

Universal Service in the 21st Century

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Executive Summary

The development of competitive mobile networks has met one of the key universal service objectives of the twentieth century, by providing widespread access to the telephony network at affordable prices. Governments should review existing universal service obligations and regulations to reflect this success. In particular regulators should remove any obligations which currently require fixed operators to deliver access services (line rental and line connection) below cost, allowing fixed operators to "rebalance" their prices to commercial levels.

The significant increases in telephone bills for some customers that go with rebalancing are undoubtedly unpopular. However, in the longer term, below cost access pricing discourages investment in the local loop, while high prices for long distance and international services reduces the competitiveness of the country and in competitive markets requires market distorting subsidy schemes such as Access Deficit Contributions. While these unbalanced prices may have been justified for social reasons in the past, in today's competitive markets, where mobile operators provide low cost access on a commercial basis, such distortions are neither justified nor sustainable.

Universal service policy in the 21st century should focus on those areas where commercial services currently have difficulty meeting reasonable universal service objectives. There are likely to be two main objectives: ensuring universal access so that lower income and rural communities have access to a basic telephony service; and extending universal access to include non-voice services, such as access to the Internet. The policies that implement these objectives should be technologically neutral, reflecting the emergence of competitive mobile operators as a key provider of universal service.

Actions for Operators

Incumbent **fixed operators** should seize on this opportunity to rebalance prices, even if it means giving up their privileged position as the sole universal service provider. Making this transition will be difficult as rebalancing needs to be carried out sensitively in order to ensure that revenues generated from the largely sunk costs of the access networks are maximised. This may mean setting prices based on customers' willingness to pay as well as the (sunk) costs of the access network that serves them. However once prices have been rebalanced, fixed operators' cash flow from basic telephony services will be more assured. Looking forwards, fixed incumbents' future profitability will be dependent on their positioning themselves as premium providers serving customer who generate high volumes of traffic, both voice and data.

Fixed operators still have a major role to play in universal service provision, but they should work in co-operation with mobile operators to minimise the cost of universal availability or access. Fixed operators should only invest if further network roll out in areas where the density of traffic justifies the cost of new network build or where there is a clear universal service objective, and this objective is supported by universal service funding.

Rebalancing will remove the threat of **mobile operators** having to subsidise fixed operators through universal service or access deficit contributions. These contributions have been used to subsidise fixed networks providing below cost services which compete with mobile operators' own services. In addition rebalancing should provide increased revenues for mobile operators as they acquire some of the marginal customers who choose to leave the fixed network as access prices increase.

If universal service policy is recast to reflect mobile operators success in providing affordable access to the telephony network, universal service policy will become an opportunity for mobile operators to increase their network coverage to serve marginal areas, and receive contributions from universal service funds for doing so. The challenge for mobile operators will be to extend their product portfolios to offer affordable and competitive non-voice services, such as Internet Access, to consumers.

Current Universal Service Policy

In the last part of the twentieth century there were three dominant trends in the telecommunications market:

- Liberalisation of telecommunications markets and the related privatization of former monopolies;
- Explosive growth in non-voice services, generally delivered over the Internet.
- The emergence of mobile telephony as a mass market service;

Universal service policy has been slow to adapt to these trends. The current definitions of universal service are still largely based on a world view where voice telephony (and perhaps fax) are the most important services, and wire line telephony is the dominant method of providing access to the telephony network.

Regulators have had limited success in adapting universal service funding to a competitive environment. This is mainly due to problems in accurately measuring the costs of universal service provision and setting up funding mechanisms which are efficient, equitable and distort the market as little as possible. Incorporating new services, such as Internet access, into the definition of "universal service" has been hampered by the rapid evolution of these services making objectives a moving target. Finally, while it has become clear that mobile telephony is now the dominant form of connecting to the network in almost all countries, universal service policy has not reflected this change.

The emergence of mobile operators as de facto universal service providers was unexpected. Initially mobile telephony was the very antithesis of universal service, as a niche service targeted a small number of wealthy customers. However as penetration rapidly increased, it became clear that there is strong demand for mobile telephony from all sectors of the population. The introduction of second generation networks reduced costs in the network and a combination of economies of scale and Moore's "law" drastically reduced the cost of handsets. As a result it became clear that mobile telephony, rather than being a high cost premium service, was for many customers the lowest cost method of providing a basic connection to the telephony network.

