



**JT RESPONSE TO
BUSINESS CONNECTIVITY MARKET REVIEW
NON STATUTORY DRAFT DECISION**

NON - CONFIDENTIAL VERSION

15TH JANUARY 2021

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1 Introduction

This document is JT (Jersey) Limited's (JT) response to the Jersey Competition Regulatory Authority's (JCRA) *Business connectivity market review, Non-statutory Draft Decision (Consultation)*.¹

The structure of this document follows the structure of the consultation document and answers the 12 questions that it contains.

The remainder of this document is laid out as follows:

- Section 2: Executive summary
- Section 3: Approach to the review
 - corresponds to Section 4 of the consultation document and Questions 1 and 2
- Section 4: Retail market definition
 - corresponds to Section 5 of the consultation document and Questions 3, 4 and 5
- Section 5: Wholesale market definition
 - corresponds to Section 6 of the consultation document and Questions 6, 7 and 8
- Section 6: Wholesale market SMP assessment
 - corresponds to Section 7 of the consultation document and Question 9
- Section 7: Proposed scope of remedies: passive versus active remedies
 - corresponds to Section 8 of the consultation document and Question 10
- Section 8: Proposed remedies in the wholesale market
 - corresponds to Section 9 of the consultation document and Questions 11 and 12.

This report includes one confidential annex showing the total capacity and remaining capacity in JT's fibre rings (**Error! Reference source not found.**).

¹ *Business connectivity market review, Non-statutory Draft Decision (Consultation)*, JCRA, Document No: JCRA 20/20, Publication date: 26 October 2020, Closing date: 15 January 2020

2 Executive summary

JT does not agree with the JCRA in regards to the latter's findings in the *Business connectivity market review, Non-statutory Draft Decision (Consultation)*.² JT considers that the basis for proposing a dark fibre remedy is flawed, in particular in the following areas:

- The definition of a single business connectivity product market is not robust or evidenced at all. It is JT's opinion that a market for mobile backhaul may exist in Jersey and that JT does not hold significant market power (SMP) in that market due to the majority of services being supplied over alternative networks to JT's.
- The geographic market has changed substantially since the last market review carried out in 2014. Other licenced operators (OLOs) have invested in their own network and alternatives are available, most notably in the area of St Helier. Investment in infrastructure is ongoing and the JCRA need to explore network development plans more closely before concluding its assessment of the market.
- Demand for dark fibre is likely to be very limited in Jersey. The JCRA has not provided any evidence of the demand it expects. The existing wholesale leased line products meet the needs of the market and no evidence has been provided of unmet demand.
- It is questionable whether dark fibre would facilitate product innovation and JT remains willing to meet all reasonable demand for new wholesale leased line products at reasonable prices. A dark fibre remedy would therefore not answer the needs of the market, especially as its implementation would signify the end of the wholesale active service remedy following a transition period.
- The costs of implementing dark fibre are significant and have been ignored by the JCRA in the consultation document. In addition, JT is focused on supplying wholesale leased line services utilising the most efficient methods and a dark fibre provision would likely require additional investments in fibre, equipment rooms and associated services such as power and cooling.
- The cost recovery of dark fibre remedy would be highly uncertain. The cost model proposed by the JCRA to determine the price of regulated wholesale dark fibre would need to make a number of unsubstantiated assumptions regarding the demand and costs mentioned earlier.
- The JCRA is mistaken to think that a dark fibre remedy would improve the resilience of services which businesses could purchase in Jersey. It would not do this as the same risks would arise and simply be transferred from JT to another party as JT and OLOs would still all use the same physical infrastructure. Improved resilience will only be ensured by allowing JT to focus on improving its network, on which the vast majority of customers will continue to rely, rather than by diverting resources inside JT to implement a dark fibre remedy from which few customers would benefit and which offers no extra resilience in any event.

² *Business connectivity market review, Non-statutory Draft Decision (Consultation)*, JCRA, Document No: JCRA 20/20, Publication date: 26 October 2020, Closing date: 15 January 2020

3 Approach to the review

3.1 Question 1

Question 1: Do you agree with the Authority's proposed approach to market definition and the use of the three criteria test to determine whether a relevant market is susceptible to ex-ante regulation? If not, what alternative do you suggest?

Yes, JT agrees with the Authority's proposed approach-to-market definition and the use of the three-criteria test to determine whether a relevant market is susceptible to ex-ante regulation.

3.2 Question 2

Question 2: Do you agree with the Authority's proposed approach to competition/SMP assessment and remedies? If not, what alternative do you suggest?

Yes, JT agrees with the Authority's proposed approach to competition/SMP assessment and remedies.

4 Retail market definition

4.1 Question 3

Question 3: Do you agree with the Authority's preliminary definition of the product market for retail leased lines as summarised below?

- The retail leased line market comprises both AI and TI lines;
- All bandwidths used for delivering leased lines are in the same market;
- The retail leased lines market does not include business or residential broadband;
- The retail leased lines market should not be broadened to include downstream services such as VPNs; and
- The retail market should not be broadened to include off-island leased lines.

If you do not agree you should provide all of your analysis and assessment.

