

The Strategic Review of Business Radio

The UK economy needs business radio. What are we doing to make sure there is enough radio spectrum?

The UK needs trade, transport, electricity, gas, water, security, police, fire, ambulance, enterprise, local services, builders, petrol, chemicals, healthcare, and a host of other services. These use professional radio communications systems in their day to day operations, their safety arrangements, disaster recovery and the efficient delivery of their prime functions. In many cases there is no substitute. The UK needs professional radio today and more so in the future and certain access to radio spectrum to deliver the benefits.

This report is based on the FCS Survey of the Business Radio industry and its users - the high level conclusions are:

1. The value to the UK of the use of professional radio is very large.
2. Professional radio is not easily substituted by other schemes
3. New technologies have been introduced to combat the spectrum congestion problems and to meet enhanced user demands
4. There is a strong expectation of future growth if key issues can be resolved
5. A Strategic Review based on the wider public interest in 2010 is strongly supported
6. Flexible regulation will be needed for the future to ensure the UK is well positioned to enjoy the benefits of the new efficiencies and improved safety schemes.
7. Regulation and spectrum management through market mechanisms is not considered applicable to professional uses
A new, directed, management approach may be necessary

The use of professional radio in the UK has a very long and stable history of delivering value to the operations of important users who provide all these essential components of our society. Typically, a user will deploy a privately owned and controlled professional radio communications system that permits them unlimited communications within the system, excellent reliability, robust equipment, very quick access to the communications channel and (very importantly) a suite of features that are specifically tailored to meet their operational needs and even the safety of the life of their teams. A typical example of a feature would be the ability to call a whole team, all at once, and share a conversation.

These are not characteristics common in commercial public networks. The difference is not just the design of the handsets, it is the whole approach to communications. The entire system architecture, the spectrum resource provisioning to handle very high traffic loads at unpredictable peak times like when incidents happen, the calling mechanism and many other key parameters are all completely different.

The UK Needs Professional Radio

The professional radio system is best considered as an essential tool necessary to the user for the achievement of some unrelated prime objective. There are many examples of use, such as:

- Underground trains need professional radio for safety, it is an actual rule since the bombings of 7/7. **So no radio means no underground trains can run.** The same situation exists for the bus transport services.
- **UK ports require professional radio** to be available for safety reasons when handling containers. Again, were there to be no professional radios available, this vital work would simply stop.

- The operators of **tower cranes on building sites** are guided by colleagues at the location using professional radio. Without this teamwork the crane could not function (professional radio is often also required for site safety).

- **Traffic police** are guided to accidents quickly and efficiently using professional radio. Without their rapid attendance at these incidents to control the traffic, there would be further casualties as other vehicles crash into accidents that have recently happened. In fact,



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the entire operation of all the emergency services is facilitated by professional radio communications.

- **Security services** are key users of professional radio. They use them as critical support for their patrol staff in a very wide range of environments. They use professional radio in shops, office premises, at events, industrial parks and also at critical installations.

What are we doing to protect the interests of the emergency services, and our national interests, when it comes to allocating spectrum for them?

- Lord Lucas, House of Lords debate on the Digital Economy Bill, 8 February 2010

The containment of disruption at Ratcliffe power station is a recent example. With the rise in priority of nuclear power generation this will become even more important. It is one thing to have protesters at a coal-fired station and quite another to have them gaining control of a nuclear power station.

The UK needs professional radio. The benefits it provides both in economic terms and in terms of the public interest are vast.

Our Changing Business

The pressures on business performance and operational efficiency across a wide range of services are greater than ever before. To compete in the global arena the UK must become even more efficient. Operational effectiveness is obviously a prime factor in this drive and professional radio has adapted to meet these new challenges.

Huge investments have been made by the supply community and now there are new technological approaches that will transform the benefits that can be achieved through professional radio communications. Professional Radio has gone high-tech digital - it is part of the Digital Economy.

Technology can now offer regulators the chance to double the voice and message traffic capability of the available radio spectrum thus doubling the number of entities able to get service compared to today. Users can access more valuable feature sets through the provision of a wide and ever-growing group of applications running on host hardware. A whole **new applications industry** is being created. This could provide UK users with significant efficiency gains and deeper operational integration. It is all very positive and the future looks very bright.

How Can We Make Sure It Happens?

