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Spectrum allocation for emergency services in the UK and Europe: An open set of questions to be researched

Blog Editor



In light of the upcoming changes that we may foresee in spectrum allocation, **Silvia Elaluf-Calderwood, Jonathan Liebenau** and **Patrik Karrberg** *outline key questions on spectrum allocation for emergency services in the UK and Europe.*

The ITU World Radio communication Conference 2012 (WRC-12) has decided on a mobile service allocation in the 700 MHz band, below and adjacent to the 800 MHz band, to be effective immediately after the next World Radio Communication Conference 2015 (WRC-15). The effects of 700MHz allocation has led to intensive discussions regarding the future use of the band to provide the most value to European citizens. The main alternatives for the 700MHz band utilisation seem to be shared or dedicated spectrum for emergency services, mobile broadband, and/or digital terrestrial television services. There is an inherent challenge in comparing these alternatives due to the difference in tangible commercial value of future business and tax revenue versus the intangible social value of effective emergency services. Across the globe, a wrestle for spectrum is taking place based on various analyses of the need and value of dedicated spectrum for the emergency services (Australia, Sweden [1], Germany, and the USA are all relevant comparatives to the UK context).

One prelude to this question, focusing on the regulatory inhibitors to resilient networks, was addressed already in two papers by Jonathan Liebenau ten years ago:

- 2004 (with J. Alleman), “Network resilience and its regulatory inhibitors” in Erik Bohlin, Stanford Levin, Nakil Sung and Chang-Ho Yoon (eds.), *Global Economy and Digital Society* New York: Elsevier

- 2003 “Emergency communications; lessons from the World Trade Center disaster” in Michael Noll, *Communications on September 11th 2001* New York: Taylor & Francis.

The first of these address the problems of the rules of the market in the US and asks which unintended consequences of market liberalization inhibit resilience. The second addresses the business conditions that were revealed by the destruction of the World Trade Center in New York.

The varied view of spectrum allocation could be illustrated by the two cases of Germany and the US: The German government commissioned a report for Public Protection and Disaster Relief (PPDR) in Germany, Europe, and worldwide (Wik-Consult, 2010) recommending 25MHz of dedicated spectrum for emergency services (15MHz uplink + 10 MHz downlink) on a frequency below 1GHz. The report further outlined policy options for European harmonisation. The FCC in the US instead set its 2007 target on a shared spectrum policy, which is currently under review: “The PSBL (Public Safety Broadband License) and the upper D block commercial licensee will form a public safety/private partnership to develop a shared, nationwide interoperable network for both commercial and public safety users.”

The recent auction of 4G airwaves in the UK highlights the issues around the sustainable use of spectrum in the UK telecommunications sector (OFCOM, 2013). In the case of emergency services, the diversity of equipment, working practices and expectation of services delivery (e.g. 999 calls, national emergency plans, etc.) imply a non-homogenous set of policies for determining what actually comprise the infrastructure in use. This raises many questions about how it is affected by governance and regulation, the space for new services, and the delivery as required by users.

A number of issues arise in regard to the future policies for allocation in the 700MHz bandwidth in the UK and its effects on service provisioning (e.g. TETRA) for emergency services (Motorola, 2008).

Key questions

- How does the social value of spectrum become a function of actual service provisioning?
- How can it be estimated the commercial value of alternative usage (mobile broadband and terrestrial TV services) beyond a spectrum auction?
- What are the strengths and shortcomings in the current UK policies seen from the view of sustainable technology (future proofing; avoiding near-future adjustments to chosen policy)?
- What prioritised areas for UK emergency service provision should we focus on?

- Which conceptual requirements for alternative spectrum policies can be identified and modelled?
- What error margins and sensitivity can we achieve in the economic modelling given the above limitations?

Our interest is in both the direct social effects of mobile applications and the indirect environmental implications. The most interesting element of any analysis in this area will be the interaction of the social with the market policies vs. security policies and the principles of the Communications Act (2003) on further interests of citizens and the consumers and to secure the optional use of spectrum.

Notes

[1] During 2013 the Swedish Post and Telecom Authority will produce and communicate a long-term strategy plan for spectrum allocation, how to "buy out" existing users of spectrum, to analyse the societal value of different spectrum strategies, and how to allocate spectrum in a competition-neutral way.

References

Motorola (2008). Ensuring Resilience and Availability in a TETRA System – Key steps to help ensure critical communication networks are 'always available' – Position Paper, Motorola: 8.

OFCOM (2013). United Kingdom Frequency Allocation Table 2013– Issue No 17. London, UK, OFCOM: 280.

UK-Government (2003). Communications Act 2003 – Chapter 21. London, UK, UK Government: 610.

Wik-Consult (2010), PPDR Spectrum Harmonisation in Germany, Europe and Globally, Study on behalf of the German Federal Ministry of Economics and Technology (BMWi).

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