

3.3 Conclusion and recommendations

NRAs should specify detailed cost accounting requirements combined with an audit process in consistency with international best practices in order to avoid the allocation of inefficiently incurred costs. More precisely, NRAs should focus on the implementation of an exhaustive audit process covering more specifically the issues related to the scope of costs included and scope of costs allocated to MTR as well as the methodologies used regarding amortization, cost capitalization and assets valuation.

In addition, given the high sensitivity of cost model results on the calculated allowed rate of return it shall be appropriate to assess and identify, at the whole region, the routines employed and all the underlying factors so as to provide NRAs with an international reference and achieve a common approach on this critical topic.

¹⁹ European Commission Recommendation 2005/698/EC

Part 4 – Costing tools

4.1 Cost models

4.1.1 Stakes

Costing tools based on Bottom-up, Top-Down or Hybrid approaches imply that the NRA has to define the appropriate methodology to calculate mobile termination cost, on which MTR has to be aligned according to cost orientation principle and efficiency considerations.

As reported in paragraph 1.2.3, 72% of the NRAs having addressed the issue use or plan to use one of these approaches to control MTR.

The following table reports the distribution of the different approaches in the Region.

Type of costing tools used to control MTR (benchmarking not considered)					
Bottom-Up		Top-Down		Hybrid	
Yes	Planned	Yes	Planned	Yes	Planned
11	4	1	0	8	1
Number of relevant answers: 25					

Source: Steer – Base: Regional assessment reports

4.1.2 Purpose

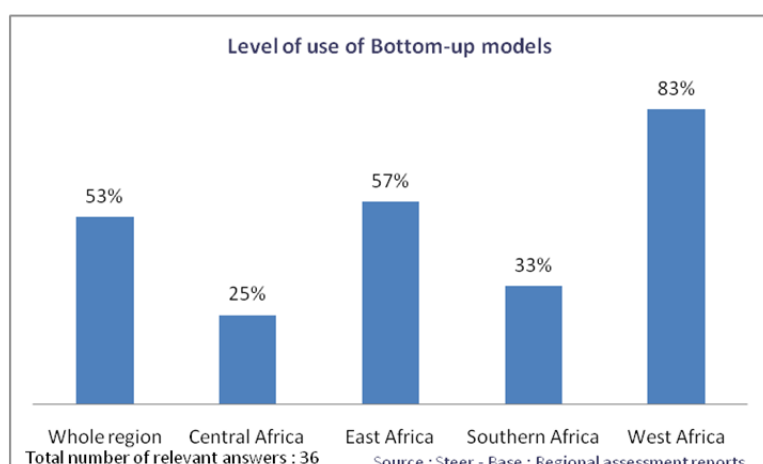
The present section is aimed at:

- Providing an up-to-date overview on bottom-up and top-down model implementation strategies in the region;
- Assessing best practices level of implementation in the region;
- Identify potential gap between Sub-Regions.

4.2 Bottom-up

4.2.1 Level of implementation

The relative level of use per Sub-Region is shown in the graph below.

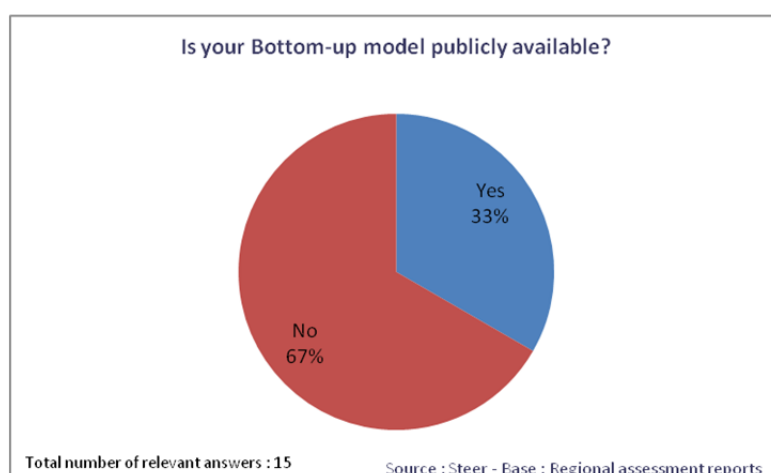


The level of use of a bottom up model, either as the only costing tool or in conjunction with a Top-Down model, is of 53% for the whole region.