JT does not fully agree with the Authority's preliminary definition of the product market for retail leased lines.

JT agrees with the following points:

- The retail leased line market comprises both Alternative Interface (AI) and Traditional Interface (TI) lines (subject to the disagreement related to bandwidths detailed below)³;
- The retail leased lines market does not include business or residential broadband;
- The retail leased lines market should not be broadened to include downstream services such as VPNs; and
- The retail market should not be broadened to include off-island leased lines.

However, JT does not agree with the following point:

- All bandwidths used for delivering leased lines are in the same market.

JT explains its reasons for not agreeing on the above point in Sections 4.1.1 and 4.1.2 below.

4.1.1 Lack of evidence of a single leased lines market

The JCRA has provided no evidence to support its conclusion that all bandwidths used for delivering leased lines are in the same market. As a result, it cannot conclude that all AI circuits are in the same market.

- The Hypothetical Monopolist Test (HMT) assesses whether a hypothetical monopolist is able to impose a small but significant non-transitory increase in price (SSNIP). This HMT is not evidenced in the consultation document. Nothing is presented to support the claim that there would be sufficient switching from the focal

³ JT however notes that it has stopped new supply of TI lines.

product of a 1Gbit/s leased line⁴ to a substitute that would mean that the price increase would be offset by those switching losses. The simple analysis provided immediately below, and using JT’s on-island retail leased line prices, shows that different speeds are extremely unlikely to be substitutes given the price ratio between them:

- As presented in Figure 1 below, the retail rental price of a 10Gbit/s leased line is almost 3.7× higher than the retail rental price of a 1Gbit/s leased line. It is therefore extremely unlikely that in the case of a SSNIP of 5–10%⁵ for the 1Gbit/s service, a customer would decide to move to a 10Gbit/s service given the very substantial difference in price.
- It is also highly unlikely that a customer would have subscribed to a 1Gbit/s service and paid 38% more than the 100Mbit/s service if the 100Mbit/s service had been a suitable option for the customer’s needs. Business customers manage their bandwidth requirements very carefully, and will tend not to spend more than they need to. Therefore, a SSNIP of 5–10%, which increases the price difference to between 45% and 52%, is unlikely to generate any significant switching from 1Gbit/s down to 100Mbit/s.
- The HMT is discussed further in Section 4.1.2.

Figure 1: JT on-island retail leased lines prices [Source: JT, 2020]⁶

Service description	Connection charge (GBP)	Annual rental (GBP)	Monthly rental (GBP)	Price ratio over previous speed
Fibre Link 10Mbit/s	2625.00	5544.00	462.00	N/A
Fibre Link 100Mbit/s	2625.00	12 579.84	1048.32	2.27 i.e. a 127% increase
Fibre Link 1Gbit/s	3150.00	17 418.24	1451.52	1.38 i.e. a 38% increase
Ethernet 10Gbit/s	5250.00	64 050.00	5337.50	3.68 i.e. a 268% increase

- In addition, the chain of substitution argument linking all bandwidths from 10Mbit/s to 10Gbit/s in the consultation document is not supported by any evidence.
 - The annual rental price ratio between 10Gbit/s and 10Mbit/s is 11.6×. The European Commission’s guidance on market definition states that chains of substitution only exist if pricing at the extreme ends of the chain are of the same order of magnitude.⁷ This is clearly not the case in Jersey.

⁴ As indicated in paragraph 5.2 of the consultation document

⁵ As indicated in paragraph 4.8, footnote 25, of the consultation document

⁶ See ‘Private Circuit Tariffs’ at <https://business.jtglobal.com/solutions/private-circuits/>

⁷ In the *Commission Notice on the definition of relevant market for the purposes of Community competition law (97/C 372/03)*, available at <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A31997Y1209%2801%29>, the European Commission wrote at §58 that “From a practical perspective, the concept of chains of substitution has to be corroborated by actual evidence, for instance related to price inter-dependence at the extremes of the chains of substitution, in order to lead to an extension of the relevant market in an individual case. **Price levels at the extremes of the chains would have to be of the same magnitude as well.**” (emphasis added)

- More recently, with its latest Recommendation on relevant product and service markets within the electronic communications sector, the European Commission published an Explanatory Note which states that:

“The business retail market is characterised by considerable divergent national conditions. It is therefore for the NRAs to ascertain whether any breaks in the chain of substitution can be observed. Following the 2007 Recommendation, a large number of NRAs has segmented the regulated leased lines market according to bandwidth. This division was warranted in order to take into account the fact that lower-bandwidth leased lines are no longer attractive to new entrants who prefer to focus their infrastructure investments on the more profitable, high-speed leased lines. Consequently, the market for high-speed leased lines was found competitive in a number of Member States. It is expected that such distinctions in the competitive conditions should remain a point of consideration for NRAs.”⁸

4.1.2 The HMT has been conducted in a purely theoretical way by the JCRA

An HMT should consider the practicalities of demand-side substitution for the use cases that are relevant. Demand-side elasticity effects are very weak in the case of leased lines:

- Mobile network operators (MNOs) buy backhaul links based on very carefully planned analysis. These links form just one part of a much larger network, and thus the response to a price change of SSNIP proportions (5–10%) is unlikely to mean that MNOs would move up to the next available speed or down to the previous available speed. The cost impact of moving up to the next available speed would be very significant, for little perceived benefit for the end-user mobile customers. Conversely, the customer experience impact of constraining bandwidth by moving down by a factor of 10 in terms of capacity would be very noticeable and likely lead to material customer churn. MNOs would be extremely unlikely to do this if faced with a very modest price change of the order of 5–10%.
- Similarly, in the context of leased lines used in corporate networks (either linking multiple sites together and/or to a data centre), bandwidth demand is planned very carefully to meet current and foreseeable business needs, and would be unlikely to be affected by a price change of 5–10% (i.e. it would lead to very limited churn to a lower speed or potentially no churn).
- It is hard to see any case where customers who purchase leased lines have hugely over or under provisioned and hence would need to move to a higher or lower speed when faced with a SSNIP. It is conceivable that there are some marginal customers in this category, but it is very likely to be a very small set of users, and not of sufficient volume to prevent the SSNIP. Switching volumes, i.e. the ‘critical loss’ of customers, would likely need to be in the range of 10–20% so that profits, rather than revenues, are lower than before the SSNIP.
- In order to increase confidence in any HMT, it is preferable that evidence on switching is collated, for example through a primary market research study of business connectivity users. The JCRA has not presented

⁸ Explanatory Note accompanying the Commission Recommendation on relevant product and service markets within the electronic communications sector, *Commission Staff Working Document (explanatory note)*, SWD(2014) 298, European Commission, 9 October 2014, available at <https://ec.europa.eu/digital-single-market/en/news/explanatory-note-accompanying-commission-recommendation-relevant-product-and-service-markets> (emphasis added)

any such evidence, and hence, it does not seem possible to arrive at the JCRA's conclusion on market definition.

- More generally, the JCRA does not appear to have considered the realities of how business connectivity users (e.g. MNOs and corporates) dimension and procure their networks. This would include acknowledging that, in many cases, a leased line forms only one part of a much larger network. These complexities pose specific challenges when using HMT analysis in the context of business connectivity.
- The JCRA's HMT analysis of whether broadband and leased line are in the same market is somewhat more detailed than its HMT analysis of the leased line market, since it refers to price differentials. JT agrees with the JCRA that broadband and leased lines are not in the same market, and wonders why the JCRA did not follow its own approach when it considered the leased line market by itself.

In summary, JT does not believe that the JCRA has conducted a sufficiently robust HMT analysis to conclude that there is a single market for Ethernet services in Jersey. Furthermore, current pricing suggests that there is not a chain of substitution linking all bandwidths from 10Mbit/s to 10Gbit/s. These two conclusions mean that the JCRA's basis for considering the introduction of a dark fibre remedy is misguided.

4.2 Question 4

Question 4: Do you agree with the Authority's preliminary conclusion that there are no particular areas within Jersey where the conditions of retail competition are such that they may constitute separate geographic markets? If you do not agree you should provide all of your analysis and assessment.

In JT's opinion, the business market in Jersey is dynamic. OLOs have rolled out and continue to roll out their own infrastructure in some areas of Jersey, in particular in and near St Helier. Over the past year, JT has lost to OLOs as well as won from OLOs leased lines across a range of speeds in St Helier. **Error! Reference source not found.** and **Error! Reference source not found.** in **Error! Reference source not found.** illustrates the OLOs' footprint in Jersey that JT is aware of.

JT believes the JCRA should pay close attention to the evolution of the competitive landscape to consider whether a single geographical market is appropriate for Jersey or whether geographical markets would be more relevant.

Such consideration would be in line with the Explanatory Note accompanying the Commission Recommendation on relevant product and service markets within the electronic communications sector, which states that:

“National regulatory authorities should, however, keep in mind that the competitive conditions in the high-bandwidth segment may vary depending on the geographical area – more precisely, the density of business or other large customers. As a result, NRAs should be aware of the fact that when assessing the competitive conditions on a nationwide basis a larger presence of alternative operators in a limited number of dense business areas may have a significant effect on the market shares observed nationwide without necessarily allowing those alternative operators to provide competitive offers nationwide for multiple site contracts, which include

connectivity for more remote sites. Such a phenomenon, if observed, could be addressed by a geographic segmentation of the market (see also below).”⁹

4.3 Question 5

Question 5: Do you agree that the retail market for leased lines does not meet the three criteria test and so no further analysis is required? If you do not agree you should provide all of your analysis and assessment.

Yes, JT agrees that the retail market for leased lines does not meet the three-criteria test and thus no further analysis is required.

⁹ Ibid. This text immediately follows the previous quote in the original document.

5 Wholesale market definition

5.1 Question 6

Question 6: Do you agree with the Authority's preliminary definition of the wholesale leased lines product market as summarised below?

- The Authority's preliminary conclusions in the retail market are mirrored in the wholesale market;
- The wholesale market should not be broadened to include dark fibre or duct access;
- The wholesale market should not be narrowed to reflect customer use of leased lines, for example mobile backhaul or other retail applications; and
- Self-supply should be included within the wholesale market.

