



# Key Considerations in Mobile Spectrum Licensing Latin America



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The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with more than 250 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and Internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces industry-leading events such as **Mobile World Congress**, **Mobile World Congress Shanghai** and the **Mobile 360 Series conferences**.

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# Introduction

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Access to broadband has been identified in many reports as encouraging economic development, enhancing general welfare and improving social equality. Governments and regulators in Latin America play a key role in advancing broadband access, especially access in rural areas via mobile networks. Fundamental to the adoption of mobile broadband are the policies implemented in the release of spectrum.

GSMA and CET.LA commissioned Ovum to analyse the different levers that should be considered by governments and regulators when defining spectrum auctions in the region. These included, but not limited to, spectrum management, long term investment certainty, coverage obligations, licence duration, potential market competition and pricing for consumers.

The research utilised modelling techniques that highlight the sensitivities and distortions which have the greatest impact on spectrum management.

This executive summary details the trends and forecasts in the Latin American mobile market, paying close attention to the new business and network challenges that 4G LTE brings, whilst recommending policies that will aid broadband adoption and not hinder growth.

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# Executive Summary

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The Ovum analysis illustrates that spectrum is not inherently valuable, but conversely, its value lies in its potential to generate a high impact on society as a whole.

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The spectrum allocated to mobile services facilitates the development of networks and broadband services and is a key cornerstone for economic development, general welfare and closing the digital divide in Latin American countries.

International experience and the analysis of the results of the economic model applied on spectrum auction constraints show how regulatory decisions impact on:

- Investors behaviour
- Competition dynamics
- Adoption of services
- Pricing of services / affordability

When evaluating poor spectrum auction rules against these areas, the findings show a poor return on the business proposition. This can ultimately impact on investment needed for deployment and subsequent adoption of services.

Some of the results of the sensitivity studies carried out for each type of regulatory lever are detailed below. They must be considered individually because the effects in each market and particular case will depend on specific conditions:

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## CONDITIONS

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The forecasts for LTE adoption may result in different or new strategies the operators need to implement, which is likely to go against current spectrum licensing.

The model created using the NET Ovum model adapted to the Latin American market, shows deployment of new LTE networks, given the current price level of mobile services, largely results in a loss leader with little profitability.

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Detailed analysis of each factor affecting auctions would be evaluated. Even minor alterations in auctions rules can have a far greater impact than expected.

For example, mandating that rural coverage should be extended from 10% to 30% does not necessarily result in greater social and economic prosperity for those areas. Even after 10 years, the cost of network deployment has not resulted in any higher adoption rates.

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Each additional requirement listed in the bid's specifications impacts on the operators cost to deploy.

These costs can impact negatively on pricing of services leading to a lower broadband adoption which has further repercussions for the economy as a whole. So complex and multiple requirements in a spectrum bid ultimately have an inverse effect to that which governments and regulators would wish to see in mobile broadband adoption.

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Operators must reach a critical market mass in order to be sustainable and maintain a competitive market dynamic.

The competition level in any given market must consider several factors, such as market size, penetration, concentration level (measured through HHI, for instance), growth prospects, among others. According to the model and assumptions considered, when performing a sensitivity analysis of the market share variable, it is observed that operators with a market share below 23% have difficulty sustaining long-term viability.



According to the model developed, licences under 20 years would not allow the required return on investment.

This type of situation would significantly affect the network deployment needed to bridge the digital divide. A study conducted by the GSMA reports the region's average licence duration is 17 years.

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Frequency band selection has a serious impact on the deployment cost – the sub 1GHz bands are essential for purposes of coverage and affordability.

Given the circumstances and assumptions made, the model suggests that a deployment that meets the proposed coverage requirements (covering all urban areas using only the 2.6GHz band) wouldn't be feasible.

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As in any business model, the perceived risk an investor is willing to take is based on long term certainty.

The model shows that a single point increase in the rate of weighted average cost of capital (WACC) can reduce the attractiveness of the business case by 73%, making it ultimately unfeasible for any investor.

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The sensitivities conducted suggest that a 50% incremental change in spectrum price can lead to a 62% reduction in the business case (nonlinear), possibly turning it into a high risk case.

Spectrum that demands high prices can reduce investment attractiveness or delay the expansion of mobile broadband in the country. In addition, it might reduce the number of participants, impacting market competition with less choice for users and potentially lower service quality.



The analysis suggests that developing a sustainable business case for a new entrant is quite difficult.

