



Broadband Quality of Service Framework

T1612G

Consultation Paper

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GUERNSEY COMPETITION AND REGULATORY AUTHORITY

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DEFINITIONS OF KEY QUALITY OF SERVICE TERMS

Download speed: The speed at which a device can receive data from the internet. For example, if a user opens a news app on their phone, the download speed would determine how long it takes to load the feed. It is calculated by dividing the total throughput of data in a given time frame by its duration. Therefore its unit is denoted by units of data over time, usually megabits per second (Mbps).

Upload speed: As opposed to download speed, upload speed characterises the amount of data a device can send to the internet. It is calculated in the same way and denoted in the same units.

Latency: Latency describes the delay of a signal due to the time it takes that signal to travel to its destination, which is measured by the ping rate. It represents the time it takes a data package to complete its roundtrip over the network and the acknowledgment from the server that it was received. As a value of time, it is denoted as such, most often in milliseconds. It is a value for the responsiveness of an internet connection. While latency does not affect speed, high latency lead to fast internet connections feeling slower and less responsive than they should.

Packet loss ratio: The packet loss ratio is the total number of data packets failing to deliver through the network divided by the total number of transmitted packets within a specific time window. For users, packet loss manifests itself in the form of network disruption, slow service and even total loss of network connectivity. Network congestion is a prime cause of packet loss.

Contention ratio: The contention ratio refers to how many users are sharing the data capacity on a provider's line. In the residential broadband context, it is the number of households that are using the same main broadband line as a particular household i.e. if the contention ratio is 20:1, that means 20 households are using one line. All other things being equal, the higher the ratio the lower the broadband speed delivered.

Supply time for initial connection: The duration from the instant of a valid service order being received by a direct service provider to the instant a working service is made available for use. This should exclude cancelled orders.

Fault repair time: The duration from the instant a fault report has been made to the instant when the service element or service has been restored to normal working order.

Bill correctness complaints: The proportion of bills resulting in a customer complaint about the correctness of a given bill, and which is found not to be invalid, per subscription.

Customer complaints resolution time: The duration from the instant a customer complaint is notified to the published point of contact of a service provider and is not found to be invalid to the instant the cause for the complaint has been resolved.

Quality of service (QoS): Usually concerns service related to the network and terminal equipment up to the user interface, such as service installation and repair times, speed and latency. It can be distinguished from 'quality of experience', which focusses on the entire customer experience of the product in question, including the consumer expectation, perception and context of use. For the purposes of this paper, the focus is on QoS.

1. Summary

- 1.1 Given our increasing reliance on broadband for home and business use, whether delivered over fixed or mobile services, it is essential that our broadband services are reliable and perform well.
- 1.2 Broadband consumers' purchasing decisions are driven by both price and quality. Good quality, transparent and published information on service quality performance provides consumers with informed choice and provides clear incentives for telecoms operators to improve quality of service. Good quality information also improves consumers' ability to assess value for money.
- 1.3 However, information about quality of broadband services being provided in Guernsey can be difficult for consumers to obtain. Easily comparable price information can also be hard to access. The absence of sufficient information compromises consumers' ability to make economically efficient choices about the services on offer.
- 1.4 This non-statutory consultation paper asks business and domestic consumers to consider whether Guernsey telecoms operators providing broadband services should be required to measure and publicly report on their quality of service (**QoS**) performance in a clear and consistent manner that allows easy comparison.
- 1.5 This paper also asks whether an independent broadband price comparison tool that provides more easily accessible, comparable pricing information on broadband offers from all Guernsey broadband service providers, should be established.
- 1.6 The proposals under consideration, based on the approach set out in the European Electronic Communications Code (**EECC**) and adapted for the Guernsey situation, would require telecoms operators providing broadband services to:
 - measure their quality of service performance across several technical (e.g. internet access speed) and customer service (e.g. fault repair time) parameters;
 - publish regular reports (every 3 months) on their performance on their websites, in a clear and consistent way that allows easy comparison across operators; and
 - provide broadband plan information to an independent comparison website.

Summary of the GCRA's QoS framework proposals

Scope

- The framework will apply to fixed and mobile broadband services only, given the importance of broadband as an increasingly essential service to individual and business consumers.
- The framework includes technical performance (such as download speed and latency) and customer service (such connection and fault repair times) quality parameters.
- The framework distinguishes between 'network operators' and 'service providers' in the provision of fixed broadband services to account for differing levels of control over network assets.

- The framework will apply separately to fixed and mobile broadband services, and, for particular technical parameters, such as internet access service speed and latency, the framework is expected to be applied at the product level.

QoS parameters to be measured

- Technical parameters:
 - Internet access service speed – download and upload data transmission speeds, measured in megabits (Mbps) or gigabits (Gbps) per second.
 - Network availability – the percentage of time you can access the internet through your broadband service.
 - Latency (ping delay) – a measure of the responsiveness of your internet connection, measured in milliseconds.
 - Packet loss ratio – another measure of responsiveness, measured as the percentage of data packets ‘lost’ in the network system.
- Customer service parameters:
 - Supply time for initial connection of the service.
 - Fault repair time.
 - Bill correctness complaints.
 - Customer complaints resolution time.

Publication requirements

- Information about the performance of QoS parameters to be published by telecoms operators in a standardised manner using a common structured format
- Performance information to be published on a quarterly basis.
- The first QoS parameters to be measured by telecoms operators should cover the period 1 January to 31 March 2023, with the first set of measured results to be published by 30 April 2023.

Price information tool

- Assess the benefits of establishing an independent comparison website.
- Telecoms operators providing fixed and mobile broadband services would be required to:
 - Provide broadband plan information to the comparison website in clear, simple language.
 - On their websites, link to a web version of the information on the comparison website.

1.7 The GCRA is seeking written comments on this consultation paper, with responses from interested parties due by **4pm Tuesday 12 July 2022**.

1.8 The GCRA is administering a short (5 minute) online survey, which is targeted at residential and business consumers of fixed and mobile broadband services in Guernsey. The purpose of the survey is to provide consumers with an easy way of providing feedback to the GCRA on what they see as important from a quality perspective. The survey, which can be accessed at https://www.surveymonkey.com/r/GCRA_Quality_of_Service_Survey, will be open until **4pm Tuesday 12 July 2022**.

1.9 The GCRA has also published a consumer-facing brochure, which can be accessed at <https://www.gcra.gg/cases/2022/t1612g-broadband-quality-of-service-framework/t1612g-broadband-quality-of-service-framework-brochure/>. This is a short and less-technically complex document that is intended to be more accessible to consumers.

2. Introduction and rationale

Introduction

2.1 The GCRA's primary focus is on supporting and maintaining well-functioning markets in Guernsey through the duties placed on the GCRA by law, as set out in Section 3. Well-functioning markets are a key goal of market economies, and their success benefits all aspects of modern life.

2.2 The role of the GCRA is to:

- promote value and choice for Guernsey consumers to the benefit of the Guernsey economy;
- protect the interests of consumers who have no direct way of making their voices heard;
- support development and delivery of Government policy, in particular, in the sectors subject to economic regulation, to achieve the best outcome for Guernsey consumers; and
- keep the operation of markets and regulated companies under review to identify and address new forms of detriment and issues for potential action, and thereby to promote trust in markets.

2.3 The GCRA considers value and choice is promoted when:

- **there is effective and fair competition between businesses;**
- market power is not abused;
- mergers do not substantially lessen competition;
- **regulatory businesses are incentivised to perform.**

with the elements considered specifically relevant to this consultation highlighted.

Rationale for intervention

2.4 In the telecoms industry, consumers' purchasing decisions are driven by both price and quality. However, information about quality of the broadband services being provided can be difficult for consumers to obtain. Easily comparable price information can also be hard to access as a consequence.

2.5 Given our increasing reliance on broadband for home and business use, whether delivered over fixed or mobile services, it is essential that our broadband services are reliable and perform well. The delivery of high quality broadband services at affordable prices to the end-user (the consumer) is a particular policy goal of the States of Guernsey (the **Government**) and therefore a primary focus for the GCRA.

2.6 Reliable, transparent and accessible information on service quality performance provides consumers with informed choice, provides clear incentives for telecoms operators to improve QoS, particularly when their performance is benchmarked against each other and operators in other jurisdictions. Good quality information also improves consumers' ability to assess value for money. Reliable, transparent and accessible comparative broadband retail pricing information is not just important to informing consumer choice. Consumers play an important, but often overlooked, role in ensuring that competition produces the benefits that it promises.

Summary rationale for intervention

Economic theory suggests that imperfect information for consumers will lead to a welfare loss as a result of less than optimal decisions being made. That is, in the absence of sufficient information, consumers are limited in their ability to make economically efficient choices about the services on offer.

The purpose of publicly providing comparable QoS and price information is to assist consumers by enabling them to make better-informed purchasing decisions.

Consumers should also benefit from increased competition as firms compete to offer better quality and lower priced services.

- 2.7 In a competitive environment, the telecoms operators that offer best value for money would be expected to make reliable and up-to-date information on their services publicly available for reasons of commercial advantage. However, Guernsey consumers' have limited or no access to consistent and comparable information on the performance of rival broadband service providers. For example, Sure and Airtel continue to cite the 2018 GCRA Customer Satisfaction Survey.¹ JT conducts a quarterly customer satisfaction survey quarterly, but only for Jersey and which it is of limited use as it provides just one high-level measure with no comparison against its competitors.²
- 2.8 As such, it is not possible for Guernsey broadband customers to easily compare and contrast an individual telecoms operator's performance against its Guernsey rivals or benchmark it against performance in other jurisdictions, such as Jersey or the United Kingdom (UK).
- 2.9 In the development of the EECC,³ the European Union found that QoS has become almost as important as price for consumers. Recognising the benefits of providing consumers with comparable QoS performance information, the EECC empowered national regulatory authorities (NRAs) to set out measurement methods and require publication of such information by telecoms operators.
- 2.10 With regard to price information, although there are only three telecoms operators providing broadband services: Sure (Guernsey) Limited (**Sure**), the incumbent, and two competitors JT (Guernsey) Limited (**JT**) and Guernsey Airtel Limited (**Airtel**), consumers face a complex array of fixed and mobile broadband plans, with varying upload and download speeds and maximum data allowances, along with a range of contract options. Information that is available is presented on multiple webpages on three websites, in different formats, making it challenging for easy comparison by consumers.
- 2.11 This consultation asks business and domestic consumers to consider whether telecoms operators providing broadband services should be required to measure and publicly report on their QoS performance in a clear and consistent manner that allows for easy comparison. It also asks whether an independent broadband price information tool should be assessed, to provide more easily accessible, comparable pricing information on broadband offers from all Guernsey broadband service providers.