If you do not agree you should provide all of your analysis and assessment.

JT does not fully agree with the Authority's preliminary definition of the wholesale leased lines product market.

JT agrees with the following points:

- The wholesale market should not be broadened to include dark fibre or duct access; and
- Self-supply should be included within the wholesale market.

However, as explained in the answer to Question 3 above, JT does not agree with the Authority's preliminary definition of the product market for retail leased lines. Also, JT only has a small market share in the mobile backhaul segment of the market (see details in Annex **Error! Reference source not found.**) and there are credible alternatives either through self-supply utilising OLO networks or microwave technology. JT therefore believes that there should be a separate market for mobile backhaul.

As a result, JT does not agree that the Authority's preliminary conclusions in the retail market are mirrored in the wholesale market.

5.2 Question 7

Question 7: Do you agree that there are no particular areas within Jersey where the conditions of wholesale competition are such that they may constitute separate geographic markets? If you do not agree you should provide all of your analysis and assessment.

As explained in its answer to Question 4 above, JT considers that the market is dynamic, with OLOs rolling out their own infrastructure in some areas of Jersey. This may be even more relevant at the wholesale level than the retail level, since OLOs that have their own infrastructure do not need to rely on any wholesale remedy imposed on JT to be able to offer their services to end users. The JCRA should therefore carefully consider the geographic variations in competition, at both the retail and wholesale levels. JT does not agree with the conclusion that the

JCRA come to on the uniformity of retail prices supporting the view that OLOs do not change competitive conditions. Pricing is uniform for simplicity reasons and not due to any competitive reasons.

Annex **Error! Reference source not found.** shows JT's own assessment of competing fibre infrastructure and shows that in some areas of St Helier there is a high concentration of OLO network.

5.3 Question 8

Question 8: Do you agree that the wholesale market for leased lines does meet the three criteria test and so is susceptible to ex ante regulation? If you do not agree you should provide all of your analysis and assessment.

Yes, JT agrees that the wholesale market for leased lines does meet the three-criteria test in some products and geographic areas as described in answers to questions 6 and 7 above and thus is susceptible to ex-ante regulation.

6 Wholesale market SMP assessment

6.1 Question 9

Question 9: Do you agree with the Authority’s proposal that JT should be designated with SMP in the market for wholesale on-island leased lines for the reasons set out above? If you do not agree you should provide all of your analysis and assessment.

As explained in its answers to Questions 3 and 6 (see Sections 4.1 and 5.1 of this report), JT does not agree with the JCRA’s preliminary conclusions that there is a single product market for leased lines. As a result, JT could be designated with SMP in some markets for wholesale on-island leased lines (e.g. lower speed leased lines) but not designated with SMP in other markets for wholesale on-island leased lines. It is JT’s opinion that the market for mobile backhaul is competitive therefore JT has no SMP as it holds only a small percentage of this market. However, JT does accept that it has SMP in the market for business connectivity.

In addition, the JCRA needs to further investigate whether an SMP designation in any wholesale on-island leased lines market should apply over the whole area of Jersey, as explained in JT’s response to Question 7 (see Section 5.2 of this report).

7 Proposed scope of remedies: passive versus active remedies

7.1 Question 10

Question 10: Do you agree with the Authority’s preliminary view that dark fibre access to the JT network will deliver significant benefits to end-customers and these benefits will outweigh the risks? If you do not agree you should provide all of your analysis and assessment.

JT does not agree with the Authority’s preliminary view that dark fibre access to the JT network will deliver significant benefits to end customers and these benefits will outweigh the risks, for the various reasons presented in the remainder of this section.

7.1.1 There appears to be very limited demand for dark fibre

Existing services suitably meet the needs of the market

As indicated in the consultation document, JT has only received one request to date for dark fibre, from [confidential, see annex **Error! Reference source not found.**]. Mobile backhaul could potentially be a use case, but products to date have been developed to meet demand for bandwidth in this area, and there is no evidence that the mobile market has suffered from the availability of active products only.

- One OLO has expressed an interest in intermediate leased line speeds (such as 20Mbit/s, 30Mbit/s, 50Mbit/s, 200Mbit/s, 300Mbit/s, and so forth) for mobile backhaul. JT has not provided these as of yet, which can be mainly attributed to the cost of implementation associated with ‘throttling’ back services which are delivered over a higher speed bearer. The costs are associated with the additional equipment required to manage such throttling (see **Error! Reference source not found.** in Annex **Error! Reference source not found.**). The cost savings from a lower capacity requirement in JT’s IP core would not be offset by the additional throttling costs, meaning a throttled leased lines would be more costly to JT to provide than a leased lines using the full bearer (e.g. 20Mbit/s would be more costly than 100Mbit/s), and it is unlikely that a customer would pay more for a lower speed. However, if there was demand for a specific alternative new product JT would of course consider it.
- JT provides Sure and Airtel with leased lines to some of their mobile sites, although these do not form a very large proportion of the backhaul links of these two MNOs (exact numbers are provided in Annex **Error! Reference source not found.**). From this it can be deduced that the MNOs find the existing JT leased line products suitable for some mobile sites and have credible alternatives for backhaul to the majority of their sites. These alternatives may include leased lines from OLOs and microwave links, but JT does not have information on the number of these sites or the connectivity utilised. JT does not have any information on the decision criteria of the OLOs when they purchase backhaul for mobile sites from JT but it may be for strategic reasons such as ensuring that they have diversity of supply so they do not rely on one operator’s infrastructure.

