Communications Regulatory Authority State of Qatar
هيئة تنظيم الاتصالات دولة قطر

CRA ICT Competition Framework Review and Update 2024-2026 – Reviewing the Market Definition and Dominance Designation (MDDD) process

Methodology and Market Definition Consultation Document

The deadline to respond to this consultation is November 26, 2025

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Executive Summary

Purpose of this Consultation Document

The Communications Regulatory Authority of Qatar ("**CRA**") is currently undertaking a review of the Competition Framework for the Information and Communications Technology ("**ICT**") sector (the "**ICT Competition Framework**") covering both the ex-ante element (through the Market Definition and Dominance Designation ("**MDDD**") review) and the ex-post element (through the **Competition Policy** update).

This Consultation Document is related to the current phase of the MDDD review, which aims at reviewing current ICT and telecommunications sector developments and assessing the need for applying ex-ante regulations in the telecommunications market in order to promote competition by proactively addressing market bottlenecks.[1] In this Consultation Document, CRA outlines its updates to the standards, methodology and analysis CRA will use in defining markets as part of the MDDD process and in ex-post competition investigations. The Consultation Document also sets out the market definitions and segmentations to be applied in the current MDDD review. CRA is inviting stakeholder feedback and views on this. The deadline for submissions is **November 26, 2025.**

CRA's current MDDD review is conducted in two phases:

- In Phase I (current phase), CRA is reviewing and updating (1) its standards, methodology and analysis for defining markets; and (2) the list of markets to be considered for the MDDD review. Specifically, in this phase, CRA has identified a set of markets (the "**Candidate Markets**"), where structural barriers or bottlenecks may be hindering effective competition. From the set of Candidate Markets identified, CRA has identified markets susceptible to ex-ante regulation (the "**Relevant Markets**").
- In Phase II (planned to take place in the first half of 2026), the CRA will evaluate each Relevant Market for dominance to determine if any Dominant Service Providers (**"DSPs"**) are present. After this evaluation, the CRA will introduce ex-ante regulatory measures intended to promote effective competition, thereby supporting growth in both the ICT industry and the wider economy.

[1] The Competition Policy Update is a separate parallel review done by CRA which is focused on the review of the ex-post competition framework focused on addressing competition issues as they occur.

Objectives and guiding principles of this MDDD review

This MDDD review has several objectives, including:

- Ensuring regulatory frameworks reflect current market dynamics and technological developments;
- Aligning with Qatar's strategic digital transformation goals;
- Incorporating international best practices and benchmarking; and
- Identifying markets where proactive regulation may be necessary to address competition concerns.

The current phase of the MDDD review follows the publication of CRA Statement on the ICT Competition Framework Review and Update 2024-2026, which was subject to public consultation earlier in the year.[2] This document outlined the guiding principles that CRA will apply to its review of the ICT Competition Framework. The document lists the principles that are applicable to the MDDD review specifically, as follows:

- Principle 1: Reflect relevant strategic initiatives of the State of Qatar;
- Principle 2: Consider the needs of the sector inclusive of ICT as a whole;
- Principle 3: Focus on the positive outcomes for end-users of digital services;
- Principle 4: Consider and align with relevant CRA frameworks and initiatives;
- Principle 5: Adopt a balanced, evidence-based, and risk-based regulatory approach that provides transparency and certainty;
- Principle 6: Prioritise wholesale remedies to address major network and service-level competition barriers, with retail remedies where necessary;
- Principle 7: Consider the impact of relevant emerging technologies on competition dynamics;
- Principle 8: Consider global regulatory developments and best practice for the ICT sector; and
- Principle 9: The updated ICT Competition Framework will consider the impact on the ICT sector as a whole, whereas ex-ante remedies will be applicable solely to dominant players in telecommunications markets

[2] See CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).

Updates to the CRA Methodology for defining markets in ex-ante (MDDD) and ex-post investigations

In 2015, CRA published the *"*Notice of the Standards, Methodology and Analysis to be applied in the Review of Market Definition and Dominance Designation and for Ex Post Competition Policy Investigations in the Telecommunication Sector in Qatar*"* ("**Notice of Methodology**").[3] This document outlines what steps CRA follows when defining markets under both the MDDD and Competition Policy frameworks.

CRA has conducted a review of the Notice of Methodology and found it remains comprehensive and consistent with international regulatory benchmarks. Further detail on the results from CRA's methodology-level benchmarking exercise is provided in Appendix D of this Consultation Document. Further to that, CRA is making some refinements in the Notice of Methodology to better reflect emerging regulatory practice, including incorporating specific sections which explain the role of non-price factors in market definition, the role of Qatar's national strategic objectives, how innovation can be factored into the market definition assessment and how CRA will consider a broad range of evidence types when undertaking a market definition assessment. Further details on the exact revisions to the Notice of Methodology (in track changes format) can be found in Section 2 and Appendix E of this Consultation Document.

Candidate and Relevant Markets

Given the period since the last MDDD review (it has been a decade since the review was done), CRA has considered the list of Candidate Markets from the previous MDDD review in 2016 ("**MDDD 2016**") as an appropriate starting position for the current review. This list has, therefore, formed the basis of the Candidate Markets list for this review.

In the current review phase, following the established and updated Methodology, the Candidate Markets have further been assessed through the Three Criteria Test ("**TCT**") to determine if, in CRA's view, they should be considered as Relevant Markets and therefore susceptible to ex-ante regulation. These Relevant Markets will be assessed for dominance with the imposition of ex-ante regulation in the form of specific remedies for those firms found to be dominant – in the next phase of the review.

