Wireless Internet Service Provider Association of Australia Inc

WISPAU

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Response to the ACMA

"Future use of the 3.6 GHz band"
consultation package
August 2017
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Executive Summary - dynamic managment of a scarce resource

WISPAU is an association of Wireless Internet Service Providers predominantly providing broadband services to Regional Australia. As a group we service in excess of 200,000 regional Australians. We provide the collective knowledge of geographically dispersed and statistically disparate organisations of technical SME's that have been established and operated over the history of the Internet. The Objectives of the Association are:

- To provide broad-based representation of the Australian Wireless ISP industry, both nationally and internationally.
- To enable the direction, measuring and reporting of overall industry strategies for consumer, government and industry stakeholders
- To broaden public understanding and enhance public regard and confidence in the Wireless ISP Industry.
- To provide a forum for members on technical and regulatory issues pertaining to the provision of complex wireless internet systems.

The government has sought feedback on the ACMA proposal to re-farm the 3.6Ghz spectrum potentially to a sole provider. WISPAU outlines herein the product of discussions with the ACMA, ACCC, Department of Communications, Telstra, Defence and the State Rail Authorities about the need and benefit of a shared spectrum model. The use of spectrum and delivery of internet services in regional Australia is very different to those of the capital cities. In Regional Australia, funds and infrastructure (towers) are limited. Larger carriers are challenged to create a business case to place infrastructure in regional Australia unless it is highly subsidised by government.

The ACMA preferred option may reap a short-term windfall for government by selling a national licence in the band but we believe the end-result will be even poorer services for residents, businesses and farmers in the bush and in coastal areas, loss of neutral host 5G towers, the eventual private sale of the spectrum to wealthy unknown offshore shareholders and a reduction of business opportunities, economic growth and STEM jobs in the regional towns. Further implications include potential national security and sovereign resource issues, unemployment and market disruptions in regional Australia.

WISPAU has recently held many constructive technical, commercial and policy discussions with Government and other industry leaders and believes we have garnered significant support such as to warrant adopting WISPAU's alternative approach.

WISPAU as the industry stakeholder representative proposes that the Government adopt a dynamic spectrum licensing model focussed on Regional Australia, utilising a blend of successful best-practice elements of the current Australian, European and US shared-spectrum models. WISPAU proposes rolling out a pilot program developing and testing this model.

The pilot program would be a joint venture between Government, Telcos like Telstra and WISPAU carriers located in country and coastal Australia, which can provide the pilot project access to a group servicing over 200,000 customers. We propose committing 5000 CPE sites. This needs to occur sooner rather than later.

Why ?

A Definition of the problem

There are limited spectrum licenses to assign.

- This stifles innovation
- Restricts commonwealth revenue
- Creates a national security risk by monopoly acquisition

The Value Proposition

There are many spectrum licenses assignments which

- Encourages innovation
- Increases Commonwealth revenue
- Minimises the national security risk

Dynamic Spectrum License Management (DSLM)

The challenges and welcome nature of a transformational change.
We need to work with a limited resource - Spectrum

Systems that have been engineered to rule out any but deterministic behaviours are necessarily limited by the prescribed behaviours, and do not extend well into unplanned environments. This is the challenge we need to address.

We seek to create a system that can be engineered to have sufficient adaptability to operate well in a changing environment, responding to change in appropriate and effective ways. This system will be complex, and provide a welcome kind of variety that can help control different dimensions and enable the system to adapt to environmental change.

Complex license management systems, not limited to the 3.6GHz spectrum, will perpetually generate novelty. Many key variables are opaque, boundaries are indeterminate, and weak ties can have a disproportionate effect on system behaviour. Duality will be common: tension between large and small, distributed and central, agile and planned calls for perpetual seeking of balance. In short, complex license management systems are different.

The goal is a system that would continue to meet the need even if a number of current conditions change.

What is our Environment?

- Competitive tensions exist - driving this project by ACMA.
- Regional ISP's have created significant and effective infrastructure, without government funding and in the face of government initiatives to overbuild their networks.
- The development of regional Australia is proceeding without government assistance and with a customer driven mandate.
- The business case drivers for development in regional areas now exist independently of metro drivers.
- Mission critical broadband requirements in regional Australia are being served by this spectrum, where the opportunity exists.
- An expanding neutral host capacity has been developed.

What is the threat that regional Australia faces from the prescribed approach?

From data models as evidenced by 2.3GHz, 2.5Ghz, 700Mhz license models, If the 3.6GHz spectrum is reallocated to exclusive license models:

- Enforcement will assure that the actual spectrum will lay abandoned in regional Australia.
- Regional commercial innovation will cease in this band.
- Privately funded commercial regional infrastructure will become worthless.
- The impact on longer term government revenue will be negative.
- The commercial impact on regional businesses dependent upon communications will be negative.
- The risk to national sovereignty and security is compounded.
- The removal of neutral host capacity will create new blackspots.

What are we proposing ?

An immediate start to a pilot project to test and customise the International sharing models. This will release huge wireless broad band resources for Regional Australia, as well as allowing planning certainty for Australia's major carriers in metro areas.

Appendix A describes a Concept of Operations for this pilot.

The association requests that the Australian government bodies work together with industry, to implement the transformational changes required to empower a smart nation.

Thank you for the opportunity to contribute to the discussion, we respectfully submit our arguments for your consideration.

