

Response to JCRA Case T-064

Regarding the:-

5G spectrum award process
Consultation to reassess interest and
demand

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Introduction and overview

This document is being sent in response to the JCRA consultation on the 5G award process. To be fair, my comments don't neatly fit into the suggested structure, but the current consultation is a good opportunity to put forward some ideas that may influence how, and possibly if 5G is deployed. My aim is to push a consumer view of what is required.

Although I have worked in the local telecoms industry for many years, I am not an interested party on behalf of any operator, or have any view that my comments may be in-line, or opposed, with views of any current or potential operators. I am commenting as an independent but interested consumer. Also the information I am basing this response on, is what is in the public domain and I fully accept that there may be some holes in this view.

What is proposed in this document?

- That introduction of 5G take place but only if consumer demand is established so that 5G can earn it's keep and not simply be an additional cost for operators, and one which they then have to factor in to their retail prices for the bulk of customers.
- That on the assumption that 5G will be introduced anyway, this is done through use of an active shared Radio Access Network (RAN) so that costs are shared in some way across operators.
- That this concept of network sharing also be used for support of the legacy 3G / 4G networks and that one operator will run the whole Jersey RAN and make access available on an open basis to other parties.
- That operators who are changing out their whole mobile networks use the purchasing opportunity to align their network infrastructure so that RAN sharing can be supported. This may or may not require all operators to use the same supplier.
- That the resultant cost saving that operators achieve through reduction in RAN deployment is fed through to provide lower retail prices for consumers, better network quality and possibly better profitability for operators.

5G thoughts

In this document I accept I bang on quite a bit about costs, for which I make no apology. Increased network deployment costs incurred by operators must work through to higher prices for consumers. My view is that consumer interests are not well enough represented when many network developments are being considered. Deployment of 5G may be such a case.

My initial comment is that the JCRA process does not explicitly ask for comments and views from consumers. This stage of the award process seems to be all about operators and the networks they may want to support. This is fine up to a point but my overriding concern is that we don't end up with a 5G service that is just another technology step forward, and that possibly does not meet consumer requirements. 5G is potentially faster than 4G and with lower latency but must be a leap forward that brings real consumer benefit. I would also have thought that for operators, they will want to see an increase of revenues as a result of deploying 5G. Otherwise how is 5G paid for?

Personally, I would also prefer to see improved 4G networks over a 5G network(s) that has poor coverage. Improving 4G has got to be cheaper than providing even a poor 5G overlay. Clearly, this view is not compatible with applications that require low latency connections or speeds that are beyond 4G capabilities. The process that the JCRA is proposing does seem to assume that we will be having 5G at this time and it's disappointing that more work hasn't been done on identifying whether there is real need for a 5G service. In the past, I have seen 5G touted as being good for manufacturing and health applications. Is this true for Jersey and is the level of demand sufficient to justify the costs associated with 5G at this time?

I live just outside of St Helier, have access to two mobile networks on a regular basis and my indoor coverage, which is where I mostly use data is not good on either network. Spending money to provide a mediocre 5G network that is just faster outdoors and 200 metres from the tower is not a good use of spend in my view. However, would having a faster RAN available be an issue, particularly if it doesn't make my current service worse? It would be an issue if provision of 5G at this time simply adds to operator costs and doesn't generate any new revenues. This situation would contribute to maintaining the high prices we experience for mobile service. In addition it would also be an issue if 4G doesn't improve.

Clearly, my concerns are with quality of the existing service and the price of that service. Consequently, I don't want to see 5G brought in because "we need 5G to be a credible community" and because 170 other countries have it. Or, "5G will allow us to become a testbed for services". If it is decided that a testbed environment is needed this should only happen if it can be proven that there is significant benefit to local consumers. Introducing 5G should be for local customers, who after all, will be the ones that have to pay for it.

5G should not just be a "me too" that adds to operator costs and either puts mobile service prices up or, maintains them at levels which are higher than other jurisdictions.