West Africa, with 83% of the countries using bottom up, has the highest level of use and this rate is likely to increase with the implementation by some ECOWAS member states of, among others, ECOWAS supplementary Act on Interconnection, which refers to an LRIC bottom up model.

4.2.2 Model transparency

In most cases, the cost model built by the NRA is not publicly available as shown in the graph below.



Additionally, in almost all countries where the cost model is not publically available, the NRAs do not plan to render their models publicly available.

Transparency is a key regulatory requirement to ensure an efficient and fair consultation process with operators as well as providing visibility to stakeholders, especially investors. As such and in consistency with international best practices, cost models, associated assumptions and their underlying rationale as well as the methodology used to build up the model should be publicly available.

The main reason outlined by the NRAs is the fact that it contains sensitive operators' data.

Yet, in the case of bottom up model based on efficiency considerations, the underlying assumptions deviates from an individual MNO own characteristics.

Hence, the rational given by the NRAs suggests that, in practice, several bottom-up models in the region are based on existing operators conditions.

4.2.3 Data collection strategy

The model development relies essentially on operators' data following a specific request or a consultation procedure. This means that the implementation of a cost model requires a significant workload for data collection both from operators' side and NRAs' side.

Bottom-up Operators' data collection strategy			
Cost accounting	Specific request	Specific request + Consultation	Cost accounting+specific request+ Consultation
0	14	1	1
No. of relevant answers: 16			

Source: Steer – Base: Regional assessment reports

The best practice consisting in using regulatory cost accounting data, as a reference of costs to calibrate the model is in use in Uganda.

4.2.4 Strategy for model implementation

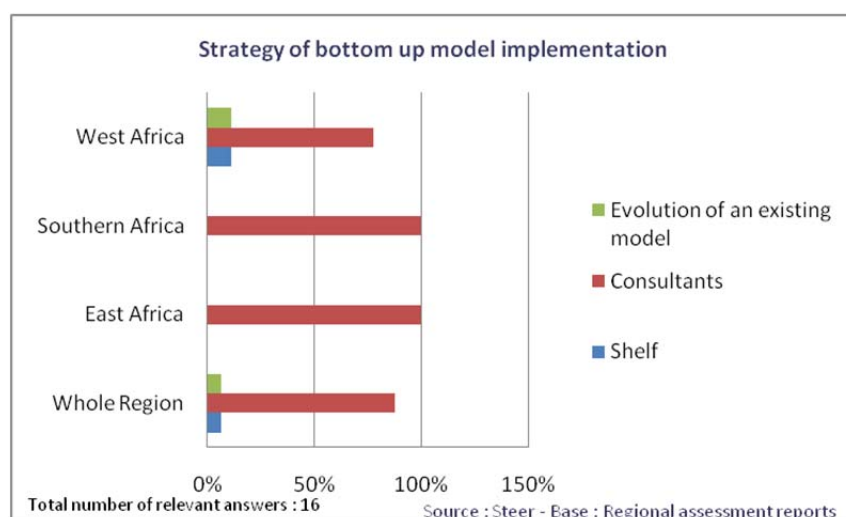
The strategy for bottom up implementation at the whole region level is summarized in the table below.

Strategy for bottom up model implementation		
From the shelf	Consultants to develop a bespoke one	Evolution of an existing model
1	14	1
No of relevant answers: 16		

Source: Steer – Base: Regional assessment reports

What arises from these results is that the majority of the NRAs commissioned consultants to develop a bespoke one.

The strategy for bottom up implementation at the Sub-Regional level is illustrated in the graph below.



In all of the Sub-Regions, almost all respondents commissioned consultants to develop a bespoke model. In West Africa, some NRAs opted to the evolution of an existing model or using a model from the shelf (WBG)

Regarding the burden associated with cost model implementation, consultant fees, based on a sample of 6 countries, ranged from around 100kUSD up to 1million USD, corresponding to an average of 500k USD. A NRA from East Africa reported that such a study mobilized 5 internal people for 12 weeks.

