



About the author:

Matthew Cleevely is an expert in innovation and regulation. He was commissioned by Ofcom to author “The role of Ofcom in encouraging innovation”, and has worked at Ofcom on spectrum policy and management. He is currently completing a project with DIUS on how the UK regulators can encourage innovation in policy. He has also been a consultant to the spectrum monitoring company CRFS ltd, and worked for a Parliamentary Task Force on small business policy. He can be contacted by email: matthew.contact@cleevely.co.uk

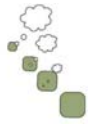
Aim:

This paper is a response to the MoD’s “UK Defence Spectrum Management, A Consultation on: An Implementation Plan for Reform”.

I fully support the MoD’s approach in releasing spectrum to the market as regards questions 1-6. This paper looks at the potential formation of a third party band manager (TPBM) and as such is related to questions 7-12 in the consultation.

Motive:

My interest and expertise lie in innovation, regulation, spectrum and technology. This is a significant strategic opportunity for the MoD to shape the future market for spectrum, and I am anxious that it adopts an approach which avoids short term tactical thinking and maximises the benefits both for UK defence and to UK plc in the medium to long run.



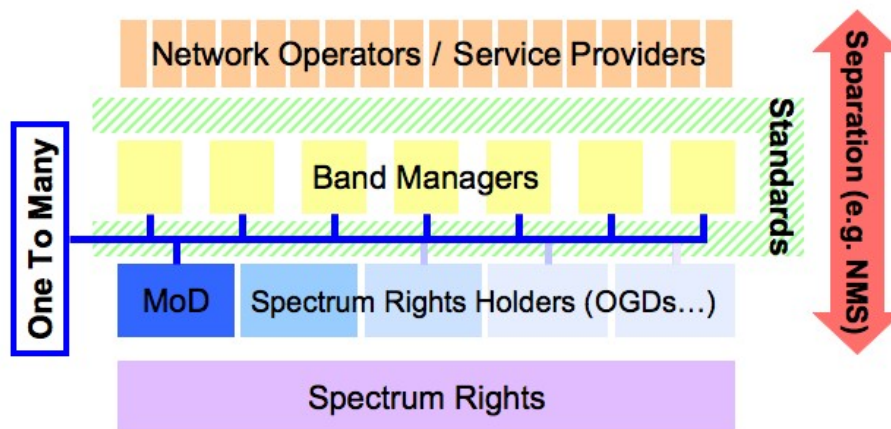
Suggested Approach:

The role of the MoD will be pivotal in shaping the future spectrum market’s structure. This consultation represents a unique opportunity for the MoD to shape the way band managers interact with the public sector and, as a result, the whole of the UK market for radio spectrum. The MoD needs to ensure that the platform that emerges from its approach is as competitive, efficient and innovative as possible.

Such a platform should allow third party band managers (TPBMs) to compete for business with the MoD, other government departments (OGDs) and the private sector. Open competition between these TPBMs will provide incentives for process and efficiency improvements, innovation and specialisation that will maximise the MoD, public sector and wider UK plc gains from the commercialisation of spectrum access.

The central issue is, therefore, how this competitive market in spectrum management can be created. Such a market would require three components that are not explicit in its existing consultation, each of which is discussed below:

1. **Standards:** Defining a set of standards and interfaces which define the roles and actions of a TPBM and its interactions with other parties.
2. **One to many contracts:** Allowing the MoD to use more than one TPBM.
3. **Separation:** Separating out the activities of TPBMs to reduce barriers to entry (e.g. monitoring).

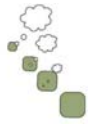


1. Standards

The MoD should use the process of setting up a TPBM to develop a set of standards and interfaces that define the role of a TPBM and its interaction with market and the spectrum rights holder(s). These standards and interfaces should be made as available to the industry and OGDs as soon as possible. This information would ensure the structure of the market is clear and that the majority of costs in defining TPBM contacts would only have to be paid for once, and that all contracts across government (and possibly the private sector) would be similar in form to the MoD’s.

Importantly, standards and interfaces would allow TPBMs to compete for business on an equal basis as they reduce barriers to trade with the MoD and increase certainty. Additionally, OGDs would benefit from reduced cost and risk from contracting out spectrum management.

Reducing the cost and risk of contracting out for OGDs would have the added benefit of encouraging them to release more spectrum to the market sooner, and in a manner which the MoD can shape. By



encouraging greater participation in the market, the spectrum market itself should gain scale, enabling it to support a greater number of commercial entities, and a higher level of competition and innovation.

By setting these standards and interfaces and making them available, the MoD can create an open and contestable market for the provision of third party band management services for itself and the industry. This will nurture an innovative ecosystem of spectrum market participants, and ensure the MoD's best practice is adopted across the industry.

2. One to many contracts

Competition is the driving force of innovation and efficiency in all markets. The MoD must use contracting to generate as much competition for TPBM services for the spectrum it releases as the market can sustain. It is therefore essential that, in the medium to long run, the MoD can use more than TPBM to provide spectrum services for any spectrum release.

If the MoD contracts with only one TPBM then it risks foregoing the cost and efficiency benefits of competition and – more importantly in the longer run – will not generate specialisation and innovation. The MoD should make sure that it has the ability to contract with more than one TPBM from the start, and that the market expects them to do so.

At first it may not be feasible to contract with more than one TPBM as the spectrum will be initially released in relatively small amounts. However, the MoD can ensure that its chosen TPBM has a continued incentive to remain competitive and develop a competitive TPBM market by doing the following:

- allowing other third parties to tender for MoD and other government spectrum management business in the future
- having relatively short contracts (these would be more feasible if spectrum monitoring and band management are separated)
- allowing different TPBMs based on geography, frequency and service

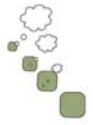
If the MoD uses different service providers for different spectrum holdings this will encourage competition for its own contracts. This competition will ensure the TPBM remains competitive and could lead to specialisation and innovation in spectrum trading from which the MoD can gain. Continued competition across all public sector spectrum would then encourage specialisation and innovation from other government departments and the private sector, including equipment manufacturers and service and application providers. This will result in a more efficient and innovative spectrum management ecosystem.