Services and competition

On the point about costs and prices, I note the recent JCRA document¹ One of the findings was that "mobile voice and data services are more expensive in Jersey than the UK". It also states that "Care must be taken with this comparison as the cost of goods and services in Jersey is higher than in the UK, along with wages". Whilst I agree with that last point, I also find it disturbing that nothing seems to be being done (publically) to lower prices. It seems that high prices are just accepted because this is Jersey. My view is that we should not continue to be adding costs without some new revenue.

I feel certain that the operators would argue that the prices they charge are the best they can manage, given their costs and market size, but the fact remains that the services are more costly for end users than is ideal and, I believe, possible. High costs and achieving an acceptable price as a result, must also put pressure on operators and could even make the viability and sustainability of operating a mobile network questionable. High costs probably also explains why service quality is not as good as it should be. In this respect my expectation is probably higher than has traditionally been used. The goal posts have moved from when mobile networks were originally installed but then what I am using my devices for

¹ Telecoms retail pricing market study: Key findings & recommendations.

has also changed. When mobile was introduced locally, the fixed voice network was the main form of electronic communication. Now it is clearly mobile in all forms; voice, messaging etc.

We should also remember that it is only a few years ago that two of the local operators were reported as looking at joining forces in some way so that they could lower their costs. This initiative didn't go ahead for some reason but there was clearly a basic case and concern.

Competition in the mobile sector was justified and introduced many years ago, as a means of controlling retail prices without heavy regulatory effort. When most of the discussion was taking place, we only had 2G active and I suppose that with 2G's limitations, the only option for mobile competition was network infra-structure build or variants of an Mobile Virtual Network Operator (MVNO). MVNOs were probably the least costly method of introducing competition, but were possibly not of interest to potential competitors. Possibly also, if the decision on a competition model was taking place now, a different solution would be used.

The regulatory view, probably drawn from experience in other larger markets, was that what was needed was to bring in competition with separate network builds. Whether or not this was the solution that would provide the best outcome for local consumers. So, network competition went ahead with little question and separate networks have continued to exist to this day. However I understand that it has been possible to share a RAN across multiple operators from 3G onwards. I suppose that this could be thought of as a heavy MVNO and the operators continue to operate a core network and have discreet identities. So we have competition but I would argue that the model chosen for this was designed to meet regulator and operator needs rather than controlling costs and getting customers the best value for money. Therefore if separate 5G networks are built per operator, my view is that this would continue with a competition model that is not appropriate for a small market and puts an unreasonable price burden on consumers.

I don't have access to the cost data to prove the case, but would argue that the historic competition model for mobile service, has resulted in higher end user prices than if alternative competition and network build models had been used. The RAN, after all, is the largest single capital expense when building a mobile network. We must be talking about figures for individual RANs well above £10,000,000 per operator, obviously dependant on quality, capacity etc. If these sort of spends could be avoided, whilst still providing the same or a better service, it should be possible to lower prices.

Introducing 5G

Now the question has come up about how we are going to deploy 5G.

I am not against 5G, but if we are to have it in Jersey, it must be a good quality network, one that is widely available and which provides the headline speeds that are promised. 5G must bring real benefit to all local customers. To achieve this, 5G must be much better in terms of coverage, particularly in-building, than 4G is in this respect. If a poor or limited reach network, possibly because of cost constraints, is deployed the result will be a negative customer perception of the service and no real objectives will be achieved, test bed or positive reputation. 5G will in effect be just a cost and this will continue to maintain the high prices we have for mobile service. If the decision is that we have 5G, I would personally

prefer to see one good quality 5G network deployed, rather than several mediocre ones. Good quality will come at a cost and require a large number of radio sites to be constructed, particularly when using the higher frequency spectrum allocations. Many sites equals huge cost and as things stand, this could be multiplied by three. Possibly more.