Michael Parnell
President

WISPAU Comments to Specific Questions.
Highest value use and market mechanisms.

ACMA View: *This analysis indicates that the highest value use of the band has (or will soon) move to wide-area broadband deployments (notably fixed/mobile broadband) in metro and regional areas. As always, this analysis and its conclusions depend on a number of assumptions. Broadly speaking, the conclusion holds if the value placed on the band by new users is above the minimum valuation in the ACMA's valuation range, and incumbents can continue to deliver their services via other means, such as alternative spectrum options (different bands or geographic locations) or different platforms (for example, fibre).*

WISPAU Comment: The 3.6Ghz band is currently allocated to and being used for wide area broadband and communications services delivery to communities and regional areas either underserved or not served by the NBN. The industry will naturally evolve towards standards based technology including 5G.

Some operators have begun to use 5G technology to achieve this although planning and investment decisions have now been forestalled by the uncertainty caused by the inappropriate (in our opinion) embargo and the current ACMA re-farming process.

WISPAU acknowledges there is opportunity and certainly demand for more extensive use of the band by the large Telcos, now it has been identified as an ISM 5G global band.

However, we assert that the proposal to clear the band to make way for them is precipitous and unfair and is responding to pressure by the major Telcos - despite the lengthy timeline before the 5G standard is promulgated. The preferred proposal is not strategic. It can be construed as market manipulation.

We note that even Telstra suggest a 10 year clearance timeline for regional incumbents and a reliance on normal market mechanisms should the larger carriers require acquisition prior to the final clearance deadline. The ACMA suggests only 7 years. We contend there is no requirement for a 'drop dead' date for WISPs - the market is capable of resolving the issue whilst preserving valuable businesses, jobs and services in regional Australia.

We emphasise that historically all previous spectrum licences have been renewed 'in the public interest' - including an unused block of spectrum to support railway communications. Attempts to suggest that apparatus licences are inherently 'temporary' are disingenuous and at odds with the claims made by ACMA when the 3.6Ghz band was released for Wireless Broadband services some ten years ago.

At that time our members invested significantly in purchasing 3.6Ghz apparatus licenses on an annual renewal basis with legitimate expectation that these license types would be regularly renewed if compliance conditions were met.

Incumbent purchasers at that time clearly acquired implied rights to ongoing use and enjoyment of these 3.6Ghz BWA apparatus licenses. Drawing on this historical implied application of inherent rights, regardless of licence type, we consider that implementation of perpetual licences are now most appropriate for the current WISP incumbents.

Market mechanisms can be implemented to ensure a clean transition when that spectrum is required in a particular area for another use. Indeed, the new Communications legislation envisages a single license type in the future - WISPs could be forgiven for a healthy cynicism

about the timing that seeks to institute this clearance prior to the promulgation of the new legislation – legislation which will better entrench their tenure security.

In summary : The current concept of wide area spectrum licences, under which Australian spectrum management has laboured for nearly 30 years is old and arguably lazy thinking and is ripe for change. A tipping point has been reached. As a finite resource the need for a flexible and dynamic sharing system is inevitable – this band proposal, coupled with the long lead time for 5G standards presents as an ideal opportunity to seize and implement transformational change.

The irony is that where communications are sparse such as in the regional areas, spectrum is underutilised but 'locked up' in national tranches. The current model does not reflect the increasing need to share spectrum to enable regionally focused providers and does not utilise the modern tools and techniques available to enable this.

The national spectrum licence model also adopts a non-strategic 'single user' view of highest value use. We assert that a multi user model delivering services to all areas in a region, including those where 5G mobile will not be economically viable, is in fact a higher value use. It should not be just about the demands of the large Telcos or auction windfalls to government.

The global regulatory approach is increasingly addressing and adopting sharing methodologies and it is vital Australia similarly embraces this approach. Suggestions that the regulatory regime already allows for this are not reflected by reality – small operators have minuscule if any leverage to negotiate once licences have been sold off to big Carriers. There needs to be actual and philosophical transformational change.

Comments on the ACMA Preferred Option.

The ACMA's preferred option *is to establish arrangements optimised for wide-area broadband deployments (be they mobile or fixed) over the entire 125 MHz of the 3.6 GHz band available in metro and regional areas. The expected licensing regime under this approach would be spectrum licences allocated via auction.*

WISPAU does not have objections to auctions per se. However their use as a general principle under a rather dated auction model reflecting economics and technologies of 30 years ago needs to be revisited.

The current model assumes 'single user' spectrum spaces which global administration models have moved on from and which is specifically ill suited to the lop sided density of the Australian continent which has an aggregation of population in a small number of metropolitan centres.

Aside from being outdated, albeit administratively 'easy' or 'simple', the auction process is an inefficient use of a finite public resource. It artificially and anti-competitively discriminates against small businesses in favour of large carriers and prohibits start-ups entering the market.

Economically it denies regional customers and businesses end user access to the niche high grade services we provide – predominantly in areas where 5G mobile services under the traditional carrier population density model will not be viable.

It is an outdated paradigm which results in poor spectrum management, artificial resource scarcity and loss of service and employment in regional areas. It is our strong position that a tipping point for change has arrived and a true rethink of how spectrum is made accessible is required.

Where dissimilar services are collocated modern coordination tools can make best use of the spectrum space. The availability of these tools, especially to well-resourced large carriers, means that in many cases the services could continue to exist and operate side by side for many years to come.