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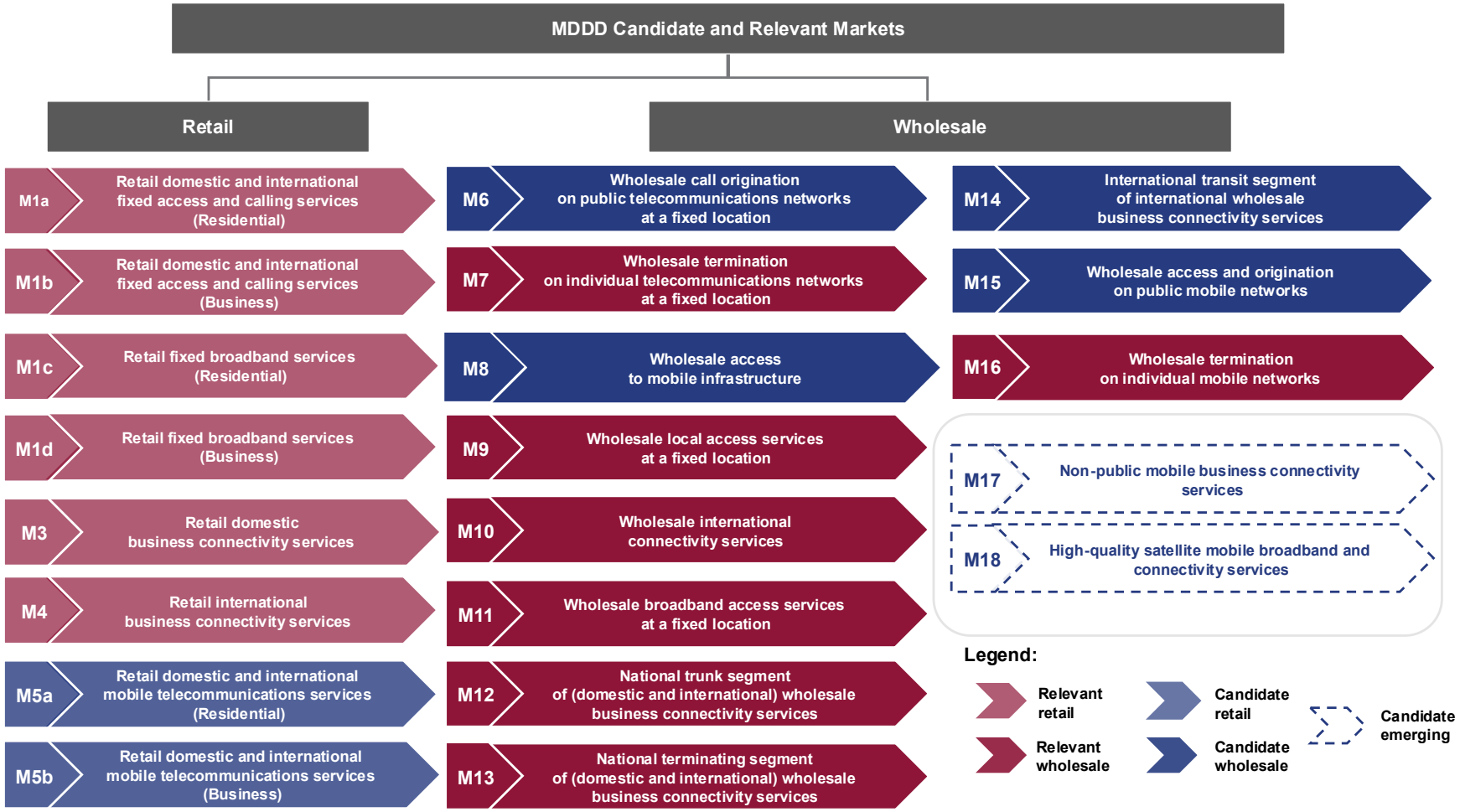
[3] CRA, Notice of Methodology, October 2015 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).

A summary of CRA's Candidate and Relevant Markets is presented in **Figure 1** below. The rationale supporting these findings is detailed further in Section 3 of this document.



Source: CRA's internal analysis of Candidate and Relevant Markets

Notes: CRA has decided at this stage not to classify the two identified emerging Candidate Markets as either retail or wholesale. CRA considers that will ultimately depend on how these markets develop in the future.

Figure 1: Snapshot of Relevant and Candidate Markets in the current MDDD review

In general, the current set of identified markets represents a broad level of continuity from the MDDD 2016, inclusive of the Candidate and Relevant Markets found across retail and wholesale services, where competition is found to be, so far, still ineffective. Key findings are:

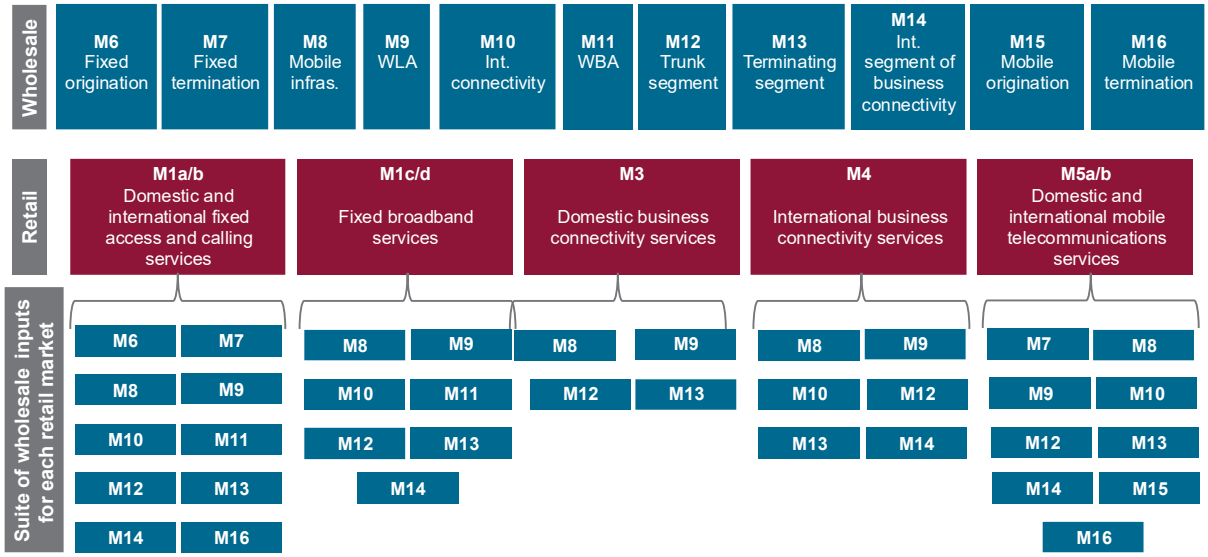
- Overall, of the 18 Candidate Markets identified, 10 have been found to be Relevant
  - three retail markets (i.e. M1 (along with sub-markets defined), M3 and M4)[4]
  - seven wholesale markets (i.e. M7, M9, M10, M11, M12, M13, and M16)
- CRA has found that the market for fixed call origination (i.e. M6) is no longer a Relevant Market.
- CRA is assessing whether the market for wholesale access to mobile infrastructure (i.e. M8), which was deregulated in 2016, should be re-considered as a Relevant Market following recent market developments related to the expected establishment of a third-party tower company ("**the TowerCo**"). CRA is seeking the views of industry before finalising its position on this Candidate Market.
- Some Candidate Markets are *not* found to be Relevant Markets (i.e. M5 (including two sub-markets), M14 and M15).
- In line with the forward-looking component of the MDDD review, CRA defines two emerging Candidate Markets – a market for private 5G networks and a market for emerging satellite services. Currently, CRA does not assess these Candidate Markets as Relevant Markets with no available data and evidence due to their emerging nature. However, it is considered important at this stage to include them as Candidate Markets to enable monitoring of their development through the MDDD data collection and reporting process. This would allow for CRA to be proactive as a regulator and retain a "watching brief" as these markets develop.
- CRA has decided to include IP transit services and data centre access[5], at both the retail (i.e. M3 and M4) and wholesale level (i.e. M9 and M10) as part of the product scope for Relevant Markets. This decision reflects the changes that have occurred in the competitive dynamics of the market since the last review and is aligned to the broader strategic ambitions of the country to create a global digital hub in Qatar.

Mapping of retail and wholesale Candidate and Relevant Markets

The wholesale Candidate and Relevant Markets set out in this MDDD review provide building

[4] CRA has revised the previous M2 market (which comprised retail international outgoing call services for fixed and mobile services). CRA has allocated retail International outgoing call services for mobile to the M5 and allocated the retail International outgoing call services for fixed services to M1.
[5] Including, but not limited to, physical access to the facilities, colocation space and cross-connects.

blocks that support service providers in delivering services in the retail Candidate and Relevant Markets. The mapping shown in **Figure 2** below outlines the range of wholesale inputs that an access seeker may draw on to provide various retail services. Further details of the wholesale inputs relevant to each retail market is provided in Section 3 and in Appendix C below.



Source: CRA internal review

Notes: Full list of markets (Candidate/Relevant) can be found in Appendix A below. As discussed above, CRA has not classified the emerging Candidate Markets as either retail or wholesale, as this will ultimately depend on how these markets develop in the future.

Figure 2: Mapping of Candidate and Relevant Markets: retail to wholesale[6]

Next steps

CRA is inviting feedback from industry stakeholders on this Consultation Document (supported by a defined set of questions) to inform its final decisions regarding the updated Methodology and the list of Candidate and Relevant Markets. The Consultation Document includes, in Section 5, the comprehensive list of questions aimed to guide inputs on the key aspects of CRA's findings, and in Section 6, detailed instructions for stakeholders on how to submit their responses.

Following this consultation, and after considering industry responses, CRA aims to publish a

[6] The two emerging Candidate Markets are not included in this figure. The exact wholesale and retail product scope for these emerging markets is uncertain at this stage.

final decision on the updated Methodology and markets list (planned to be completed by the end of the year). In the next phase of the MDDD review (once the Relevant Markets have been finalised), CRA will assess each of the Relevant Markets for dominance and identify remedies. A public consultation on these matters is planned to be published during the first half of 2026 with final decisions to follow later by end of 2026.

