

Regional Seminar on Costs and Tariffs for Member Countries of the Regional Group for Africa (SG3RG-AFR)

Mobile termination charges and mobile roaming

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1. Introduction



For a long time and in many countries around the world, **mobile operators have been settling mobile interconnection rates through negotiation and commercial agreements**, where the regulator was often only a mediator or arbiter, sometimes settling the interconnection charges in cases where the parties failed to agree.

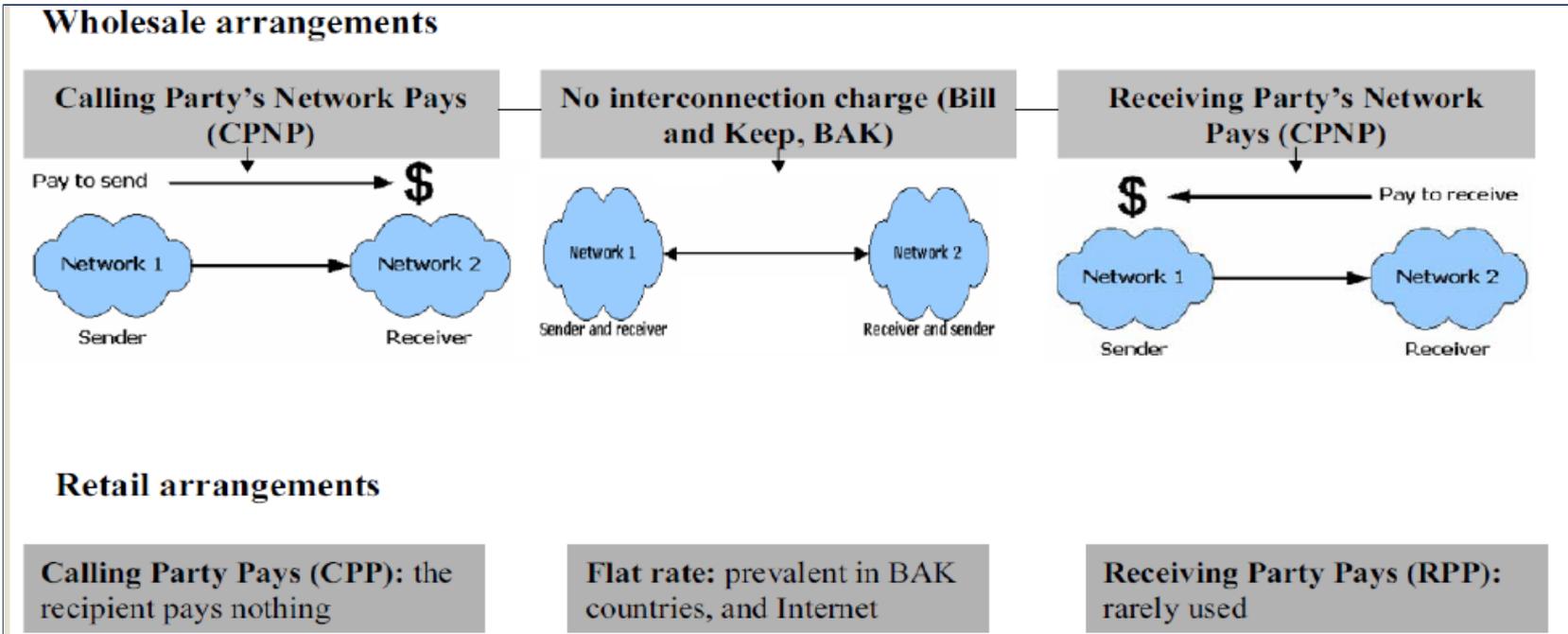
Interconnection charges are payments between operators to compensate each other for traffic exchanged between their networks. The termination rate is one of several interconnection charges (others include charges for origination or transit services).

There are **three main types of interconnection charging regime** (i.e. the way how operators charge each other for interconnection, for using each others networks to provide and complete a call, which originates on one network and terminates on another network):

- **Calling Party Network Pays (CPNP)** – the originating operator pays a per minute charge to the terminating operator for the exchanged traffic.
- **Bill and Keep (BAK)** – under this regime, sometimes called **Sender Keeps All**, usually there are no per minute charges between operators, i.e. each network operator agrees to terminate calls from the other network at no charge (usually based on the condition that traffic is roughly balanced in each direction).
- **Receiving Party Network Pays (RPNP)** – an operator receiving a call pays a per minute charge to the originating operators for interconnection

1. Introduction

RELATION BETWEEN WHOLESALE AND RETAIL CHARGING REGIMENS



SOURCE: CRA International, Gilbert, Tobin (2007).

Different schemas to define interconnection charges:

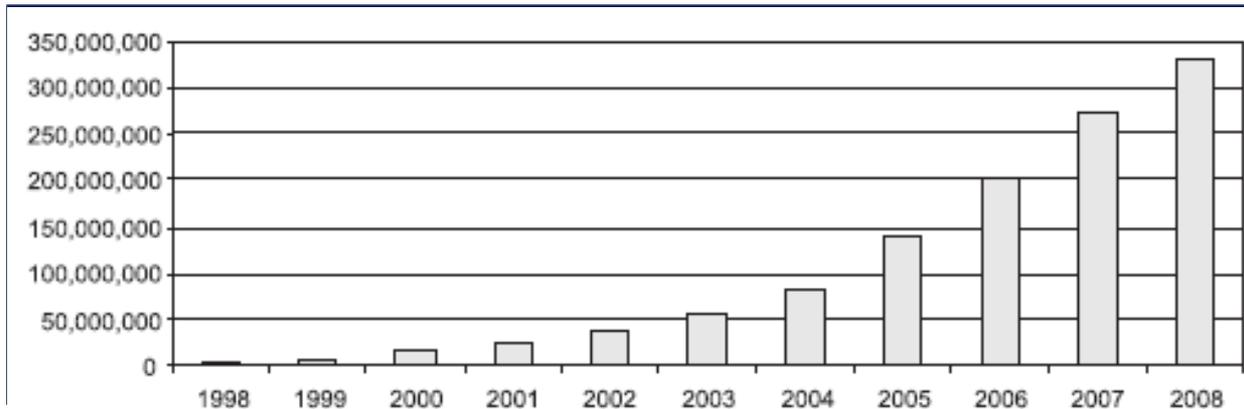
1. **The regulator in advance determines the charges**, together with other essential elements of interconnection, using different approaches to price regulation;
2. **The regulator sets guidelines which should be used for establishing the rates through** (bilateral or multilateral) **negotiations among the operators**;
3. **Operators set the rates through negotiation and commercial agreements**, without the involvement of the regulators (the regulator intervenes only if parties fail to agree).

1. Introduction

Africa

Recent years have seen remarkable growth in cellular wireless telecommunications in Africa, rising to over **300 million reported connections or around one-third of the population**. The predominant technology has been GSM, with some CDMA networks and a very few individual users of satellite telephony (eg Inmarsat and Thuraya)

GROWTH OF MOBILE CONNECTIONS IN AFRICA



Source: ITU World Telecommunication/ICT Indicators Database 2009.

- Overwhelming numbers of these customers are **pre-paid (> 95%)**
- For an operator in a developing country, **International Mobile Roaming (IMR) is a very attractive service, both for inbound and outbound roamers:**
 - 1) **Inbound traffic** generated by visiting tourists, business travellers,.... with visiting foreigners making expensive IMR calls from airports, hotels and offices
 - 2) **Outbound roaming** is appealing to an equivalent set of high-spending domestic customers, such as government ministers and business leaders, who wish to use their phones all over the world.