¹ <https://www.sure.com/guernsey/whysure/>

² <https://www.jtglobal.com/global/customers-satisfaction-results/>

³ European Union (2018). *Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (Recast)*, 17 December 2018: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L1972>: paragraph 271-272.

Costs and benefits

2.12 Having discussed the expected benefits above, the GCRA recognises that this proposal comes with regulatory costs. Telecoms operators are likely to incur additional operating costs in measuring, collating and submitting quality of service information to the GCRA. The GCRA does not anticipate such costs to be substantial as operators should already be measuring their performance for commercial and internal business governance reasons.

2.13 The GCRA anticipates that establishing an independent broadband price comparison website may entail not insignificant initial one-off design costs, with relatively minor ongoing operating costs. As a means to reduce the initial development costs, should this proposal have merit the GCRA would explore the potential for a shared comparison website with other regulators.

Paper structure

2.14 The remainder of the paper is structured as follows:

- Section 3 sets out the GCRA's legal framework and Government policy relevant to broadband quality.
- Section 4 describes the current provision of broadband services in Guernsey.
- Section 5 summarises previous efforts by the GCRA to monitor and regulate QoS.
- Section 6 describes the proposed QoS framework for broadband service providers.
- Section 7 sets out the proposed QoS measures.
- Section 8 describes the price information measures under consideration.
- Section 9 sets out consultation details and next steps in the consultation process.
- [Annex 1](#) identifies current telecommunications licence conditions relevant to QoS.
- [Annex 2](#) presents QoS approaches in other jurisdictions.
- [Annex 3](#) specifies the technical details of proposed QoS parameters.
- [Annex 4](#) sets out the list of consultation questions.

3. Legal framework and Government policy

Legal and regulatory framework

Legislation

3.1 *The Regulation of Utilities (Bailiwick of Guernsey) Law 2001* (the **Utilities Law**) sets out the general duties which the GCRA (and the States of Guernsey) must take into account in exercising its functions.⁴ These include the requirement to protect consumers and other users in respect of the prices charged for, and the quality, service levels, permanence and variety of, utility services; to ensure that utility services are provided in a way which will best contribute to economic and social development; and to introduce, maintain and promote effective and sustainable competition.⁵

3.2 *The Regulation of Utilities (States' Directions) (Bailiwick of Guernsey) Ordinance, 2012* sets out six principles of economic regulation that the GCRA is required to follow, summarised below:⁶

- Accountability – regulate within the framework of duties and policies set by the States.
- Focus – focus on protecting consumer interests through competition where possible, or a system replicating competitive outcomes if not, with a focus on outcomes.
- Predictability – provide a stable and objective regulatory environment.
- Coherence – develop frameworks that are a logical part of States broader policy context and priorities.
- Adaptability – evolve as circumstances change.
- Efficiency – make proportionate, cost-effective, timely and robust interventions and decisions.

3.3 Section 5(1) of *The Telecommunications (Bailiwick of Guernsey) Law, 2001* (the **Telecoms Law**) provides that the GCRA may include in licences such conditions as they consider appropriate, having regard to objectives set out in Section 2 of the Regulation Law, and the enforcement of the Utilities Law and the Telecoms Law.

Current licence requirements

3.4 Licensed operators are not currently subject to any active, specific quality or service targets in relation to broadband. There are, however, a number of broader licence conditions that relate to licensees setting, publishing and reporting on performance against service quality or targets.

3.5 Fixed licences contain conditions 16 and 17 that require the licensee to publish a statement setting out minimum service levels for all licensed services it offers, and provide six-monthly reports to the GCRA on the extent to which it has met the service levels (see [Annex 1](#)). There is little evidence that licensees are meeting this condition, either via publication or reporting to the GCRA.

⁴ Section 2 of the Utilities Law.

⁵ These broad objectives were maintained in the transfer of functions and responsibilities to GCRA, as set out in the *Guernsey Competition and Regulatory Authority Ordinance, 2012*.

⁶ *The Regulation of Utilities (States' Directions) (Bailiwick of Guernsey) Ordinance, 2012*:
<https://www.guernseylegalresources.gg/CHttpHandler.ashx?id=75588&p=0>

3.6 Mobile licensees have a similar condition 15, which provides for the GCRA to request a report, rather than requiring provision at a given frequency (see [Annex 1](#)). Licence condition 16 supports licensee's cooperation with other licensed operators and the GCRA to develop a range of service quality and performance indicators that enable customers to make informed choices when selecting a mobile telecommunications service provider.

Government telecommunications policy

3.7 The delivery of high quality broadband services to the consumer is a key Government policy goal. The Government's overarching telecoms strategy, *The Future of Telecoms*, published in June 2018,⁷ sets out three key objectives in relation to broadband services, namely provision of:

- fibre to business districts within 2-3 years;
- high quality super-fast broadband up to 100 Mbps to all residential properties within 2-3 years; and
- next generation mobile technology in line, or earlier than the UK (5G).

3.8 This was followed by a policy letter: *Delivering Next Generation Digital Infrastructure*, published in September 2021, which set out a proposal to speed up the island-wide rollout of fibre and reaffirms support for next generation mobile as a medium-term objective.⁸ The policy letter confirms the Government's focus on quality. For example, the first objective in delivering next generation digital infrastructure is: Effective regulation to deliver cost and quality:

This objective will ensure that the experience of home and business users when they use telecommunication services meets cost and quality expectations for the level of service purchased. This will continue to be an important part of the work of the GCRA.⁹

3.9 The GCRA's view is that this consultation on proposed measures to require licensees providing broadband services to provide quality performance information to consumers, which will better inform consumer choice and provide an incentive for operators to invest in quality, is consistent with the Government's goal to deliver high-quality broadband services to Guernsey consumers.

⁷ States of Guernsey (2018). *The Future of Telecoms*, Committee for Economic Development, June 2018: <https://www.gov.gg/article/165840/Guernseys-first-ever-Telecoms-strategy-published>

⁸ States of Guernsey (2021). *Delivering Next Generation Digital Infrastructure*, Committee for Economic Development, September 2021: <https://www.gov.gg/article/185510/Delivering-Next-Generation-Digital-Infrastructure>

⁹ States of Guernsey, 2021: page 27.

4. Current broadband service provision in Guernsey

Broadband service providers

3.10 Broadband provision to retail customers in Guernsey can be separated into three, tiered markets:

- **Top tier** – super fast, symmetrical up and down speed **leased lines** (also known as private circuits), a high quality service governed by service level agreements, largely for business and Government customers.
- **Middle tier** – **fixed broadband** services (including fixed mobile)¹⁰ primarily provided over copper-based Asynchronous Digital Subscriber Line (**ADSL**) and Very high bit rate Digital Subscriber Line (**VDSL**) with an increasing switch to superfast fibre to premises for residential and business customers.
- **Lower tier** – **mobile broadband** provided over mobile devices.

3.11 It is the middle and lower tiers, fixed and mobile broadband, that are relevant to this consultation. This is because the high quality leased lines market is governed by detailed service level agreements between the service provider and customer, which include service quality measures.

3.12 In Guernsey, there are three licensed telecoms operators offering retail fixed and mobile broadband services to domestic and business customers: [Sure](#), the incumbent, and two competitors [JT](#) and [Airtel](#).

Fixed broadband

Operators and technology

3.13 The principal fixed broadband access technologies on Guernsey are ADSL and VDSL, together known as **xDSL**. ADSL is based on a copper line all the way from the local telephone exchange to the customer premises. VDSL uses fibre to a street cabinet and a final copper connection to the customer premises and is sometimes referred to as Fibre to the Cabinet (**FttC**).

3.14 Fibre to the Premises (**FttP**) has sufficiently similar characteristics to xDSL and is used for the same purpose (that is to access to the Internet) and is therefore included in the same market. From a user perspective, the principal difference between the technologies is access speed.

3.15 Sure has a considerable network of fibre laid in the island and delivers its broadband services primarily through FttC, with VDSL technology allowing maximum connection speeds of circa 100 Mbps (megabits per second). Services with download speeds of up to 20 Mbps are delivered using ADSL technology, while higher speeds in a range up to 100 Mbps are delivered using VDSL. Sure is rolling out FttP connections, and supported by a Government contract aims to have a ubiquitous FttP network across the whole of the Bailiwick by 2026.

3.16 JT obtains some fixed broadband services through wholesale arrangements with Sure and is also building a more limited FttP access network on Guernsey. This initially connected schools and other

¹⁰ Fixed mobile is broadband provided over the 3G and 4G mobile networks to a fixed router (rather than a mobile device), sometimes called a MiFi device.

Government buildings and has been trialled in a number of residential areas (such as Havelet Waters).¹¹

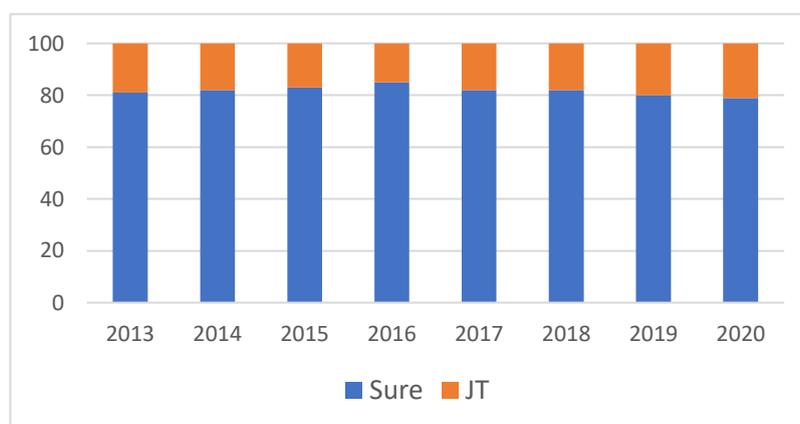
3.17 Airtel has no existing fibre assets in Guernsey, but has recently entered the fixed broadband market, as a wholesaler using Sure's network.¹²

3.18 Fixed broadband also includes mobile broadband provided as a form of fixed access by the three mobile operators (known as data only mobile broadband or data SIMS).¹³ This is provided over their 3G and 4G mobile networks using a router in the customer premises through which desktop computers and other devices can access broadband.

