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11<sup>th</sup> December 2020

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Ref: Australian 5G Innovation Initiative – round one – discussion paper

The Australian Radio Communications Industry Association (ARCIA) is recognised as the peak body representing the Land Mobile Radio (LMR) sector in Australia, as such we are pleased to respond to this discussion paper and present our position with regard to the questions posed. We were also pleased to be invited to participate in the recent stakeholder forum and our only regret was that with limited time we did not get the opportunity to respond to any questions from the attendees, in particular with regard to the potential and benefits of private 5G technology services. Regardless, we thank the Department for the opportunity to be involved.

In general terms the uptake of enterprise LTE services in Australia has been from within the client base of our members in the LMR industry. This has been particularly so when the benefits of reliable and resilient mobile data services have been recognised by the resources sector. We are aware that there are now close to twenty of these stand-alone private networks operating around Australia, with virtually all of them having been supplied and installed by our members. The move to new technologies such as 5G will be similar, and we are aware that one of our members will be presenting a grant application for a trial in a new mine site designed around utilising 5G technology. This will be the first of what we are sure will be many private 5G networks.

Amongst our association members there are already discussions on multiple use cases where 5G will offer many and varied benefits, some of these will come to fruition in the short-term where others may take longer due to the effect of the current health pandemic – investment decisions might be held back until the economy improves. As was raised in a question during the stakeholder forum, the coverage footprints of the public carriers 5G networks is going to be limited for some time yet and this will have an effect on multiple regional and rural opportunities. If the Government can re-direct some of the priorities for spectrum allocation towards apparatus licensing our members will be able to offer solutions to those markets and at realistic costs to ensure viability.

We would also suggest that as well as the direct benefits to the producers and manufacturers, we would suggest that there are benefits further down the line that could make it even more beneficial for the Government to support some particular trials. For instance, with the irrigation industries in the Sunraysia, Riverina and Goulburn Valley regions, to be able to use 5G technology to give better production outputs by better water management would not only improve yields and quality of product, the savings in water loss would have a direct benefit to the ongoing issues regarding water use in the Murray-Darling Basin region. In another instance, the use of 5G technology in retirement communities would not only improve efficiencies in management and help to reduce operational costs, with wearable devices the improvement in health monitoring would have a longer term effect of reducing the ongoing costs to our health systems.



With these opportunities we believe that the time is right for serious consideration to be given to making it easier for private 5G technology systems to be explored. As outlined in our response to the discussion paper, the most significant barrier to the implementation of such private networks is access to suitable spectrum. We understand that the ACMA have recently opened up the 26 GHz spectrum for allocation for 5G services under area-wide apparatus licences, this is to be commended, however, at this point in time the range of products for those bands is very limited and this will preclude any real utilisation and evaluation of the resultant benefits.

We strongly suggest that the ACMA needs to make spectrum in the lower bands also available for apparatus licence allocation, this will be immediately available and trial systems can be installed using 4G technology and products but with the system designed to incorporate capacity for a 5G overlay when suitable products are available. This will mean that many industry sectors will be able to make meaningful decisions on the benefits to be gained from 5G and give a wider range of evaluation opportunities for Government. Although the ACMA highlighted the many spectrum segments that are suitable for LTE/5G technology during the stakeholder forum, in reality there is little spectrum actually available for allocation in most of the spectrum segments below 26 GHz, this needs to change!

In conclusion, our Association members are keen to be involved in the development of 5G opportunities and we are much closer to the market entrepreneurs than the major public carriers, in many cases they are already clients of our members. Accordingly, our members understand the manner in which those users operate their businesses and are in the enviable position of having a direct role with those users already. We are keen to see the barriers removed, or at the very least reduced, and that will give our members a chance to bring use-cases to Government for consideration. We look forward to ongoing and fruitful discussions between our organisations.

Yours sincerely,  
Australian Radio Communications Industry Association (ARCIA) Inc.

Ian Miller – Executive Officer



## Questions raised as part of the DITRDC 5G innovation initiative discussion paper

Question 1. Do you have any comments on the types of use cases that the Initiative is seeking to support?

ARCIA recognises that the use cases outlined are real and that the initiative will help to promote the knowledge of the benefits that new technology can bring to many and varied industries. Our Association has been developing the knowledge base amongst our members on these new applications and it has been our members who have been leading the way with bringing mobile data technology to the resources industry as the 'early adapters' of technology.

Question 2. What are the technical, regulatory or other barriers to implementing 5G use cases? If you have identified barriers, can you suggest ways these barriers could be overcome?

There is no doubt that access to spectrum is the major barrier to many markets developing use cases for 5G technology, as well as other mobile data applications. The presentation by Chris Hose from the ACMA was bordering on duplicitous by outlining that suitable spectrum is available in many frequency bands. Although it was mentioned that there is little spectrum available in some of those bands, basically the only access to spectrum in the majority of those bands is by accessing the networks of the public carriers so there is little or no spectrum available for private network access. If the Minister is serious about encouraging the multiple use cases of 5G technology then the philosophy of both the ACMA and Communications Department must move away from the present format of looking at spectrum like a commodity and only marketing it as such through spectrum licensing. There is a need for some spectrum segments to be available through apparatus licensing format in order for the spectrum to then become an enabler for the many and varied use cases that are different to the one size fits all approach of the public carriers.