- It is unclear whether Sure and Airtel would buy more leased lines for backhaul of their mobile sites if intermediate speeds were available. It is likely that they have already deployed suitable alternatives for their backhaul needs, whether leased lines from OLOs or microwave links.
- Even for 5G, the demand for backhaul capacity is already satisfied by the existing leased line products. It is expected that 1Gbit/s will be sufficient for 2G/3G/4G/5G rural/suburban sites where 5G is only deployed in the 700MHz spectrum band. Alternatives such as gigabit wireless links are also used in networks today. 5G in the 3.5GHz band may require a 10Gbit/s backhaul, especially for a full 100MHz 5G massive MIMO carrier¹⁰, but is likely to be only deployed in urban areas where, in addition to the 10Gbit/s wholesale product from JT, OLOs have deployed and are expanding their own infrastructure (see Section 4.2 and Annex **Error! Reference source not found.**).
- Finally, it appears that dark fibre in Jersey is a remedy in search of a problem. There is no market failure that dark fibre would fix better than other less intrusive remedies.

The implementation of dark fibre would entail significant costs, ignored by the JCRA

Limited demand for dark fibre means the cost of implementation would be disproportionately high, both for JT and for OLOs:

- OLOs would need to pay for upgrades to the exchanges and/or service distribution rooms (SDRs) where they wish to co-locate their equipment if space/power/cooling is not available in sufficient amounts. This may be needed in up to 13 exchanges/SDRs.
- It is not evident that these fixed costs could be readily recovered from OLOs, given the significant uncertainty surrounding the volume of dark fibre connections that might be requested in the future.
- This potentially creates **higher** barriers to entry in the business connectivity market than the current situation with wholesale active leased lines, particularly in a small market such as Jersey. The JRCA acknowledges that service-based competition (rather than infrastructure-based competition) is the favoured approach in the Government's telecoms policy, as mentioned in the consultation document. Dark fibre encourages infrastructure competition which is contrary to the stated policy.¹¹
- JT would need to develop reference offers for dark fibre and co-location. This would include drafting/validating the offers and surveying its exchanges and SDRs to assess whether space/power/cooling would be available to install OLOs' equipment. The available space and power in JT's exchanges and SDRs is very limited, as shown in **Error! Reference source not found.** and **Error! Reference source not found.** (see Annex **Error! Reference source not found.**) for a sample of locations.

¹⁰ This is the carrier offering the maximum capacity available from 5G that is likely to be deployed to any significant extent commercially. 5G in the millimetre wave (mmWave) spectrum (above 24GHz) can offer a much higher capacity, but its very limited coverage range due to the high spectrum bands strongly limits commercial opportunities, at least in the foreseeable future.

¹¹ Paragraphs 8.7 and 8.9

- All of this could lead to a situation in Jersey where a retail leased line provided using wholesale dark fibre is more expensive than a retail leased line provided using a wholesale leased line.

The potential impact of Covid-19 on the business connectivity market has also been ignored

Covid-19 adds an extra layer of uncertainty in the business connectivity market as a whole as the pattern of office vs. home working in the future, even as the pandemic recedes, remains unknown. If home working persists to the current extent, it could drive demand for faster and/or uncapped broadband plans at the same time as it reduces demand for business connectivity services.

7.1.2 The JCRA ignored the practical aspects of implementing a dark fibre service

Even in the event that: (i) there was strong demand (see Section 7.1.1), (ii) international precedents were supportive of a dark fibre remedy in the business connectivity market (see Section 8.2.1), and (iii) the market definition was accurate (see Section 4.1 and 5.1), none of which is the case, significant questions would remain about the practicalities of implementing a dark fibre remedy in Jersey. Such a remedy would drive costs in ways which are not predictable. Some key factors that the JCRA may not have considered include the following:

- Although the fibre cables used for broadband (fibre to the home, also referred to as FTTH) and business connectivity (leased lines) may be in the same duct network, they terminate in different exchange locations and are managed in very different ways. For example, the FTTH access fibre has not been designed to provide diversity and business practice is to keep the FTTH in separate cable sections to the leased line network. FTTH provides access from a customer premise to the serving exchange, at which point it will use JT's logical network to traverse inter-exchange paths. This is contrary to the leased line fibre network where the inter-exchange path can be passive or active dependant on location and delivery requirements. JT needs to keep these two networks separate to manage operational and commercial risks, particularly associated with the service-level agreements (SLAs) it offers on those products:
 - JT's FTTH network can be described as 'build it then leave it', driven by the fact that very limited product differentiation is required. Unless a new housing development is built in a specific area and more fibre connections are therefore needed, the passive parts of the FTTH network should not need to be upgraded for the foreseeable future.
 - The different fibres for broadband and leased lines means that in case of an outage (such as a fibre cut), priority can easily be given to the leased lines, since they are immediately identifiable due to their separation from the FTTH cables.
 - While the FTTH network has been used for the provision of a limited number of leased lines during an interim period when JT was initially deploying FTTH, its policy is now not to do this due to the risks associated with fulfilling SLAs.
- JT's core fibre network between its exchanges does not have a significant amount of spare capacity that could be used to provide island-wide dark fibre. In fact, JT has at times been very close to its fibre capacity limit and has had to make some costly interventions in certain areas, including deploying new equipment at specific locations to deal with the limitations of fibre capacity.