4.2.5 Modelled operator and time horizon

The definition of the efficient operator and time horizon to be considered in the model are key steps when building up a Bottom-up model.

NRAs answers regarding the modelled operator are summarized in the table below.

Modelled operator		
Existing	Hypothetical	Hypothetical + Existing
6	8	1
No. of relevant answers: 15		

Source: Steer – Base: Regional assessment reports

What arises from the survey is that more than half of NRAs having addressed this issue model a hypothetical operator either alone or in combination with an existing operator.

NRAs answers regarding time horizon to be considered in the model are summarized in the table below.

Time horizon				
< 5 Years	5 Years	10 Years	15 Years	25 Years
1	1	7	1	1
No. of relevant answers: 11				

Source: Steer – Base: Regional assessment reports

What arises from the survey is that a minimum of 5 years is commonly used by the NRAs.

When using LRIC allocation methodology, as is the case for almost all NRAs having addressed this issue, the methodology entails that the time horizon has to be sufficiently long for fixed cost to become variable.

Besides, and as underlined by the NRA from Botswana, the choice of time horizon should allow taking “into account technological changes”²⁰.

4.2.6 Level of demand and market share

The level of demand the modelled operators shall satisfy and its market share are sensitive assumptions for the model.

NRAs answers regarding the basis to determine the level of demand is summarized in the table below.

Level of demand		
Current level	Future level based on extrapolation	Current level and future level
6	5	4
No. of relevant answers: 15		

Source: Steer – Base: Regional assessment reports

The choice of using current level of demand, without extrapolation on the future level of demand, is less information intensive and does not require analytical treatment in comparison with future level based extrapolation. Such an approach may be indicated when the market has achieved a certain level of maturity. However, in the context of Sub-Saharan African countries, which are mainly still in a growing phase, it is more appropriate to estimate the future level of demand.

Regarding market share, the best practice, recommended by the European Commission, is to set a market share for the modelled operator of at least 20% which is considered at the minimum efficient scale. This is the case for all NRAs²¹ having provided the value of the retained market share.

The use of existing operators’ market shares is less appropriate as it will lead to taking into account inefficiencies resulting, among others, in asymmetric mobile termination costs.

²⁰ Source: Regional assessment report from Southern Africa

²¹ Namely: Benin, Ghana, Kenya, Uganda, Botswana

4.2.7 Key cost drivers

Key cost drivers²² to consider when building the model are another key step in a bottom-up approach. A cost driver can be defined as "the factor or event that causes a cost to be incurred"²³.

NRAs answers on these issues are summarized in the table below.

Key cost drivers			
Traffic	Traffic and Subscribers	Traffic and Coverage	Traffic, Subscribers and Coverage
3	2	3	6
No. of relevant answers:14			

Source: Steer – Base: Regional assessment reports

What arises from the survey is that the majority of the NRAs use coverage as a key cost driver.

It is most appropriate not to consider coverage as a key cost driver. Indeed, coverage can be described as an 'access' type service whereby mobile subscribers purchase the ability to access the operator's network at any point of the operator's coverage. Hence, under this perspective and in consistency with fixed termination costs modelling approach, network coverage costs should be allocated, partially or totally, to the access service according to the cost causality principle. The fact that a mobile operator may choose to recover some or all of these costs through call charges (pre-paid or post-paid) and not through a specific 'access' charge does not mean that there is no access service nor that there is no network costs associated with this service.

Such an approach is also recommended by the European Commission²⁴ and should be used as a best practice.

4.2.8 Network configuration

Assumptions regarding the optimal network configuration to consider in a bottom up approach based on efficiency considerations are structuring.

The majority of NRAs having adopted a bottom up approach model coverage on the basis of existing mobile networks configuration either by using the average of existing networks or the current coverage of largest network.

The table below summarizes the approaches taken to model the efficient operator coverage.

