

Relaxing Frequency Regulation – Opportunity or Threat?

Planning for frequency auctions of Digital Dividend and 2.5 GHz

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Three trends suffuse the advanced communications markets today: mobile connections contribute to most of the growth caused by the growing popularity of broadband internet; the shift of media usage towards uncontrolled channels might jeopardise the traditional broadcasting business; as a result of the above, regulators favour technology neutrality and auctions in frequency management.

Some regulators have already awarded the 2.5 GHz band as well as part of Digital Dividend band to mobile broadband players. Also, further reductions in TV broadcasting frequencies in favour of mobile broadband services are being discussed. New frequencies may lead to fundamental changes in the mobile markets, as with them new operators can gain as good a footprint and capacity as the existing ones.

This development helps the newcomers become worthy adversaries for the existing players. It also contributes to oligopolistic markets evolving into competitive ones. Therefore, all players in a specific market can have a lot to win, but the existing players may also end up losers due to increased competition.

It is imperative that operators pay considerably more attention to their business planning of the new potential frequencies. Omnitele has developed a professional methodology to carry out a valuation of the different frequency bands by estimating the market development and analysing which of the various frequency options available would offer the optimal solution to satisfy the demand.

Introduction

Regulators throughout Europe and elsewhere are switching from rigid technology-oriented and government-led spectrum allocation to technology neutral and market driven allocation. This is due to the regulators recognising the importance of universally available broadband internet access to national development and competitiveness. Regulators' toolbox includes liberalisation of spectrum from other uses to mobile services and re-allocation of existing mobile frequencies in a more flexible manner. The most attractive new frequencies are available at 2.5 GHz and the so called digital dividend at 800 MHz. The key motivation for policy revisions are rapid technology development and especially the huge success of mobile broadband.

Demand for broadband is soaring...

Broadband has been a great success worldwide with household penetrations ranging from 50 - 70% in Western Europe to 95% in South Korea. The major technological trends now evident are switch from copper to fibre in fixed access and rapid development of mobile broadband. In many countries mobile broadband contributes the most to overall increase in subscriber figures while fixed broadband advances with technological shift from xDSL and/or cable to different flavours of fibre access.

We have every reason to believe that the recent increase in broadband demand is only the beginning. The rigid and controlled media distribution, including linear TV, newspapers and radio, are giving way to uncontrolled services of social media, peer-to-peer content delivery and various different forms of user-generated content. Since people want to be unchained from predetermined program schedules, broadcasting

may gradually be replaced by IP delivery over broadband access. People spend more and more time online which increases demand for high-quality broadband with always-on access and with mobility as an asset. The more time people spend on YouTube and other online media, the more valuable broadband access becomes. It is a critical link between content and consumers.

... and regulators are relaxing

As a response to rapid technological development and telecom's substantial contribution to information society, regulators are switching from rigid technology-oriented and government-led spectrum allocation to technology neutral and market driven allocation. The key objective is to allocate frequencies to uses where they are of highest value to consumers; mobile broadband has already proven its value.

As part of policy revisions, 2.5 GHz band (total of 190 MHz) has been awarded to mobile broadband in several countries including Norway, Sweden, Hong Kong and Finland – all of whom awarded frequencies by an auction. More auctions will follow this year; plans are ready for example in Germany, the Netherlands and Denmark.

Part of Digital Dividend (namely 790 – 862 MHz) has already been allocated to mobile broadband in countries like Sweden, Germany and Finland. The German watchdog has already taken decisive steps to auction this frequency. Many other regulators will follow after the completion of digital switchover of terrestrial TV. These initiatives alone provide mobile operators with 262 MHz of fresh frequencies to boost development of mobile broadband.

In addition, further reductions in TV broadcasting frequencies in favour of mobile services are

possible (see Fig. 1 below); the topic is under discussions throughout Europe and this possibility was recently indicated by Finland's Minister of Communications.