1. Introduction

Africa

Between 2005 and 2007, **Africa has seen the launch of 27 new telecoms operators.** Despite this growth of mobile networks, it is often acknowledged that Africa represents the largest untapped pool of mobile subscribers of all the regions.

The penetration rate across the continent is relatively low, with the number of subscriptions equating to **32 percent of the population at the end of 2008,** compared with 82 percent in the Americas, 63 percent in Arab States, 46 percent in the Asia-Pacific region and 117 percent in Europe

Africa now has a number of geographically extensive operator groups, that allows them to internalise IMR traffic, where they can obtain an international gateway licence..

Moreover, **they remain formal monopolies** which require all international traffic to pass through an incumbent operator in: Angola, Burkina Faso, Cameroon, Eritrea, Ethiopia, Gambia, Zambia and Zimbabwe.

GEOGRAPHICAL FOOTPRINTS OF TRANS-NATIONAL OPERATORS

	Zain	Millicom†	MTN	Orange	Orascom	Portugal Telecom	Vodafone‡
Algeria					X		
Angola						X	
Benin			X				
Botswana			X	X			
Burkina Faso	X						
Cameroon			X	X	X		
Cape Verde Islands						X	
Central African Republic				X			
Chad	X	X					
Congo (Brazzaville)	X		X				
Congo (DR)	X	X					X
Egypt				X	X		X
Equatorial Guinea				X			
Gabon	X						
Ghana	X	X					X
Guinea (Conakry)			X				
Guinea Bissau			X			X	
Ivory Coast			X	X			
Kenya	X			X			X
Lesotho							X
Liberia			X				
Madagascar	X			X			
Mali				X			
Malawi	X						
Mauritius		X		X			
Mozambique						X	
Namibia						X	
Niger	X			X			
Nigeria	X		X				
Rwanda		X	X				
São Tomé & Príncipe						X	
Senegal		X		X			
Sierra Leone	X	X*					
South Africa			X				X
Sudan	X		X				
Swaziland							
Tanzania	X	X					X
Tunisia					X		
Uganda	X		X	X			
Zambia	X		X				
Zimbabwe							

Source: Sources: Websites of Zain, Millicom, MTN Group, Orange, Orascom, PT

Europe

During the last years, it has been a lot of measures from EU and different countries to act over roaming costs.

For example, **EU has launched several actions** to protect citizens against high price paid to operators:

- **Eurotariffs introduced:** caps on roaming prices (making a call cannot cost more than 35 cents and 11 for receiving a call)
- **Euro-SMS tariff introduced:** from 1 July 2009, sending an SMS from abroad costs no more than 11 cents (excluding VAT). Receiving an SMS in another EU country will remain free of charge.
- **Wholesale charges capped:** prices that operators charge each other (wholesale charges) are also capped until 2010.
- **More transparency of roaming charges for consumers**

In particular, **regulation of international Roaming** is more complicated than regulation of other telecom services mainly due to:

- **Mobile market structure** is different from fixed networks
- **Operators from different countries** are involved

In mobile markets there are more **mobile infrastructures on each market** (unlike markets for fixed services that are dominated by incumbent operators)

1. Introduction

- Taking into account that operators charge their retail customers a price covering the wholesale roaming costs plus a mark-up, regulatory policy applied to the setting of **wholesale prices** is a **key issue for guaranteeing the level playing field competition** in the different markets where the designated SMP operator is operating.
- In that sense, the incentive of Mobile operators to reduce wholesale costs depends on how price sensitive the retail customers are.
- The legislation on **regulation of international roaming made by the EU** Commission introduced **price caps in both retail and wholesale markets** for international roaming and this mechanism has allowed to reduce roaming prices more than 50%.
- The introduction of **price regulation at retail level is certainly more controversial** than price regulation at wholesale level because it is generally acknowledged within the EU that the best way to ensure competition and bring down retail prices is to ensure open access to network facilities provided at cost-based prices. So, EU Commission recommends applying price regulation mainly at wholesale level.

Acting at wholesale level could affect the investment decision, so

1. Should we apply a **bottom up** rather a **top down model**?
2. Should we recognize **symmetric** or **asymmetric** prices?

Which is the best regulatory model for this service?

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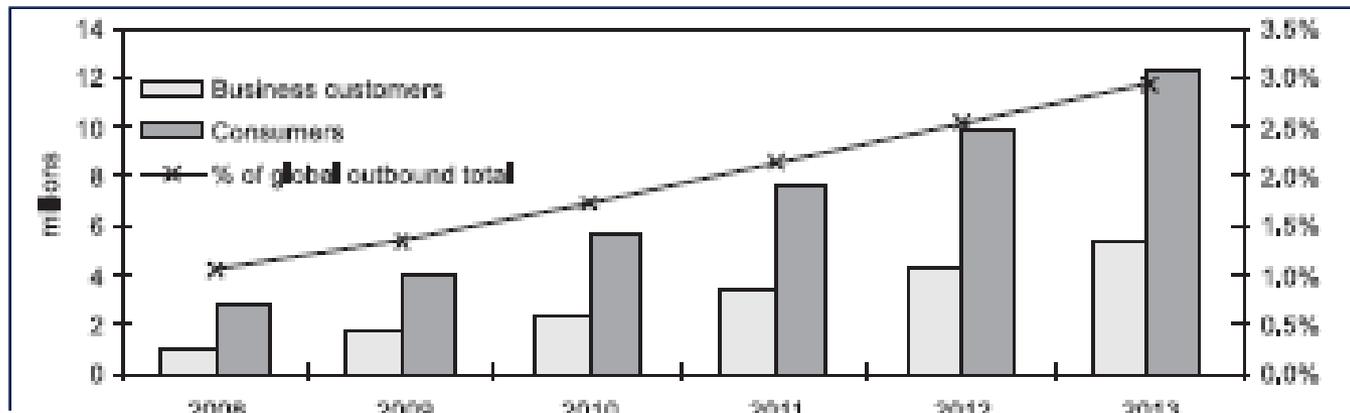
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2. African roaming market

In 2008, the global market for roaming was estimated to be worth **US\$24.5 billion**, with some **365 million roamers**. Of that total, **African countries represented only one percent of outbound roamers**, forecast to grow to around three percent by 2013

FORECAST OF TOTAL OUTBOUND ROAMERS FROM AFRICAN OPERATORS



Source: Informa (2008)

ROAMING TRAFFIC TO AND FROM CAPE VERDE ISLANDS (MINUTES)

	2006	2007 H1	2007 H2	2008 H1	2008 H2	2009 H1
Inbound	2 480 218	1 228 048	1 263 128	1 345 419	1 345 176	1 619 123
Outbound	66 537	49 701	62 115	61 267	101 361	490 473
Net traffic	2 393 681	1 178 345	1 201 013	1 284 132	1 243 815	1 128 650

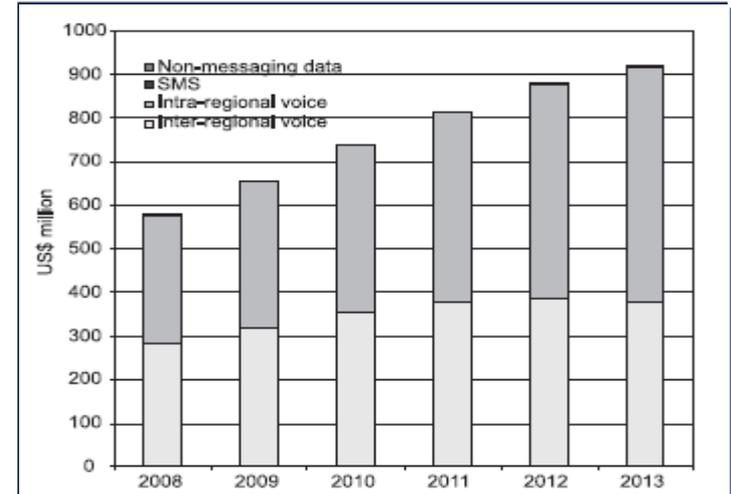
Source: Agência Nacional de Comunicações (ANAC), Cape Verde, 2009

2. African roaming market

There are minimal amounts from SMS and data roaming, with the vast majority of the money coming from voice traffic. The forecast growth comes mostly from roaming between countries in Africa.