These new systems can provide facilities and usage modes that are very different to anything before. They allow new combinations of equipment that will achieve operational benefits in complex ways.

There are difficulties with the current regulation of this sector that might place constraints on the amount of benefit deliverable by these new schemes. There are also spectrum shortages which, if left unaddressed, certainly will limit the application of these new approaches.

Whilst there are many challenges, **of prime importance is the access to the necessary radio spectrum**. Without this being resolved both now and for the future, the benefits of digital technology to the users cannot be delivered.

This danger is well understood and it is time for a Strategic Review of the regulation and spectrum management of Business Radio.

A Strategic Review

Professional radio is regulated and controlled in the UK by Ofcom within their Private Business Systems Group. Policy is directed by The Department of Business, Innovation and Skills (BIS). Other Government Departments such as the Home Office and DECC are affected. Considerable technical skill is required to properly regulate and manage the spectrum of professional radio.

The Business Radio sector deserves a comprehensive review. The radio spectrum and the method by which it is assigned to professional radio users is very important. The FCS is keen that spectrum for Business Radio is going to be used for the greatest public interest. In view of the fact that the digital technology is new and provided by competing suppliers, industry would seek neutral regulation, not favouring any particular approach. There are also important topics that need to be addressed related to international harmonisation to achieve the necessary scale economies.

The FCS therefore strongly supports the proposal to have a **Strategic Review in 2010** and also would propose that it be conducted under the direction of BIS using the wider public interest as the key criteria.

The Industry View

Industry is keen to contribute to the Strategic Review. In order to provide a coherent set of proposals and views in support of the Review, FCS conducted research amongst the Business Radio membership in April 2010. The businesses questioned included manufacturers, dealers, suppliers and users representing approximately half of the relevant licence-data base held by Ofcom, a significant representation of the total industry.

The Key findings are presented in Fig.1 below and are presented as % of respondents:

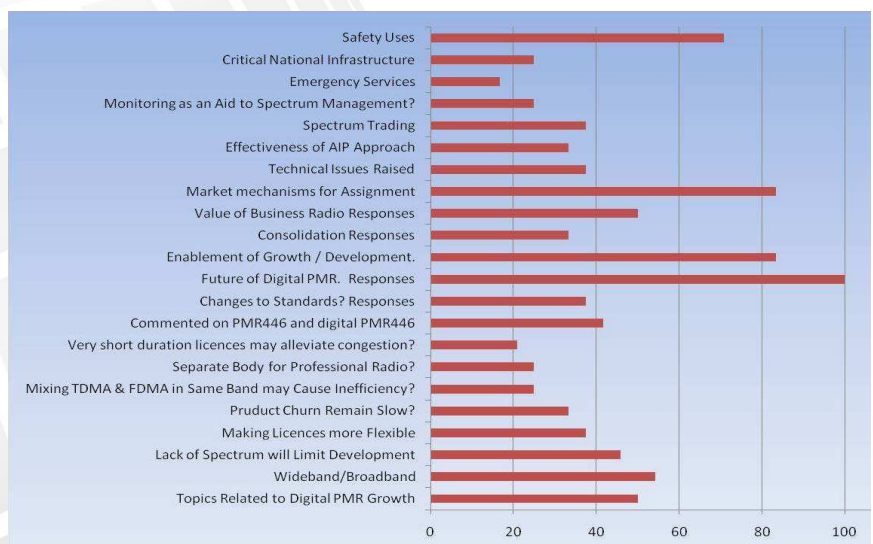


Fig.1

From Fig.1 it is clear that the entire membership is interested in the **future of digital technologies**. It is interesting that this is apart from the more predictable interest in the topics related to the growth of their business through new digital technologies (which was also high). Next in priority are the growth and development of the sector, concerns over the use of market mechanisms to assign spectrum and the provision of applications related to safety. Interestingly, potential wideband and broadband uses also scored highly.

It was possible to identify some recurring themes in the responses. Many respondents returned again and again to these even if the topic under discussion at the time was something else. Fig.2 (below) demonstrates the percentage of the total comments received about these themes (subtracting responses to the relevant questions).

