

Competition Between National Regulatory Authorities for Operator Investment

Large multi-national telecoms companies must decide where to allocate their limited funds and NRAs are in competition with each other to attract international investment – this paper explores how they can compete

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Introduction

To attract investment, NRAs must create an environment where operators can earn a reasonable return with low risk

During a recent spectrum management conference in Brussels the Head of Spectrum for a large global telecoms operator explained to the audience, consisting primarily of Regulators, that they were in competition with each other for the finite amount of cash she had to spend on the acquisition of new spectrum. She explained that the cash would be allocated to those markets that offered the highest future returns on investment combined with the lowest levels of risk. In this paper we explore this statement in detail and set out a game plan for National Regulatory Authorities to compete effectively with each other for operators' investment.



The Economics of Investment

Operators will only invest if they anticipate a Return on their Investment which is above their Cost of Capital

Basic economic theory tells us that for a mobile business to invest it must anticipate earning a Return on its Investment that is greater than its Cost of Capital. These terms are explained below:

- Return on Investment is simply anticipated future Profits, or Returns, divided by the Cash, Capital or Investment that had to be made to generate them. Profit is the difference between the business's Revenues and Costs;
- Capital reflects the cash invested in the assets that the business needs to generate profits. In the case of a wireless business the two most expensive assets are spectrum and the cost of building the radio access network. These items together constitute the two main elements of Investment or the Capital Employed.
- The Cost of Capital¹ is the return that the providers of capital (shareholders and debt holders) could expect to earn had they invested their cash elsewhere in a business of similar risk. The higher the risk of an investment the higher the Cost of Capital to compensate for the increased level of risk.

Returns within the mobile industry today are low due to high levels of investment in spectrum and networks and tough competition between operators and increasingly from Over-The-Top players such as Facebook, WhatsApp and Skype. There are various studies across many markets which demonstrate that a large proportion of operators are currently generating returns that are either close to or below their Cost of Capital which reduces the incentives for future investment.

¹ Sometimes referred to as the Weighted Average Cost of Capital or WACC

In a cash constrained world operators will invest where they can maximise the return generated for every dollar invested

The Challenge of Global Asset Allocation Decisions

The mobile telecoms industry today is characterised by a relatively small number of large, global players with mobile operations across a large number of different countries. These global players include Vodafone, Orange, Telefonica and Deutsche Telekom as well as more regionally focused operators such as MTN, Millicom, Qtel, Axiata and VEON. The demand from shareholders for regular and increasing annual dividends means that these operators have a finite amount of cash to invest. A key role for the Group Executive Boards of these companies is to decide how best to allocate their cash across their portfolio of markets in order to achieve the highest level of Return on Investment. When cash is limited, that cash will be invested in the markets that offer the highest return for every dollar invested.



Regulatory policy objectives can create conflicts

Regulatory Policy Objectives

Regulatory policy objectives differ from market to market although two themes are common across nearly all NRAs. Policy objectives almost always include promoting investment and encouraging competition. It is interesting to note that the more successful the Regulator is in promoting competition the lower the returns in the market and hence the lower the incentives for future investment. It is even more interesting to recognise that the promotion of competition and the pressure on returns is the very reason that Regulators are now in competition with each other to attract investment to their markets.

Improving returns is simple in theory, operators need to make more profit and reduce their invested capital

Improving Spectrum Investment Returns

Improving the Return on Investment is, at least in theory, straightforward. Operators need to increase their Returns and / or reduce their required levels of Investment.

- To improve Returns, operators need to sell more or reduce their costs and ideally both.
- To reduce the required level of investment they must either acquire spectrum more cheaply or reduce the cost of rolling-out their networks and, once again, ideally both.

Regulators have at their disposal many levers which can influence the returns of mobile operators

Coleago has been advising Regulators and Operators on spectrum related matters since 2001. In that time, we have performed more than 80 spectrum valuation projects for mobile operators where we have estimated the future returns on investment in new spectrum. This experience has allowed us to identify the factors that have the greatest impact on the returns on investing in new spectrum. A great many of the factors are

directly within the control of the Regulator and therefore provide the levers for a Regulator's Game Plan to attract global investment. We begin by looking at Revenues and Costs before examining the levers for Investment.



Increasing the duration of licences is one of the simplest ways of improving the returns on spectrum investments

Regulatory Game Plan for Increasing Returns

We begin by looking at the levers a Regulator can use to improve Returns, the difference between Revenues and Costs.