Market size and share

3.19 Since 2015, there has been a gradual upward trend in fixed broadband subscriptions, rising to 27,559 in 2020. Sure is the major player, with nearly 80 per cent of the retail market in 2020. JT has been gradually gaining an increasing share of the market over the past 5 years.

Figure 3.1: Market share (%) by numbers of fixed broadband subscriptions, Guernsey



Source: Statistics Jersey (2021).

Guernsey fixed broadband plans

3.20 In February 2022, Sure, JT and Airtel (the latter two wholesaling off Sure's fixed network) offer unlimited fixed broadband plans to residential customers, including line rental, at advertised average download speeds ranging from 16 to 87 Mbps.^{14,15} JT also offers fibre broadband plans in certain locations on its own network with advertised parameters ranging from 30 Mbps download/ 3 Mbps upload to 1 Gbps download/ 50 Mbps upload.¹⁶

3.21 All three operators also offer fixed mobile plans over their own 4G mobile networks, with a range of different maximum data downloads.

¹¹ <https://www.jtglobal.com/guernsey/fibre-broadband/>

¹² <https://www.airtel-vodafone.com/discover/products-and-services/home-broadband-guernsey>

¹³ Fixed broadband services using 4G radio access is used by a segment of the market as a substitute for landline broadband access provided, at the retail level.

¹⁴ <https://www.sure.com/guernsey/broadband-and-home/broadband/unlimited-broadband/>

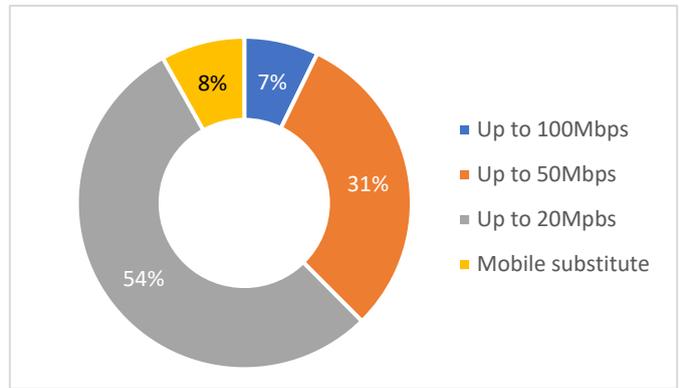
¹⁵ <https://www.jtglobal.com/guernsey/broadband-plans/>

¹⁶ <https://www.jtglobal.com/guernsey/fibre-broadband/>

International speed and price comparison

3.22 The proportion of broadband subscriptions in Guernsey with download speeds of up to 50 and up to 100 Mbps has increased from about 30 per cent in 2019 to 38 per cent in 2020. This includes fibre-based services, notwithstanding that fibre connections have different characteristics from those delivered by xDSL over copper.

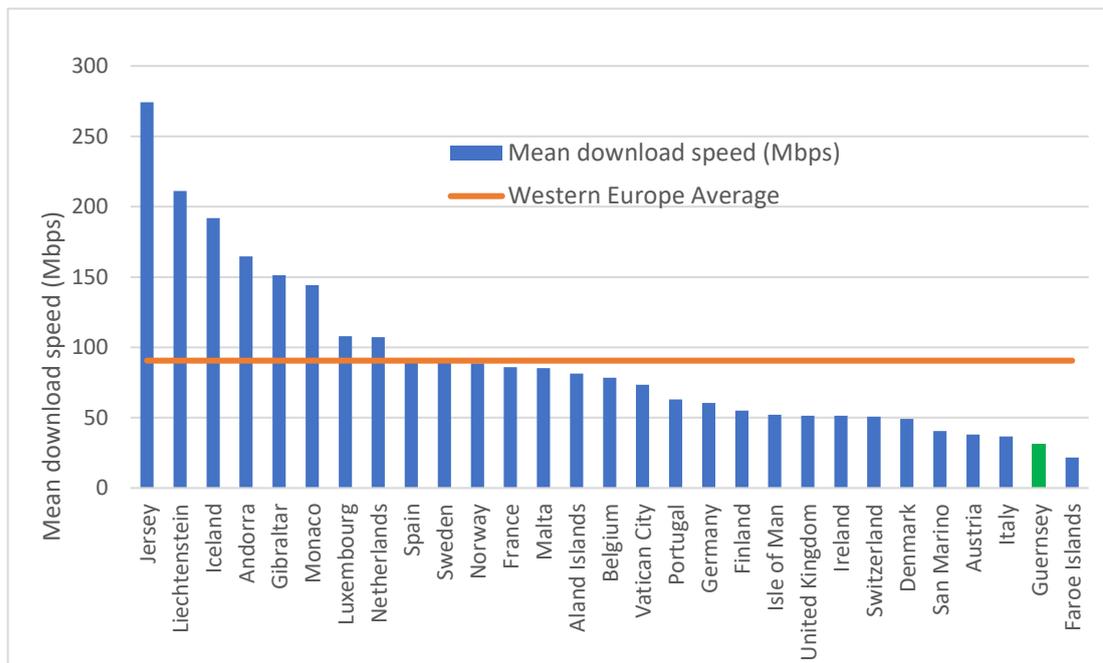
Figure 3.2: Fixed broadband subscriptions by download speed, Guernsey 2020



Source: Statistics Jersey (2021).

3.23 In the 2021 broadband speed league table published by Cable.co.uk, Guernsey is in second last place in Western Europe, with a mean download speed of about 31 Mbps. The United Kingdom is on about 52 Mbps, with Jersey in first place with 274 Mbps. The average speed for the Western Europe region is about 91 Mbps, nearly three times Guernsey’s average.

Figure 3.3: Broadband download speed Western Europe league table, 2021



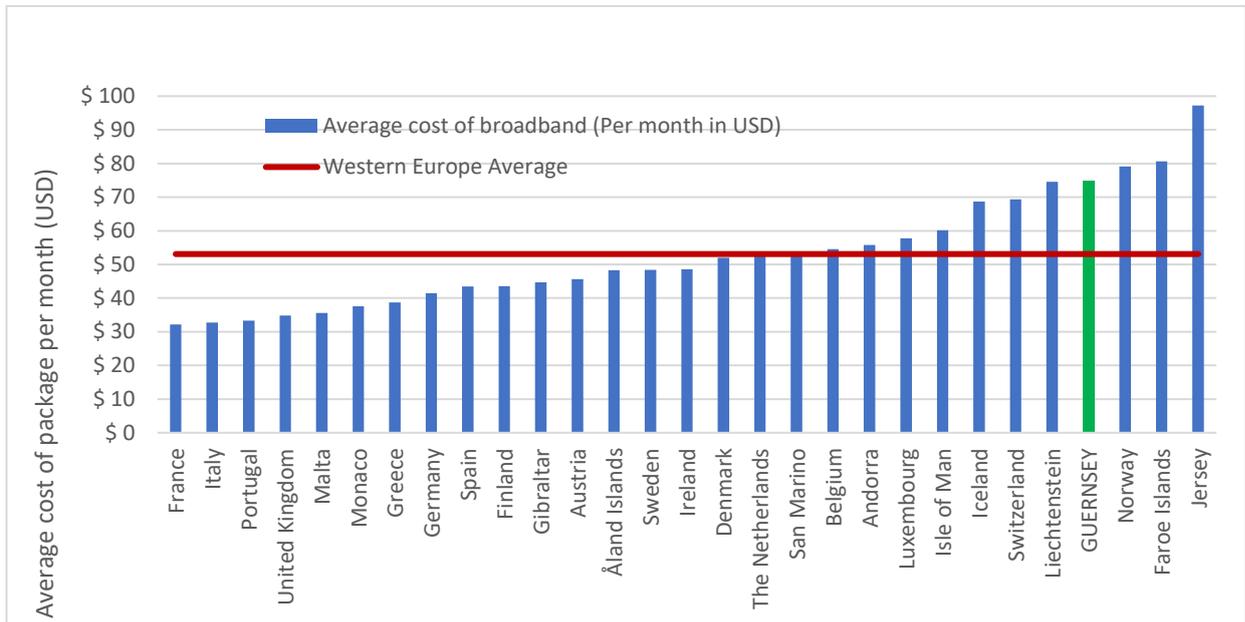
Source: Cable.co.uk Worldwide broadband speed league 2021.¹⁷

3.24 In the 2020-21 broadband price league table published by Cable.co.uk, Guernsey is in 26th place out of 29 in Western Europe, with an average monthly broadband charge of about USD\$75. This is

¹⁷ <https://www.cable.co.uk/broadband/speed/worldwide-speed-league/>

more than double the United Kingdom average of about US\$35. The average monthly broadband charge for the Western European region is about US\$53.

Figure 3.4: Western Europe fixed broadband average plan cost, 2020-21



Source: Cable.co.uk Worldwide broadband prices 2020-21.¹⁸

Mobile broadband

Operators and technology

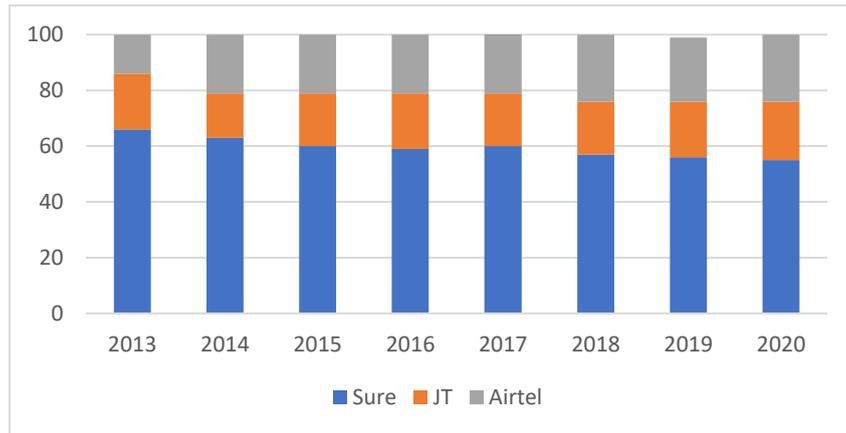
3.25 The mobile broadband market is differentiated from the fixed broadband market in that there are three full-service end-to-end network operators providing retail services in Guernsey, over their 3G and 4G networks: Sure, JT and Airtel.