Much of the cost advantage of mobile telephony networks stems from the fact that the access (radio) network is shared between subscribers. Once this access network is in place the marginal cost of adding another subscriber is very low, mainly being the cost of a handset. This contrasts with traditional fixed wire line networks, where the incremental cost of adding additional subscribers is significant as each subscriber has dedicated access network infrastructure. Hence the cost of adding a mobile subscriber is an order of magnitude less than adding a fixed wire line subscriber.

Mobile operators have translated this low cost base into affordable pre-paid packages which allow low income users a basic connection to the network. Pre-payment allows operators to lower operational costs and reduce credit risks, but also gives users far more control over their expenditure than traditional post paid solutions, thus increasing its attractiveness to low income users.

Affordability and Unbalanced Prices

Current universal service policy typically assumes that the fixed incumbent will be the sole universal service provider and will thus be required to provide “affordable” access to the network. Thus line rental and line connection prices are typically directly regulated, in theory to maintain this “affordability”. In reality regulated access prices have been set more by inertia than a serious analysis of affordability. The easiest decision politically is to maintain line rental at a low level as price increases are never popular with consumers, many of whom fail to even comprehend why they should be charged for a telephone line before they begin to make calls. Even in markets with relatively wealthy customers, such as North America or in Western Europe, regulators have resisted allowing incumbents to fully rebalance prices. Where operators have been allowed to rebalance, the impetus for the rebalancing has generally been the need to protect the incumbent from competition, rather than because the reason for unbalanced prices has disappeared.

Analysis of the experience of those countries who have taken the decision to rebalance prices does not support the widespread belief that increases in prices will cause customer to give up their fixed lines. For example in central European countries after the fall of communism, such as the Czech Republic and Hungary, rebalancing, by providing sufficient current and future cash flows to allow operators to invest in network roll out, had the result of increasing fixed penetration.

While there continues to be a need impose price controls to prevent fixed operators from exercising market power, forcing operators to price services at below cost can result in lower investment in the network, which in the end does not benefit the majority of consumers.

The corollary of access prices being kept below costs is that other prices must be set above costs in order to allow the operator to make a reasonable return. Typically regulators have allowed operators to set prices for international calls and long distance call prices above cost. From a social point of view, this cross subsidisation from users of international and long distance calls services (and from abroad) to the general public is politically expedient and may appear to be progressive. However, in the same way that setting access prices below costs can hurt consumers in the medium term, setting other prices above costs can be equally counter-productive. The high costs of long distance and international calls raise the cost of doing business and of trade and thus raises prices of other goods and services and damages international competitiveness. The transfer of wealth from those who make many long distance calls to those who make few such calls may not be as progressive as it first appears as the correlation between call spend and income may be weak, for example immigrant communities tend to have high calling rates but often have little wealth. Finally, artificially high call costs in liberalised markets encourages excessive entry and investment in the long distance market.

In order to maintain unbalanced prices in liberalised markets, Access Deficit Contribution (ADC) schemes have been introduced in a number of markets, either explicitly or implicitly by setting interconnection costs artificially high. From the regulators' point of view, ADC schemes are an attempt to "level the playing field" encouraging competition based on efficiency rather than regulatory arbitrage. From the incumbents' point of view ADC schemes compensate for any reduction in the internal cross subsidy from call services to access services caused by a loss of market share. Typically ADC schemes put a surcharge on interconnection charges charged by the incumbent operators to competing operators, with the ADC calculated by dividing the total Access Deficit by the number of "relevant" minutes.

ADC regimes suffer from a number of implementation problems. The first problem is ensuring competitive neutrality by ensuring that ADCs are only levied on services which truly compete with the incumbent operator's services. For example mobile services are likely to partly substitute fixed services and partly complement fixed services and thus it is not clear whether ADCs should be levied on mobile operators. A related problem is ensuring that the level of Access Deficit Contribution on services provided by competitors reflects the internal cross subsidy generated by a similar service provided by the incumbent. For example the incumbent may fund proportionately more of the Access Deficit from international calls than domestic calls, but it may be difficult to differentiate such calls at the point of interconnection and hence charge accordingly.