Coverage modelled			
Average of current coverage of existing networks	Current coverage of largest network	'Theoretical' coverage (as derived from efficiency considerations)	Other: Licence, ..
7	2	1	2
No of relevant answers: 12			

Source: Steer – Base: Regional assessment reports

²² "A clear identification of the key cost drivers: identifying the underlying cost drivers will assist the process of defining increments." BEREC 04(40)

²³ BEREC (05) 29

²⁴ Commission recommendation of 7.5.2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU

Derived from efficiency consideration, the coverage to be modelled shall be the minimal one to address the demand as done by one NRA among the NRAs having addressed this issue. With the use of existing network coverage, inefficient costs are likely to be taken into account.

Regarding topology, all NRAs having adopted a FL-LRIC, except one, use the topology of the existing MNOs (i.e. scorched node methodology) as illustrated in the table below.

Methodology for network topology design		
Scorched node ²⁵	Scorched earth ²⁶	Scorched node + Scorched earth
12	1	1
No of relevant answers: 14		

Source: Steer – Base: Regional assessment reports

Scorched earth methodology for network topology design is the most appropriate way to model an efficient operator. This best practice is in place in Italy, Mexico, Switzerland and Hungary.

Best practice 7 – Network configuration – Scorched Earth

AGCOM, the Italian NRA developed a model based on EC recommendation on MTR. As indicated in its decision n. 621/11/CONS, scorched earth methodology has been adopted for network topology design. This approach is considered, as stated in AGCOM resolution n. 60/11/CONS, as the most appropriate for modeling of a hypothetical efficient operator.

To take into account the constraints the operators have to cope with, on the field, model assumptions and parameters were compared with data provided by the operators.

Yet, due to the complexity of such an approach, scorched node is the mostly used approach used in Sub-Saharan Africa and beyond (UK, France, Romania, Cost Rica, Colombia, Venezuela, Malaysia).

The main rational behind this choice, as underlined by some NRAs of the region during the survey phase is the fact that it is “practical”, it takes “into account geographical situation”, it “gives good understanding of CVR”, and that “it encourages the network operator to make investments that are efficient given the actual configuration of the network”.

When using a scorched node approach, it can be appropriate to make some efficiency adjustments in order to model a more efficient network topology than is currently in place.

The mixed approach used by the NRA from Zambia is the following: a scorched earth approach for radio network design, which is an important source of potential inefficiencies and a scorched node approach to model the core network, which is less likely to generate inefficiencies.

²⁵ Scorched node approach consists in using the network layout of the operator.

²⁶ Scorched earth approach consists in using the most efficient network layout possible.

4.2.9 OPEX modelling

OPEX modelling is another sensitive item when adopting a FL-LRIC based bottom up approach.

NRAs in the region (all 15 NRAs having addressed this issue) and beyond usually model OPEX as a mark up on network assets. The mark-up depends on assets for the majority of the NRAs having addressed this question as shown in the table below:

Use of mark-up on network assets for modelling OPEX:		
Same mark-up for all network assets	Different mark-up depending on assets type	Different mark-up depending on the technology
2	6	2
Number of relevant answers: 10		

Source: Steer – Base: Regional assessment reports

The majority of NRAs adopting a FL-LRIC based bottom up approach use MNOs data to derive OPEX.

Data used to derive OPEX?		
Operators data	Benchmark	Benchmark/VD + operators' data
9	3	2
Number of relevant answers: 14		

Source: Steer – Base: Regional assessment reports

What arises from the results concerning network configuration (coverage and topology) as well as OPEX modelling is that the assumptions made are very close to the existing operator characteristics.

4.2.10 Conclusion and recommendation

Bottom-up models have the advantage of allowing only the recovery of efficiently incurred costs. However the results are largely dependent on the assumptions made as well as the data used to calibrate it.