Where the tools are unable to achieve coordination some technical changes could be negotiated to ensure continuing compatibility.

Where no coordination is possible then a simple market untainted by artificial regulatory intervention will be able to solve the problem.

However as WISPs move to new technologies, including potential convergence to 5G services, as many were contemplating prior to the ACMA 3.6Ghz re-farming process, these similar – and very smart - systems can be readily coordinated through the use of suites of codes that have sufficient discrimination to allow both services to operate in a co-located environment.

To encourage and enable these innovative solutions, particularly in the regions, the ACMA must not involve itself in the market by setting artificial limits on the tenure of WISPs. We contend that ACMA involvement at this level is detrimental to the industry, to competition, the economy and to modern spectrum management.

Mitigation opportunities for incumbents under the preferred ACMA option include:

> *An extended re-allocation period (transition period) of seven (7) years for all incumbents. While spectrum licences would commence well before the end of this period, existing apparatus-licensed users could, at their discretion, continue to operate (and be protected) throughout this period, though no new assignments would be issued. Spectrum licensees would be required to afford protection to incumbent apparatus licences during the re-allocation period. At the end of the re-allocation period, all apparatus licences would be cancelled. Apparatus licensees would also be free to negotiate with any spectrum licensees in the area to continue operating their services after the end of the re-allocation period. This could be facilitated under third-party access arrangements and requires no intervention by the ACMA.*

As previously argued WISPAU holds that there should be no artificial constraint on licence tenure and licences should be renewed until transferred or cancelled by the incumbent WISP. This is a true market at work.

> *Establishment of site-based, coordinated apparatus licensing arrangements for point-to-multipoint services in the 5610–5650 MHz band initially in regional and remote areas, with future consideration for release in metropolitan areas. Existing 3.6 GHz licensees would initially be invited to apply for and obtain 'like-for-like' licences in the band. An ACMA policy commitment would be made stating its intention not to vary these arrangements to the detriment of licensees prior to the end of 2028.*

WISPAU supports such arrangements with the caveat that the RALI process is not ideally suited or really able to take into account the ability of modern technologies to share or to acknowledge the new and effective tools available to operators to conduct site-by-site collaborative coordination.

> *Excluding the area immediately surrounding the earth station facility at Uralla, New South Wales (represented by the HCIS identifier NU7K4) from being re-allocated for the issue of spectrum licences. This would enable the facility to continue operating under existing apparatus licence arrangements. Suitable coordination criteria would also be developed so spectrum licensees can manage interference into the earth station receivers operated at the site. However, it is important to note that the long-term viability of this site for earth station use cannot be guaranteed. This is due to the increasing interest in using the broader 3400–3800 MHz band for the delivery of mobile broadband services and the earth*

station facility being located reasonably close to significant population centres (Armidale and Tamworth). As such, this facility may be required to relocate to another location, such as one of the identified earth station protection zones, in the future.

WISPAU supports the ongoing protection of high value civil and defence assets provided the coordination distances are realistic and do not represent over conservative protection demands.

WISPAU comments on ACMA's view on sharing.

> *In identifying this preferred option, the ACMA has given thought to the possibility of using some form of ongoing spectrum-sharing in the band (including the use of dynamic spectrum access approaches). Some incumbents have suggested various sharing arrangements as a potential way to allow wide-area fixed and mobile broadband deployments in the 3.6 GHz band by new users, while simultaneously allowing incumbent site-based point-to-multipoint users to continue to operate. A key concept advocated by proponents is that of allowing point-to-multipoint users to continue to operate (and expand services) in areas until the 'main' spectrum user wishes to deploy in that area.*
>
> *The ACMA has carefully considered whether practical sharing models could be implemented within the existing legislative framework, which would meet the requirements of both aspirant wide-area broadband network users and incumbent (and aspirant) point-to-multipoint users alike. Its view is that in areas where demand for 3.6 GHz spectrum is likely to exceed supply, practical sharing models will not provide the required certainty of long-term access to wide-area broadband users while simultaneously offering the desired certainty to current and new point-to-multipoint users that they state is required. This is because in practice the sharing models contemplated are based on hierarchical access rights—with lower tiers of users having to 'give way' to higher tier users (which could be incumbent or new licensees). The approach currently proposed of providing an extended re-allocation period (during which incumbents retain 'primary' rights), along with identifying alternative spectrum for future deployments, is likely to be the better approach.*

WISPAU strongly disagrees with this view. Our model 'pipes' a large quotient of data into a small area such as the towns in the Snowy Mountains. This is then reticulated within the communities using 3.6 GHz. Provided a large carrier does not wish to deliver services there in 3.6 GHz (noting the multiple other bands available for sparse area delivery) and given the terrain, we submit sharing is indeed viable in many if not most areas.

The ACMA not having flexible models currently in its toolkit is not a good argument. As mentioned previously we believe the paucity of accessible spectrum in regional areas represents a tipping point for change.

Unfortunately the argument above implies the ACMA is either unable or unwilling to contemplate modern flexible spectrum management and spectrum market techniques. It is not appropriate for the concept of sharing a finite resource to be consigned so readily to a 'too hard basket'.

WISPAU response to specific questions by ACMA.

1. Should the 3.6 GHz band be progressed from the preliminary replanning stage to the re-farming stage in the ACMA's process for considering additional spectrum for MBB services? Why/Why not?