Structure of this Consultation Document

This Consultation Document has been developed to give detailed systematic background and information to the stakeholders on the scope outlined above and is organised as follows:

- Section 1 is an introduction, setting out the legal basis, background and context of the MDDD review.
- Section 2 provides an overview of the existing market definition methodology, and a summary of CRA's amendments.
- Section 3 sets out the CRA's analysis supporting its Candidate and Relevant Markets. The retail markets are presented first, followed by the wholesale markets.
- Section 4 describes two additional Candidate Markets that CRA has not assessed as possible Relevant Markets.
- Section 5 sets out the questions that CRA seeks feedback on in this Consultation Document.
- Section 6 sets out how stakeholders should reply to this Consultation Document.
- Appendix A shows the mapping between Candidate and Relevant Market numbers and their respective market names.
- Appendix B lists abbreviations used in this Consultation Document.
- Appendix C sets out the mapping of services to each Candidate and Relevant Market and provides a detailed mapping of retail to wholesale services in each Candidate and Relevant Market.
- Appendix D presents the findings from benchmarking market definition methodologies.
- Appendix E contains CRA's amendments to the Notice of Methodology (in track changes format).

1. Introduction

1.1. Legal basis of the MDDD process

In line with the requirements under the Decree-Law No. 34 of 2006 on the promulgation of the Telecommunication Law ("**Telecommunications Law**"), CRA is regularly reviewing the competitive dynamics of the telecommunications sector in order to determine the necessity for ex-ante regulatory intervention.[7] The Executive By-Law No.1 of 2009 ("**Executive By-Law**") also obliges CRA to establish methodologies for assessing and determining market dominance.[8] Collectively, these legal frameworks constitute the MDDD process. Regular updates of the MDDD ensure that ex-ante regulation remains relevant and proportionate to the underlying market dynamics.

1.2. MDDD review historical context and broader ICT Competition Framework review background

So far, the current CRA"s MDDD review is the fourth review conducted, with the first two rounds of review carried out by the Supreme Council for Communication and Information Technology ("**ictQATAR**") in 2008 and 2011,[9] and the most recent MDDD review was carried out by CRA back in 2016.

Further to that, CRA is undertaking the current MDDD review as part of its broader ICT Competition Framework review and update, which includes an update of both the ex-ante and an ex-post approach to regulation of the ICT sector. While the ex-ante approach is a forward-looking assessment which establishes a set of preventative rules to promote fair competition in the telecommunications sector the ex-post approach is used to address anti-competitive behaviours by players in the ICT sector if and when they arise. Together, these approaches form the ICT Competition Framework, which establishes a core set of rules with the aim of safeguarding competition in Qatar's ICT sector.[10] While the focus of this Consultation Document is on the ex-ante review of the telecommunications sector, CRA is separately reviewing its approach to ex-post regulation and has recently published a separate

[7] CRA, "Telecommunications Law No (34) 2006 Amended Provisions No (17) 2017", Articles 19(5), 23, 40(3) and 42 (https://www.cra.gov.qa/-/media/System/B/3/4/A/B34A0579404353F5A47463B336153D5F/Telecommunications-Law---English.ashx).
[8] The Supreme Council for Information and Communication Technology, "Decision of the Board of the Supreme Council for Information and Communication Technology No. (1) of 2009 on the promulgation of the Executive By-Law for the Telecommunications Law", June 2009, Articles 72 and 73, pp. 23-24 (https://www.cra.gov.qa/en/document/telecommunications-by-law-no-1-of-2009).
[9] In 2014, the Communications Regulatory Authority was established as a successor to the ictQATAR.
[10] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, p. 4 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).

consultation on its updates to the ex-post Competition Policy.[11]

The rationale and objectives of CRA's broader review of the ICT Competition Framework have been outlined in the CRA Statement on the ICT Competition Framework Review and Update 2024-2026, which informed industry stakeholders of the broader market context for the current review and the set of ten principles that will underpin it. It highlighted major developments in Qatar's ICT sector over the past decade, which have prompted CRA to reassess the regulatory framework. Key developments include:

- In 2016, Ooredoo had the largest fixed network in the country and Vodafone was not expected to build its own. Since then, Vodafone has invested significantly in expanding its fixed network infrastructure and has taken market share from Ooredoo. This has resulted in improved service offerings, including a more expansive fibre network, which now covers 100 per cent of the population.[12]
- Recent national developments have driven significant changes in the competitive dynamics across a range of ICT market segments in Qatar. For example, Qatar's hosting of the 2022 FIFA World Cup helped fast-track investments in the nation's ICT sector, including accelerating the expansion of 5G services, which now cover 99 per cent of the population.[13]
- In October 2024, the Qatar Investment Authority ("**QIA**") announced its intention to integrate Qatar National Broadband Network ("**QNBN**"), Qatar's leading passive fibre-optic infrastructure provider, and Gulf Bridge International ("**GBI**"), a provider of international connectivity solutions in the Middle East. This new entity is aimed to provide a gateway for global hyperscalers to provide access and interconnection within the Middle East.[14]
- The impact on the telecoms market of the dynamic emergence of a data driven economy led by new technologies and applications, such as Artificial Intelligence ("**AI**"), quantum computing, new applications managing big data, and the Internet of Things ("**IoT**") bring with them new emerging business models and put the ICT value

[11] CRA, "CRA Competition Policy Update. Consultation Document", August 2025, (https://www.cra.gov.qa/document/cra-competition-policy-update-20-august-2025).
[12] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, p. 11 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).
[13] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, p. 11 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).
[14] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, p. 12 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).

chain in the context of a broader digital market.[15] All these dynamics will be considered holistically in the market assessment and further designing ex-ante regulation under the current MDDD review.