- JT’s strategy is to deliver leased lines using active multiplexing transport technologies as a more efficient way of delivering services than its legacy use of the inter-exchange fibre rings.
 - JT has invested in its IP Core infrastructure to enable it to deliver leased lines through active equipment which can use a single fibre pair to service multiple leased lines.
 - JT deployed an Optical Transport Network (OTN) at limited sites in 2019, primarily aimed at high bandwidth (10Gbit/s and Fibre Channel) circuits which could not be carried over the IP Core, to achieve efficient fibre usage.
 - JT is exploring the possibility of extending Dense Wavelength Division Multiplexing (DWDM)/OTN to further sites to take advantage of optical multiplexing efficiencies, thanks to the use of separate wavelengths on a given fibre pair.
 - The total capacity and remaining capacity in fibre pairs in each segment of the JT’s fibre rings is shown in **Error! Reference source not found.** in Annex **Error! Reference source not found.**.
- Implementation costs are unpredictable in nature in terms of location and timing, but there are cases where new fibre cables would need to be installed and additional space at exchanges or other locations would need to be found (as shown in **Error! Reference source not found.**) or even built. These costs are potentially substantial. JT believes that the introduction of dark fibre would drive demand for dedicated fibres instead of more efficient means of delivery as described above, even if the total demand for leased lines does not change much. JT therefore expects that the introduction of dark fibre could likely drive demand for 2×432 fibre rings. Assuming these new fibre rings could fit in existing ducts, and that no digging would be required (both assumptions that may not be true in practice), the cost of one fibre ring is estimated at [confidential, see annex **Error! Reference source not found.**], encompassing cable, joints, splicing, ODFs, labour and 144 fibre capacity cables into each of three OLO premises. The cost of two rings and increased capacity into OLO premises would be double, and stand at more than [confidential, see annex **Error! Reference source not found.**].
 - The JCRA suggests the pricing of dark fibre will be set so that JT can recover its efficiently incurred costs, but there is significant uncertainty surrounding the potential volumes of dark fibre, and any pricing model could have very large price swings due to those uncertainties. This is not an ideal environment for JT or other investors in the market, especially when the supposed benefits of dark fibre are not clear.

7.1.3 The JCRA’s objectives would be better answered in other ways

The JCRA’s primary concerns seem to revolve around the price of business connectivity services, the (lack of) innovation in the market, and supplier diversity.

Dark fibre is far from certain to lower prices while ensuring cost recovery of the investments it would require

JT’s concern is that demand for dark fibre is unpredictable and is likely to be low. It is likely to lead to ‘cherry picking’ certain use cases which are already observed by JT, such as on island tails for off island leased lines. The impact on JT’s cost recovery is therefore a significant concern, all the more so given the potentially low

volumes involved. Moreover, JT’s pricing of the 1Gbit/s product (i.e. the one most likely to be of interest in future for mobile backhaul and corporate networking) is closer to relevant benchmarks than the JCRA suggests; its own annex in the consultation document¹² shows pricing to be similar to that of Luxembourg and much lower than Guernsey. These considerations are more relevant than the JCRA’s comment that JT is six times more expensive than Openreach.¹³

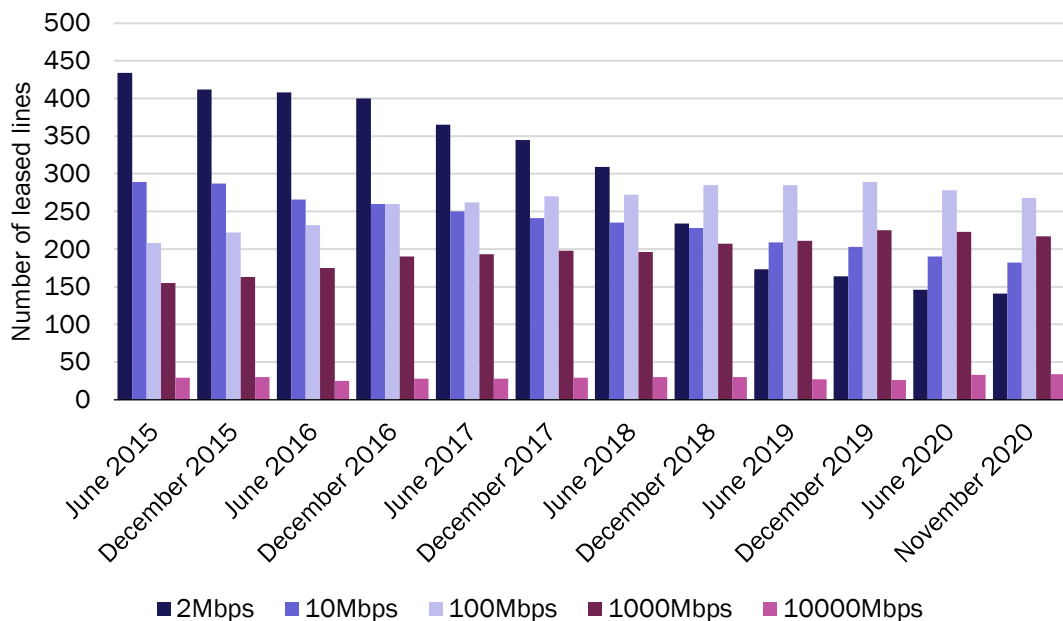
There is limited room for innovation with leased lines and JT already provides advanced services