Market size and share

3.26 In 2020, there were 71,622 active mobile subscriptions, a minor decrease on 2019, with the majority post-paid (74 per cent). Sure has gradually been losing market share to the other operators over the past 8 years, although this trend appears to have slowed between 2018 and 2020. In 2020, Sure had 55 per cent of the market, with Airtel on 24 per cent and JT on 21 per cent.

¹⁸ <https://www.cable.co.uk/broadband/pricing/worldwide-comparison/>

Figure 3.5: Market share (%) by numbers of mobile broadband subscriptions, Guernsey



Source: Statistics Jersey (2021).

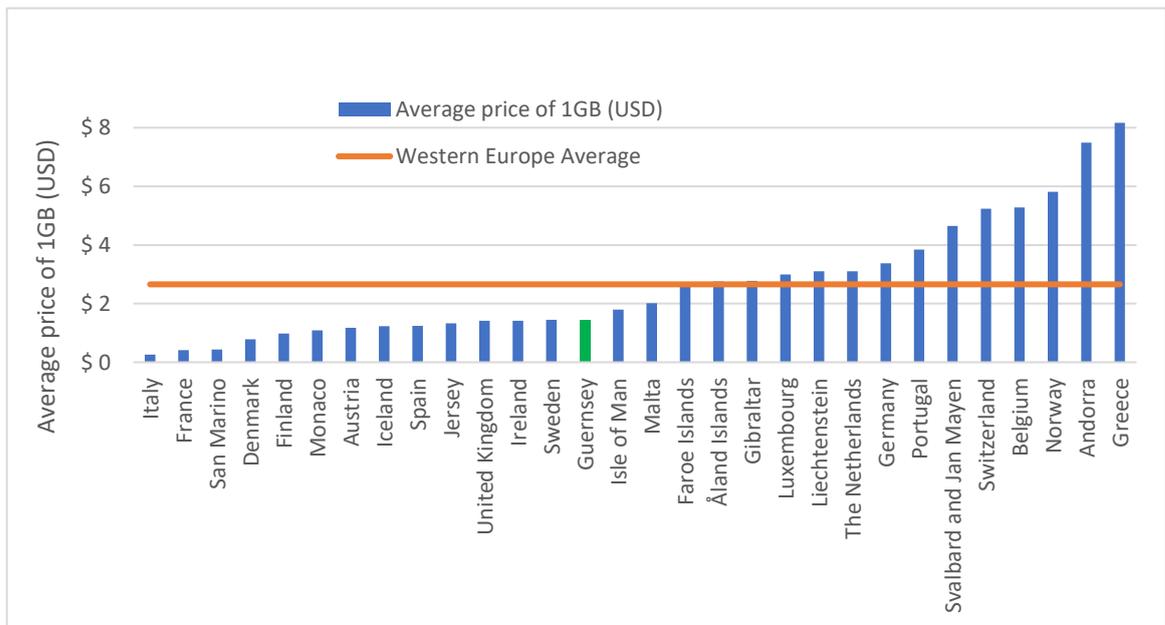
Guernsey mobile broadband offers

3.27 All three mobile network operators offer post- and pre-paid mobile plans, with a broad array of upload speeds and maximum data downloads, along with a wide range of talk minutes, texts, roaming arrangements and contract length. For example, in February 2022, Sure offers four mobile post-paid plans with advertised download speeds ranging from 3 Mbps to ‘the maximum download speed in your area’.¹⁹

International price comparison

3.28 In the 2021 mobile broadband price league table published by Cable.co.uk, which assesses the cost of 1 Gigabyte (GB) of mobile data, Guernsey is in 14th place out of 30 countries in Western Europe, with an average cost of US\$1.46 per GB, well below the regional average of US\$2.66 per GB.

Figure 3.6: Western Europe mobile broadband average cost per GB, 2021



Source: Cable.co.uk Worldwide broadband speed league 2021.²⁰

¹⁹ <https://www.sure.com/guernsey/mobile/pay-monthly/>

²⁰ <https://www.cable.co.uk/mobiles/worldwide-data-pricing/>

5. Previous Guernsey QoS activities

Introduction

5.1 Over the last ten years the GCRA has carried out a number of activities related to improving and/ or measuring and reporting on the quality of broadband services in Guernsey.

2013 Measures of Quality of Telecommunications Services

5.2 In March 2013, the GCRA consulted on quality of telecoms services, which included a broad range of QoS and experience targets.²¹ The purpose was to inform a GCRA decision on whether to issue directions to telecoms operators in respect of QoS measurement, associated performance targets and compensation payment mechanisms for failure to meet targets. The measures and performance targets related to broadband that were considered are shown in Table 5-1.

Table 5-1: Proposed broadband wireless and fixed services measures, 2013

QoS Network Performance	Proposed Target Level
Available network upload and download speeds	To be published at various times of the day
Service availability	>99 per cent
Supply time for connection	90 per cent within 3 working days and 100 per cent within 7 working days
Fault repair time	95 per cent within 24 hours
Successful data transmission	Download attempts should be more than 95 per cent and upload attempts should be more than 95
Average Throughput for Packet data	>90 per cent of the subscribed speed
Latency	< 150ms for Audio; < 250ms for Data;
Drop rate	1 per cent

Source: GCRA, 2013: page 18.

5.3 In relation to fixed and mobile broadband services, the GCRA found that consumers care about factors such as upload and download speeds, quality of web browsing, contention ratios, time to download files, information on lost connections and latency (more of a concern in mobile broadband than fixed broadband).

5.4 The consultation did not proceed to a direction and therefore no quality performance measures were implemented.

²¹ GCRA (2013). *Measures of Quality of Telecommunications Services in the Channel Islands Consultation paper*, March 2013: <https://www.gcra.gg/media/3896/t967gj-measures-of-quality-of-telecoms-services-call-for-information.pdf>.

2015 Customer Experience Study

5.5 In 2015, the GCRA undertook a comprehensive customer experience study of fixed network broadband.²² This entailed a detailed study of the internet experience of Channel Island consumers of fixed line broadband services provided by Sure, JT and Newtel. It investigated all the network elements that contribute to the consumer's internet experience and not simply the speed they obtain from their local access networks. The study found that:

Channel Island consumer experience of the Internet accessed through fixed broadband connections was often acceptable to good, but there were situations where it could be frustrating and where consumers might occasionally give up.²³

Customer Satisfaction Surveys

5.6 The GCRA previously implemented a regular annual Telecoms Customer Satisfaction in the Channel Islands survey, with the last one published in 2018.²⁴ The surveys covered key aspects of customer satisfaction, including QoS, reliability, value for money, and complaints handling by the main broadband, mobile and landline operators to their customers.

5.7 The purpose was to provide an independent view of Sure, JT and Airtel's performance to help consumers make more informed decisions, and to incentivise operators to improve the quality of their services. The reports followed Ofcom's approach of benchmarking the performance of local operators against the results achieved in the UK. For example, in the GCRA's 2018 survey report, 69 and 68 per cent of Sure and JT's home broadband customers, respectively, were satisfied with their service, lower than the UK average of 80 per cent.

Table 5-2: Satisfaction with fixed broadband provider, 2018

	JT (n=40)	Sure (n=195)	UK average
Satisfaction with overall service	68%	69%	80%
Satisfaction with reliability of service	68%	64%	80%
Satisfaction with speed of service	63%	53%	77%
Satisfaction with value for money	48%	42%	78%

Source: GCRA, 2018: page 13.

²² GCRA (2016) *Channel Islands Fixed Network Broadband 2015 Customer Experience Study*, May 2016: <https://www.gcra.gg/media/4261/t1120gj-broadband-customer-experience-study-information-note.pdf>

²³ GCRA, 2016: page 6.

²⁴ GCRA (2018). *Telecoms Customer Satisfaction in the Channel Islands 2018*, September 2018: <https://www.gcra.gg/media/597877/t1370gj-telecoms-customer-satisfaction-report-information-note.pdf>

6. Proposed broadband QoS framework

Introduction

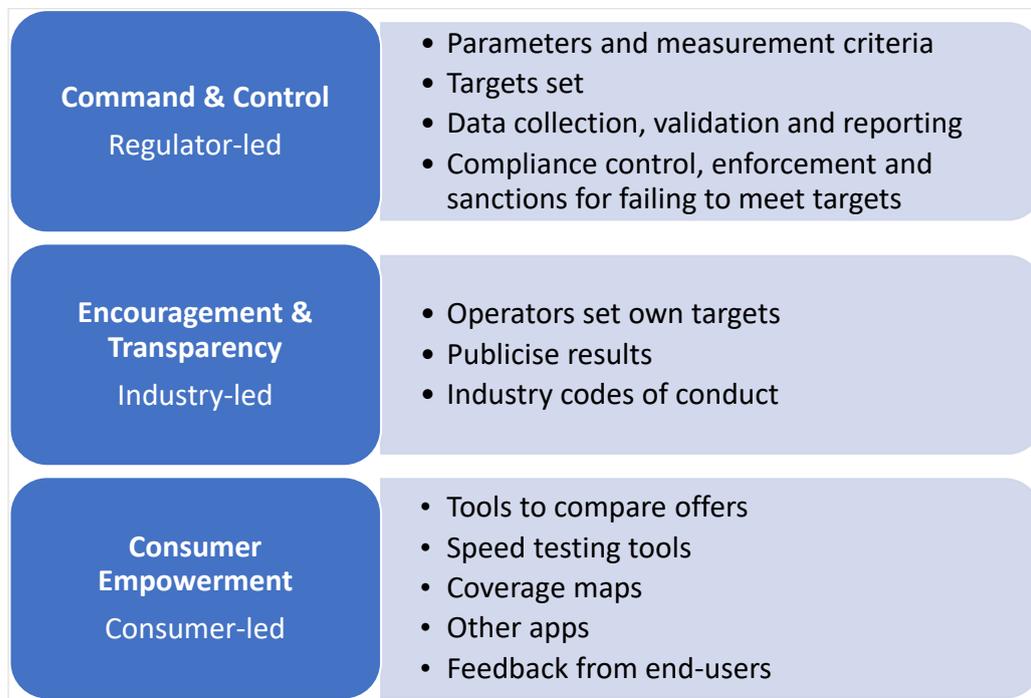
6.1 This section first sets out the GCRA’s proposed high-level approach to broadband QoS regulation. It then summarises the European model, before detailing the scope of the GCRA’s proposed framework, which follows the European model. This section concludes with the timeframe for the introduction of the proposed framework in Guernsey.