Considering the current state of market development, and the level of investment required, the barrier to entry is too high and not commercially attractive. Reserving spectrum for a new entrant should be considered carefully as a licence could be left unsold or the new business may fail early.



Flexible policies that allow spectrum sharing mechanisms such as radio access network (RAN) sharing, or its marketing, might improve investment prospects.

Under certain conditions, the model shows that RAN sharing can facilitate the deployment of, and compliance with, coverage obligations. The model made for the baseline scenario illustrates that the rural area coverage obligation could increase from 10 to 30%, while still maintaining viability. However, when looking at operators with lower market share or a new entrant, it is not feasible, even if RAN sharing is considered. Special emphasis should be placed on the importance of sharing conditions, in consultation with all stakeholders.

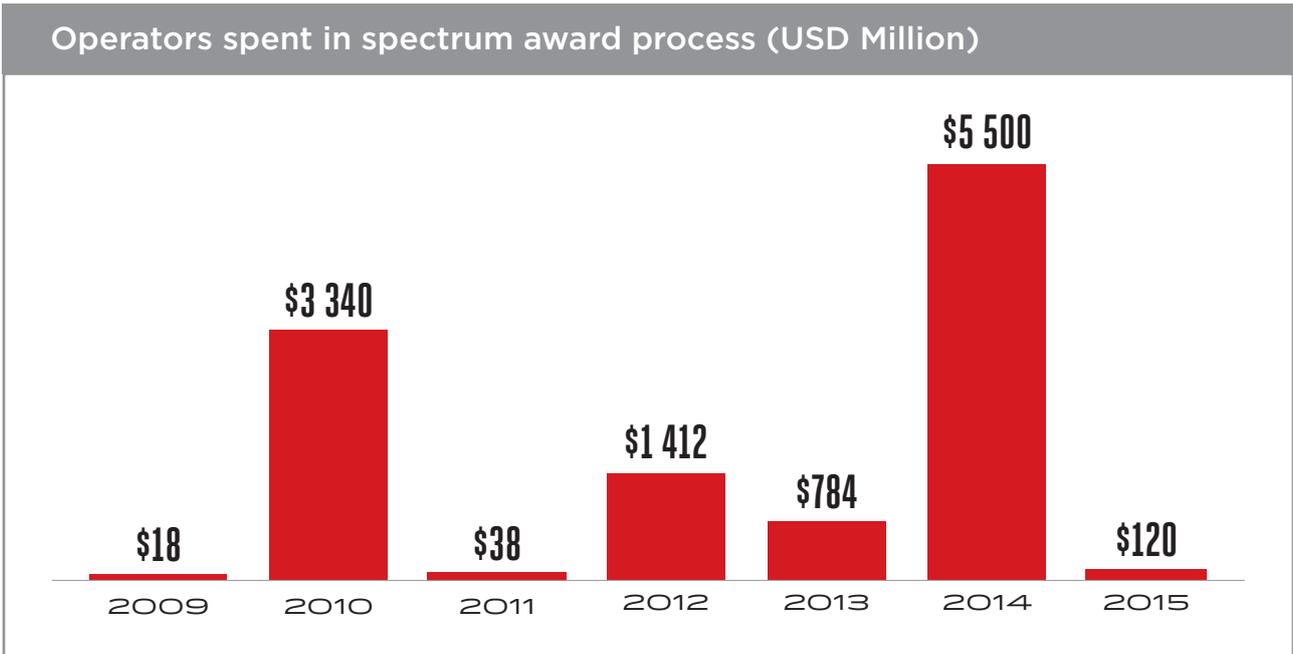
Governments have a duty to ensure they obtain 'shareholder' value from spectrum but need to carefully consider spectrum auction obligations which can have unintended consequences. Some rules may deter significant potential participants not submitting bids, successful bidders that cannot meet the conditions, all resulting in higher prices to users etc.

The report highlights the need for careful spectrum bid design - balancing public policy objectives with market forces.