There is no strong case for innovation in mobile backhaul, and JT has not had any requests for more sophisticated products than Ethernet leased lines.

Similarly, in the context of corporate access, the JCRA consultation document shows that the demand is for Ethernet, and JT already has a good portfolio of such products, with the possibility of developing a 100Gbit/s product in the future (for itself and others) if demand arises.

Figure 2 illustrates the move of subscriptions towards leased lines of higher capacity from 2015 to 2020. This suggests that the business connectivity services currently offered in Jersey suitably answer the needs of the market.

Figure 2: Evolution of the number of on-island leased lines by bearer [Source: JT, 2020]



Redundancy is already available and supplier diversity does not necessarily increase if it relies on dark fibre

Physical redundancy is not improved by supplier diversity if alternative suppliers use dark fibre from JT. Only an additional physical fibre route, regardless of whether it is installed by JT or an OLO, would provide physical

¹² Paragraph A4.6, Figure 10

¹³ Paragraph 3.15

redundancy. Such a route is already available in the form of a second physical leased line with a diverse path, albeit at the same additional cost as the first leased lines and small diversity charges. Last year, 110 circuits were marked as diverse, i.e. around 10% of the total number of circuits.

In terms of equipment redundancy, the following needs to be considered:

- Equipment redundancy would only be improved if a customer bought two leased lines, one from JT and one from an OLO, but this would also mean paying about twice as much as for a single leased line. Moreover, physical redundancy would only be provided if JT and the OLO used a diverse path rather than the same path on two fibres in the same cable. If a customer merely moved its subscription to a leased line service provided by an OLO using dark fibre from JT, there would still be a single point of failure, and this would lie with the OLO rather than with JT.
- OLOs already have the option to buy a business connectivity product that directly connects two access points, bypassing JT's core network, and therefore unaffected by equipment failures that may arise in JT's core network.

Furthermore, requiring JT to implement a dark fibre remedy would lead to a diversion of resources (financial, as described in section 7.1.2, and staff). If the JCRA's aim is to improve resilience for businesses in Jersey, the best way is to allow JT to focus its efforts on improving and upgrading its existing network to the benefit of all customers in Jersey (retail and wholesale) rather than requiring JT to divert resources to offer a dark fibre product whose benefits are highly dubious, as explained throughout section 7.1.

8 Proposed remedies in the wholesale market

8.1 Question 11

Question 11: What are your views on the potential design parameters for a dark fibre access remedy as discussed in Box 3? In particular, what type of circuits do you think dark fibre should be available on (end-to-end, tail circuits, inter-exchange) and how should a co-location remedy be structured if needed?

JT believes that dark fibre would be an inappropriate remedy for the business connectivity market for the various reasons indicated in its response to the other questions of the consultation document.

As explained in JT's answers to Question 10, and illustrated in Annexes **Error! Reference source not found.** and **Error! Reference source not found.**, the implementation of dark fibre would entail significant costs, in particular linked to the lack of space and power available in JT's exchanges and SDRs and the likelihood that additional fibre rings would need to be deployed given the less efficient use of fibres with dark fibre than with JT's IP core, or through the of other multiplexing technologies such as DWDM or OTN. As also explained in JT's answers to Question 10, the recovery of these costs would be highly uncertain.

8.2 Question 12

Question 12: Do you agree with the Authority's preliminary proposals for the set of regulations to be imposed on JT? If you do not agree you should provide all of your analysis and assessment.

JT does not agree with the Authority's preliminary proposals for the set of regulations to be imposed on JT for the various reasons presented in the remainder of this section.