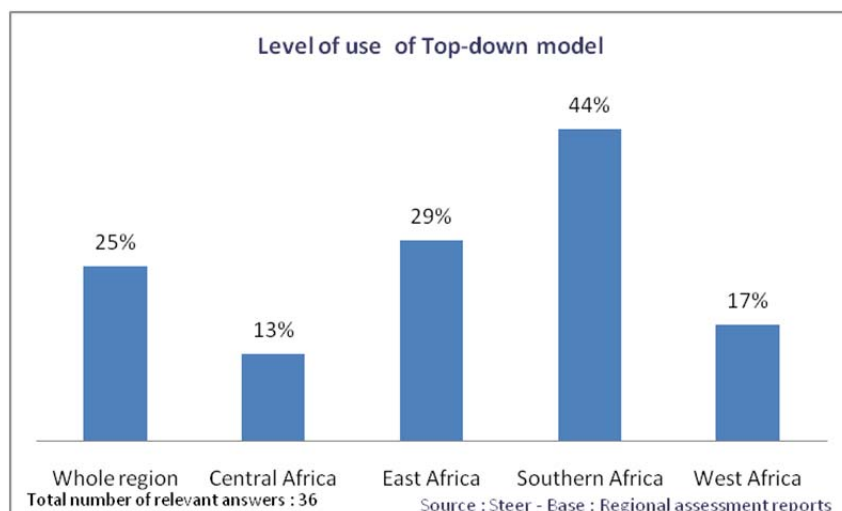
What arises from the survey is that assumptions are very close to the existing operators' characteristics and data which lead to the inclusion of inefficient costs.

As such, NRAs using a bottom-up or hybrid model should ensure that their model is sharply calibrated with top-down data obtained under the best practices regarding cost accounting specifications. When such reconciliation is not put in place, NRAs should use best current practice cost in the region and beyond in order to calibrate and validate the model outputs.

4.3 Top-down

4.3.1 Level of implementation

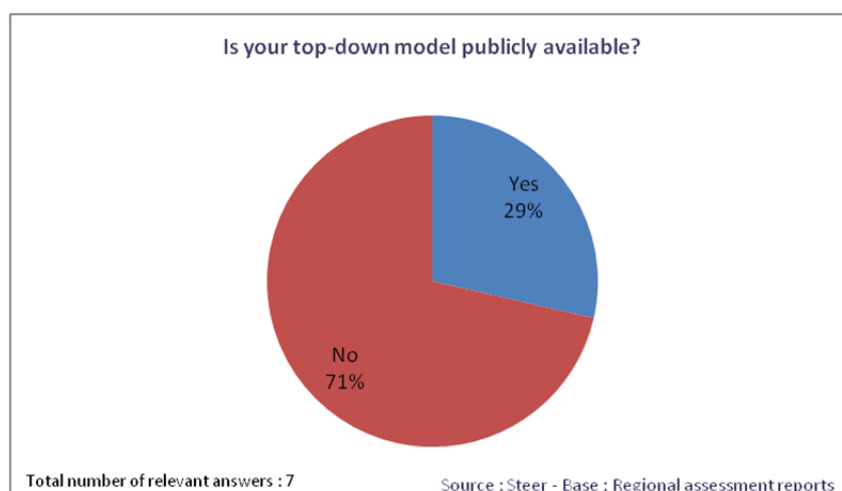
The level of use of a Top-Down approach is of 25%²⁷ for the whole region.



At the Sub-Region level, Southern Africa knows the highest level of use and Central Africa has the lowest.

4.3.2 Model transparency

For a large proportion of countries that addressed the issue of model transparency, the top-down model is not publicly available as illustrated in the graph below.



Such a situation is likely to evolve as some NRAs plan to render these models public.

Transparency is a key regulatory requirement to ensure an efficient and fair consultation process with operators as well as providing visibility to stakeholders, especially investors. As such and in consistency with international best practices, cost models, associated assumptions and their underlying rationale as well as the methodology used to build up the model should be publicly available.

²⁷ It should be noted that Mauritius has been taken into account even if they did not participate to the survey.

4.3.3 Data collection strategy

NRA feedback on the data collection strategy is summarized below.