# FIGURES

Figure 1:

Over the last 7 years (2009-2015), mobile operators invested USD 11.2 billion to acquire 4G spectrum, across 14 markets in Latin America\*



(\* excluding recurring annual and license fees)

Figure 2:

Just between 2012 and 2015, operators spent USD 8.4 million to acquire new spectrum

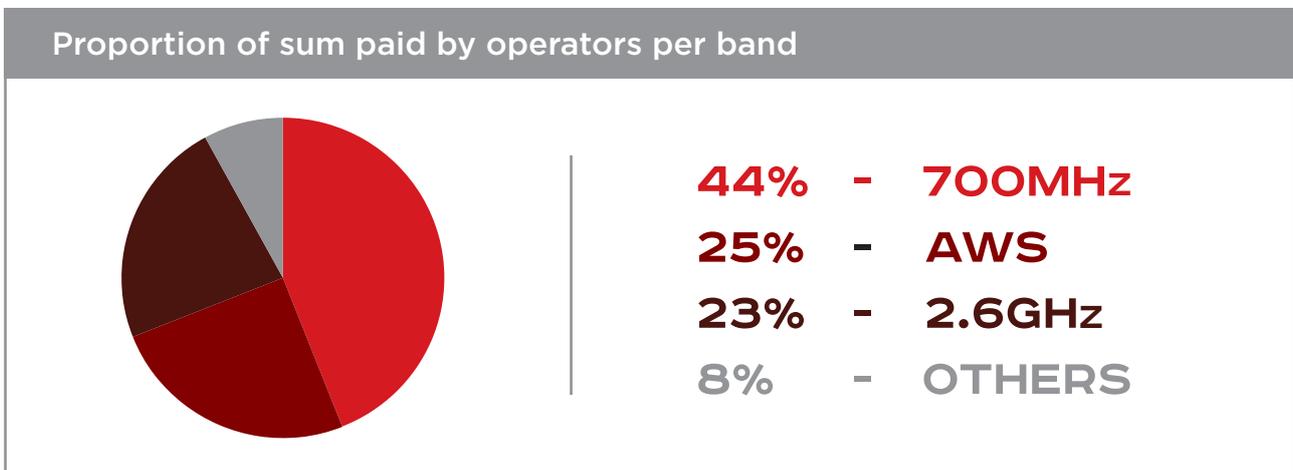


Figure 3: 700MHz



Total MHz Assigned: 294 # of Countries: 6

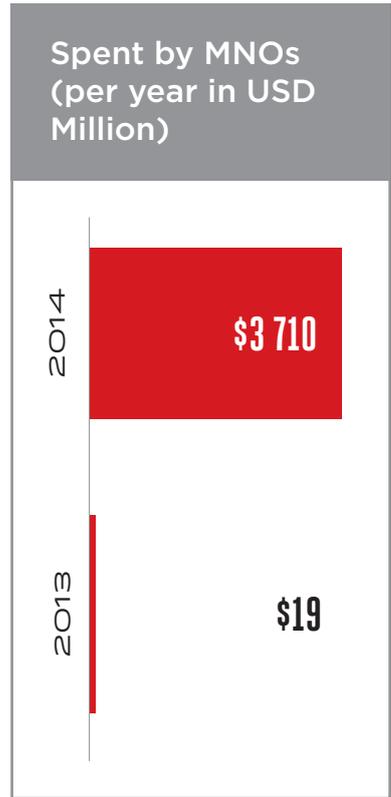


Figure 4: AWS



Total MHz Assigned: 850 # of Countries: 12

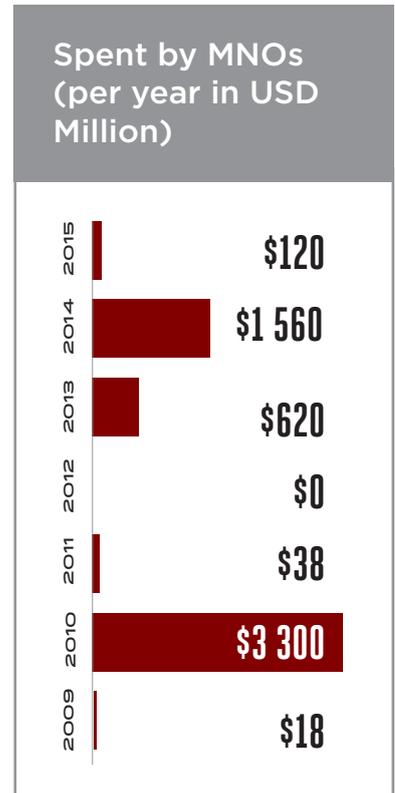
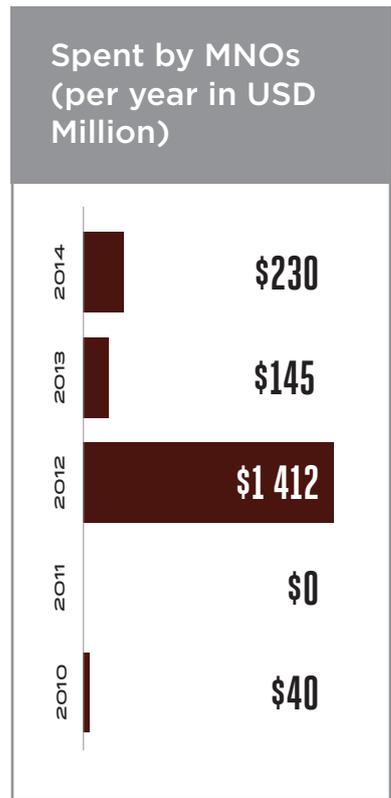