No – for the following reasons:

- The current estimation of highest value use is biased by;
- a preference to use the existing dated spectrum licensing system
- a preference for large single user lots
- an assumption that the overall economic value of WISP services in regions is low compared to 5G services which are unlikely to be seen in the regions for a decade or more
- The current engineering assumptions are also flawed and are not evidence based.

We hold the view that many, if not most WISP services will be able to be coordinated with 5G services and where this cannot be achieved, there are options to make technical changes, use 5G for WISP services, or for a true market to function where the carrier determines buying out the WISP's access is the economically effective solution. This economically and technically efficient process can only happen if all the settings are right. Currently because of regulatory, system and large carrier bias the ACMA's proposed settings are not right and consequently re-farming this band should not proceed at this time. Smarter thinking must prevail.

2. Do the areas identified in this analysis cover the likely areas of high demand for access to the 3.6 GHz band? Would smaller or larger areas be more appropriate? Why?

The areas appear designed to suit the large carrier's pre conceptions of market density population based models. WISPs operate more sophisticated and regionally relevant business models based on capacity, quality and service levels.

WiSPAU submits that DSLM is a model that values regional economic and social development. WISPs typically reinvest earnings into expanding their regional networks, enhancing their product set, and maintaining affordability. These nascent and innovative business models should be encouraged to ensure continued regional economic and social development. What is relevant is an assumption the WISPs must clear out – how is this assumption evidence based?

3. If any part of the 3.6 GHz band is re-allocated for the issue of spectrum licences is seven years a suitable re-allocation period? If not, what period of time would be appropriate?

No, A reallocation period is neither required nor appropriate.
WISPAU supports only the investigation and implementation of a Dynamic Spectrum Licensing System.

4. Should different re-allocation periods be considered for different areas? For example, should a longer period be considered for services outside Area 1?

We do not believe that differentiation is appropriate, further investigation into a Dynamic Spectrum Licensing System is required prior to any decisions being made.

5. Are these guidelines appropriate? Why?

> To the extent possible, define geographical borders in areas of low demand.

No these guidelines are not correct. The guidelines assume a big carrier population based model and is accordingly inherently biased.

We are not in a position to define population densities that would be viable for 5G deployments; the ACMA could possibly look to the 2500 MHz spectrum to get a good indication. In areas where 2500 MHz is not rolled out now it is likely that 5G would be rolled out by regional ISPS using neutral host models.

> *To the extent possible, define geographical areas that are large enough to minimise potential co-channel interference issues when deploying services in areas of high demand.*

This is not an issue that affects WISPs.

> *Consider allocating spectrum licences simultaneously across the entire area in which spectrum licensing is considered the most appropriate longer term outcome, even if the rollout of services is likely to commence in some areas first.*

This requires further research. The proposed pilot could address this issue.

6. Are there any other issues that affect the usability of an area-wide licence that should be taken into account when defining the licence area?

Incumbent WISP licences should be identified as the cost of coordination or commercial acquisition should be taken into account.

7. If point-to-point licences are affected by replanning activities in the 3.6 GHz band, are the options identified for point-to-point licences suitable? Are there any alternative options that should be considered?

Point to Point systems in 3.6 GHz do not generally service business end users or of themselves support significant employment in the regions so the options are appropriate.

8. Is the 5.6 GHz band a viable option for wireless broadband systems?

We have significant doubts although we recognise ACMAs efforts in attempting to find a 'home' albeit a less than optimal one, for dislocated 3.6 Point to Multi Point operators. Given an operating radius of 256 km, what protection levels will be afforded to BoM radars? Even for 12dB protection during advection ducting events this suggests a coordination distance exceeding 1000km.

Some issues:

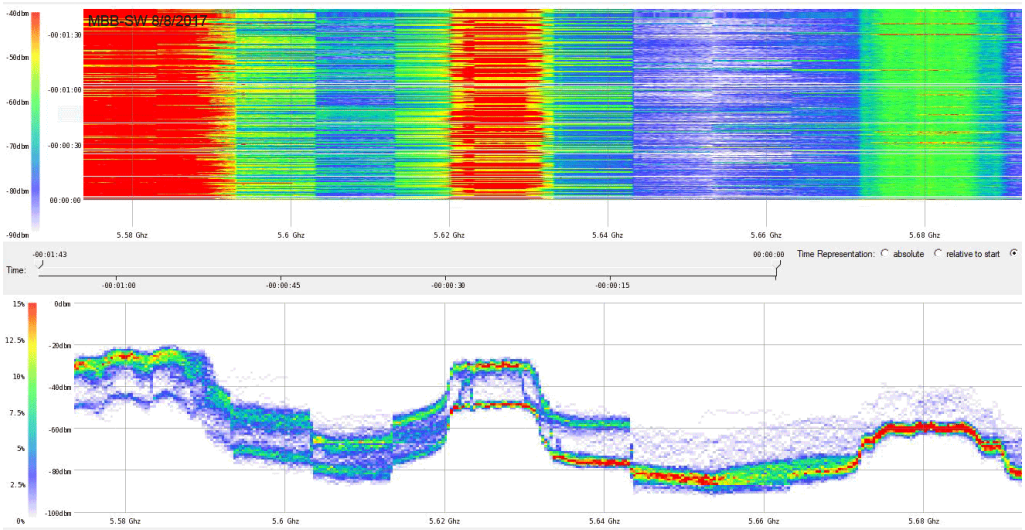
1. There are currently a large number of devices currently operating in this band that have no right to do so. Off the shelf consumer devices can easily be configured to operate in this

part of the ISM band, also with the advent of multiple channel bonding using IEEE 802.11ac there is already a large number of rlans encroaching into this spectrum space.