Proposed high-level regulatory approach

Options

6.2 There are essentially three broad, non-mutually exclusive, regulatory approaches to QoS regulation, shown in Figure 6.1, along a sliding scale of regulatory intervention.

Figure 6.1: QoS regulatory approaches



Source: Cullen International (2019).²⁵

6.3 **Command & Control** is a relatively heavy-handed regulator-led approach, one that commonly involves the regulator mandating targets that operators are required to meet, often accompanied by fines for failing to meet targets.

6.4 The second, **Encouragement & Transparency**, is an industry-led model with operators usually setting their own targets and publishing results, and may involve industry codes of conduct. For example, in the United Kingdom, Ofcom, in collaboration with internet service providers, has

²⁵ Cullen International (2019). *The role of telecommunications service quality in the Digital Economy*. ITU-IMDA Workshop –Singapore, 19 August 2019: https://www.cullen-international.com/dam/jcr:173c2f08-e5f2-4b86-ae4f-8a2116af39fa/cullen-international_elena-scaramuzzi_role-telecommunication-service-quality-digital-economy.pdf

published voluntary codes of practice concerning information on fixed access broadband speeds for residential and business customers.²⁶

- 6.5 The third approach is **Consumer Empowerment**. This focusses on providing the consumer with the tools to make informed choices. This may include measures such as compensation for poor performance payable to the affected consumer, coverage maps, try and buy contracts and price comparison apps. For example, Ofcom publishes regular information designed to assist consumers to choose the best service provider,²⁷ supported by an online broadband and mobile coverage checker tool.²⁸ The French regulator, ARCEP, requires fixed broadband telecoms operators with more than 1 million active users to install software, an application programming interface, in their customers' modems to improve QoS measurements.²⁹

European approach

- 6.6 As noted in Section 2, the EECC provides for NRAs to impose QoS obligations on telecoms operators that provide publicly available interpersonal communications services and internet access services. The key elements of the EECC approach are set out below.

Article 104: QoS related to internet access services and publicly available interpersonal communications services

Regulators should be able to collect comparable information on QoS offered by providers of publicly available internet access services and interpersonal communications services.

Article 103: Transparency, comparison of offers and publication of information

End users' right to have access, free of charge, to at least one independent comparison tool which includes the ability to compare prices and QoS performance between available offers.

Annex X: QoS Parameters

Regulators, in coordination with other competent authorities, should set out the measurement methods to be applied by the service providers in order to improve the comparability of the data provided.

- 6.7 The EEECC requires the Body of European Regulators for Electronic Communications (**BEREC**) to publish guidelines on QoS parameters to provide guidance to NRAs. BEREC published its QoS guidelines in 2020 (the **Guidelines**).³⁰ The Guidelines define:

²⁶ Ofcom (2018). *Better Broadband Speed Information Voluntary Code of Practice (Residential)*, 1 March 2018: https://www.ofcom.org.uk/data/assets/pdf_file/0026/111698/statement-voluntary-code-practice-residential.pdf

²⁷ Ofcom (2021). *Comparing customer service: mobile, home broadband and landline*, 7 May 2021: https://www.ofcom.org.uk/data/assets/pdf_file/0027/218655/comparing-service-quality-2020.pdf

²⁸ <https://www.ofcom.org.uk/phones-telecoms-and-internet/advice-for-consumers/advice/ofcom-checker>

²⁹ ARCEP (2021). *The state of the internet in France*, July 2021: https://en.arcep.fr/uploads/tx_gspublication/report-state-internet-2021-edition-july2021.pdf

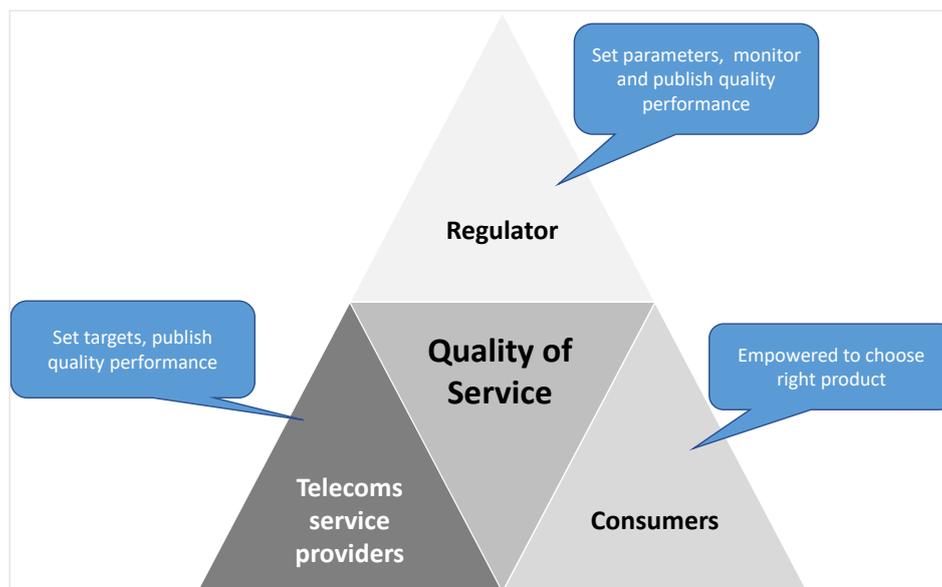
³⁰ BEREC (2020). *BEREC Guidelines detailing Quality of Service Parameters*, BoR (20) 53, 6 March 2020: https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/90

- the relevant QoS parameters, including the parameters relevant for end-users with disabilities;
- applicable measurement methods for these parameters, including, where appropriate, the European Telecommunications Standards Institute (ETSI) and International Telecommunication Union (ITU) standards set out in Annex X of the EECC in relation to interpersonal communications services and internet access services, respectively;
- the content and format of publication of the QoS information, and
- quality certification mechanisms.

GCRA's proposed regulatory approach

6.8 With regard to the high-level regulatory approaches described above, the GCRA notes that regulators commonly adopt a mix of the three approaches. The European approach set out in the EECC is not prescriptive and also lends itself to a mix of high-level approaches. In coming to a view, the GCRA has also been mindful of the 'efficiency' principle in the Regulation Law that requires the GCRA to make proportionate, cost-effective, timely and robust interventions and decisions.

Figure 6.2: Proposed high-level regulatory approach



6.9 The GCRA's preliminary view is that a light-handed approach is appropriate in this context, one that adopts the following elements of the three approaches described above:

- Command & Control: regulatory obligation on operators to monitor and publicly report on performance against certain quality measures.
- Encouragement & Transparency: operators to set their own quality targets;
- Consumer Empowerment: pricing tool to compare offers.

6.10 The GCRA therefore proposes to adopt a light-handed approach to its broadband QoS Framework, one that follows the BEREC Guidelines, adapted as necessary to take account of the focus on broadband and the particular circumstances of Guernsey.

Consultation questions

Question 1: Do you agree with the GCRA's proposed light-handed high-level approach to QoS regulation? If not, what alternatives do you suggest?

Question 2: Do you agree with the GCRA's proposal to follow the European approach, as set out in the BEREC guidelines? If not, what alternatives do you suggest?

Scope and application

Broadband only

6.11 The European QoS approach applies to a broad spectrum of telecoms services. This includes publicly available interpersonal communications services (e.g. fixed and mobile telephone voice and text services) and internet access services (e.g. fixed and mobile broadband). The GCRA is proposing to limit the QoS framework to the latter, broadband services, for two reasons.

6.12 The first is the increasing importance of broadband services as a key technology that underpins a modern sustainable economy, providing an increasingly essential service to individual and business consumers in Guernsey. The critical role and significance of broadband connectivity was brought to the fore during the Covid-19 pandemic, which blurred the distinction between home and office-based work. The second, as identified in Section 3, is that delivery of high quality broadband services to the end-user is a key Government policy goal.

6.13 The proposed focus on broadband services should not be taken to imply that the GCRA does not value the quality of interpersonal communication services. The GCRA may consider extending the QoS framework to such services at a later date.

Technical service and customer service parameters

6.14 There are two primary categories of QoS parameters:

- Technical parameters are those that characterise the performance of the network e.g. download speed.
- Non-technical parameters, such as those which reflect on the way that the service provider delivers its service e.g. the time taken to connect and disconnect a user from the network.

6.15 In 2016, Ofcom commissioned a review of residential and business experiences of QoS in fixed line, broadband and mobile telecoms.³¹ The review found that that domestic and business broadband consumers consider QoS encompasses both the technical and non-technical elements:

- technical service performance – how good or poor the provision of the service is; and

³¹ Jigsaw Research (2016). *Quality of service in telecoms: Residential consumer and SME experiences of quality of service in fixed line, broadband and mobile telecoms*, February 2016:

https://www.ofcom.org.uk/_data/assets/pdf_file/0025/78370/jigsaw_quality_of_service_in_telecoms.pdf

- customer service performance – the experience of dealing with a retail provider’s customer services in relation to the service.

6.16 Factors that affect service performance include the reliability of a service and the consistency of connectivity it provides. Customer service includes the ‘touchpoints’ consumers may experience when contacting their retail provider’s customer services in relation to the contracted service. The key requirements for customer services relate to the speed and efficiency of getting any issues resolved.