8.2.1 International precedents are very limited and weak

The international precedents mentioned by the JCRA are in general poor examples to support the case for the introduction of dark fibre. In particular:

- The international precedents presented by the JCRA in Box 2 of the consultation document are remedies in markets 3a/3b (wholesale local access/wholesale central access for broadband) rather than in market 4 (leased lines), with the exception of Austria and the UK.
- The *BEREC Report on Access to physical infrastructure in the context of market analyses*¹⁴ identified only **one country** (Austria) where dark fibre is used as a remedy in market 4 (it was written/published before the decision to impose a dark fibre remedy in market 4 in the UK). On the other hand, the report identified three

¹⁴ BEREC Report on Access to physical infrastructure in the context of market analyses, BEREC, 13 June 2019 https://berec.europa.eu/eng/document_register/subject_matter/berec/reports/8597-berec-report-on-access-to-physical-infrastructure-in-the-context-of-market-analysis

countries where dark fibre is imposed as a remedy in market 3b, and 19 countries where it is imposed in market 3a.

- In the UK, the dark fibre remedy is restricted to inter-exchange lines only, as indicated in Box 2, and is therefore not used for access (i.e. not used for mobile backhaul or corporate networks).
- In Austria, adoption of dark fibre is very low. Out of about 16,000 terminating segments of leased lines,¹⁵ A1, the Austrian incumbent, told JT that it rents less than 100 wholesale dark fibres. It is also worth noting that dark fibre was already available in the retail market before it was imposed as a remedy in the wholesale market.
- Most markets are much larger than Jersey and can sustain a larger number of competitors. The population of Austria, for example, is about 80 times larger than the population of Jersey (8 901 064¹⁶ versus 107 800¹⁷ at the end of 2019/beginning of 2020).
- The JCRA has not considered the specific details of the JT network, which may be different to other markets (see more on this in JT’s answer to Question 10).

8.2.2 The licence conditions applicable to JT do not allow for the imposition of a dark fibre remedy

The JCRA relies in particular on Licence Condition (LC) 25 and LC 26 in the consultation document to justify its ability to impose a dark fibre remedy in the business connectivity market. None of these licence conditions would allow such a remedy.

LC 25 compels JT to provide an active, not a passive, wholesale service

Paragraph 9.8 of the consultation document indicates that “Condition 25.1 of JT’s licence states that:

‘The Licensee shall at the request of an Other Licensed Operator or if directed by the JCRA, make Equal Access available to that Other Licensed Operator. The JCRA may direct the terms upon which such Equal Access shall be provided and the JCRA may make subsequent directions modifying or supplementing the regulation of Equal Access’.”

Although that may seem relevant, the text of Condition 25.1 continues by adding that

¹⁵ See “Mietleitungen”, chart “Anzahl terminierender Segment” (third chart in this section) of the “RTR Telekom Monitor, 2. Quartal 2020”, available at <https://www.rtr.at/TKP/aktuelles/publikationen/publikationen/Datenvisualisierung/telekom-monitor-q22020-daten.de.html>

¹⁶ Austrian population reached 8.901 million on 1 January 2020 – increase of 0.48% in 2019, Statistics Austria, last changed 06.07.2020, available at https://www.statistik.at/web_en/statistics/PeopleSociety/population/population_stock_and_population_change/123837.html

¹⁷ Population estimates, 2019 population estimate, States of Jersey, available at <https://www.gov.je/Government/JerseyInFigures/Population/Pages/Population.aspx>

“In this Condition, ‘Equal Access’ means a facility provided whereby a User can access the Telecommunications System or Telecommunications Services offered by an Other Licensed Operator. The User’s choice may be made in either of the following ways, subject to the requirements of the direction:

- (a) by pre-selection, that is to say the User registers with the Licensee the name of the Other Licensed Operator which will convey all his calls (but the Licensee may offer a facility to overwrite the preference in the case of any particular call); or*
- (b) on a call-by-call basis using any Numbers or codes allocated for this purpose by the appropriate licensing authority.”*

LC 25 compels JT to offer a carrier pre-selection service: JT still remains responsible for connecting a user access line to its equipment before passing on the call to an OLO, which itself will be in charge of the retail aspects such as billing the user for these calls using carrier pre-selection. As such, the obligation imposed by LC 25 is very similar to the active wholesale leased lines service provided by JT to the OLO, but very different from a dark fibre service for which an OLO would need to install its own access active equipment.

LC 26 is concerned with the interconnection of networks owned by different providers, not with offering passive access

Paragraph 9.16 of the consultation document indicates that “Condition 25.6 of JT’s licence states that:

“The Licensee shall, within ninety (90) days of the commencement of this licence make publicly available a template Reference Interconnect Offer (‘RIO’) which shall contain the terms, schedules of interconnection and pricing of interconnection between the Licensees network and any Other Licensed Operator whose Licence terms enables them to Interconnect with another Licensed System”.”

Paragraph 9.17 of the consultation document then adds that “The Authority proposes that JT should be obliged to publish and maintain a Reference Offer for dark fibre access (if imposed) and wholesale leased lines provided on copper, including appropriate technical specifications, and including a mechanism explaining how changes to the Reference Offer will be made and notified.”

A RIO is intended to compel an operator, generally the incumbent, to allow OLOs to connect their own networks to the network of the operator that publishes the reference offer. In the case of dark fibre, there is no network owned by an OLO to connect, as by definition the fibres that would be sold as dark fibre belong to JT and are part of its own network. LC 26 therefore cannot be used to require the implementation of a dark fibre remedy.