2. Insufficient frequency allocation, the two 20Mhz channels that are being offered, with multiple operators at a single transmission site, two assignments would be insufficient for multiple operators at one or nearby locations.
3. No Guard band, insufficient space between assignments to help manage adjacent channel interference between rlans.
4. DFS, The requirement of DFS operation will not allow us to offer carrier grade services using 5.6ghz.
5. What filters are fitted to BoM radars? Could they live with a closely located WISP base station in a near adjacent band?
6. Is the proposed 5.6 allocation actually unused? Anecdotally we are aware that it has increasingly been used as an overflow and that international equipment has not been engineered to automatically negate operation in the band nominated.
7. Propagation characteristics are also poorer than the 3.6Ghz band.

These questions need to be answered before this process progresses.

A band from 4000 – 4200 MHz would be more appropriate.



This is a spectral scan conducted from a TasmaNet point of presence in the Hobart CBD from one of our access points operating in the 5.8Ghz ISM band. Clearly showing high power Rlans already operating in this space.

9. Under what circumstances should apparatus- and class-licensed arrangements be considered for the 5.6 GHz band?

This band is not suitable for carrier grade services as mentioned above.

10. If apparatus licensing arrangements are developed for wireless broadband systems in the 5.6 GHz band, are the notional arrangements proposed in Appendix 3 suitable?

This band is not suitable for carrier grade services as mentioned above.

11. If point-to-multipoint licences are affected by replanning activities in the 3.6 GHz band, are the alternative options identified suitable? Are there any alternative options that should be considered?

It is difficult to determine what the ACMA means by Point to Multi point. Is 5G not a form of P-MP? Do NBN not use 4G as a P-MP solution? If by P-MP the ACMA mean wireless broadband delivery which means WISPs, then no, we do not believe enough work has been done to establish if 5.6 GHz is viable - nor do we believe a mandated clearance is in fact necessary provided the market is allowed to work.

12. The ACMA seeks comment on the suitability of the current west coast earth station protection zone located near Mingenew, WA, for long-term satellite service use. Are the current regulatory arrangements effective?

WISPAU has no comment – this is not within our area of expertise.

13. In the event FSS earth stations are affected by replanning activities in the 3.6 GHz band, the ACMA seeks comment on:

a. Any issues surrounding the development and establishment of an east coast earth station protection zone; particularly on what factors would be necessary to make it an attractive option for earth station operations.

WISPAU has no comment, this is not within our area of expertise.

b. Whether there are any views on potential candidate locations to consider.

WISPAU has no comment, this is not within our area of expertise.

c. Whether there should there be more than one earth station protection zone on the east and west coasts of Australia.

WISPAU has no comment, this is not within our area of expertise.

d. If the identification of a central Australia earth station zone should be considered.

WISPAU has no comment, this is not within our area of expertise.

14. Are the approaches for amateurs, radiolocation services, class licensed devices and TVRO systems suitable?

No comment.

15. Are there any other options for incumbent services, not identified in this paper, which should be considered?

No comment.

16. Should any of the sharing arrangements discussed in this section be considered for implementation in the 3.6 GHz band? Why or why not?

WISPAU supports the establishment of Dynamic Spectrum License Management.
The Pilot as described in Appendix A supplies a Roadmap implementing transformational change.

17. Are there any other sharing arrangements that should be considered?

The pilot, as described in Appendix A will allow testing of variations, identification of key variables and stakeholder capabilities. This is in itself a difficult and complex project. It is too early to accept or displace candidate arrangements.

18. Are there any other replanning options that should be considered?

Since 2012 the FCC has been working on the Citizens Broadband Radio Service (CBRS) which is a Dynamic Spectrum License Management (DSLM) system, this will actively facilitate a tiered and dynamic approach to spectrum management.

19. Which replanning option should be implemented in the band? Why?

WISPAU supports only the investigation and implementation of a Dynamic Spectrum Licensing System.

20. In the event an area-wide licensing option is implemented, in which of the defined areas (that is, Area 1, 2, 3 and Australia-wide as defined in Appendix 6) should these arrangements be implemented? Are the current area definitions appropriate? If not, what area should be defined?

The pilot, as described in Appendix A will allow testing of variations, identification of key variables and stakeholder capabilities. This is in itself a difficult and complex project. It is too early to accept or displace area based arrangements.

21. If Option 4a is implemented, what frequencies and areas should be re-allocated for the issue of spectrum licences? How much spectrum should remain subject to site-based apparatus licensing arrangements? Should different amounts be considered in different areas?

In order to enable sustainability for one WISP in any area, 40 MHz of spectrum should be excised from any spectrum licence including metropolitan areas. In most areas there are two or more WISPs operating suggesting up to 120 MHz should be set aside or alternate arrangements that encourage sharing be developed.

22. If Option 4b is implemented, what frequencies and areas (that is, incumbent apparatus licence services) should remain subject to site-based apparatus licensing arrangements?

Our preferred approach is the DSLM proposal with the roadmap outlined in Annexure A. This will lead to the highest value being derived from the band and not result in massive regional job losses.