6.17 The GCRA shares the view that a broadband QoS framework should encompass service performance and customer services measures. The proposed QoS measures and publication requirements are set out in Section 7.

Network control and service providers

6.18 The GCRA recognises that a telecoms operator providing broadband services has full and direct control over its QoS only where that operator owns all the network elements. The proposed QoS framework therefore, where necessary, differentiates between ‘network operators’ and ‘service providers’, where the latter relies on another network operator’s wholesale service to provide a retail service to the customer.

6.19 In the Guernsey context, as discussed in Section 4, this matter is only relevant to fixed broadband services as mobile broadband services are solely provided by mobile network operators. This contrasts with fixed broadband where JT and Airtel compete with Sure as ‘service providers’, utilising Sure’s network. In this circumstance, the service provider has less control over quality than does a network operator providing a broadband service over its own network. Nonetheless, the service provider still has an element of control, by virtue of its service level agreement with the upstream wholesaler, rather than direct control over the network.

6.20 Where a licensed telecoms operator is a service provider for a particular broadband service, in the implementation of the proposed QoS framework that operator will rely on the relevant QoS performance from the underlying network operator to meet its QoS publication obligations.

6.21 Looking forward, the GCRA expects fixed broadband wholesale services to move from the current passive ‘white-label’ product offered by Sure to an active wholesale bitstream product. Bitstream network access allows competitors access to a more bespoke retail product of their own design installed between the incumbent network provider and the end-user. This provides more control, allowing a competitor to provide alternative high-speed services to the end user as well as introduce features that are not dictated by the network provider’s own choice of retail product.

Application by service and product

6.22 The GCRA proposes that the QoS framework be applied separately to fixed and mobile broadband services provided by the telecoms operator. Moreover, for particular technical parameters, such as internet access service speed and latency, the QoS framework is expected to be applied at the product level.

Consultation questions

Question 3: Do you agree with the GCRA's proposal to limit the scope of the QoS Framework to broadband services?

Question 4: Do you agree with the GCRA's proposal to include service performance and customer performance measures in the QoS Framework?

Question 5: Do you agree with the GCRA's proposed approach to dealing with service providers that relay on a network operator to provide retail services to the customer?

Question 6: Do you agree with the GCRA's proposed approach to applying the framework by service and product?

Entry into force of the QoS framework

6.23 Following its standard practice, the GCRA will take into consideration responses to this consultation before issuing a proposed decision. Following consideration of feedback on the proposed decision, the GCRA will then issue its final decision. A final decision is expected to be published by the GCRA by the end of the third quarter 2022.

6.24 The GCRA therefore proposes that the first QoS parameters to be measured by telecoms operators should cover the period 1 January to 31 March 2023. As discussed in Section 7, the first set of measured results would need to be published by not later than 30 April 2023.

Consultation questions

Question 7: Do you agree with the GCRA's proposal for the QoS Framework to be applied from 1 January 2023?

7. Proposed QoS measures and publication requirements

Introduction

7.1 For the scope of this consultation, the GCRA is using the definitions and methodologies established in ETSI³² and ITU³³ standards, as adopted by BEREC in its guidelines. The GCRA is considering requiring telecoms operators to measure broadband performance on the eight bases set out below.

Technical service performance parameters

1. Internet access service speed

Internet access service speed is defined as the time taken for an amount of data to be transferred successfully from Point A to Point B which points are both connected to the internet. The subscriber's end is located at Point A. Data transmission speed is measured in both the download and the upload directions, as follows:

- a) Download data transmission speed refers to the data transmission speed achieved by a broadband connection when data is flowing from the subscriber's end of the connection towards a machine connected to the Internet and acting as a data receiver at Point B;
- b) Upload data transmission speed refers to the data transmission speed achieved by the broadband connection when data is flowing from a machine connected to the Internet, acting as a data transmitter located at point B, in the direction of the subscriber's end of the connection.

2. Availability of Internet Access (network availability)

In line with ETSI ES 202 765-4, availability of internet access is defined as the probability that the end user, through his/her internet connection, is able to reach other network elements which are also connected to the internet. Availability of internet access is further defined as the ratio of the total time during which the access network, the core network and the local and international connections are simultaneously available to the subscriber in a given period of time.

3. Latency (ping delay)

Latency defined as the time interval between the instances that a packet of data is launched from an IP based machine located at Point A to the moment it is received by a machine located at Point B.

4. Packet loss

Packet loss defined as the percentage ratio of those packets sent from Point A in the network which did not reach their intended destination at Point B, to the total number of packets transmitted over a specific time interval.

³² European Telecommunications Standards Institute: <https://www.etsi.org/>

³³ International Telecommunication Union: <https://www.itu.int/en/Pages/default.aspx>.

Customer service performance parameters

5. Supply time for initial connection

The duration from the instant of a valid service order being received by a direct service provider to the instant a working service is made available for use. This should exclude cancelled orders.

6. Fault repair time

The duration from the instant a fault report has been made to the instant when the service element or service has been restored to normal working order.

7. Bill correctness complaints

The proportion of bills resulting in a customer complaint about the correctness of a given bill, and which is found not to be invalid, per subscription.

8. Customer complaints resolution time

The duration from the instant a customer complaint is notified to the published point of contact of a service provider and is not found to be invalid to the instant the cause for the complaint has been resolved.

Consultation questions

Question 8: Do you agree with the GCRA's proposed list of QoS technical and customer service parameters? If not, what alternatives do you suggest?

Publication of information

7.2 The main purpose of the proposed QoS framework is to enable consumers to make well informed decisions when deciding which services are most suitable to their needs. To achieve this objective, the GCRA is proposing that information about the performance of the QoS parameters published by telecoms operators providing broadband services is:

- easily comparable from one operator to another;
- easily accessible and understandable by consumers; and
- frequently updated by operators.

7.3 In order to ensure comparability, the GCRA proposes that the information about the performance of QoS parameters is published by telecoms operators in a standardised manner using a common structured format. At the next stage of this consultation process, the GCRA will present a template to be used by all broadband service providers when publishing QoS performance information.

7.4 In order to ensure that the publication of performance information remains reliable, accurate and relevant to consumers, it is vital that telecoms operators regularly update this information. The GCRA proposes that operators publish quarterly reports about the performance of the quality parameters of their services.

7.5 The objective of empowering consumers can only be accomplished if the information is easily accessible to consumers. To this end, the GCRA proposes that the information gathered by service providers is published on their respective websites, and is linked in a clear and visible manner on any

of the service providers' webpages where any offer, plan or package is being made available by service providers.

7.6 The GCRA therefore proposes that the first QoS parameters to be measured by telecoms operators should cover the period 1 January to 31 March 2023. The GCRA proposes that the quarterly performance results be published not later than one calendar month after the end of each quarterly period. The first set of measured results would therefore need to be published not later than 30 April 2023.

Consultation questions

Question 9: Do you agree with the GCRA's proposals regarding publication of QoS performance? If not, what alternatives do you suggest?

8. Price information measures under consideration

Consumer rationality

- 8.1 As noted in Section 2, access to easily understandable and transparent comparative broadband retail pricing information is critical to informing consumer assessments of value for money and informing their choice of service.
- 8.2 Such access is also important as customers, as consumers, play an important role in ensuring that competition produces the benefits that it promises. The traditional assumption about consumer behaviour is that consumers know which tariff (broadband plan) is best for them. Such ‘rational’ consumer behaviour rests on two key assumptions.
- 8.3 First is that consumers possess full information about the market, including all offers currently available from retailers and the implications of accepting each of those offers for their welfare. In the case of broadband, for example, this would involve the consumer not only knowing the different broadband plans each retailer is offering, but also being able to accurately differentiate between them.
- 8.4 The second assumption is that the consumer always acts in their own best interests.³⁴ In the present case, this would imply that the consumer selects the broadband plan that most cost-effectively meets their consumption requirements.
- 8.5 There is, however, a sizable literature in economics that suggest that consumers do not know which plan or tariff is best for them. Key causes of apparently irrational behaviour include imperfect information and search costs.³⁵
- 8.6 In a relatively complex market such as telecoms with multiple tariff options being offered by retailers, imperfect information can lead to consumers having difficulty correctly evaluating the expected cost of each of the tariffs. Computational complexity may be a prime reason that there is the appearance of irrationality on the part of consumers in that market.
- 8.7 In cases where the information is available but not easily accessible, this means consumers have to search for it. This search activity can be costly, requiring the consumer to commit time and perhaps other resources to the activity.

Impact of imperfect information on consumer welfare

Wilson and Waddams Price (2010)³⁶ report on two studies in the United Kingdom of electricity consumers who switched from one retailer to another. While they find results consistent with search models, such as some consumers settling for prices above the minimum available price, the surprising result is that a considerable number of consumers faced a higher electricity bill as a result of switching. In one study, 20 per cent of consumers were worse off after switching electricity

³⁴ On a strict definition, consumer rationality would imply only this second assumption.

³⁵ Other causes include switching costs and brand loyalty.

³⁶ Wilson, C, and C Waddams Price (2010). *Do consumers switch to the best supplier?*, Oxford Economic Papers 62: 647–68.

retailers. Waddams et al. (2011)³⁷ note that the introduction of more tariffs may increase the complexity of consumer choice, adding to the concerns about whether consumers always choose what is in their own best interests.

- 8.8 Although there are only two providers of fixed broadband services, and three mobile broadband providers in Guernsey, each offers a plethora of plans with a wide range of parameters in different formats on their individual websites, which does not lend itself to easy comparison. The principal findings noted above are therefore still relevant: access to easily available and simple to understand comparative broadband plan information will ensure consumers are better placed to make properly informed purchasing decisions.