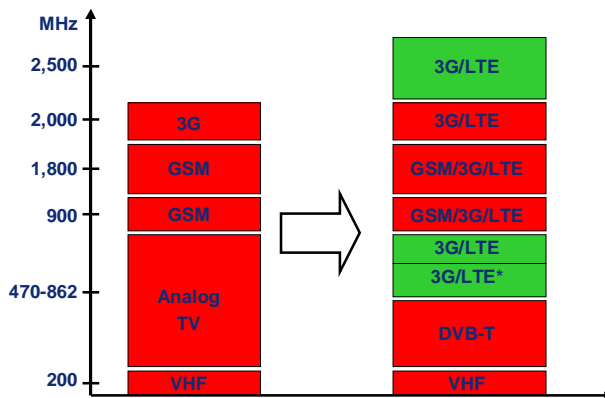


Figure 1. Digital dividend, 2.5 GHz and refarming provide ample opportunities. (*Assumes further reductions in DVB-T: 700 – 790 MHz.)

New frequency policies cover existing mobile frequencies as well. For example GSM- and 3G-specific frequencies will be made technology neutral, allowing operators to optimise their technology portfolios and frequency usage. In short, revision of frequency policies provides an outstanding opportunity to boost mobile broadband markets.

LTE offers attractive service options...

Many modern HSPA networks utilise 2 x 5 MHz frequency bands and are able to provide 2 – 4 Mbit/s average user data rates. The user data rates with future advanced HSPA technologies are expected to settle around 5-8Mbps. LTE's bandwidth range from 1.4 to 2 x 20 MHz and hence LTE is well suited to capitalise the full potential of abovementioned new frequencies from day one; based on Omnitele's simulations LTE 2x20 MHz will provide average user data rates of 20 – 25 Mbit/s.

Lower frequencies of Digital Dividend mean substantial increase in cell ranges and make LTE at those frequencies an attractive option in fulfilling operators' universal service obligations outside city centres and in rural areas. This is complemented by frequencies at 2.5 GHz that give an extra capacity boost in densely populated areas.

... but new frequencies come with a cost

The regulator with its new policies may be seen as friend or as foe depending on the market position of the operator. While new frequencies mean expansion of service capabilities, they may lead to fundamental changes in the market. First, auctions give newcomers an opportunity to compete for frequencies. Second, amount of new frequencies is big enough for newcomers to get in equal footing with existing operators. Finally, frequencies at 700 – 900 MHz are among the most attractive ones, from service coverage perspective.

For both a newcomer and an established operator, auction fee is an upfront cost. It is likely irreversible and must be set and paid by the bidder prior to launching services. In addition, an established operator faces the threat of increasing competition. Failure to acquire new frequencies means a loss of bargaining power, gives advantage to a competitor and may finally convert oligopolistic market to a competitive one. In short, new frequencies come with a cost.

After frequency auctions both established players and newcomers may find themselves in a highly competitive market with decreasing margins. This emphasises the need for careful valuation of future mobile business

So what?

It is imperative that operators pay close attention to their business planning and modelling. They need to calculate the business case of winning the new spectrum as well as that of losing the spectrum to the competition. This is the only way to prepare for the changing business environment. Omnitele has developed a methodology for the

valuation of new frequency bands for an operator. We master the technical and the financial skills to estimate market demand development and the performance potential of the frequency band & related technology solutions to satisfy the demand. In short, we can tell an operator whether and how much to invest in a new frequency band.

About Omnitele

Omnitele Ltd. is a pioneer within the wireless industry with twenty years of leading edge network and business consulting experience worldwide. Omnitele was founded in 1988 to set up the first GSM operator in the world and is owned by Finnish national telecom operators and an external investor. Omnitele's strengths lie in mobile network planning and development, technical consulting and operator business development. We aim to increase and improve overall operator performance and quality of services, and we thrive to provide best solutions for deploying new technologies. Omnitele mobile broadband strategy consultancy services include analyses with realistic technology simulations and well educated terminal penetration and data traffic modelling. Combined with the key economical inputs, Omnitele has created a leading edge model for mobile broadband profitability analysis.

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