However the biggest failing of ADCs is the incentives they provide incentives to bypass the incumbent's network altogether, which in the long run makes the incumbent's position unsustainable. The best solution is to remove the cause of the problem, unbalanced prices, rather than attempt to shore up a policy which no longer makes sense.

Universal Service Policy Looking Forwards

While the objective of providing affordable access to the telephony network has been largely met by mobile operators, other universal service objectives remain such as ensuring universal availability or access to the telephony network. In addition new objectives have emerged, such as providing access to the Internet. Thus universal service policy still needs to develop and to evolve.

The first step in developing appropriate policy is to define and review reasonable medium term objectives for universal service. These objectives need to take account of the social and economic situation of each country. In wealthier countries where narrowband voice services are available universally, universal service going forwards could be defined as the availability in every home broadband Internet access as well as voice services. While less wealthy countries may have similar aspirations, objectives will need to be realistic such universal access in every community to voice and Internet access.

Universal service policy should be neutral with respect to both the technology used for access and the universal service provider or providers but should aim to ensure that the universal service objectives are met at the lowest costs.

As noted above, mobile networks have certain cost advantages because they are shared access networks. However a shared access network means that the incremental cost of traffic in a mobile network is conversely higher than for a traditional fixed network, as increased traffic will require additional capacity in the access network. This contrasts with the fixed wire line networks, where the access network is not generally traffic sensitive. These different cost characteristics means that mobile networks have lower costs for individual customers who generate small amounts of traffic and for areas where traffic density is low, while traditional wire line networks are more efficient where individual call rates and the density of traffic are high. Thus the lowest cost method of providing universal service may be a mix of mobile and fixed wire-line networks.

In developed markets the market is likely to continue to develop with fixed wire line networks being used for broadband Internet access and for high volume voice users, with mobile networks being competitive for low voice only users and of course providing mobility. While there will be increasing substitution of fixed voice and data by mobile voice and data, the cost advantages of fixed networks for higher traffic users should ensure their continued relevance. In developing countries, mobile operators may be the only access providers in some areas with access via VSAT and wireless local loop also playing a part in providing universal access.

Administering and funding universal service will continue to be complex, and may grow more complex as a range of operators play an active part in providing universal service. However, with the removal of the need to subsidise a large proportions of the customer base for reasons of affordability, the net cost of universal service of universal service should be manageable if universal service objectives are set sensibly and are met efficiently. Universal service funding exercise should aim to provide incentives for genuine roll out of networks to those customers who would not be reached otherwise. Contributions to the fund, either monetary or "in kind", should be set so that the competitive equilibrium is maintained and that the net effect on end users is progressive, with subsidies flowing to the most disadvantaged social groups.

By concentrating on the issues that really matter, ensuring maximum access and availability to telephony and the Internet, governments have an opportunity to increase economic and social welfare. However to meet these objectives, regulators need to recast universal service objectives to reflect competitive, liberalised markets, removing outdated access price regulations that only serve to distort the market.

About the Author

Martin Duckworth is a Director of Coleago Consulting Ltd. Martin's areas of expertise include regulatory analysis, business planning and modelling and market analysis.

Martin has worked since 1995 in the field of telecommunications regulation, first as an employee of OFTEL and since 1998 as a consultant. Martin has worked for both regulators and operators offering advice on retail price controls, interconnection negotiation, regulatory cost accounting and price regulation of mobile call termination. Martin couples real experience of the impact of regulation on business planning to a sound understanding of the theoretical economic and legal aspects of regulation. Having worked on both sides of the regulatory debate, Martin can bring a complete view of the regulatory negotiations to bear, thus ensuring a rapid and advantageous resolution to disputes.

Martin is currently based in Spain, having previously worked in Brussels, Luxembourg and London. Martin graduated from Cambridge University with an Honours degree in Mathematics. Following this he worked in public administration, with spells at the European Commission and OFTEL before moving into consultancy.

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