Therefore for cost reasons, I strongly believe that 5G should be provided around an active shared RAN. A shared RAN allows for shared costs and the savings across the industry could then be partly ploughed into more sites and improve quality. However to protect competition, I would hope that existing operators and any new entrant, would continue to have their own core networks and maintain their identities.

An active shared RAN should have:-

- Much more efficient use of the available radio spectrum.
- Avoid the nonsense of multiple co-located sites with three monopolies. Less sites and clutter would I am sure be preferred by those who don't want 5G, 4G on any other radio based service at all.
- Ensure that the rural sites are used more efficiently.
- Require many less sites overall (even if service is improved).
- Shared infrastructure and lower costs will take a large part of the risk out of 5G introduction and potentially allow for lower prices and even better returns for the operators.
- Possibly make 5G available to operators who would not be prepared or able to make a full network investment on their own. We could get even more competition.

From the JCRA consultation document, it's mentioned that network sharing was proposed under the Original Process, but was discounted as being "impractical". I understand that the reason for this was to do with interworking problems. Probably not only between 4G and 5G but possibly also between different vendors core networks with the shared RAN?

If this was the issue then it should now be possible to overcome the objections as a barrier.

As I understand matters, there is a Government requirement to remove High Risk Vendors from the networks. If this involves complete network change-out for some operators, surely the replacement networks that are procured can be obtained and engineered with a view to being compatible with a shared RAN? In this respect, having to change the networks could almost be looked upon as an opportunity.

Not being familiar with the network operators network infrastructure, I obviously don't know if a proposal to work to some sort of common RAN will cause problems for an operator that is retaining their network but suggest that this issue is worked through. It may even be cost effective overall to change all operators core networks rather than stay separate and out of line. A sort of Jersey standard. I note also that some major operators are now starting to use vendors that support open standards and can therefore adopt a more mix and match approach to vendor selection.

If sharing can work for 5G...

The proposed change of equipment for some operators, from using High Risk Vendors, will obviously involve considerable expense. Sharing of a 5G RAN should lower the capital cost of doing this, although on current arrangements, I assume that there are plans to replace the existing 3G/4G networks and core on a like for like basis. Replacing all these bits is a non-trivial spend and I would have thought that anything that can be done to minimise this, would be welcomed by shareholders.

As stated above, I believe though that this enforced network change may be an opportunity. If a shared RAN can be made to work for 5G, then it can most likely also work for 4G and 3G.. I'm not sure what the individual operator policies are for support of legacy standards and shut down dates for 2G and 3G but notice that UK operators are announcing their dates. As far as I understand matters, 2G cannot be network shared in the same way as later standards so 3G may have to be used. However, I would have thought that virtually all handsets that have been bought in the last 10 – 12 years, or even longer, would support this standard. Even gifting a new device to any customer who could no longer access the network has got to be a lot cheaper than providing individual 2G networks. Dependant on timing, this may also be true for 3G.

So what I would envisage, rather than continuing with multiple separate RANs, would be building a fully capable active RAN for 3G/4G/5G (6G futures?) that can be made available to all operators. One operator would run the physical network and make access available to OLOs on some sort of wholesale basis. The selected operator for this could be any of the existing ones or even a new entrant possibly. Each operator would continue to have their own core network.

What would be the advantages of a fully shared RAN for 3G/4G/5G?

- Huge savings in capital spending across the operators. One operator will potentially have higher costs but this will be offset through the ability to charge wholesale rates for network access. To be determined but it sounds reasonable to assume that saving two thirds of the potential total RAN spend won't be achieved but possibly half could be. Loading all operators traffic onto one shared RAN is likely to mean that the 3G/4G element does need to have greater capacity than might exist on any of the current networks.
- Having a common local RAN with an open interface may also allow the possibility of a new full service operator as they would only need to provide core network. I do accept though introduction of a complete new player may also cause some interworking issues.
- Opex savings through lower staff costs for some operators and possibly only a small increase (or none) in staff numbers for the operator that runs the RAN.
- Opex savings through fewer site rentals (across the industry). Probably be partly offset by an increase in the number of sites caused by introduction of 5G and improved 4G but this should still be lower than if three 5G RANs and multiple 3G / 4G RANs are built.