- Digital transformation, along with ongoing market and network developments, is leading to significant changes in regulatory models globally. Some important examples include a move from asymmetric to more symmetric regulatory remedies and a change in the approach to defining markets, taking into account the competitive impact of digital platform services.[16] CRA is revising its approach to ex-ante regulation in light of these developments.

These key developments provide the broader market context for the current MDDD review.

[15] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, p. 6 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).
[16] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, pp. 7 – 8 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).

2. Overview of the existing methodology, amendments and the phased approach to the MDDD review

2.1. Overview of CRA's existing market definition methodology

Market definition is the first step in both ex-ante and ex-post competition assessments. CRA's Notice of Methodology, published in 2015, sets out the approach used to define markets in each context.

- In the ex-ante context, CRA proactively assesses and defines markets with expected competition problems (Candidate Markets) and from this, identifies which Candidate Markets are susceptible to ex-ante regulation (Relevant Markets).
- In the ex-post context, CRA defines and identifies markets in response to specific allegations or suspicions of anti-competitive behaviour in the ICT sector.

The first step when defining markets in both ex-ante and ex-post competition investigations is to identify the set of products that together form a particular market. This is done using the globally recognised Hypothetical Monopolist Test ("**HMT**"). The HMT begins by considering a hypothetical monopolist that supplies only a single product or service within a defined geographic area ("**the focal product**"). The HMT then assesses whether this hypothetical monopolist could profitably impose a small but significant non-transitory increase in the price ("**SSNIP**") on the focal product, typically in the range of 5–10 per cent, assuming the prices of all other products remain constant. The key questions addressed by the HMT are:

- Whether customers would switch to alternative products in response to the price increase without incurring substantial effort or cost; and
- Whether other suppliers could profitably begin supplying the focal product under similar conditions.

If either form of switching constrains the hypothetical monopolist's ability to profitably raise prices, then the closest substitute is added to the focal product, and the test is repeated. This iterative process continues until a set of products are identified over which a hypothetical monopolist could profitably impose a SSNIP.[17] Although direct empirical implementation of this approach is often limited in practice, the methodological framework serves as an important conceptual guideline.[18]

[17] CRA, Notice of Methodology, October 2015, pp. 11-12 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).
[18] CRA, Notice of Methodology, October 2015, p. 11 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).

Two key dimensions considered during this test are:

1. the relevant product dimension (also regarded as a service market in the telecommunications context); and
2. the relevant geographical dimension of each relevant product market.[19]

The aim of the exercise is to identify specific economic market within which the competitive conditions are homogeneous, that is, to identify the products in the market and the geography over which supply and demand-side competitive constraints are similar.[20]

While the market definition approach is largely consistent for the purposes of an ex-ante and an ex-post assessment of the ICT sector, the approach to market definition in an ex-post investigation requires backward-looking market definitions and considers the markets under examination at the time the alleged anti-competitive behaviour took place. This is different to the procedure for an ex-ante assessment, in which market definitions are forward-looking and used to determine dominance now and over a certain period of time into the future.[21]

2.2. Amendments to the existing methodology

Having reviewed the existing market definition approach, as set out in the current Notice of Methodology, CRA considers that it is still based on best regulatory practices and remains consistent with regional and international benchmark jurisdictions, including approaches of other Gulf Cooperation Council ("**GCC**") states, such as the Saudi Arabia, Oman and Bahrain.

CRA is however making some amendments to the Notice of Methodology to reflect the ongoing evolution of the ICT sector. These amendments draw upon updated regulatory approaches to market definition seen from Europe, where the European Commission ("**EC**") has recently published a revised Market Definition Notice ("**the EC Notice**").[22]

[19] CRA, Notice of Methodology, October 2015, p. 6 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).
[20] CRA, Notice of Methodology, October 2015, p. 6 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).
[21] CRA, Notice of Methodology, October 2015, p. 6 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).
[22] EC, "Commission Notice on the definition of the relevant market for the purposes of Union competition law", February 2024 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AC_202401645). A detailed overview of CRA's benchmarking exercise is provided in Appendix D.

Summary of amendments

CRA is revising the market definition methodology to:

- **Allow for greater emphasis on non-price factors**. The EC acknowledges that when assessing demand-side substitution in industries which compete on parameters other than prices, such as quality or the level of innovation, it may be difficult to apply the traditional HMT based on a SSNIP only. This is particularly the case in industries that have a zero-price product, like two-sided digital platforms, or industries that are highly innovative.[23] In these cases, the EC proposes that demand-side substitution may be more effectively assessed under a Small but Significant Non-transitory Decrease of Quality ("**SSNDQ**").[24] This test has not yet been applied in practice in European case-law as a formal, standalone tool for defining markets. In Qatar, CRA considers that non-price factors could be important in the context of market definition given technological advancements in recent years and the growing prominence of digital platforms. While applying the SSNDQ test may be challenging in practice, CRA recognises the growing importance of non-price factors and will therefore consider these where evidence allows as part of this MDDD review.
- **Allow for a wide and flexible range of evidence types**. According to the EC Notice, the EC will not apply a "rigid hierarchy of different sources of information or types of evidence". [25] Instead, a combination of various indicators, such as product characteristics, customer preferences, past substitutions, views of market participants, and economic analysis should be used. The EC is also not bound to assess all factors, both quantitative and qualitative. The importance of each factor will depend on the industry involved, the products considered, or the circumstances. In line with this, CRA will be open to considering a broad range of evidence types when defining markets as part of this MDDD review.
- **Place greater emphasis on a forward-looking assessment.** As set out in the EC Notice, the EC plans to take into account "sufficiently foreseeable changes" in demand and competitive constraints where the short- or medium-term structural transitions would lead to "effective changes in the general dynamics of supply and demand" within the period relevant to the assessment. As an example, in these cases, the EC may consider "pipeline products" during a market definition exercise, as these products