Regarding inbound roamers, it is possible to consider the prices they pay and for the most part, the prices are quite expensive, and in some cases extremely so. For example, calls forwarded to Kenya from the US, where the wholesale cost would be a few cents, are charged at US\$3.99 or US\$4.99 per minute

FORECAST OF TOTAL OUTBOUND ROAMING REVENUES OF AFRICAN OPERATORS



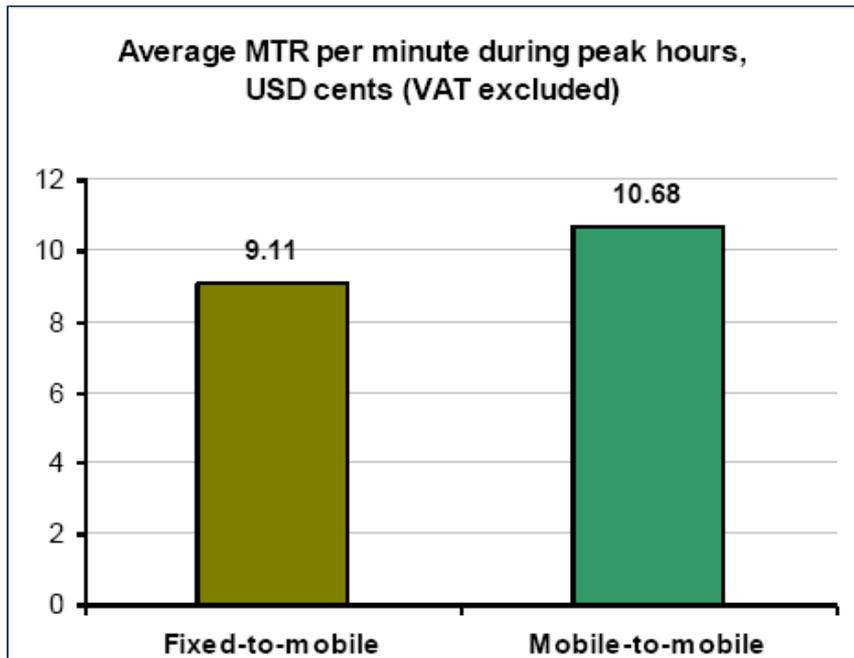
Source: Informa (2008)

INTERNATIONAL ROAMING CHARGES FOR US-BASED CUSTOMERS IN AUGUST 2009

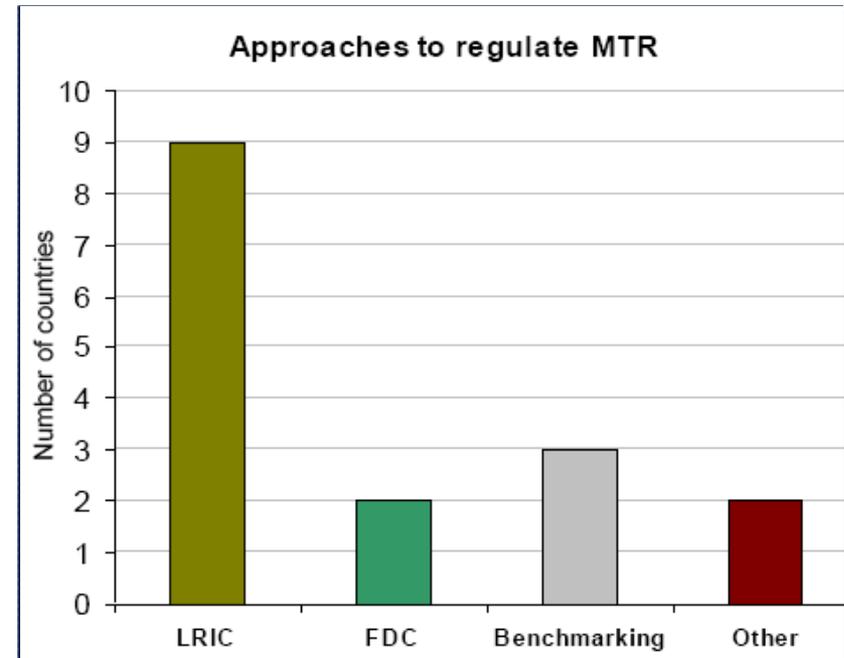
	AT&T Standard	AT&T World traveler	Sprint	T-Mobile*	Verizon Global phone +
South Africa	2.49	1.69	2.49	1.49	2.89/2.29
Mozambique	2.49	2.49	2.49	1.99	2.89/2.29
Malawi	3.49	3.49	3.49	1.99	2.89/2.29
Tanzania	4.99	4.99	4.99	4.99	4.99/3.99
Kenya	3.99	3.99	3.99	4.99	4.99/3.99
Ethiopia	3.49	3.49	3.49	2.99	2.89/2.29
Sudan	3.49	3.49	3.49	-	2.89/2.29
Egypt	2.49	2.29	2.49	1.99	2.89/2.29

Source: Source: Websites of AT&T, T-Mobile, Verizon (no date)

2. African roaming market



Source: ITU Survey on Tariff Policies 2009



Source: ITU Survey on Tariff Policies 2009

As in many African countries mobile market structures are constantly changing. **Disputes between operators regarding interconnection rates are a common issue.** So, **many African regulators have chosen to impose ex ante price control regulation on interconnection rates**, and according to the results of the ITU Survey on Tariff Policies 2009, **16 out of 19 countries have imposed price control on MTRs.**

The majority of countries **regulating MTRs through the cost based pricing approach** are using **LRIC models (60 percent)**, whereas **benchmarking is used as an approach to set mobile termination rates in only 20 percent approx.** Cost based price setting is usually based on detailed modeling of network costs

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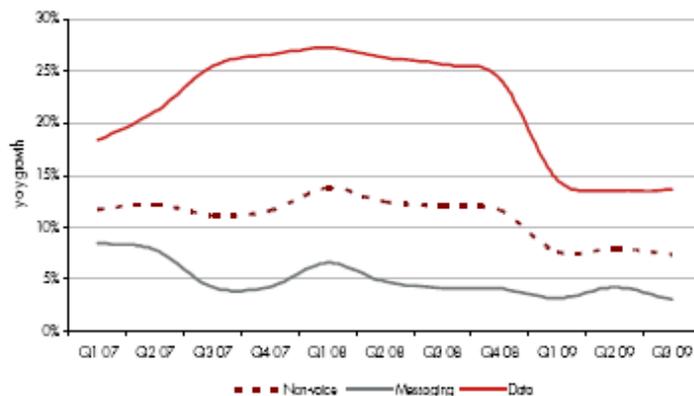
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3. Benchmark: international market overview