- Greatly increased efficiency of the rural RAN sites and improved spectrum efficiency across the network. Having all the available spectrum for one physical RAN should also make it easier to engineer a good quality radio network.
- Viability of more sites in busy areas which should improve depth of coverage and speed. This should be easier if the available spectrum is not shared.
- Lower costs should translate into lower end-user prices and possibly better profitability for operators. In my view, the sorts of savings that are possible must translate into lower retail prices as a minimum. For me if we cannot achieve this we are wasting our time.
- Given our market size, the possible desire to retain independent local networks, rather than light MVNOs, a fully shared RAN will probably give the best balance between quality and price.

What about down sides:-

- The operators need to play ball to make these proposals work. There is no guarantee of this and I can quite well imagine that some operators may not want to share networks for their own competitive reasons. This is not unreasonable. Quality and network speed is seen as a differentiator and a shared RAN will inevitably level this advantage out. However, if we can get buy-in from operators, they as well as customers should benefit financially and the network could be much better than costs may otherwise allow with non-sharing. Continuing with completely separate networks is only enriching suppliers and is taking money out of the Island. If this proposal can work but operators oppose it, they are in effect wanting to maintain the current high cost regime. However, I believe I have also seen comments in the past from local operators, that for small players, mobile networks come in large sizes. Sharing is about improved efficiency and use of these resources.
- There will be more regulatory effort in policing a shared RAN arrangement, than is perhaps required by total network separation. Surely this is what the licence fees should cover anyway and just because something is more difficult for the regulator it is not a reason we should all have to pay higher prices. In effect we are currently paying extra for competition that was introduced to lower prices. The benefits of a shared RAN will be to consumers and operators and the regulator will almost certainly have to do more work, at least in the short term. However, the regulator, as part of their role must surely represent consumer interests above all else? However just like operators, it is important that the JCRA buys in to this type of plan and takes up the opportunity to save customers money. This is a good opportunity for the JCRA to rectify a situation which was probably created by regulators, although I accept with good intent.
- I thought that the telecoms strategy document produced for the States from a few years ago recommended a shared 5G RAN and that this became SoJ policy, although I'm not sure I ever saw this formally stated. This proposal is about saving money through use of a shared 5G RAN but also suggests that even greater savings are possible through taking the concept of sharing further. Clearly though, buy in from Government will help and getting this agreement in a timely manner may be the hardest thing to achieve.
- Timing is important. If the key players dither about in debate and appearing to be doing something, the opportunity will be lost. If this debate takes too long and

operators need to replace existing networks, I can well imagine that this plan will all of a sudden be argued as being too difficult. "Let's just get on with the current way of doing things." This is why early buy in from Government and the JCRA needs to be in place so that they can push the operators if required. It is very easy to raise objections and be negative but problems need to be overcome and this will take some time. See also my comment below about vendor testing.