[23] EC, "Commission Notice on the definition of the relevant market for the purposes of Union competition law", February 2024, paragraph 30, pp. 12 – 13 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AC_202401645).
[24] EC, "Commission Notice on the definition of the relevant market for the purposes of Union competition law", February 2024, footnote 54, p. 12 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AC_202401645).
[25] EC, "Commission Notice on the definition of the relevant market for the purposes of Union competition law", February 2024, paragraphs 76 – 77, pp. 24 – 25 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AC_202401645).

could offer sufficient visibility on future products that could be substituted with the focal product, and thus help to define a relevant product market.[26] In line with this, in Qatar, CRA will consider evidence of likely future changes in supply and demand when defining markets as part of this MDDD review.

- **Consider wider strategic objectives and investment incentives**. In the UK, Ofcom's 2021 Wholesale Fixed Telecoms Market Review ("**WFTMR**"), was a major five-year review of the fixed telecoms market, which was designed to promote competition and investment in gigabit-capable networks in the UK.[27] This review placed a high priority on the UK Government's strategic objective of achieving nationwide gigabit broadband, which required widespread significant investment in networks.[28] Ofcom applied the "fair bet" principle for longer term investment, which ensures an operator can recover the costs of risky investments if the investment turns out to be successful.[29] Roll-out of gigabit-capable networks has since been high. Ofcom is now reviewing the package of rules and is proposing broad continuity for another five years to ensure continued investment.[30] In line with this, CRA will consider Qatar's strategic objectives when defining markets, for example Qatar's ambitions of becoming a regional and global digital hub to drive greater investment in the ICT sector. This will ensure that the outcomes of this MDDD review will support the country's broader development.

The precise amendments to the Notice of Methodology are presented in more detail in Appendix E below**.**

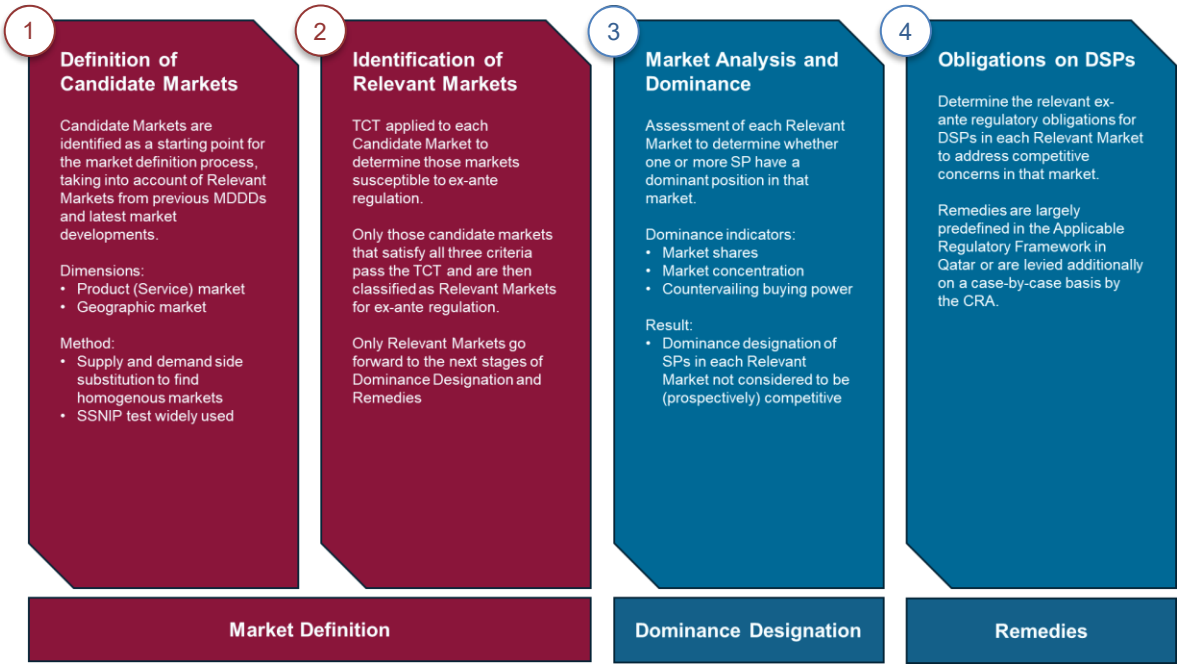
2.3. Overview of CRA's MDDD process

CRA follows a four-step process in undertaking an MDDD review, including the current review cycle. This overall approach for the MDDD is described in **Figure 3** below. Aligned to its