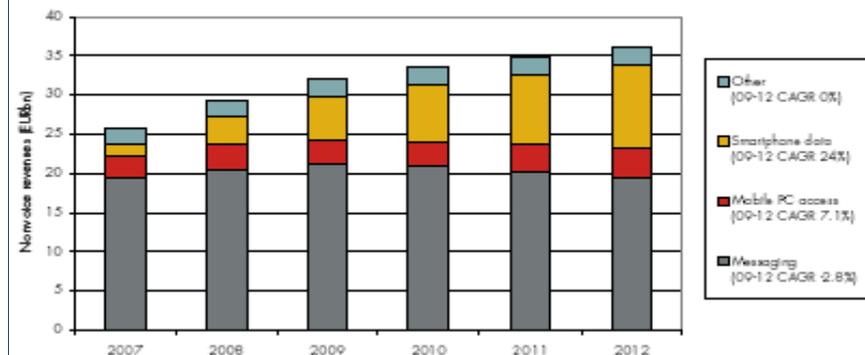
Mobile data is changing the market structure

- **Volume growth will remain strong** and data pricing is now stabilizing
- Mixed signals on probably the **biggest risk due** to pressure on mobile capex
- **New mixed converged services** are changing the routing matrix of mobile operators
- **Mobile broadband, content and data services** are key to helping operators combat falling retail revenue in Western Europe.

Mobile data growth in large European markets



Forward growth rates for European mobile data



Source: Nomura

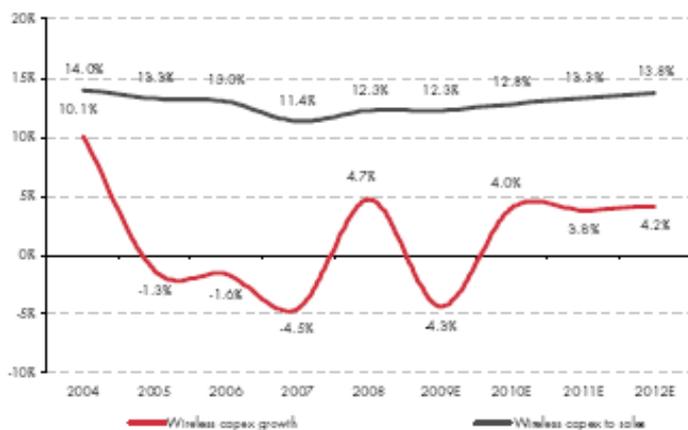
3. Benchmark: international market overview

Mobile spectrum will become a key player in the new cost structure

• Several trends from EU:

- 1) **By 1 January 2012, the use of all spectrum already harmonised at EU level**, which means almost 1 GHz, should be effectively authorized to meet market demand.
- 2) **By 2013, the 800 MHz band resulting from the digital dividend** should be made available to cope with the mounting scarcity of spectrum (with limited exceptions).
- 3) **By 2020, wireless applications should help to guarantee access for all to broadband** at a minimum speed of 30 Mbps.
- 4) Authorization conditions conducive to the **roll-out of broadband in a competitive environment** should be applied in a coherent manner across Europe.

European wireless capex / sales



Spectrum timetable for Europe

Country	2.6 GHz award	800 MHz award
UK	H1 2011	H1 2011
Germany	Q2 2010	Q2 2010
France	Action plan by end 2009	Action plan by end 2009
Spain	H2 2010	2011/12
Italy	2010/11	2011/12
Netherlands	Q1 2010	2011/12
Portugal	Q3 2010	2011/12
Ireland	2011/12	2011/12
Greece	2011/12	2011/12
Poland	Q4 2009	2011/12
Austria	Q1 2010	2011/12
Czech Rep	Q2 2010	2011/12

Source: Nomura

3. Benchmark: international market overview

European roaming regulation

As of 1 July 2010, the Roaming Regulation foresees the following:

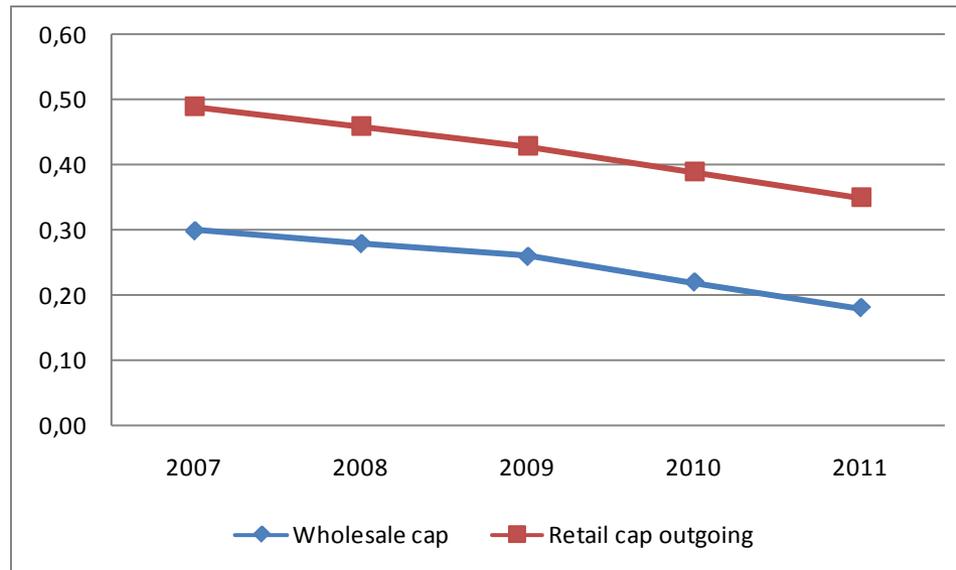
- Operators will have to impose a monthly **default cut-off for data roaming of €50**. Consumers can also select a different cut-off limit if offered by the operator or opt out of this bill shock safeguard entirely.
- Operators are obliged to **send users a warning** when they reach 80% of their data-roaming bill limit. The operator will have to cut off the mobile internet connection once the limit has been reached, unless the customer has indicated they want to continue data roaming.
- Prices for **mobile roaming calls** will be **reduced** further with a maximum tariff of €0.39 per minute for calls made and €0.15 per minute for calls received.
- The maximum **wholesale prices for data roaming** fall from €1 to €0.80 per MB.
- Receiving a voice **mail message** while roaming will become **free of charge**

The new rules had an important effect in European mobile operators. The following table shows the effect in Spain which was one of the countries with higher roaming tariffs.

	Sent calls	Received calls		Sent calls	Received calls
Vodafone	0,75 €/min	0,5 €/min	After regulation →	2007	0,49 €/min
Orange	0,75 €/min	0,51 €/min		2008	0,46 €/min
Movistar	0,79 €/min	0,5 €/min		2009	0,43 €/min

3. Benchmark: international market overview

EU Roaming



	2007	2008	2009	2010	2011
Wholesale cap	0,3	0,28	0,26	0,22	0,18
Retail cap outgoing	0,49	0,46	0,43	0,39	0,35

Retail prices (excluding VAT)

The European Commission has defined a **glide path for regulating the originating and receiving calls** when roaming as well as a **cap for the wholesale services** when the customer is roaming. The **aim** is to **decrease** the price of **voice** while roaming in **more than a 70%** and the price of **SMS** while roaming in a **62%**

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What termination rates emerge if prices are unregulated?