Whilst not a barrier, consideration of how intellectual property should be handled could be complex, given the pioneering nature of the program, range of technologies and participants. With the expectation that the results of the trials will be shared with the broader industry bases there must be some recognition that there could be particular initiatives that have a 'commercially sensitive' aspect. We would suggest that this should be addressed as part of the development of the overall initiative and any contractual arrangements should recognise the need for sensitivity in these areas.

Question 3. What are your views on the level of maturity of 5G applications available to be trialled, and are there particular sectors where it will be possible to demonstrate 5G's productivity benefits?

At this point in time there are few applications available that are directly suited to 5G technology, so it has to be recognised that at present the access to 5G networks has been purely at the whim of the public carriers so that coverage and access are an issue to developing applications and use cases. As was pointed out during the recent forum, at present 5G coverage is very limited and there has been little spectrum available for private networks. At this point in time it will only be 'early adopters' who have even contemplated the benefits of 5G and they will have had little network access to do more than consider the potential.



Question 4. What locations offer the best opportunities to deliver 5G projects, and are there any barriers to delivering projects in particular locations or geographic regions?

Our members deal with businesses across all regions of Australia and through them we see opportunities in almost every geographic area of Australia. The actual markets are also across most sectors and until we have ready access to spectrum we cannot even contemplate the full potential.

Question 5. Given the quantum of funding, what type and scale of projects could the Initiative appropriately support?

It is difficult to define in any depth, however, we could foresee that with grant levels of between \$200k and \$500k it would be possible to supply and install small 5G systems for private operation for small agricultural applications or local area networks. In the agricultural sector a vineyard or group of wine producers in relatively close proximity could even share a small private system to gain the productivity benefits available from high level data monitoring and control of resources. In some areas of Australia, such as the Riverina and Sunraysia regions, the benefits of controlling irrigation would not only add benefits to the irrigation industries, especially the viticulture industry, but there would also be a flow-on benefit in areas such as the management of water resources in the Murray-Darling Basin, another important Government initiative.

Question 6. What are your views of the proposed requirements for joint applications, grant agreements, grant value and the payment structure of the Initiative? Are there other program requirements that should be considered?

Our initial thoughts are that the proposals are sound, however, we would suggest that there should be a degree of flexibility built in to the proposed system to cover opportunities like our suggestion for shared resources by industry sectors in some cases.

Question 7. Do you have any comments on the eligibility requirements, including the types of applications eligible for funding, the funding of network infrastructure, and whether the criteria will encourage participation from a variety of applicants?

Again, our initial thoughts are positive, however, it is difficult to comment on the ability of the proposed structure to encourage applicants. It must be kept in mind that with private networks the first consideration will always be about whether any expense will relate to better outcomes for the business, then investment decisions are made relative to the business case prepared and managed by the client. In this case it will mean that in many cases the application for grants and any initiatives will only be as a result of significant discussions and investigation of the benefits by the end user. The amount of effort involved will mean that the end users will have to have a good understanding of exactly what the benefits will be that will result from the technology before they agree to proceed. This is a decision that will not be taken lightly as even if it was without any direct funding from the end user, there will still be a high level of time and effort to support the actual technology within the clients business, this means there will be disruption and the client has to be committed even if only to overcome disruptions to operations and prepare results reports.



Question 8. In what timeframe could projects under the Initiative be feasibly implemented?

Because of the information outlined in the response to the previous question it will be difficult to forecast the timeframes involved, however, we do believe that with proper support from Government and by selecting some industry leading organisations it is possible that trial systems could be managed within the timeframes outlined in the discussion paper.

Question 9. What do you consider are the best ways to promote 5G use cases within industry sectors and more widely? Do you anticipate any barriers to sharing case studies?

In effect this is going to need effective marketing at several different levels, plus there will need to be a direct sales effort to explain the details and help to identify the benefits to the prospective clients. Because the bulk of the marketing of 5G to date has been more oriented towards the 'domestic' users of mobile data and the benefits to business users has been seen to be of little advantage due to the present coverage of the public carriers 5G services, there will need to be a better explanation of the benefits and also highlight that 5G is NOT available only through the public networks. One of the major reasons that private LTE networks have been successful is because the potential users are not prepared to place the operational needs of their businesses into the control of a third-party organisation which is constructed with domestic users in mind. Business-critical networks have to be designed and constructed with much higher reliability than the public networks, there needs to be education for potential users that the benefits of 5G technology can be accessed through private networks specifically designed with the users requirements in mind.

Question 10. Do you have any comments on the proposed assessment criteria, including their ability to support a variety of projects from diverse applicants?

We do not foresee any issues in this regard.

Question 11. Should the program have any specific limits on what qualifies as technology that operates using 5G? If so what would these limits be?

Given that the 5G technology in itself is still in the early stages it may be that any private networks might be built on 4G technology but with the potential for a 5G overlay when the technology and products are more readily available. The main thing is to prove the benefits that can be accessed with the technology to lead the market into adoption of the 5G technology quicker than might otherwise be the case.