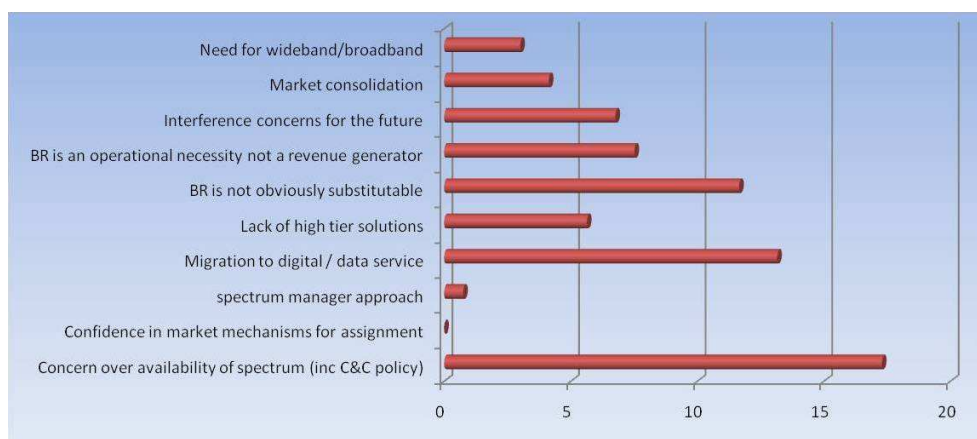


Fig.2

Concerns over the **availability of spectrum** are quite widespread. There was an understandable concern over exactly how the sector will **migrate to the new digital technologies**.

There were specific concerns over how to adequately communicate that **business radio is not easily substituted with other technologies** or procedures.

Understandably, many comments were received about the new technologies not yet having a full portfolio of products covering the entire market requirement.

In the very low-tier markets, such as PMR 446, it was generally agreed that overall growth would be low or perhaps modest (5 to 10%) over the next five to ten years.

However, opinion was divided over the extent to which the new digital technologies would compensate for the decline in analogue sales.

In the higher-tier markets there was much more confidence over the growth. As expected, the respondents were enthusiastic about these new developments. The research explored what impediments to success were foreseen. In broad terms the responses can be classed into three types of impediments to growth.

Many respondents considered that there may be market pressures that will result in some degree of consolidation within the value chain (see Fig.3). These could be from either dominance of particular entities through various mechanisms or simply because of changes to how the market may behave in the future with the rise in managed service contracts.

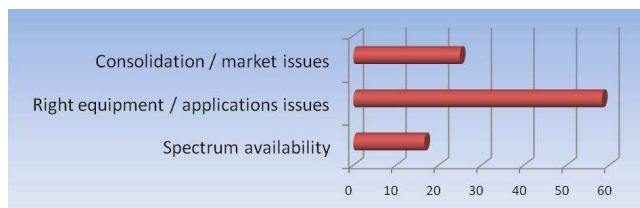


Fig.3

The respondents had concerns whether all the right equipment would be available in a timely manner.

Over 90% of comments on spectrum cited the lack of channels to be a limiting factor. However, in the context of business radio market growth, the respondents noted that one key growth area would be to existing customers who wish to upgrade. Spectrum is not an

immediate problem to them.

Professional mobile data was considered a very large opportunity for the future by many but 80% of respondents indicated that it would remain a very varied market with completely different solutions continuing to be required. This is obviously a complex area.

Respondents were asked their view on overall churn rates (see Fig.4). Compared to other topics, there was less agreement over this. On balance, the view was that "yes", churn rates will remain slow over the next 5 to 10 years. However, it was generally agreed that by the end of the period analogue systems would have been largely changed out.

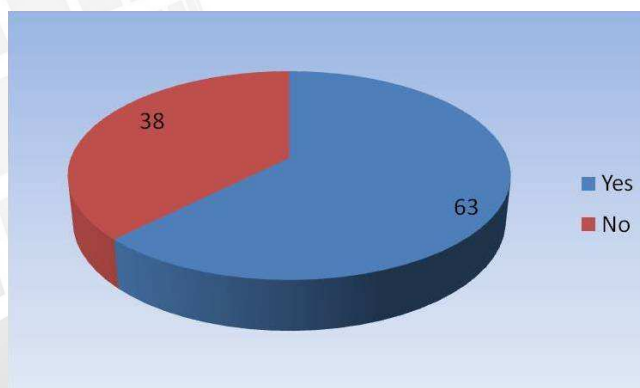


Fig.4

Some technical considerations were investigated. Respondents were asked if mixing the technologies together would cause technical problems. The respondents indicated that this will be a problem if permitted but, as it should not be permitted, there should be no such problem seen. In other words, the response indicated an expectation that spectrum management processes would have to be applied to avoid this issue.