Operators' data collection strategy			
Cost accounting	Specific request	Consultation	Cost accounting + specific request
1	4	1	2
No. of relevant answers: 8			

Source: Steer – Base: Regional assessment reports

What arises from this result is that the best practice consisting in basing top-down model on cost accounting data is in place in 3 countries, namely South Africa, Zimbabwe and Benin.

This situation reflects the fact that cost accounting routines are not implemented enough to represent a cost reference for building up a top-down model.

4.3.4 Conclusion and recommendations

Top-Down model should be used, in consistency with international best practices, in order to secure full cost recovery of operators' costs by using reliable data.

However, the use of a top-down model can lead to possible inefficiencies as this approach is based on reality of the MNOs' actual costs.

In such a context, cost accounting specifications and audit play a major role in avoiding such drawbacks.

In Sub-Sahara Africa, cost accounting obligation implementation is still in an early phase and NRAs face difficulties to collect reliable data from operators. NRAs should implement best practices as indicated in part 2-Cost accounting and regulatory auditing of the present document and ensure the full transparency of the methodology.

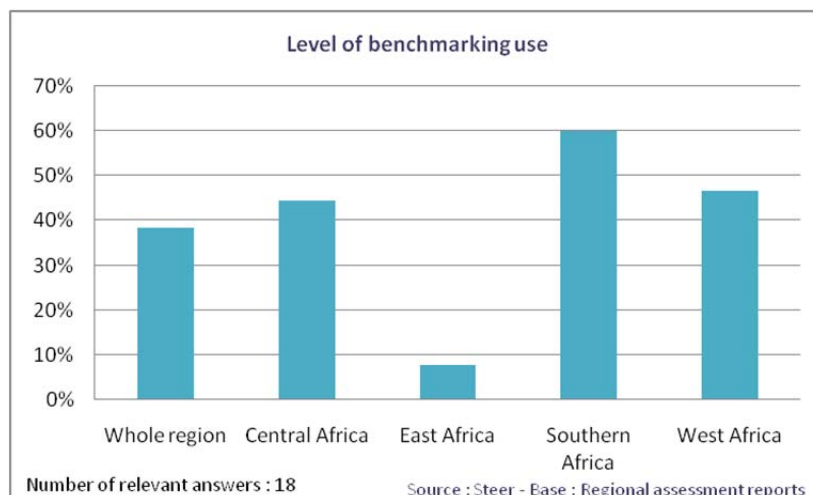
The implemented model, the assumptions used and their underlying rationale as well as the detailed methodology adopted to build it, should be publicly available for transparency reasons. In addition, it allows an optimal implication of the operators in the development and use of the cost models.

Regarding the dataset associated with the model, when data are confidential, they should be hidden in the public version in consistency with international best practices.

4.4. Benchmark

4.4.1 Level of implementation

The level of use of benchmark in the region is shown in the graph below.



The level of benchmarking tool implementation is of 38% for the whole region.

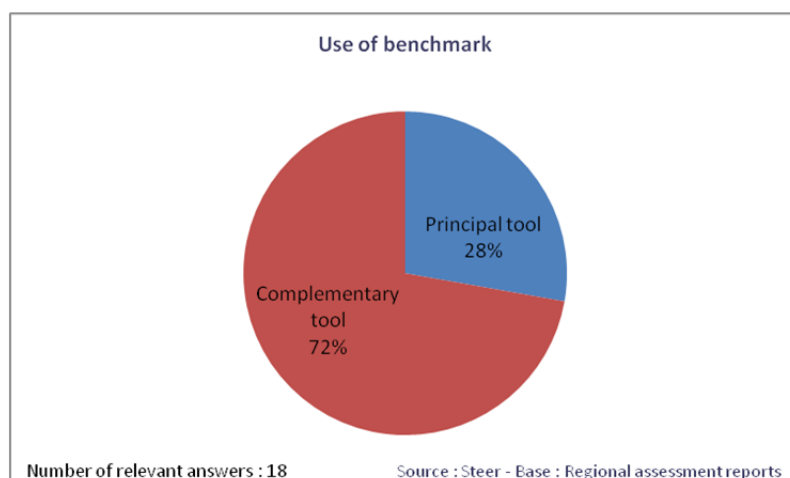
At sub-regional level, Southern Africa knows the highest level of implementation with 60% of them using benchmark as a tool for MTR regulation. The level of implementation is the lowest in East Africa.