Improving Revenues

- The key levers are:
- **Long Licence Term:** One of the simplest ways of improving returns is for the Regulator to assign spectrum with long or indefinite licence terms. The longer the licence term the greater the revenue the operator will generate from the spectrum. Best practice and the trend is towards increasingly long licence durations of 15 years or longer and some Regulators, such as the United Kingdom's Ofcom, now assign spectrum on an indefinite basis (subject to spectrum management considerations and in the presence of spectrum trading).
- **Duties and Taxes on Equipment:** In developing markets, the cost of devices acts as a significant barrier to people owning a phone and becoming connected. In some markets the combination of import duties and taxes can increase the cost of a device by up to 50%. Reducing the cost of devices will allow more people to become connected. Not only does this have major socio-economic benefits but it also means more customers and more revenues for the mobile operators.
- **Taxes on Services:** Taxes on mobile telephony services increases the cost of using a phone and the more expensive it is to use, the less people will use it. Reducing the total cost of mobile ownership not only promotes adoption but it encourages greater use, leading to higher mobile revenues.
- **Power Grid Access:** Improving the access to power is a major issue in many rural communities in the developing world. Where the national grid is not well developed, mobile users must travel to the nearest town in order to gain access to power and then pay a 3rd party for the privilege of charging their phone. Improvements in the National Grid benefit the revenues of mobile operators and make a dramatic improvement in the lives of rural communities.

- **Competition:** Promoting fair competition with a level playing field will promote consumer benefits and encourage operators to invest in the quality of their networks and the services they provide to customers. Unfair competition, arising from the unequal treatment of, say, a state-owned player can for example damage profitability and dull the incentives to invest.
- **Net Neutrality:** Looking ahead to the introduction of 5G, Regulators should ensure that rules relating to Net Neutrality do not damage incentives for investment. This is an area that will becoming increasingly topical in the next few years.



Spectrum usage fees in some markets impose a very heavy cost burden on mobile operators

Reducing Costs

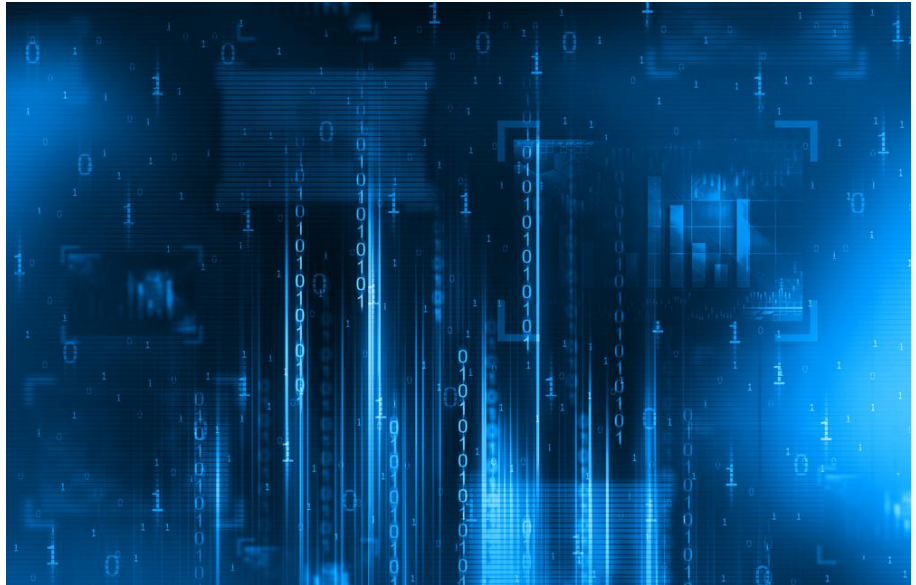
The key levers are:

- **Revenue Share Agreements:** In many markets spectrum was assigned based on a share of revenue being paid to the Government. The share of revenue flowing to the Government in some markets represented a major cost to the business. Revenue share arrangements are not regarded as best practice as they impact at the margin and can affect, for example, the decision to invest in increased coverage as well as the price paid for services. The cost of spectrum is best structured as a sunk cost so that it does not impact future decision making.
- **Low Spectrum Usage Fees:** Operators are often charged a fee for the use of spectrum on an ongoing and annual basis. The fees are important to encourage operators to return spectrum if they have no use for it but the same incentives can be created by allowing spectrum sharing without imposing a cost on the regulator. Where spectrum usage fees are applied they should be low and related to the costs of administering spectrum if access to spectrum was provided on the basis of some market value-based fee such as an auction price.
- **Ensuring Low-Cost Access to Sites:** Tower Companies are an increasingly common feature in most markets and renting sites is one of the most significant costs facing mobile operators. Regulators should seek to ensure that there is competition in the provision of towers and that the cost of access is reasonable.
- **Improving Access to Power:** Another major cost for mobile operators is the cost of diesel to fuel the generators required to provide power for sites. Even though operators are increasingly adopting solar solutions for site power, the cost of network operations would be significantly lower if there was improved access to the National Grid.

Spectrum and the Radio Access Network are the two main assets of the mobile business

Regulatory Game Plan for Reducing Capital Employed

The two main assets of a mobile business requiring the greatest level of investment are spectrum and the radio access network. We will look at each in turn.



Reducing the Cost of Spectrum

Regulators have a direct influence over the cost of spectrum and should therefore avoid artificially increasing it

- The key levers are:
- **Low Spectrum Prices:** Many Governments regard mobile operators as a Cash Cow and an important source of public funds. The financial performance of the industry today reveals that mobile operators are no longer the highly cash generative businesses that some of them once were. Regulators must convince their political masters that it is better to forgo short-term, one-off spectrum access fees in lieu of increased GDP and higher tax receipts over many years. The latter is overwhelmingly greater than the former. High spectrum fees not only deter investment, but they risk spectrum remaining unsold resulting in a lose-lose for the Government - no immediate cash receipts and no longer-term socio-economic benefits.
- **Avoiding Artificial Scarcity:** We have observed in some markets a tendency amongst Governments to withhold a proportion of available spectrum to create artificial scarcity to drive up spectrum auction prices. This strategy reduces the incentives for investment, risks creating competitive distortions and an uneven playing field, increases uncertainty which further deters investment and results in spectrum lying idle when it could be promoting additional investment, increased competition and higher socio-economic benefits.
- **Avoiding the Use of Set-Asides:** Setting aside spectrum for new entrants suffers from the same consequences of creating artificial scarcity. The track-record of new entrants in increasingly mature markets is not good and the result is usually a lack of investment in spectrum and competitive distortions which damage the returns of the incumbents which dulls the incentive for them to invest.
- **Consider Staggered Payment Terms:** We have already highlighted the cash constraints that mobile operators face. Offering staggered payment terms (subject to appropriate safeguards) for spectrum access will help alleviate cash flow challenges and encourage investment.

Reducing the Cost of Network Deployment



- The key levers are:
- **Commercially Viable Coverage Obligations:** Mobile operators will continue to expand coverage provided it is commercially viable to do so. If coverage obligations are set beyond these commercially viable levels, this will depress the Return on Investment. However, increasing coverage is often a key objective for Regulators and coverage obligations are a common feature of many assignment processes. Operators are often not opposed to coverage obligations provided that there are compensating factors such as reduced spectrum charges, extended licence terms or, as was the case recently in France, the waiving of renewal fees.
- **Commercially Viable Quality of Service Obligations:** The arguments just made for coverage can be extended to Quality-of-Service Obligations. Encouraging the maximum level of investment would see Regulators allowing market forces to determine the appropriate level of service.
- **Network and Spectrum Sharing:** The sharing of networks and spectrum can have a dramatic impact on the cost of network deployment. Regulators who encourage and facilitate sharing will be at a significant advantage in terms of attracting investment.
- **Import Duties on Network Equipment:** Duties on imported equipment has a direct impact on the cost of network roll-out and they can be very material. Increasing the cost of network equipment makes it harder for operators to earn a reasonable return.
- **Rights of Access:** Many operators continue to build and operate their own sites. However, planning permission issues not only lead to delays in network roll-out of anything up to two years, but they also impose additional costs on the business and if sites cannot be obtained in the optimal locations they increase further the costs of network roll-out. Regulators should work closely with Governments and local Municipalities to ensure that planning process do not impose costs and delays on network investments.
- **Utilising Universal Service Funds:** The lower the cost of building or renting a site and the higher the revenues that can be generated from operating that site, so the higher the levels of coverage operators will achieve of their own fruition. However, there will always be rural areas where site deployment is not commercially viable. Where Regulators are seeking to increase rural coverage they should explore a wide range of options to ease the financial burden of providing deep rural coverage.