Call termination can only be supplied by the **network provider to which the called party is connected**



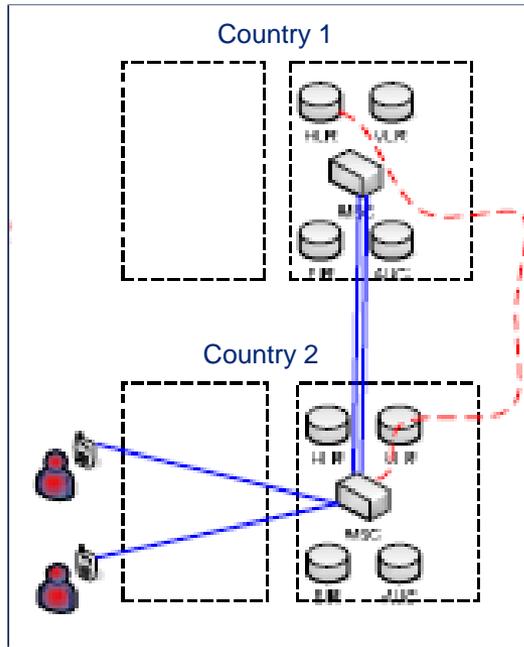
Each network constitutes a **separate relevant market and each network operator** has a monopoly for terminating calls on its own network. Therefore, each provider can propose take-it-or-leave-it offer in an unregulated market

- The existence of fees for access to competitors' networks (i.e, termination rates) can distort competition by increasing 'off-net' calls (calls from one mobile network to another mobile network) compared to 'on-net' calls (calls from one mobile network to the same network). In addition, **without regulation, excessive MTRs might be used to cross-subsidize** other services such as mobile subscriptions or handsets
- Operators can reduce competition by strengthening the barriers to entry (or expansion) through setting high interconnection rates (either origination, or termination) and low retail charges.
- Excessive MTRs lead to **inefficient retail prices, inefficient investment strategies, and may lead to traffic-routing distortions**

To regulate or not to regulate MTRs?

1. The degree of market power enjoyed by the different players and the overall degree of price competition in the marketplace;
2. The potential delays that would be incurred by reliance upon negotiation;
3. The resources available to the regulator;
4. The level of complaints concerning retail prices received from consumers and business groups.
5. Permitting more operators to enter the market, including virtual mobile network operators;
6. Encouraging measures that facilitate customer choice and changing operators; and
7. Ensuring tariff transparency so that consumers can compare rates between operators and between countries.

Main principles in roaming



There are different routing modes that can be used for international roaming calls:

- Calls inside a visited country
- Calls from a visited country to the user's home country
- Calls from a visited country to a third country
- Calls received in a visited country.

In GSM, the most important components used when international roaming is required are:

- HLR, the Home Location Register,
- VLR, the Visiting Location Register,
- MSC, the Mobile Switching Center.

International roaming involves, mainly, the following services:

- **Mobile origination (MO)**, costs comparable to MT
- **Mobile/Fixed termination (MT/FT)**, Mobile termination rates are subject to regulation within the EU and are in principle cost-based
- **International Transit (IT)**, International transit costs depend on the inter-operator tariffs agreed between operators
- **Roaming specific costs (RSC)**

Market structure

Retail market

Demand:

- Most subscribers use **this service only occasionally**,
- **Level of roaming charges** is not used as a parameter in competition
- Roaming may therefore constitute a major share of the traffic and revenue **in tourist areas**.
- **Lack of transparency** will not lead to a higher demand

Offer:

- Suppliers at the retail market include **all mobile operators at the national market**
- The **retail market is more competitive than the wholesale market** as it includes network operators as well as virtual operators
- **Mark-ups demanded by mobile operators are higher** than ones on the other mobile services

Wholesale market

Demand:

- **Demanded by all mobile operators** offering international roaming to their retail customers.
- **Only few operators with an international structure** are able to handle part of their roaming within their own network
- Operators will charge **their retail customers a price covering the wholesale roaming costs plus a mark-up** covering various retail costs

Offer:

- The number of suppliers of roaming services is the same as the suppliers of wholesale mobile services in the respective countries
- **In most countries all mobile network operators are required to provide roaming services to foreign operators (3-4 in most of the EU countries)**
- it is not always possible for the Home MNO to choose the Visited MNO **with lowest charges**.

Which is the best option for regulating these services?

	REGULATION	NO REGULATION
RETAIL	<p>The imposition of price ceilings for roaming services at the retail level would be effective in ensuring price reductions. However the imposition of such a cap would require a corresponding reduction at wholesale level if all operators are to be in a position to offer the service without suffering a loss. Therefore, this solution could prevent even efficient smaller operators from being able to provide these services.</p> <p>Wholesale and retail regulation may be necessary if there is lack of competition at both levels. However, action to reduce the level of the wholesale charges is likely to have a positive effect on retail prices given that current levels of wholesale prices constrain market players (particularly smaller players) from competing at retail level.</p>	<p>The option of no regulatory intervention would mean allowing market forces to work.</p> <p>By taking these option the problems related to transparency and high wholesale charges would likely remain.</p> <p>Transparency measures will help to address the problem of 'bill shock' by increasing consumer awareness of the retail charges and by giving consumers the tools to control expenditure.</p>
WHOLESALE	<p>High wholesale charges combined with traffic steering difficulties for roaming, are causing difficulties with providing transparent retail offers and clear information to consumers. The problem is caused by the ineffectiveness of traffic steering which results in operators having to pay exorbitant rates for the remaining traffic. A wholesale cap combined with transparency measures would eliminate these excessive charges</p>	

Approaches to fix MTR

- 1 Rate of Return regulation (RoR).** It restricts the amount of profit (return) that the regulated firm can earn. The regulated price can be adjusted upward if the utility starts making a lower rate of return, and it will be adjusted downward if the utility makes a higher rate
- 2 Price cap.** This is a process for establishing rates or prices that will be charged for a service, which are adjusted each year by an index that reflects the overall rate of inflation in the economy, the ability of the operator to gain efficiencies if compared to the average firm in the economy, and the inflation in the operator's input prices if compared to the average firm in the economy. Sometimes a **price ceiling approach might be used for the same purpose.** Under this approach a regulator imposes a limit on how high a price can be charged on a service, without making periodical adjustments.
- 3 Cost orientated or cost based pricing** means that prices should reflect their costs plus reasonable rate of return which operators are allowed to earn. Operators or regulators might use different cost bases (current cost, historical cost, forward-looking cost) and different methodologies (Fully distributed cost (FDC), LRIC) to determine the prices.
- 4 International benchmarking** – This is the process of establishing the price of a service based on prices in other jurisdictions. Benchmarking can be used as a common sense check on the results of cost models. Alternatively, it can be used directly to set prices.
- 5 Retail minus** – Under this approach, the interconnection charge will be equivalent to the retail tariff practiced by the operator less the costs avoided by not having to retail the service. The discount from retail prices is usually set as a fixed percentage of the retail price. It is widely acknowledged that retail minus implies a lower level of regulatory control than cost-based prices.