We note that the proposed new Act allows for perpetual licences as a general principle and trust the ACMA is not accelerating this process, intentionally or otherwise to forestall that outcome.

In clearing incumbents the ACMA risks damaging the market as it is likely many WISPs will be unwilling or unable to enter this secondary spectrum market. As a consequence the ACMA through its actions will damage both the economy and regional employment.

23. Comment is sought on the ACMA's preferred option (Option 3c) for the 3.6 GHz band.

This option is based on a 30 year old licensing model, favours a single operator and will damage the economies of regional Australian towns. This model is not appropriate to modern Australia, is inefficient and will only deliver value from a single use which we note has not been 'devalued' by the cost in the ACMA estimates. It is effectively selling market share and inherently anti-competitive.

It is essential that ACMA be prepared to enable incumbents to remain in the band, by co-ordinating and negotiating and sharing with the putative new Carrier entrants or the proposed model will harm the regions.

The current and arguably antiquated concept of spectrum licensing and auctions is well past its use by date and should be discontinued. A tipping point has been reached. The ACMA should work with industry to develop a new model that does not need to resort to the 'slash and burn' clearance of incumbent services.

The DSLM will foster a healthy spectrum market, something the ACMA mantra supports. Now is an opportunity to activate the principles into action. It is no surprise that a severely limited spectrum market includes swathes of unused but inaccessible spectrum particularly in the regions. The current outdated approach permits a very small number of large users to express a wish to acquire a certain band and then simply wait until the ACMA clears it for them. History confirms this.

Nowhere else in a developed market economy does such an arbitrary and draconian measure apply and WISPAU believes it is no longer appropriate to employ these techniques while the holdings of a few get larger at the expense of small businesses.

Appendix A

WISPAU proposes that a pilot project be commissioned to facilitate the transitional changes required under a controlled environment.

The pilot will address the following:

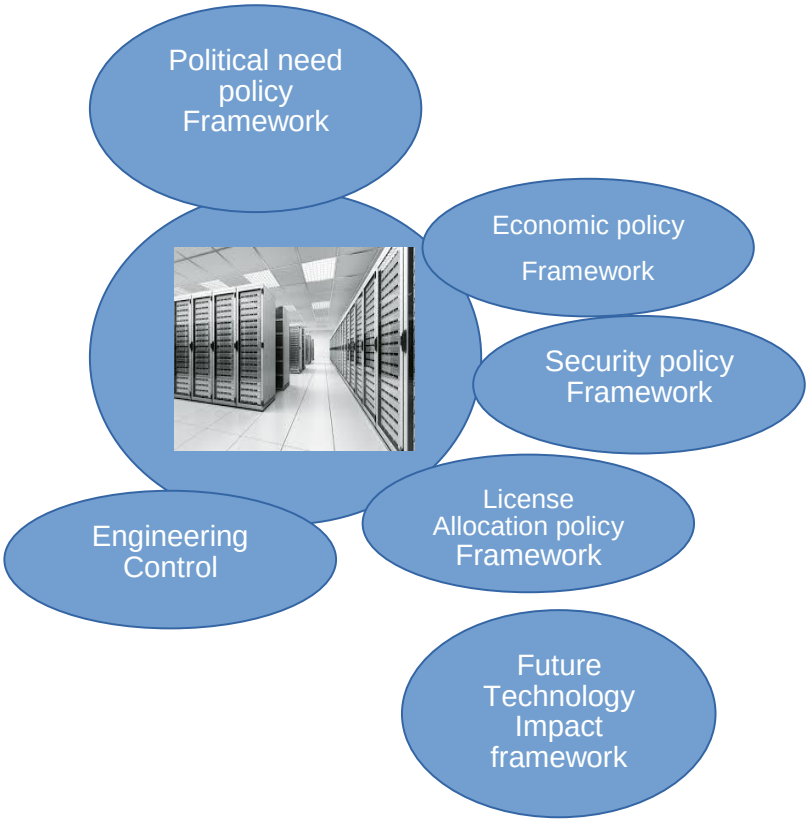
- Political needs
- Economic Impact
- License Allocation Framework
- Engineering Requirements

We have proposed a roadmap to facilitate the transformational changes required.