3. Separation

Making the TPBM market as competitive as possible requires both the minimum feasible scale, and the sunk costs (such as major investments) of any independent band manager to be as small as possible. The MoD should, where possible, separate out roles of the TPBM to reduce the minimum efficient scale, sunk costs and barriers to entry to the TPBM market.

Separation also allows the creation of platforms for competition. By separating the roles of the TPBM in the market the MoD can create new competitive interfaces on which firms can compete and innovate. These platforms can be established and encouraged through the use of standards (previous section).

One example of how separation can encourage more open competition is the requirement that the band manager does not have commercial interests further upstream in the spectrum market (for example



owning spectrum itself). Such a vertically integrated firm would obviously create a significant conflict of interest, or an undesirable position of market dominance in the spectrum supply or use.

Spectrum monitoring is another example where separation is important. A spectrum monitoring network is required to provide system and countrywide knowledge of spectrum usage. Spectrum monitoring can be used to ensure the enforceability of contracts, to increase the information about the spectrum environment available to buyers, and to give security to those providing the spectrum. If a spectrum monitoring network is not separated from the TPBM function then this will significantly reduce the scope for competition.

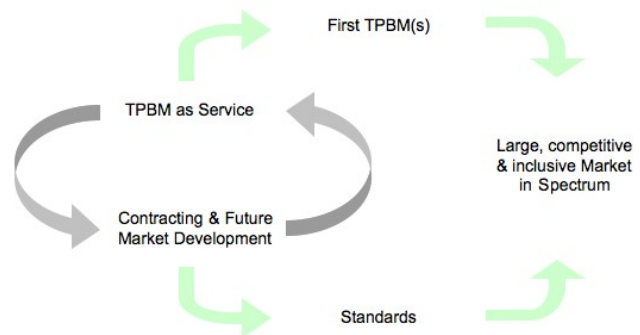
Separation of platforms enables each service to explore fully its commercial opportunities and to innovate. In the case of a monitoring system, the information such a system produces would be valuable to a wide range of bodies. It could be used to inform operators of their network environment, to providing an audit of spectrum assets, and allow efficient planning of spectrum use. A vertically integrated band manager which monitors the spectrum would have little incentive to explore these potentially revenue generating services, and furthermore would not be able to spread the cost of its services across its customers or with partners. In a vertically separated market (that is, where the monitoring is separate from band management) there are strong incentives to commercially exploit this information, to innovate and to spread cost and risk with partners (such as Ofcom, OGDs and the private sector).

Separating layers in the value chain can create new platforms for competition and innovation, and spread the cost of investment amongst other market participants, and should be a major consideration in the formation of TPBMs and in defining their interaction with the MoD. The MoD should use contracting and standards to enforce this separation.

Suggested Actions

The MoD has a unique opportunity to shape the market for radio spectrum and ensure that it can gain fully from spectrum liberalisation. This would require the MoD to augment the implementation plan to include a separate work stream that focuses on contract development and future spectrum management.

This work stream would utilise two processes; one focused on development of the *TPBM as a Service*, and the other for the establishment of *Contracting Standards and Future Market Operation*. The objective of these two processes would be to use separation, one-to-many contracts and standards in the creation of the first TPBMs and the standards that define their operation and interaction with spectrum holders, thus defining the framework for the spectrum market.



TPBM as a Service:

This work is already being undertaken by the MoD. The ideas presented in this paper suggest the approach should include the following additional considerations:

1. Ensure that monitoring, TPBM and spectrum services are not provided by the same firm (separation)



2. Look for potential partnerships to deploy better national monitoring systems to support spectrum markets (e.g. Ofcom)
3. Ensure that the MoD can contract with more than one TPBM, and that the market expects them to do so as the market develops and further spectrum is released
4. Develop and adopt standards and interfaces for establishing and interacting with TPBMs.

Contracting and Future Market Development:

The purpose of this work would be threefold:

1. To look forward, through research and consultation, at potential future spectrum market scenarios and consider their impact on current policy.
2. To take part in the formation of TPBM(s) and use research and consultation to provide future-proof feedback for contracting (e.g. competitive considerations).
3. To use the MoD's growing experience, and in conjunction with relevant third parties, build a set of standards and interfaces for TPBMs so that many third parties can compete efficiently for business from the MoD, other government departments and other spectrum holders..

This work would feed into the formation of the first TPBM, and may involve the engagement of partners for collaboration such as Ofcom, OFT, IET, and OGDs.

Summary

There are three key differences presented here compared to the framework suggested in the MoD consultation. These differences arise because it is necessary to encourage efficiency, competition and innovation to a greater degree than is suggested in the consultation document. These differences may be summarised as:

1. Open standards & certification
2. One to many contracting
3. Separation of platforms

These considerations can be included in the MoD's approach by creating a separate work stream that focuses on contract development and future spectrum management issues and which interacts directly with the MoD's formation of a TPBM.

The MoD has a unique strategic opportunity to shape the future of spectrum markets. It is vital that it adopts a dynamically efficient competitive platform that encourages participation in spectrum markets by OGDs, and innovation and efficiency in third party band management. Given that the use of radio spectrum worth £40 billion a year to the UK economy, the value of adopting this policy could be very significant, both in terms of additional efficiency and – perhaps most importantly – in innovation for defence and the creation of new economic activity for UK plc.