4. Roaming regulation: strategies



Wholesale services

Following the three criteria test before regulating, it is necessary to analyze several issues:

- 1 **Define the relevant market** from a product and geographical point of view
- 2 **Identify SMP** in the market
- 3 **Valuation** of the conduct followed by SMP
- 4 **Impose obligations** (ex-ante /ex-post)

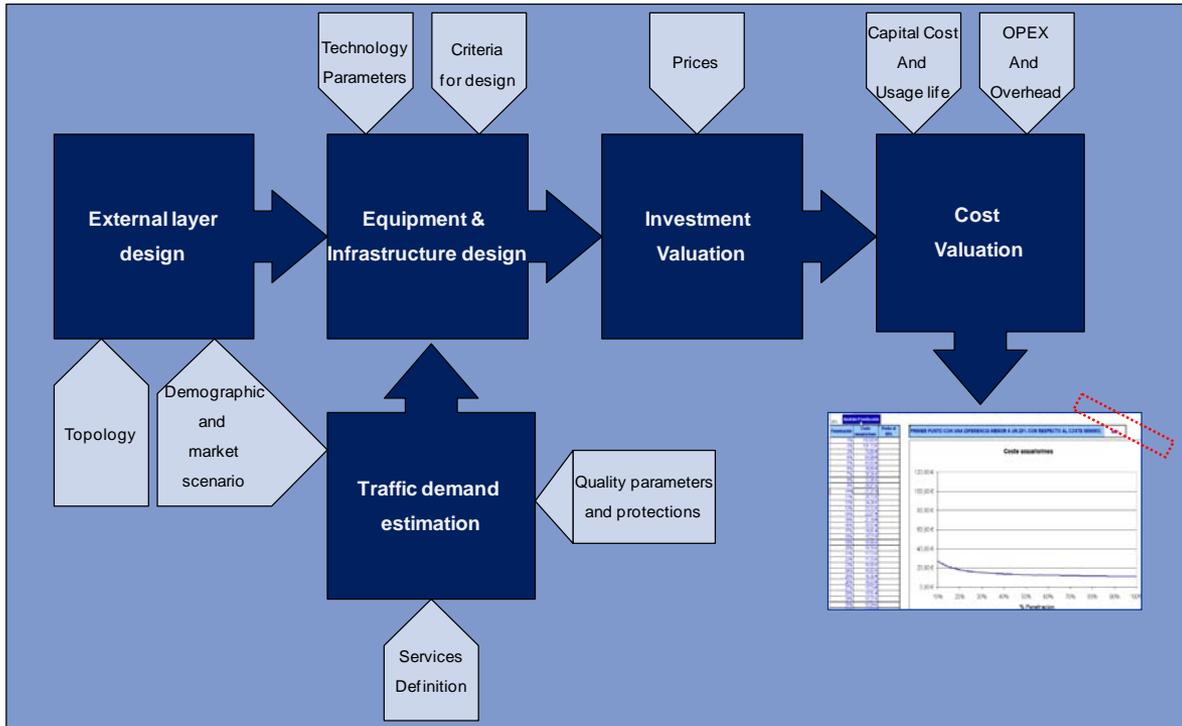
• The introduction of price regulation at retail level is certainly more controversial than price regulation at wholesale level. In this sense, options as price cost based or based on a reference offer could be the first step to equilibrate the market.

• It is necessary to simplify the tariffs so it makes it easier for people to understand what they are getting into

4. Roaming regulation: strategies

Wholesale: which costing models can be applied?

Bottom up Model



Key variables

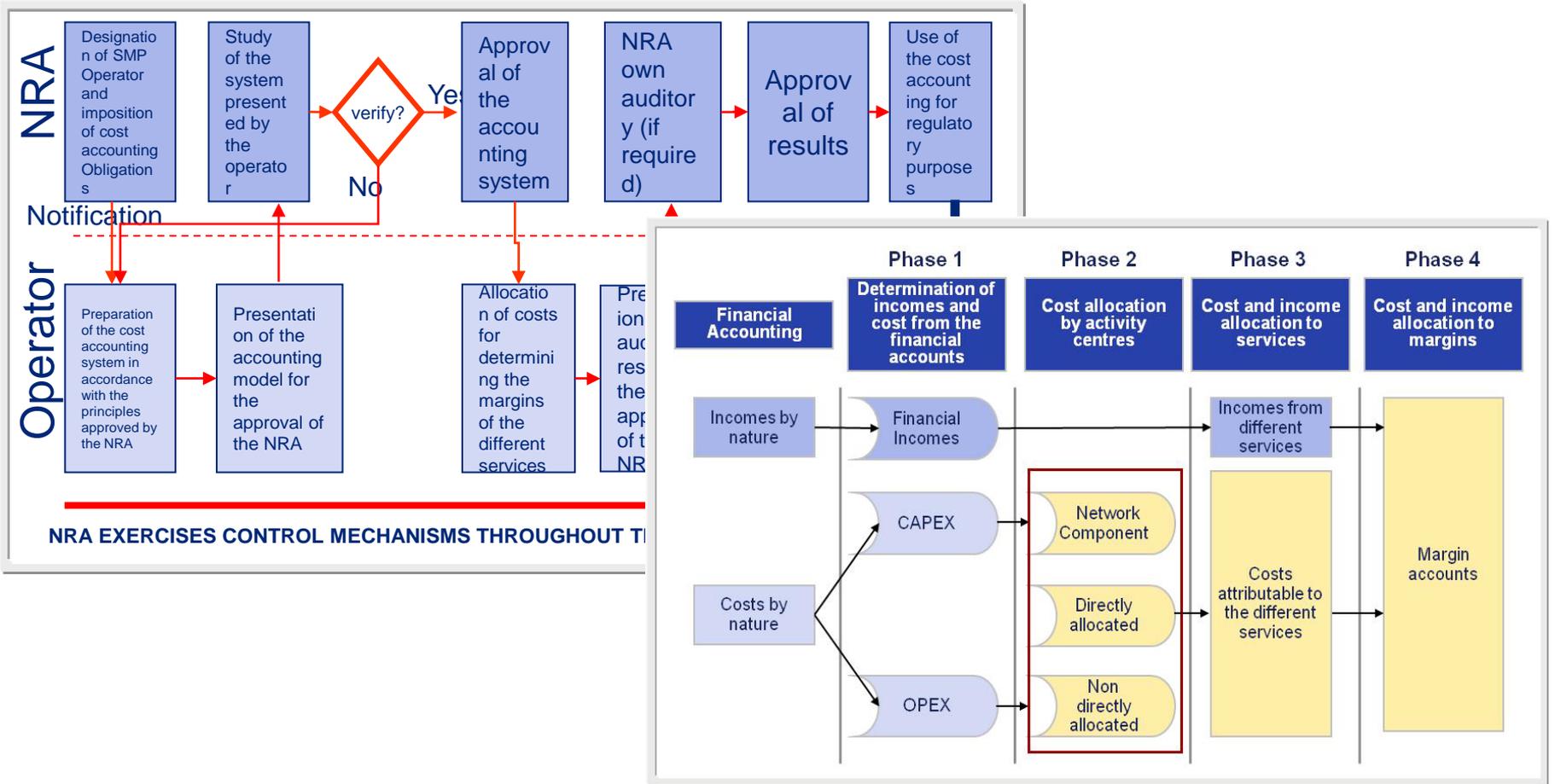
- WACC
- Assets life span
- Assets valuation
- Routing factor matrix
- Demand profile
- Identification of the Network usage for the provision of the services

Taking in account the estimated costs obtained from the LRIC model, the NRAs eventually set the wholesale prices by summing a mark up which depends mainly on the playing level field competition

4. Roaming regulation: strategies

Wholesale: which costing models can be applied?