Besides, the Gambian NRA reported the following” Since we are yet to carry out market analysis and the imposition of cost accounting we thought it wise to use benchmarks. This development has greatly helped in ensuring competition and gives rise to almost uniform tariffs across the board”

4.4.2 Strategy of use

Regarding benchmark strategy of use, the best practice consists in using benchmark as a complementary tool to another costing tool, especially when cost accounting systems are not developed and cost model includes potential inefficient costs.

Such a practice prevails in the region as illustrated in the graph below:



72% of the NRAs having addressed the issue of benchmark implementation use benchmark as a complementary tool to another costing tool.

4.4.3 Benchmark implementation rules

When using benchmark the main implementation rules are the following:

- The choice of the set of countries/MNOs used in the benchmark;
- The corrections made for country or MNO differences;
- The rules used to set the final price.

Regarding the set of countries, the scope of countries considered varies across the region from 1 country to 38 countries as summarised in the table below.

Benchmark – number of countries included in the benchmark		
1 to 4	5 to 14	>15
3	4	6
Number of relevant answers: 13		

Source: Steer – Base: Regional assessment reports

Besides, 3 respondents retained their respective regional economical organisation, namely SADC and ECOWAS/UEAMO as a starting point for the benchmark.

The best practice consisting in selecting a sample of countries where cost orientation is fully implemented is in place in Mozambique and Ivory Coast.

4.4.4 Conclusion and recommendations

Benchmarking is less resource consuming and is used by NRAs having issues in terms of skills or resources and encounter difficulties in collecting reliable data from operators.

Nevertheless, when used as a complementary tool, benchmarking, by revealing gaps in the valuation of MTR, allow identifying potential cost model and dataset inaccuracies.

Furthermore, NRAs using a benchmark should ensure that all countries/MNO included in the sample used as reference have implemented cost orientation rates by using an appropriate cost accounting model based on international best practices.

However the level of cost accounting model implementation is relatively low in Sub-Saharan Africa. Consequently, NRAs should look beyond the region when selecting the countries to include in their benchmark.

Glossary

BEREC (formerly ERG)	Body of European Regulators of Electronic Communications
CAPEX	Capital expenditure
CAPM	Capital asset pricing model
CCA	Current cost accounting
CVR	Cost/volume relationships
ECOWAS	Economic Community of West African States
EC	European Community
FCM	Financial capital maintenance
FDC	Fully Distributed Costs (also referred to as Fully Allocated Costs – FAC)
HIPSSA	Harmonisation of ICT Policies in Sub-Sahara Africa
HCA	Historical cost accounting
IGW	International gateway
IXP	Internet exchange point
LRIC	Long run incremental costs
MEA	Modern equivalent asset
MNO	Mobile network operator
MTR	Mobile termination rate
NRA	National regulatory authority
OCM	Operational capital maintenance
OPEX	Operating expenditure
SMP	Significant market power
WACC	Weighted Average Cost of Capital
WBG	World Bank Group

List of references

Author	Document title – date
BEREC(ex ERG)	ERG Report on Regulatory Accounting in Practice 2008 – September 2008
ECOWAS	Supplementary Act A/SA.2/01/07 on access and interconnection in respect of ICT sector network and services – 19 January 2007
European Commission	Commission recommendation 2005-698-CE on accounting separation and cost accounting systems – 19 September 2005
European Commission	Commission recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU – 7 May 2009
GSMA	Regulatory auditing and cost modelling in Sub-Sahara Africa/Operator Survey/Results and overall findings – 16 January 2012
Christopher Kipkoech Kemei	Regional assessment report for East Africa – 24 February 2012
Armand Lichambany	Regional assessment report for Southern Africa – 27 February 2012
Hilda Mutseyekwa	Regional assessment report for Central Africa – 15 February 2012
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World Bank	Africa's ICT Infrastructure – Building on the Mobile Revolution – 2011

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