Questions were asked on future licensing processes. It was generally agreed that there will have to be a flexible licence approach because the technology direction is not yet set. Neither are there clear indications of the future needs of the users.

Respondents were asked their view on changes to the licensing regime (see Fig.5). While there was a minority view that no alterations are needed most said there will have to be a change but were not clear what the change would be. Others indicated that a large portfolio of licences could be created allowing the applicant to choose one. Some sought licences that could be created for a specific purpose. More radically, some respondents indicated it may be time to simplify licences drastically and address just interference protection.

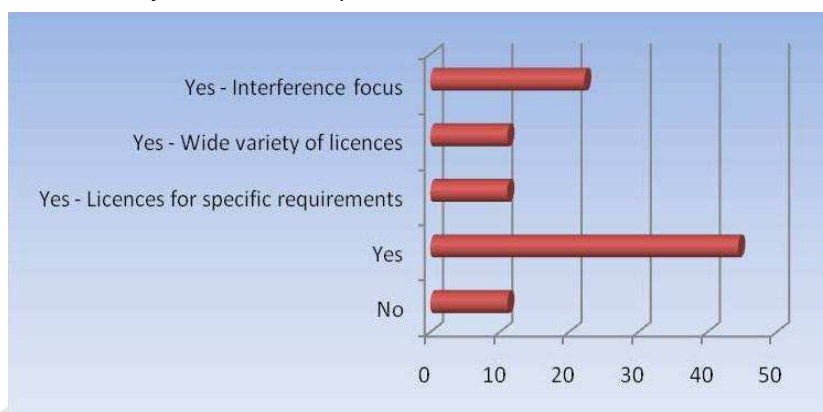


Fig.5

Some respondents proposed very short duration licences to cover the immediate needs. However, 60% of responses on this subject indicated no expectation of a significant improvement by this means.

The **availability of spectrum** was a key topic for respondents. 100% of respondents who commented on monitoring wanted it used to locate under-utilised spectrum.

The use of market mechanisms and the overall economic approach or regulation was a matter of concern for nearly all respondents. There was **little confidence that the use of market mechanisms for spectrum assignment** was applicable to professional systems because the users have little choice over how much spectrum they use.

Furthermore, there can be little visibility of the value of spectrum when it is treated as an essential tool necessary for achieving a different prime goal.

The case of the 2012 Olympics was considered a good example because it shows that when the public interest is at stake, market mechanisms are not relied upon.

Several respondents interested in critical national infrastructure and the emergency services stressed they have future needs for spectrum already identified. Others indicated that they have difficulty in replacing older equipment because they cannot transition. In addition, they cannot include better facilities because that would generate traffic beyond their current spectrum's capability.

When asked for proposals for a future regime (see Fig.6), all respondents preferred command & control assignment methods to a market approach. Taking into account the full range of topics uncovered by the research, **the FCS propose a new approach: Nationally Managed Radiocommunications**. This would be a 'directed' approach that was guided by principles of the public interest. It was recognised that having two radically different approaches might present Ofcom with serious difficulties and so it was proposed that it may be helpful to have the **Ofcom Private Business Systems Group** relocated into a different area, perhaps even under direct control of the Government. The creation of a sub-group of the **UKSSC** to look after professional spectrum was also proposed.

Some respondents considered that changes to Ofcom may be possible that would meet these needs. However, the majority considered that Ofcom's current policy approach was very suitable for commercial networks but **not applicable to professional uses** and it could be problematic for a single body to have completely different approaches depending on the utilisation. There was no support for continuing to apply market mechanisms to professional radio.

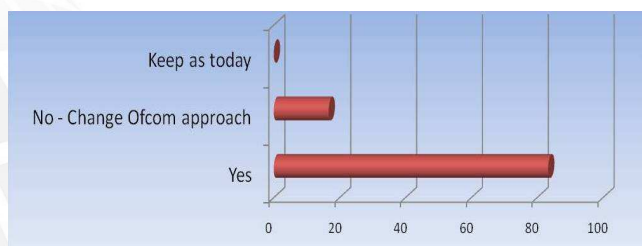


Fig.6

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