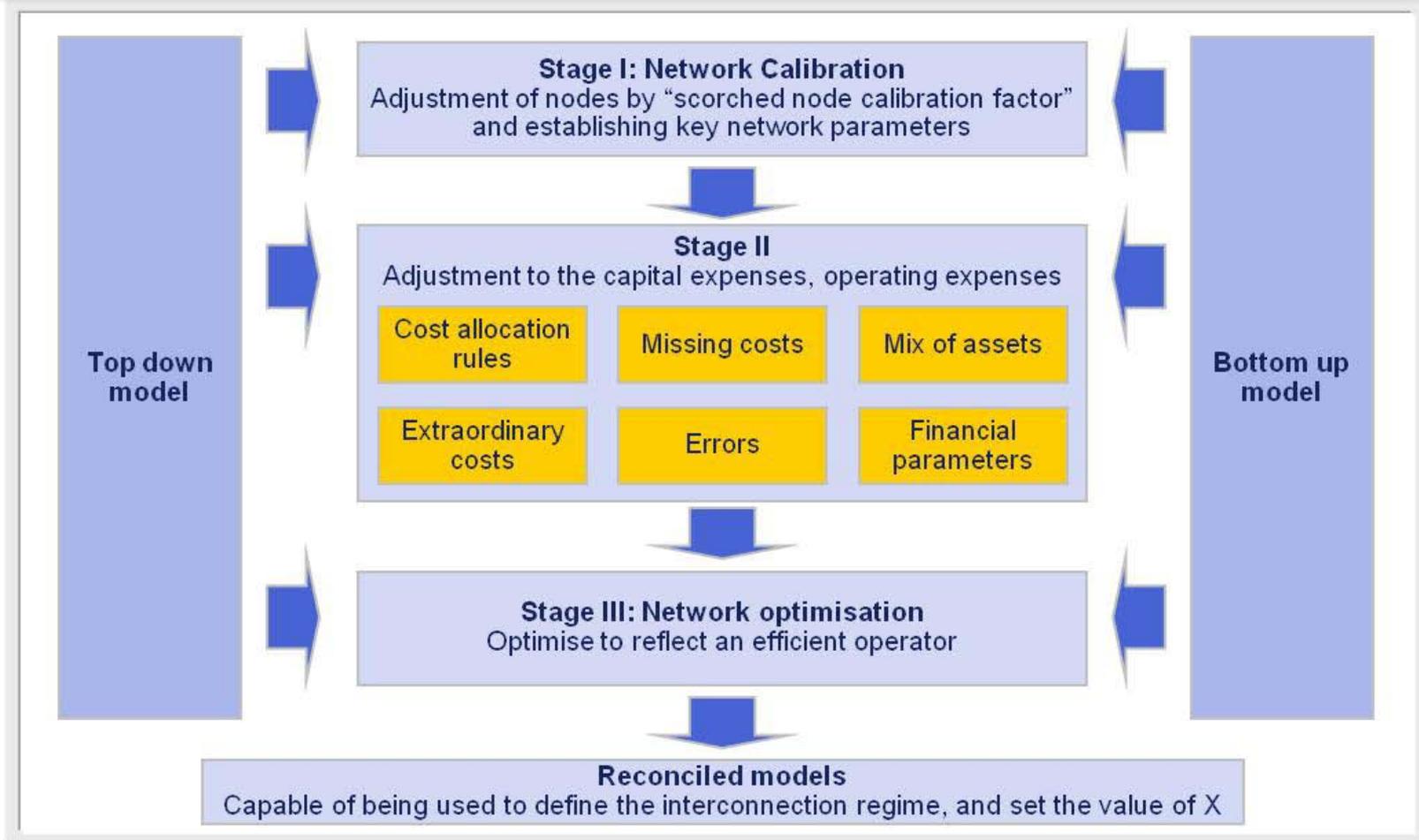
Top down Model



4. Roaming regulation: strategies

Wholesale: which costing models can be applied?

Reconciliation process



4. Roaming regulation: strategies

• Predation mechanism: symmetric or asymmetric prices?

- External factors

Spectrum bands
Time to enter into the market

- Internal factors

Investment related to frequency bands
Financial capacity
Economies of scale /scope

- Other variables

Demand profile
Barriers to enter
Others.....

Major unitary costs that could tend to a retail policy as a strategy for differentiation

On/off-net differentials appear as a result of competition between networks, in the presence of different cost termination charges and strategic effects due to call externalities

4. Roaming regulation: strategies

Symmetric or asymmetric prices?

Should all market players be subjected to the same extent of regulation?

- 1 **Symmetric or asymmetric regulation** between newcomers and incumbents and/ or between operators with different size of networks;

In the short term, **different asymmetries might be justified, especially in the initial phase of a liberalization process and competition development**, when regulators might feel that it is necessary to support newcomers. However, **in the long term, asymmetric regulation will lead to inefficiencies**, with operators lacking the incentive to increase efficiency of their service provision. **Differences in regulation can be justified as long as smaller operators**, that were licensed relatively late, **face cost disadvantages due to external factors** (which they cannot influence). Usually smaller mobile operators tend to have higher termination rates than their larger competitors and that asymmetric regulation of only the larger operators in any given market could induce the smaller operators to increase their termination rates.

- 2 **Symmetric or asymmetric regulation** between **different types of networks** (concerns mobile vs. fixed networks)

Practices vary in different countries. For example, in the United States, **reciprocity requirements imposed by the regulator (FCC)** mean that **fixed-to-mobile termination charges are set equal to those for mobile-to-fixed termination**, which are quite likely below the cost of mobile termination. Asymmetric could be justified when the provision of fixed termination and mobile termination services involves different costs

- 3 **Symmetric or asymmetric regulation** according to the origin of a call.

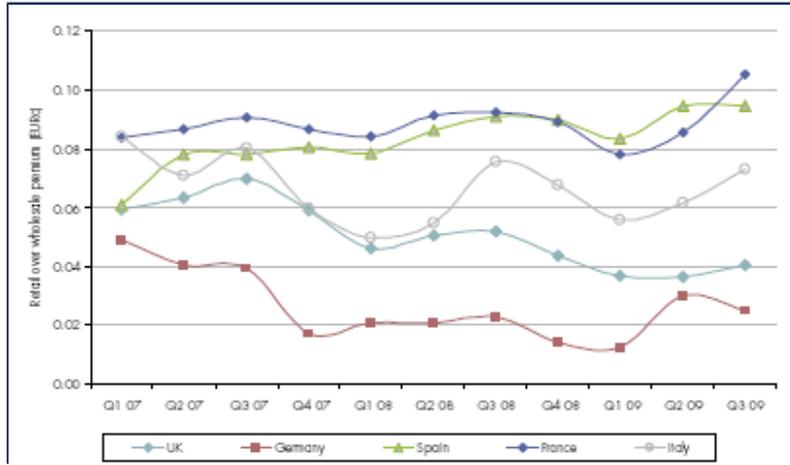
Often, debates focus on whether internationally originated calls should be terminated at the same rate as nationally originated calls.

Looking from a cost perspective, no matter where a call is originated the termination part of a call usually is the same (from the nearest point of interconnection to a device), and so it is argued that the price of termination should reflect this.