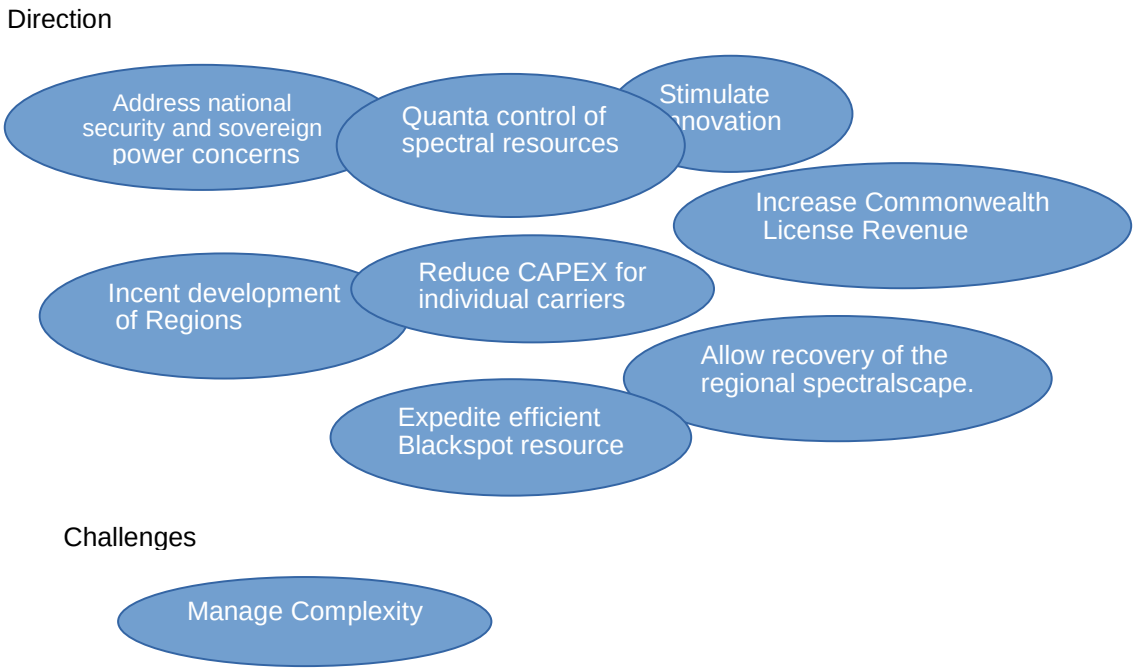
Software Controlled Radio Assets Radios

Authorised Users

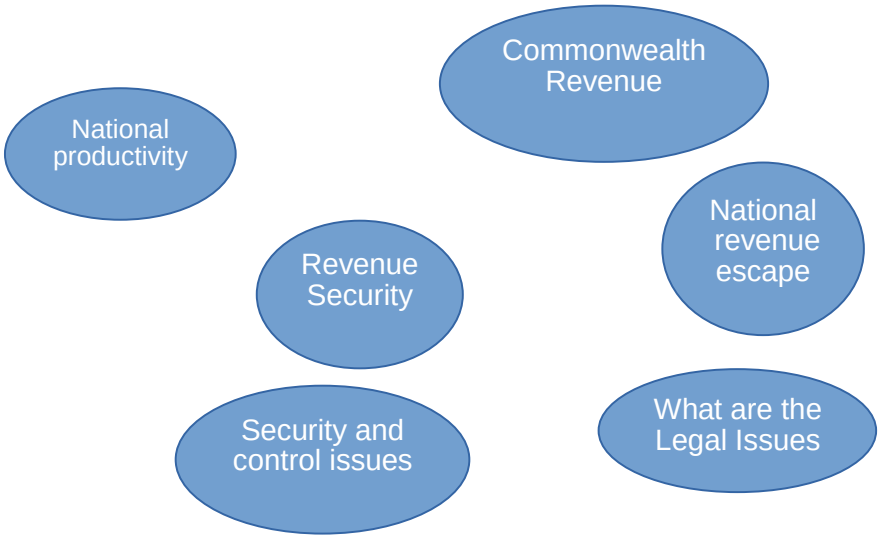
Other users



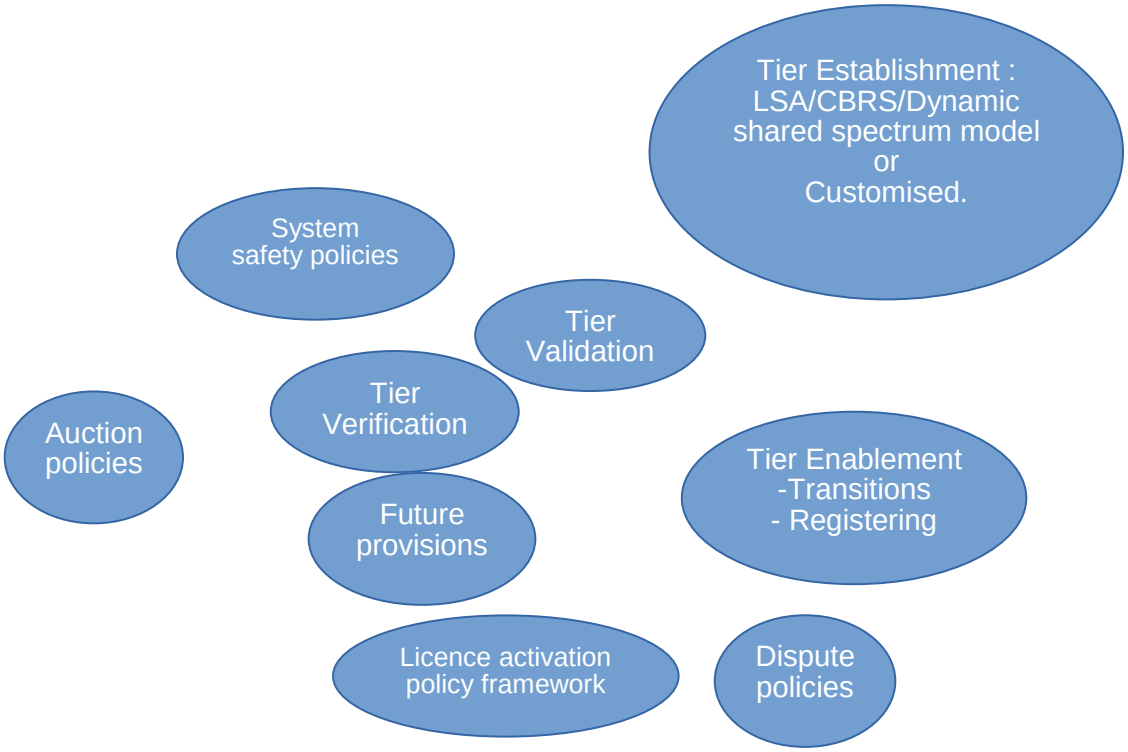
Political Need



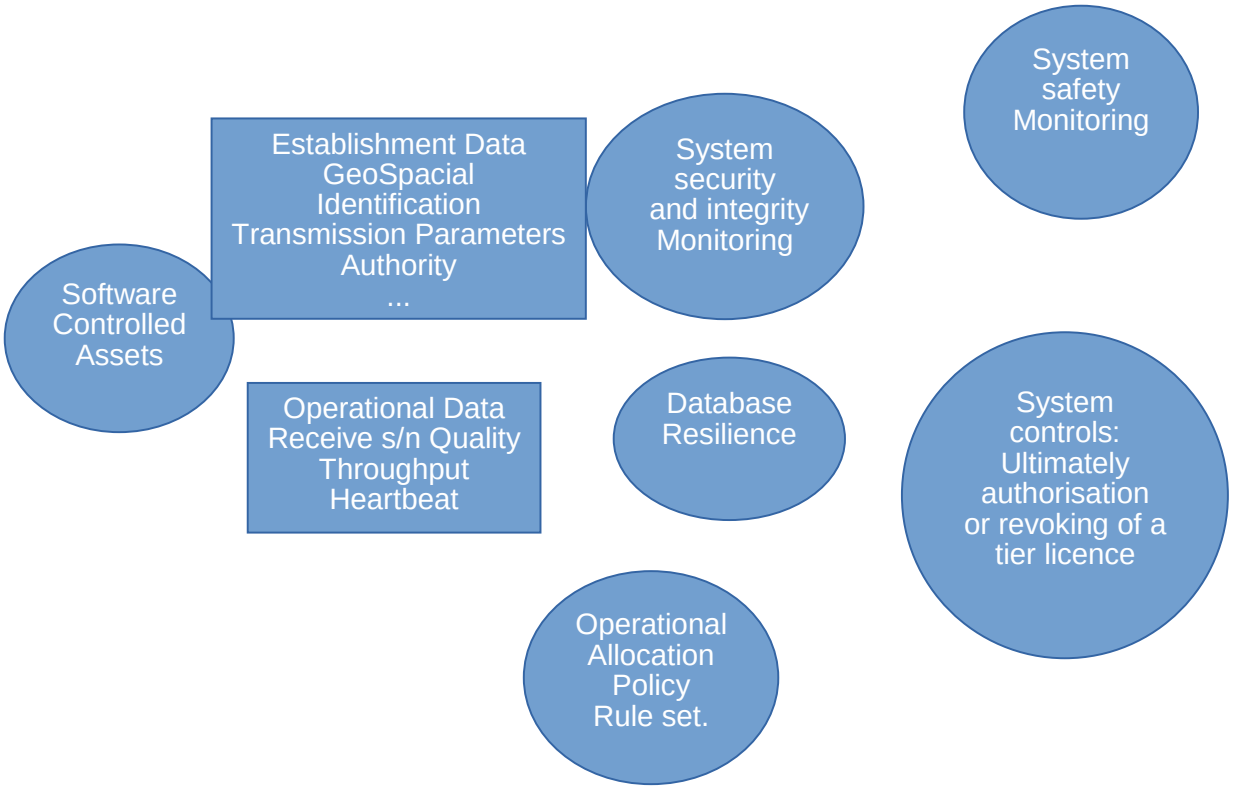
Economic Impact



License Allocation Policy Impact



Engineering Design Issues



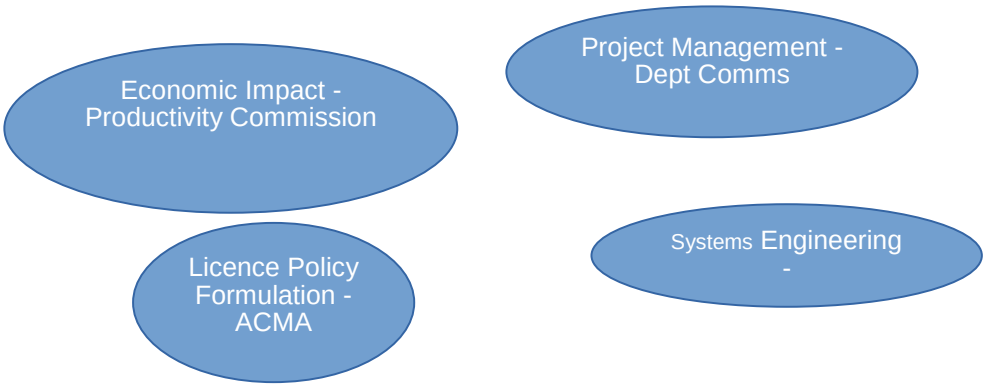
DSLM PILOT ROADMAP

Evolution

1. **Allocation of Conops roles**
    A) Identification of the conops capabilities from each party
    B) Alignment of the priorities from each party
    C) Converge each discipline's priorities with regard to the preliminary milestones

2. **Funding allocation to preliminary stages**
3. **Project Manager approves Plan**

Pilot Stakeholders



Pilot Data Participants