Network sharing and roaming agreements should be employed to avoid duplicated investment and Universal Service Funds should be used to support investment. Additionally, innovative solutions to achieve extended rural coverage should be explored in collaboration with operators and vendors.

Regulators are often one of the greatest sources of risk and they should adopt a transparent and predictable approach to spectrum management

Regulatory Game Plan for Reducing Uncertainty and Risk

- We have explored the regulatory levers that will increase Returns and reduce the total Capital Employed within a market. A Regulator who exploits effectively all of these levers will increase the Return on Investment within their market. However, this is not sufficient. Investment decisions are based on a comparison of the Return on Investment with the Cost of Capital. The Cost of Capital increases the more uncertain and riskier the investment. A Regulator seeking to be highly competitive on the World stage for inward investment must also seek to reduce the Cost of Capital. This is achieved by focusing on the levers that reduce regulatory uncertainty and regulatory risk. The key levers available to Regulators are:
- **Transparency and Predictability:** Uncertainty creates risk and risk deters investment and so Regulators should seek to be as transparent and as predictable as possible. The more regulatory certainty a NRA can provide the lower the perceived risk of their market which will provide a more conducive investment environment. Regulators should strive to be dull and predictable!
- **Spectrum Management Strategy:** A key element of predictability is publishing a Spectrum Management Strategy. This document sets out the principles by which the Regulator will make decisions as well as key activities over the next five years. The inclusion of a Spectrum Roadmap is an important element. In making spectrum investments a key factor for decision makers is understanding when and what additional spectrum will be made available.
- **Spectrum Renewal:** Providing operators with clarity as to how the termination of their licences will be managed is vital. When uncertainty exists about future spectrum access this effectively kills all future investment until that uncertainty is resolved. In assigning new spectrum the Regulator should also be very clear as to the terms of renewal for that spectrum. Best practice suggests a presumption of renewal in favour of incumbents, but Regulators also need to make clear on what basis and price that renewal will occur.
- **Spectrum Trading:** Introducing the possibility of spectrum trading serves a number of benefits for both Regulators and operators. From the operator's perspective it reduces the risk associated with spectrum acquisition as spectrum will retain value and the ability to trade the spectrum if their business plan cannot be realised is an important source of risk mitigation. For the Regulator it ensures that operators face an opportunity cost of holding spectrum, the cash they could receive were they to trade it, and this will help promote efficiency. Although the number of reported spectrum trades to date are fairly small, we anticipate that this will increase in the future.

Getting the Balance Right

Regulators and the Governments they support face trade-offs when determining regulatory policy. We have already explored the trade-off between competition and incentives for investment. Often the most challenging trade-off to be navigated is between the revenues that can be generated through the spectrum assignment process and pursuing objectives such as increased rural coverage. Coverage obligations that extend beyond commercially viable levels will result in operators paying less for spectrum. To achieve the appropriate balance Regulators and Governments must take a holistic perspective on the market and adopt the policies that maximise overall socio-economic benefits over an extended period. These benefits can only be realised if the regulatory environment allows operators to earn a return above their Cost of Capital. This however, in a capital constrained world, may not be sufficient and

Ultimately, Regulators must strike the right balance across a wide range of political and commercial considerations and seek to adopt a holistic perspective focused on long term socio-economic benefits

Regulators need to ensure that the regulatory environment offers returns per dollar invested that exceed those that can be earned in other regulatory jurisdictions.



An understanding of spectrum from an operator's perspective is key to developing appropriate spectrum management strategies

How Coleago can help

Coleago has recently been supporting the Tanzanian Communications Regulatory Authority ("TCRA") of Tanzania in the design and implementation of their spectrum assignment process for 700 MHz. In supporting the TCRA we have relied heavily on our years of experience of working closely with operators to understand how licence obligations impact the value of spectrum. Our experience has allowed the TCRA to implement a process and determine licence obligations which we believe achieves an appropriate balance between assignment revenues, regulatory policy objectives and ensuring that global operators regard Tanzania as an attractive destination for their investment.

About Coleago Consulting Ltd

Graham Friend, M.A., M.Phil., (Cantab), ACA, is an economist and the Managing Director and Founder of Coleago Consulting. Coleago is a specialist telecoms strategy consulting firm and advises regulators and operators on issues relating to spectrum, regulation and network strategy. If you would like to discuss any of the issues raised in this paper, then please contact Graham.



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