Approach in other jurisdictions

- 8.9 In the United Kingdom, in common with many other larger jurisdictions with many retail broadband providers, comparative information is provided through commercial websites.³⁸ Ireland has similar websites, such as Switcher, that also provides gas and electricity plan comparative information.³⁹ Such websites, which are not independent, generally provide ranked, comparative information on plans by speed, data limits, type, contract length and price.
- 8.10 In other jurisdictions, the regulator provides an independent comparison service. In Luxembourg, the Institut Luxembourgeois de Regulation⁴⁰ operates a plan comparison website, for fixed and mobile broadband. The Commission for Communications Regulation (**ComReg**) in Ireland hosts a comparison tool that compares broadband offers from various service providers.⁴¹

³⁷ Waddams, C, Clayton, K and Webster, K (2011). *Benefits and Costs of Introducing Tariff Choice in Uncontested Markets: A Report for Ofwat*. United Kingdom: Ofwat.

³⁸ See, for example <https://broadbanddeals.co.uk/> and <https://www.uswitch.com/broadband/>

³⁹ <https://switcher.ie/>

⁴⁰ <https://web.ilr.lu/FR/Professionnels/Communications-electroniques/Statistiques/Rapports/Pages/default.aspx>

⁴¹ Compare Value: <https://www.comreg.ie/compare/#/services>

Figure 8.1: Compare Value, ComReg Ireland⁴²

Results

START AGAIN

Cheapest per provider

Average monthly cost (low to high)

Broadband
Any speed, any limit

EDIT

SAVE THIS PROFILE

Show only unlimited data

Plan type

Top-up

Billpay

Upfront cost

€0 — €195

0 — 195

Average monthly cost

eir eir mobile Prepay Mobile Broadband 7 Day Pass SHOW DETAILS

10 Mb/s speed 2.5 GB limit No router Top-up (no contract) €79.00 upfront cost €7.99 average monthly cost

MAGNET Magnet Fibre Broadband 60 SHOW DETAILS

60 Mb/s speed No limit No router 12 month contract €0.00 upfront cost €22.50 average monthly cost

Three 3 MBB Prepay SHOW DETAILS

10 Mb/s speed 30 GB limit No router Top-up (no contract) €0.00 upfront cost €30.00 average monthly cost

8.11 In Malta, the Malta Communications Authority hosts a comparison tool that compares broadband offers from various service providers, known as Telecosts.⁴³

Figure 8.2: Telecosts, MCA Malta

Operator	Tariff Plan	Data limit	Upload speed	Download speed	Contract Duration	Monthly cost
melita	Total Connect SIM Only (Portable)	Yes	50Mbps	200Mbps	24 months	Retail Price €10 / month Calculated: €8.75 / month
The first 3 months are free, and a monthly fee of €10 applies after 3 months - €2 monthly paper bill charge - €0.50 monthly payment fee unless a direct debit option is selected						
GO	On the Move 5GB (Portable)	Yes	50Mbps	210Mbps	24 months	Retail Price €9.99 / month Calculated: €9.99 / month
- €2 monthly paper bill charge - Direct Debit Mandate (DDM) is the only payment method accepted with this plan						
epic	Liberty Plus (Portable)	Yes	35Mbps	130Mbps	12 months	Retail Price €10 / month Calculated: €10 / month

Possible scope and approach

8.12 In light of the role played by price information in improving consumer decision-making, as discussed above, the GCRA is considering whether to adopt a similar model to that utilised in Ireland and Malta, and establish an independent comparison website. The intention is that this would become the primary tool to provide reliable and trusted information on a range of comparable broadband offers to residential and business consumers.

⁴² <https://www.comreg.ie/compare/#/services>

⁴³ <https://www.telecosts.com/>

8.13 Should such a comparison website option be taken forward, it could entail operators providing retail fixed and mobile broadband services being required to:

- submit plan information to the comparison website in language, which is clear, simple and widely understood;
- on their websites, link to an HTML version of the plan information on the comparison website;
- submit information to the comparison website on each generally available plan within 2 business days of the plan becoming available to customers;
- remove expired or obsolete plans from publication on the comparison website within 2 business days of the plan becoming unavailable to customers; and
- ensure the information published on comparison website and retailer websites is accurate and up to date.

Consultation questions

Question 10: Do you agree with the notion of establishing an independent broadband price comparison website for Guernsey? If not, what alternatives do you suggest?

9. Consultation and next steps

Consultation

Written responses

- 9.1 The GCRA invites interested parties to submit responses to the broadband QoS and price information proposals outlined in this paper by **4pm Tuesday 12 July 2022**.
- 9.2 All written comments should be clearly marked '*Consultation on Broadband QoS Framework*' and should be delivered by hand or by e-mail to the following address:

GCRA
Suite 4, 1st Floor
La Plaiderie Chambers
La Plaiderie
St Peter Port
Guernsey
GY1 1WG

E-mail: info@gcra.gg

- 9.3 In line with the GCRA's consultation policy, it intends to make comments on the consultation paper available on its website. Any material that is confidential should be put in a separate annex and clearly marked as such, in order that it may be kept confidential.

Online survey

- 9.4 In addition to an opportunity to provide written feedback on this paper, the GCRA has published a short (5 minute) online survey, which is targeted at residential and business consumers of fixed and mobile broadband services in Guernsey. The purpose of the survey is to provide consumers with an easy way of providing feedback to the GCRA on what they see as important from a quality perspective. The survey, which can be accessed at https://www.surveymonkey.com/r/GCRA_Quality_of_Service_Survey, will be open until **4pm Tuesday 12 July 2022**.

Brochure

- 9.5 The GCRA has also published a consumer-facing brochure, which can be accessed at <https://www.gcra.gg/cases/2022/t1612g-broadband-quality-of-service-framework/t1612g-broadband-quality-of-service-framework-brochure/>. This is a short and less-technically complex document that is intended to be more accessible to customers.

Next steps

- 9.6 Following this consultation, the next step is the publication of a proposed decision. A proposed decision will take into consideration comments received on this consultation paper. This will be followed by a final decision.

Annex 1: Licence conditions relevant to quality

Fixed licences

Fixed licences contain a condition that requires the licensee to publish a statement setting out minimum service levels for all licensed services it offers, and provide six-monthly reports to the GCRA on the extent to which it has met the service levels.

Sure Fixed Licence Conditions 16 and 17⁴⁴

16.8 The Licensee shall comply with any directions issued by the GCRA from time to time, regarding any other QoS indicators and measurement methods for Telecommunications Services and shall, as and when required, supply to the GCRA in a form specified by the Authority, the results of its measurements of actual performance against any QoS indicators and measurements so specified, and the GCRA may publish or require publication of such information as the Authority considers appropriate.

17.9 The Licensee shall publish a statement setting out the minimum service levels for Users and Subscribers in respect of each category of Licensed Telecommunications Services it offers, any exceptions to these, and the compensation or refunds it will offer to Subscribers or prospective Subscribers where service levels are not met. The licensee shall also submit the statement to the GCRA.

17.11 The Licensee shall submit at the end of every six months, or at such other intervals as the GCRA directs, a written report to the GCRA setting out:

- a) the extent to which the Licensee has succeeded in meeting the targets described Condition 17.9;
- b) the compensation that has been paid in relation to complaints or disagreements where the Subscribers complaints were upheld and why complaints were dismissed; and
- c) such other matters that the GCRA directs should be included in the report.

Mobile licences

Mobile licenses have a similar condition 15.9 and 15.11, which provides for the GCRA to request a report, rather than requiring one be provided at any particular interval.⁴⁵

Licence condition 16.1 of the mobile licence also requires the licensee to cooperate with OLOs and the GCRA to develop a range of service quality and performance indicators.

Sure Mobile Licence Condition 16.1⁴⁶

16.1 The Licensee shall cooperate with OLOs and the GCRA to develop a range of service quality and performance indicators to enable customers to make informed choices when selecting a mobile telecommunication provider.

⁴⁴ Sure (Guernsey) Limited Fixed Licence, 6 July 2017: <https://www.gcra.gg/media/597684/sure-fixed-final.pdf>

⁴⁵ <https://www.gcra.gg/media/2984/sure-licence-27315-non-confidential-version.pdf>

⁴⁶ <https://www.gcra.gg/media/597684/sure-fixed-licence-signed.pdf>

Annex 2: QoS regulation in other jurisdictions

Quality measures

European Union

BEREC

The Body of European Regulators for Electronic Communications (**BEREC**) has issued guidelines to provide assistance to national regulatory authorities regarding implementation of QoS parameters.⁴⁷ This sets out a detailed list of specific QoS parameters, their definitions and how they should be measured and publication requirements.

Malta

In December 2020, the Malta Communications Authority (**MCA**) launched a public consultation to determine minimum set of QoS parameters to be measured by providers.⁴⁸ The consultation document sets out methodologies providers should follow when measuring QoS parameter performance and proposes service provider publication requirements, including the content, form and manner of publication. The MCA proposes biannual publication of the following QoS parameters on a dedicated webpage for each service provider:

- supply time for initial connection;
- fault repair time;
- response time for operator services;
- customer complaints resolution time;
- dropped call ratio;
- unsuccessful call ratio;
- call setup failure probability;
- packet loss ratio; and
- latency.

United Kingdom

Voluntary Codes of Practice

In collaboration with ISPs, Ofcom has published voluntary codes of practice concerning information on fixed access broadband speeds for residential and business customers. For example, in 2018, Ofcom published the Voluntary Code of Practice (Residential).⁴⁹ The code represents the voluntary commitment

⁴⁷ BEREC (2020) BEREC Guidelines detailing Quality of Service Parameters, March 2020:

https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/9043-berec-guidelines-detailing-quality-of-service-parameters

⁴⁸ Malta Communications Authority (2020). Quality of Service Parameters to be Measured by Internet Access Service Providers and Publicly Available Interpersonal Communications Providers – Public Consultation, December 2020: <https://www.mca.org.mt/sites/default/files/QoS%20Parameters%20Consultation.pdf>

⁴⁹ Ofcom (2018). *Better Broadband Speed Information Voluntary Code of Practice (Residential)*, 1 March 2018:

of ISPs (that signed up) to provide customers with transparent and realistic information on the speeds of their residential broadband services, to help customers manage speed-related problems after buying, and to provide a right to exit without penalty if their speed falls below a minimum guaranteed level. Key elements of the code include:

- More realistic speed estimates at the point of sale – peak times experience: 8-10pm for residential services and 12-2pm for business services.
- Always providing a minimum guaranteed speed and the right to exit connected to this speed at the point of sale.
- Strengthening customers’ rights and extending the right to exit to bundled products.
- Ensuring all customers benefit from the codes, regardless of their broadband technology.