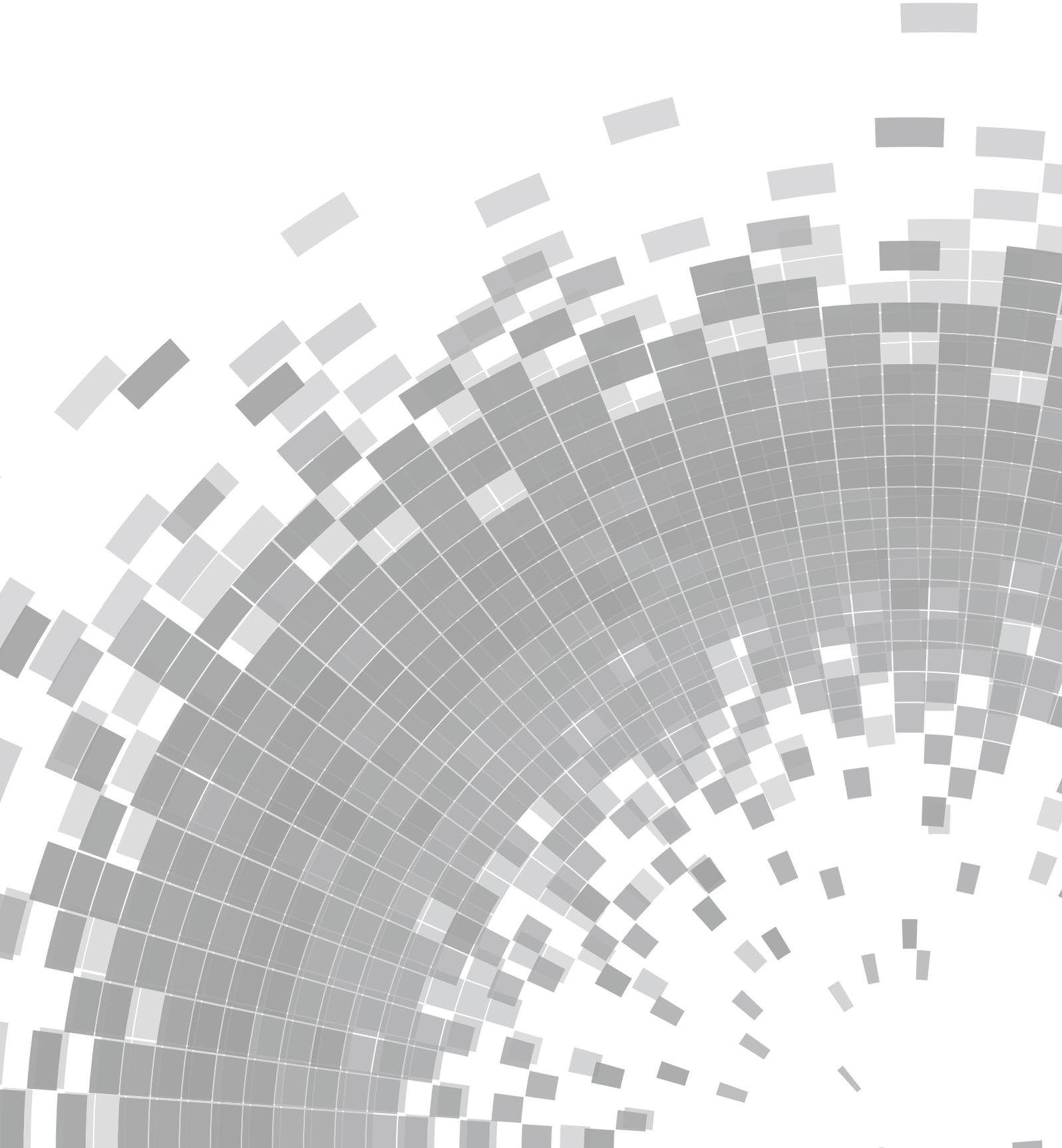
Figure 5: 2.6GHz



Total MHz Assigned: 470

# of Countries: 4







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