4. Roaming regulation: strategies

Decrease of MTR in Europe

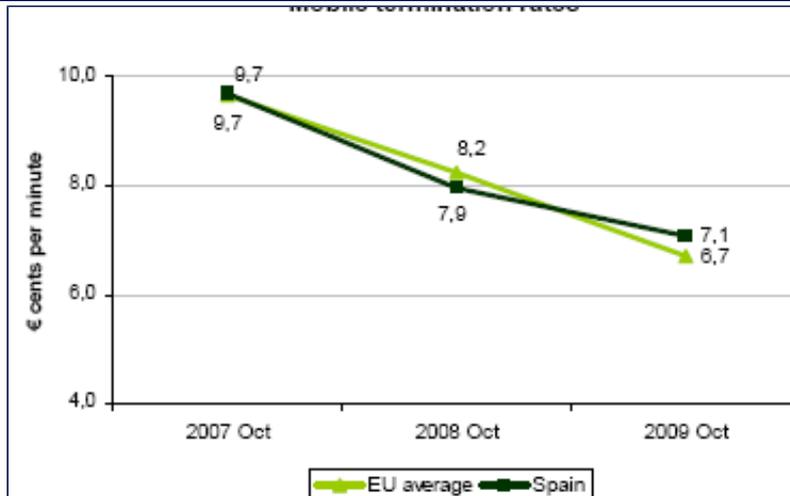
Retail price premium over MTR in Europe's major markets



- Maybe there is a limited room for further price reductions in some countries and MTRs will now remain stable until a near future.

- There is no tendency of prices falling in response to the accelerating MTR pressure

Evolution of mobile termination rates



- The MTRs of the four MNOs and nine 'full' MVNOs have decreased according to the established glide path (7.08 €-centson average) and are now above the EU average (6.70 €-cents)

- In July 2009, the CMT adopted the final measure on the mobile termination market establishing an asymmetric glide path that will reduce MTRs from 10.42 €-cents/7.00 €-cents to 4.98 €-cents/4.00 €-cents in October 2011

- The regulator is developing a LRIC bottom-up model, which should be applied as from 2012 in accordance with the Commission Recommendation on mobile ermination rates.

4. Roaming regulation: strategies

Retail services

Price cap

- It sets a maximum allowed inter-temporal path for the price of a specific product based **on the overall rate of inflation in the economy**, the ability of the operator **to gain efficiencies relative to the average firm in the economy**, and the **inflation in the operator's input prices relative to the average firm** in the economy
- Basic formula employed to set price caps takes the rate of inflation, measured by the Consumer Price Index and subtracts expected efficiency savings X.
- It provides **incentives for efficiency savings**, as any savings above the predicted rate X can be passed through to the operator at least until the price caps are next reviewed. Also, it allows to recover costs and facilitate investments.
- But...it's difficult to estimate "X" factor

Glide path

- Instead of a **one-off price adjustment (a large discrete price change)**, the regulator may establish a prescribed price path over time, so companies are given proper signals for future cost containment and investments. So, regulators reset the starting price to define another price.
- Glide path is established to **maintain incentives for cost containment during the last stages of a price control**. Alternatively, a discrete price adjustment (or One-Off approach) is used to quickly re-set the price at a level where expected returns are not excessive (or inadequate).
- This model was mainly used for regulating MTR and wholesale Roaming services

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Spectrum and new mobile networks

NRAs that have used mechanistic approaches (LRIC models) to calculating cost oriented prices face with increasing complexity, when compared to 2G networks with current and future mobile networks which delivered more complex products and services:

accounting for 3G /4G spectrum costs;

migration of customers and traffic to 3G networks which are multi-service platforms;

dual running of 2G 3G and 4G infrastructure;

future traffic growth –fixed to mobile substitution;

Fixed and mobile broadband networks;

New structure of mobile markets around the world:

- Market consolidation
- Refarming of 900MHz and 1800MHz to UMTS
- Digital dividend 800Mhz;
- Other bands like 2600Mhz
- Femtocells/ picocells

NRAs, which have previously adopted cost-oriented regulation based on LRIC, have to consider the “near static” costs as well as the “ efficient operators concept” according to the new rules of the market.

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Prior to regulation

- **Prior to the regulatory process MTR were determined** not by regulation but rather **by way of commercial agreements** between the parties involved, mainly **between MTN and Vodacom** with mobile to mobile termination rates **set quite low**.
- **MTR's were increased quite dramatically** during the course of 2001, **coinciding with the entry of a new entrant** (Cell C).
- But while the **substantial increase in MTR's did not discriminate between operators**, these rates acted as an **effective price floor for off-net mobile to mobile calls**, depending on existing subscriber base.

Regulation process

- In October 2010 **the Independent Communications Authority of South Africa (ICASA)** announced the outcome of its wholesale call termination market review for the period 2010 – 2013.
- The regulatory process set a glide path for MTR's, and they will be reduced by way of a **glide path from the current level of 89c for peak time calls to an eventual level of 40c in March 2013**

	Peak	Annual adjustment (%)	Off-peak	Annual adjustment (%)
Current rate	89c		73c	
1 March 2011	73c	-18%	65c	-16%
1 March 2012	56c	-23%	52c	-20%
1 March 2013	40c	-29%	40c	-23%

Source: ICASA 2010

6. Case: South Africa

Asymmetric termination South Africa

The setting of **asymmetric termination rates in order to foster competition and growth** in the mobile telecoms market is an established practice internationally .

Asymmetric termination rates consider the position of a given mobile operator relative to other operators in the market and apply individualized treatment to operators for an interim period :

- **Network industry (requiring significant upfront investment)** and established client base
- **Differential allocation of spectrum** either currently or in the past.
- New entrants **can compete in the off-net market due to the lower price floor** created by the lower termination rate payable to other mobile operators.

Retail mobile market shares, by total customer connections, originated voice minutes, and revenues, as at June 2009

	Market share by customers	Market share by originated voice traffic	Market share by market revenues
Vodacom	54%	55%	55%
MTN	32%	36%	36%
Cell C	14%	9%	9%

It is **uncommon to introduce asymmetry more than a decade after mobile licenses** were granted as it happens in South Africa but considering the disparity in the SA mobile market, **ICASA adoption seems reasonable**

Licensees other than MTN and Vodacom in the mobile telecoms market **are granted to charge MTRs above the standard glide path** shown previously.

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7. Conclusions and recommendations



- **No easy way to regulate services** (roaming) involving several countries or/and different operators situation.
- Roaming can be estimated as the sum of an **origination, a transit and a termination**. Regarding this equation, as a first cost estimation origination could be associated to termination rate but transit depends on commercial agreement between operators.
- Several **costing approach (bottom up, top down, price cap,...)** to calculate the price charged in order to benefit the end user
- **Sometimes NRAs**, as it has happened in the case of the European Commission, have designed and **implemented retail and wholesale caps** and also a particular **glide path** for setting the evolution of both, retail and wholesale throughout the regulatory period. The major argument for such heavy-handed regulation is that at present international roaming prices are much higher than cost-based prices, and that roaming charges represent a major barrier towards growth in international mobile communication within the EU.4
- The EU intervention is a **compromise between those asking for cost based roaming charges and the interests of operators**.
- Helping small MNOs to enter the market through **asymmetric regulation** during a fixed period.

Regional Seminar on Costs and Tariffs for Member Countries of the Regional Group for Africa (SG3RG-AFR)

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