[26] EC, "Commission Notice on the definition of the relevant market for the purposes of Union competition law", February 2024, paragraphs 8, 21, 91, pp. 4 – 5, 10, 29 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AC_202401645).
[27] Ofcom, "Promoting investment and competition in fibre networks – Wholesale Fixed Telecoms Market Review 2021-26", March 2021 (https://www.ofcom.org.uk/phones-and-broadband/telecoms-infrastructure/2021-26-wholesale-fixed-telecoms-market-review).
[28] Ofcom, "Promoting investment and competition in fibre networks – Wholesale Fixed Telecoms Market Review 2021-26 – Volume 1: Overview, summary and structure", March 2021, p. 1 (https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/185028-promoting-investment-and-competition-in-fibre-networks--wholesale-fixed-telecoms-market-review-2021-26/associated-documents/wftmr-statement-volume-1-overview.pdf?v=326138).
[29] Ofcom, "Promoting investment and competition in fibre networks – Wholesale Fixed Telecoms Market Review 2021-26 – Volume 1: Overview, summary and structure", March 2021, p. 3 (https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/185028-promoting-investment-and-competition-in-fibre-networks--wholesale-fixed-telecoms-market-review-2021-26/associated-documents/wftmr-statement-volume-1-overview.pdf?v=326138).
[30] Ofcom, "Consultation: Promoting competition and investment in fibre networks: Telecoms Access Review 2026-31", March 2025 (https://www.ofcom.org.uk/phones-and-broadband/telecoms-infrastructure/consultation-promoting-competition-and-investment-in-fibre-networks-telecoms-access-review-2026-31).

market definition methodology described above, the steps are as follows:

- Step 1: Definition of Candidate Markets;
- Step 2: Identification of Relevant Markets;
- Step 3: Market Analysis and Dominance Designation; and
- Step 4: Obligations on DSPs.



Source: CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, Figure 3, p. 20 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).

Figure 3: MDDD process overview

Further detail on the four stages is provided below.

Step 1: Definition of Candidate Markets

The first step in the MDDD process is to define a set of markets, using the methodological approach described in Section 2.1 above, which are known as Candidate Markets and are a set of markets where structural barriers or bottlenecks may hinder effective competition. At this stage, CRA defines product and geographic markets irrespective of whether these Candidate Markets would be found to be susceptible to ex-ante regulation.[31]

[31] CRA, Notice of Methodology, October 2015, p. 6 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).

In this MDDD review, CRA begins its definition of Candidate Markets by revisiting all the Candidate Markets identified in the MDDD 2016 and uses these as the starting point for its updated Candidate Market assessment. CRA considers that this is a necessary step, given that a significant amount of time that has elapsed since the MDDD 2016. Moreover, certain market developments in previously deregulated Candidate Markets have prompted CRA to reassess whether the decision to deregulate those Candidate Markets in 2016 remains appropriate in the current market context.

In this Consultation Document, CRA has defined Candidate Markets based on a conceptual application of the SSNIP test, drawing on evidence from available data and CRA's understanding of the market. CRA's conceptual approach to the SSNIP is consistent with recent approaches to ex-ante market reviews that have been adopted by other regulators in the region, including the Communications, Space and Technology Commission ("**CST**") in Saudi Arabia and the Telecommunications Regulatory Authority ("**TRA**") in Oman. Moreover, CRA's conceptual application of the SSNIP test is consistent with the EC Notice, which states that "the SSNIP test serves only as a conceptual framework for the interpretation of available evidence." [32] Therefore, in the context of Qatar's market, CRA considers this method a proportionate and appropriate means of assessing market boundaries, particularly where quantitative testing may not be feasible.

Step 2: Identification of Relevant Markets

Following the identification of Candidate Markets, the Candidate Markets have been subjected to the TCT to determine whether they should be classified as Relevant Markets, and therefore susceptible to ex-ante regulation. To be classified as a Relevant Market, a Candidate Market must meet the following three criteria:

1. There must be high and non-transitory barriers to entering the market;
2. The structure of the market must be such that the market does not tend towards effective competition within the relevant time horizon; and
3. Competition law / policy alone must be insufficient to adequately address the market failure(s) concerned.[33]

A Candidate Market that meets the three criteria is classified as a Relevant Market. All

[32] EC, "Commission Notice on the definition of the relevant market for the purposes of Union competition law", February 2024, paragraph 31, p. 13 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AC_202401645).
[33] CRA, Notice of Methodology, October 2015, p. 7 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).

Relevant Markets are further considered in the dominance assessment and remedies stages of the MDDD process (i.e. Steps 3 and 4). Candidate Markets that do not fulfil all criteria of the TCT are considered (prospectively) competitive: no dominance assessment of them is undertaken, and no ex-ante remedies are imposed.[34] Further detail on each criterion are provided below.

Criterion 1: High and non-transitory barriers to entry or expansion

The first criterion considers how easy it is for competitors to enter the market and/or for existing providers to expand their offerings. Indicators of these barriers include: [35]

- High sunk costs such as those incurred in building a telecoms network;
- Control of infrastructure that cannot be easily duplicated, for example because it is not economically profitable to replicate an incumbent's network or there are other barriers such as licensing barriers;
- Technological advantages or superiority;
- Easy or privileged access to capital or financial resources;
- Economics of scale and/or scope which create significant barriers to entry;
- Vertical integration, particularly where a vertically integrated supplier controls an important upstream input;
- Barriers to develop distribution and sales network; and
- Products or services diversification.

Criterion 2: No tendency towards effective competition

The second criterion considers whether the market would tend towards effective competition, without regulation being in place. Indicators include: [36]

- Current and historical market shares;
- Price trends and pricing behaviour;
- Control of infrastructure that cannot easily be duplicated;
- Products or services diversification (e.g. bundled products or services where the use of bundles can restrict consumer choice);

[34] CRA, Notice of Methodology, October 2015, p. 7 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).
[35] CRA, Notice of Methodology, October 2015, pp. 7-8 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).
[36] CRA, Notice of Methodology, October 2015, p. 8 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).