- This proposal is not intended to be anti-competitive. Quite the opposite. It aims to retain at least the current operators in the market but in a more viable state. However, I can well imagine that a proposal such as this will ring alarm bells for competition people. Clearly the whole process of moving from what is well understood and the norm in many jurisdictions, to a new place that is different, could involve opportunities for anti-competitive behaviours. Not least of these will be the requirement for operators to work together for things such as specifying the new network. It should be possible for the regulator to deal with these issues throughout the process; specification, procurement, migration, operation etc. (plus lots more) and it must be possible to put safeguards in place so that concerns can be dealt with. Just because there is a potential issue, it isn't a reason to not change.
- Funding. I have assumed that if there is funding available somewhere to replace networks and install 5G, there can also be funding for building a combined RAN. The problem is that the money may not be where it might be needed so the accountants need to deal with this issue early on. Get creative. For example I have assumed that all operators will pay the same amount for access / use of a combined RAN. However, I suppose that an operator that put forward some capital at the beginning could pay a lesser amount for network use. I have no idea but as this is about saving money, I would have thought that the general principle would meet with shareholder approval for all players.
- Delays to 5G deployment are possible. If it's accepted that a debate on these proposals is worthwhile, then delaying 5G deployment may be the casualty, which in my view may not be an issue. The mere fact that questions about demand for 5G are being asked, suggests that there isn't a great deal of push from consumers. Political push possibly but I haven't seen anything publically from consumers saying that they need 5G now.
- Probably the most contentious issue could be which company provides and runs the combined network. Possibly the easiest way to deal with this potential problem is to agree the framework and spec of what is needed and then require interested parties to tender for the job. Cheapest price wins. Probably too simplistic but using price against some sort of spec or standard must be a good way to decide who runs the network. The real issue is that not all players start from the same point and this may cause imbalances which disadvantage some. This is without even considering any new players that are interested in investing locally. All of this makes me certain that some sort of government policy statement would help issues along. It has got to be a good news story for a politician to be trying to save consumers money through government policy. Also probably a first. The result might be that a completely level playing field is not guaranteed, but this could result in a better outcome for consumers. We also have to remember that the process is put forward as a means of improving viability for all operators so the issue may only be about RAN ownership. It is also possible that some operators may not want to invest in 5G and

are happier with an opex model. Have a debate and see if ownership is really an issue.

Conclusions

This is a proposal only. An idea. It has possibly already been thought about by others and discounted. Although for what reasons I'm not sure. I have not seen anything in what is available to me as a consumer, over and above the idea of sharing a 5G RAN a few years ago. What I do believe we need to do is have a quick debate in an open manner so that when there is a decision to move in a particular direction, we can all see the reasons and accept the outcome. In this debate, consumer interests should be put first but what do the operators think and want? If there are no objections to the principles, we could move forward more easily. I suppose the difficulty will come if there is violent objection from some key stake holders.

Also, what would be the view of the consumer council? Would they support this?

A closed debate or one that doesn't even take place at all will not be seen as being fair to consumers and in my view should be avoided.

For me, the current timing, conditions and pressures come together to create an opportunity that will more than likely not repeat itself for many years. Missing this opportunity will cost mobile consumers money.

Sharing a complex and expensive network in a small community has got to be worth sensible and serious consideration. Jersey is not even a country with a population of 1,000,000. Why should solutions for large communities of over 50 million people be adopted or even be suitable for a small community of just over 100,000 people?

JT has built their fibre network for the fixed market and this is accessible by all operators that are interested. No one, as far as I know, has suggested building a complete parallel fibre network rather than sharing the common JT network. It would be plain stupid to do so. So why is this not also the case for mobile? The technology exists so why not use it?

Sharing of networks will involve some compromise for operators and regulators but these should be balanced against the benefits. Overall, I see this proposal as something that **must** benefit consumers, **should** benefit operators and unfortunately require the regulator to do more work.

As Theodore Roosevelt apparently said, "Nothing worth having was ever achieved without effort".

JCRA questions and my responses

The following submission is a response to the formal questions posed by the JCRA.

Question 1: Do you support the Authority's planned approach to restarting the 5G spectrum award process or have views on alternative approaches?

Response. *I would support the introduction of 5G in Jersey if there is a clear need for the combination of high speed and low latency mobile data service. The "need" should not rely on traffic being cannibalised from existing services unless 5G is used as a growth system and that this growth is provided at no extra cost to that which would be incurred for a 4G equivalent capacity. My response is driven by a view that 5G should pay it's own way and not be a cost that is incurred by customers that do not require the service. My view is also that there needs to be more work done on establishing that there is real demand and need for 5G before operators embark on such a major capital spend.*

I would prefer to see the JCRA only offer one licence for 5G and make it a requirement that the successful operator of this service be required to provide an open interface for other operators to access the 5G RAN on some sort of wholesale basis. I would also comment that a shared 5G RAN was SoJ policy but was found to have practical difficulties in the Original Process. Now time has moved on and some things have changed does this mean that the policy is no longer valid?