2021 Strategy consultation

Ofcom imposes regulatory QoS standards on BT as an SMP condition, and is proposing to continue this practice in its 2021 strategy to promote investment and competition in gigabit-capable networks.⁵⁰ In its consultation, Ofcom identifies a number of consequences of SMP in relation to QoS, absent regulation:

- Openreach not receiving market signals from switching and lacking incentives to innovate and deliver the QoS customers require, with negative effects on customers including a greater number of faults, slow resolution of those faults and frustration resulting from long delays to the installation of fixed and voice services.
- Undermining of the effective functioning of network access remedies due to the negative impacts on downstream competition by, among other things, affecting switching behaviour e.g. long or uncertain waiting times for an installation or repair may discourage switching with consequent implications for retail competition.

Ofcom therefore proposes to extend a wide range of QoS requirements on BT in relation to physical infrastructure, wholesale local access, leased lines access and inter-exchange connectivity markets in which BT has SMP. The service standards include, installation, repair, order completion and fault repair times along with reporting on a range of key performance indicators.

Channel Islands

The Isle of Man Communications Commission has issued guidance, jointly with the Office of Fair Trading, on the print and broadcast advertising of fixed broadband speeds in the Isle of Man.⁵¹ The guidance covers adverts which include speed claims for residential broadband services, and may be applied more widely to business broadband adverts, where the service is similar. The guidance includes, for example:

https://www.ofcom.org.uk/data/assets/pdf_file/0026/111698/statement-voluntary-code-practice-residential.pdf

⁵⁰ Ofcom (2021). Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26 Volume 5: Quality of Service:

https://www.ofcom.org.uk/data/assets/pdf_file/0026/216089/wftmr-statement-volume-5-quality-of-service.pdf.

⁵¹ Communications Commission (2019). *Guidance for the Advertising of Broadband Speeds in the Isle of Man*, October 2019: <https://www.cura.im/media/1338/guidance-for-the-advertising-of-broadband-speeds-in-the-isle-of-man.pdf>

- Speed claims – claimed speed should be achievable for at least 50 per cent of the relevant customer base at ‘peak time’ (defined as between 8pm and 10pm).
- Qualifying claims – where advertisers claim a speed achievable for at least 50 per cent of their customer base, the speed should be described as an “average” or another descriptor conveying the same meaning.

Annex 3: Proposed QoS parameter measurement methods

Definition	Measurement method
1. Internet Access Service Speed – average upload and download data rates [1]	
<p>This parameter, measured in (kbps or Mbps) refer to the average data transfer rate in the upload or download direction provided that a data link has been successfully established, provided that a data session has been established successfully.</p> <p>Ref: ETSI EG 202 057-4</p>	<p>Measured as the ratio between the amount of data transferred and the difference between the timestamp when data transfer was complete and timestamp when the data transfer was initiated.</p> <p>From an end-user’s perspective, the starting trigger is when the user starts downloading a web page, and the stopping trigger is when the web page is downloaded.</p>
$\text{Average data rate} = \frac{\text{user data transferred (kbit)}}{t_2 - t_1}$ <p>Where: t_1 is the time the data transfer was initiated and t_2 the time the data transfer was completed.</p>	
<p><u>Note:</u></p> <p>[1] Although ETSI standards recommend the use of either FTP or HTTP protocols for measuring data related parameters, only the HTTP protocol should be employed for the upload and download data rates measurements as required through this framework. Such a constraint in the selection of the protocol employed is also in line with BEREC’s selection of the HTTP protocol for the measurement of broadband QoS parameters as identified in its Net Neutrality Regulatory Assessment Methodology.</p>	
2. Availability of Internet Access (Network availability)	
<p>This parameter denotes the percentage of time that the customer’s broadband service is available. It is a measure of the periods of time during which the service is available during an established time period.</p> <p>Ref: ETSI ES 202 765-4</p>	<p>Measured as the time during which the internet service is not available as a ratio of the complete period of analysis.</p>
$\text{Availability} = 1 - \frac{\sum D_u}{\sum D_t}$ <p>Where: D_u is the period over which internet access is unavailable and D_t is the duration of the period of analysis (e.g. 3 months)</p>	

Definition	Measurement method
3. Latency (ping delay)	
<p>The time between the first bit of a packet of a source entering a network, being received by the destination, which immediately sent a bit back to the source, and then the last bit of the packet arriving at the source across the network (round trip delay).</p> <p>The total number of packets failing to deliver through the network divided by the total number of transmitted packets within a specific time window.</p> <p>Ref: IETF RFC 2681</p>	<p>The delay should be measured using:</p> <ul style="list-style-type: none"> • UDP with ICMP or TCP as fallback option, • at least 10 measurements, and • calculated as an average of recorded round-trip time values (typically expressed in milliseconds). <p>The measurement server should return any UDP packet payload immediately, allowing the client to calculate delay. The Unix echo service could be used for this function. The measurement setup should be insensitive to (user) clock changes during the measurement.</p> <p>Ref: BoR (17) 178 Sec 3.2 [3]</p>
<p><i>Latency = ping delay = $t_2 - t_1$</i></p> <p>Where: t_1 is the time stamp when the packet was sent and t_2 the time stamp when the packet was received.</p>	
<p><u>Note:</u></p> <p>[3] Whilst in Annex X, the EECC refers to the standard ITU-T Y.2617 with regard to latency (delay) and delay variation, BEREC proposes to use round-trip IP packet delay (RFC 2681) and the IP packet delay variation (RFC 3393) in accordance with its report 'Net Neutrality Regulatory Assessment Methodology' (BoR (17)178, section 3.2, p. 9).</p>	
4. Packet Loss Ratio	
<p>The total number of packets failing to deliver through the network divided by the total number of transmitted packets within a specific time window.</p> <p>Ref: ITU-T Y.2617</p>	<p>Measured as the total number of packets lost within the specific time window.</p> <p>If a packet is not received back within a certain timeout (e.g. 3 seconds), it is considered as lost for the purpose of packet loss measurements.</p> <p>Recommended to send a large number of IP packets (e.g. at least 1,000).</p> <p>Delay and packet loss measurements are typically performed over a longer period of time in order to allow for the time varying nature of network performance in packet-switched networks.</p> <p>Ref: BoR (17) 178 Sec 3.3</p>

Definition	Measurement method
5. Supply time for initial connection	
<p>The duration from the instant of a valid service order being received by a direct service provider to the instant a working service is made available for use. This should exclude cancelled orders.</p> <p>Ref: ETSI ES 202 057-1 (Clause 5.1)</p>	<p>Measured by:</p> <ul style="list-style-type: none"> a) the times by which the fastest 50, 95 and 99 per cent of orders are completed; b) the percentage of orders completed by the date agreed with the customer and, where the percentage of orders completed by the date agreed with the customer is below 80%, the average number of days, for the late orders, by which the agreed date is exceeded. <p>Ref: ETSI ES 202 057-1 (Clause 5.1.3)</p>
6. Fault repair time	
<p>The duration from the instant a fault report has been made to the instant when the service element or service has been restored to normal working order.</p> <p>Ref: ETSI ES 202 057-1 (clause 5.5)</p>	<p>Measured by:</p> <ul style="list-style-type: none"> a) the time by which the fastest 80 and 95 per cent of valid faults on access lines are repaired (expressed in clock hours); b) the percentage of faults cleared any time stated as an objective by the service provider; c) the provision of information on the hours during which faults may be reported. <p>Ref: ETSI ES 202 057-1 (clause 5.5.3)</p>
7. Bill correctness complaints	
<p>The proportion of bills resulting in a customer complaint about the correctness of a given bill, and which is found not to be invalid, per subscription.</p> <p>Based on ETSI ES 202 057-1 (clause 5.11)</p>	<p>Measured as a percentage.</p> <p>Ref: ETSI ES 202 057-1 (clause 5.11.3)</p>

Definition	Measurement method
8. Customer complaints resolution time [4]	
<p>The duration from the instant a customer complaint is notified to the published point of contact of a service provider and is not found to be invalid to the instant the cause for the complaint has been resolved.</p> <p>Ref: ETSI ES 202 057-1 (clause 5.10.1)</p>	<p>Measured by:</p> <ul style="list-style-type: none"> a) the time by which the fastest 80 per cent and 95 per cent of complaints have been resolved (expressed in clock hours); b) the percentage of complaints resolved any time stated as an objective by the service provider. <p>Ref: ETSI ES 202 057-1 (clause 5.10.3)</p>
<p>Note:</p> <p>[4] A complaint is defined in ETSI 202 843V1.2.1 (page 25) as ‘a statement by a user or customer expressing dissatisfaction due to a gap between the expected and the delivered benefits from the use of a service’. A complaint may be made in various forms, writing, electronic means, or in person. From ITU-T Recommendation E.800 [i.13].</p>	

Annex 4: List of consultation questions

Question 1: Do you agree with the GCRA's proposed light-handed high-level approach to QoS regulation? If not, what alternatives do you suggest?

Question 2: Do you agree with the GCRA's proposal to follow the European approach, as set out in the BEREC guidelines? If not, what alternatives do you suggest?

Question 3: Do you agree with the GCRA's proposal to limit the scope of the QoS Framework to broadband services?

Question 4: Do you agree with the GCRA's proposal to include service performance and customer performance measures in the QoS Framework?

Question 5: Do you agree with the GCRA's proposed approach to dealing with service providers that relay on a network operator to provide retail services to the customer?

Question 6: Do you agree with the GCRA's proposed approach to applying the framework by service and product?

Question 7: Do you agree with the GCRA's proposal for the QoS Framework to be applied from 1 January 2023?

Question 8: Do you agree with the GCRA's proposed list of QoS technical and customer service parameters? If not, what alternatives do you suggest?

Question 9: Do you agree with the GCRA's proposals regarding publication of QoS performance? If not, what alternatives do you suggest?

Question 10: Do you agree with the notion of establishing an independent broadband price comparison website for Guernsey? If not, what alternatives do you suggest?