Question 2: Please comment on the relevance of these key influencing factors or provide others that you believe the Authority should be taking into account in developing a Revised 5G Spectrum Statement of Intent?

Response. *In the notes above, I set out my view on how we may be able to achieve cost savings in provision of existing and 5G mobile services. The key point of these proposals is that we try and achieve greater efficiency and cost savings through the use of network sharing. I believe that this approach will be good for Jersey consumers and see no reason why a similar approach should not also help Guernsey. The operators work across all the Islands and I would have thought they would want a harmonised approach to network development so that they can streamline their operations. This need not be a problem for Guernsey or Jersey. Introduction of 3G was driven by the Guernsey regulator and happened there before it did in Jersey. Introduction of 5G could be staggered in a similar manner. What is important is that the two administrations do not pull apart so far that operators lose any economy of scale that they can get from two very small markets.*

I do think that the need to replace two of the current mobile networks is a significant cost saving opportunity if it is used as a means of rationalising the radio network infrastructure.

I'm not sure what the JCRA comment is about mobile backhaul. I presume that there is concern that what is available is either at too high a cost or is not able to support the high bandwidth that might be required to support 5G base stations. If this is a problem, it must be sorted out before any attempt is made to deploy 5G. Before any major capital commitment is made for 5G, by whatever model, there should be certainty that sufficient bandwidth can feed the sites proposed and that this feed should be provided at a price and form that is

acceptable to the industry. If necessary this may require regulatory intervention and direction from the JCRA.

Question 3: Please provide information on yourself or your organisation, and explain your interest in the awarding of 5G spectrum in Jersey.

Response. *Private individual wanting to see a mobile service that is cheaper, better and delivering the services that are needed by the majority of users.*

Question 4: Taking into account the key influencing factors explained in this document, or others that you believe should be taken into account, please state if you are interested in applying for local 5G spectrum through the planned Restarted Process.

Response. *No I am not.*

Question 5: Considering the specific subject of pan-Channel Islands 5G spectrum alignment, please explain any particular challenges you anticipate if this is not achieved.

Response. *See answers to previous questions and also the text body above. I would have thought that it will be easier to align / co-ordinate spectrum usage with Guernsey (and France?) if there is only one RAN for Jersey and possibly only one for Guernsey.*

Question 6: If interested in 5G spectrum, please state the services you would initially envisage providing or would like seen provided by others.

Response. *Although it might seem that I am opposed to the introduction of 5G, this is not the case. I am very keen on the introduction of new technology where it can provide real advantages for the users and that these advantages are achieved at a reasonable cost. Consequently, if there are volume requirements for 5G that can, for example, generate new revenues that should be good for Jersey. It has to be remembered that many services can be supported on a good 4G network and that the additional expense of 5G may be able to be avoided for now. One advantage that 5G clearly has is low latency but I am not personally aware of what services require this locally.*

Question 7: If planning to provide 5G services, please state your ideal spectrum allocation requirement for providing them.

Response. *Not relevant to me.*

Question 8: Are there any further points you would like to make or information you believe valuable and relevant to the Authority for taking into consideration during this consultation process?

Response. *Please see text from earlier in this document.*

Most of my submission, possibly that of others, plus what was previously Government policy, relate to RAN sharing, Just because it may be supported in standards, doesn't mean it will be supported by suppliers. it would be useful if the JCRA put together a brief requirement document of what would be needed for a shared RAN in Jersey. Then issue this to two or three major suppliers and ask for comment. If suppliers say that RAN sharing will not work at an acceptable cost, that would for me be the only reason to abandon the whole idea.

However, I would have thought that the generalities of what I am suggesting would be of use for many small communities and may even have been deployed by some company.

J Rabasté.

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