- Barriers to expansion; and
- Threat of new entrants or substitutes.

Criterion 3: Insufficient competition law

The third criterion considers whether existing (ex-post) competition law is sufficient to address any potential anti-competitive practice in the market under consideration. Indicators include:

- Degree of generalisation of non-competitive behaviour;
- Degree of difficulty to address non-competitive behaviour;
- Whether anti-competitive behaviour brings about irreparable damage in related or connected markets;
- The need for regulatory intervention to ensure the development of effective competition in the long run;[37] and
- An assessment of the track record of ex-post action historically.

Step 3: Market Analysis and Dominance Designation

The MDDD process continues with a qualitative and quantitative review of each Relevant Market to determine whether a service provider, acting alone or jointly with others, can behave to an appreciable extent independently of customers or competitors.[38] Those that can are found to be dominant.

Step 3 results in the designation of one or more DSPs in each Relevant Markets or may also theoretically produce the result of no DSP being designated in a Relevant Market. The finding of a Relevant Markets is a prerequisite for dominance analysis but does not in itself imply a finding of single or collective dominance.[39]

Step 4: Obligations on DSPs

As part of this step, CRA determines the relevant ex-ante regulatory obligations for DSPs to address the competitive concerns in each Relevant Market. The obligations on a DSP are set

[37] CRA, Notice of Methodology, October 2015, p. 8 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).
[38] CRA, Notice of Methodology, October 2015, p. 9 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).
[39] CRA, Notice of Methodology, October 2015, p. 9 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).

out as part of the Applicable Regulatory Framework ("**ARF**")[40] and either apply automatically or are imposed by CRA as required.[41]

2.4. Indicative timelines for the current MDDD review

The current MDDD review is being conducted in two phases:

- **Phase I Methodology Update and Market Definition**

  In this phase, the CRA will set out revisions to the process for defining markets in both an ex-ante and an ex-post context. CRA will also develop a list of Candidate Markets for the current MDDD review, to which it will apply the TCT to identify those that qualify as Relevant Markets, and are therefore susceptible to ex-ante regulation, aligned to Steps 1 and 2 of its MDDD process (See **Figure 3**). The outcomes of Phase I are presented in this Consultation Document. Following industry feedback on the Candidate and Relevant Markets, CRA will issue a final decision on the definitive list of Candidate and Relevant Markets for this MDDD review. CRA expects to issue this final decision by the end of 2025.

- **Phase II Dominance Assessment and Remedies**

  In Phase II, CRA will undertake a dominance assessment to identify the DSPs in each Relevant Market.[42] Following the assessment of DSPs, CRA will impose regulatory remedies on these DSPs as set out in the ARF, as well as additional remedies deemed necessary and appropriate to stimulate effective competition in each Relevant Market. This phase is aligned to Steps 3 and 4 of the MDDD process (See **Figure 3**). The outcome from Phase II will be subject to a public consultation, followed by the issue of CRA's final decision on dominance and remedies. CRA plans to conclude this final phase of the MDDD review by Q3-Q4 2026.

To support its conclusions in Phase I, and consistent with Principle 3 of CRA's ICT Competition Framework Review and Update[43], CRA is adopting an evidence-based approach throughout,

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[40] As per the CRA's published methodology, the ARF includes "the relevant legal provisions in Qatar, inter alia but not limited to the Telecommunications Law, the Telecommunications Executive By-Law, the Licenses of the SP and any related regulations, rules, orders, notices, decisions, directions and instructions issued by the [CRA]." For more information, please see CRA, Notice of Methodology, October 2015, footnote 7, p. 9 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).
[41] CRA, Notice of Methodology, October 2015, p. 9 (https://www.cra.gov.qa/-/media/System/E/1/5/C/E15C16F15E0C5F78BFD64CC787281000/2015-10-21-Notice_MDDD-Methodology-Notice_EN.ashx).
[42] DSPs refer to any providers who hold Significant Market Power ("**SMP**"), which allows them to act independently of their customers or competitors to dominate a market or markets related to specific telecommunications services, either through acting individually (i.e. single firm dominance), or jointly with others (i.e. collective dominance).
[43] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, p. 22 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).

drawing on both quantitative and qualitative data. To conduct its analysis in Phase I of the review, CRA has relied on information collected through the existing MDDD reporting framework and has additionally engaged with the service providers through a dedicated data and information request issued in August 2025. This approach ensures that the analysis is grounded in current market conditions and reflects input from relevant participants in the sector.

3. Updated Candidate and Relevant Markets

This section outlines Steps 1 and 2 of the MDDD process as initiated by CRA (See **Figure 3**), which involve the identification and definition of Candidate Markets and Relevant Markets that will be susceptible to ex-ante regulation. Therefore, this section details CRA's findings on the Candidate Markets and an assessment of whether they are also Relevant Markets. Sections 3.1 to 3.4 below cover the identified retail markets, and Sections 3.5 to 3.15 cover the identified wholesale markets.

Summary of retail Candidate and Relevant Markets

Table 1 below summarises the CRA's retail Candidate Markets defined in the MDDD 2016, alongside the equivalent Candidate Markets for the current MDDD review. All Candidate Markets are national in scope. This is in line with the geographic market definitions under the MDDD 2016.

MDDD 2016 Candidate Market	Current MDDD review Candidate Market	Key change from MDDD 2016
M1 – Retail fixed voice and broadband services	**M1 - Retail domestic and international fixed telephony and broadband services**	Inclusion of fixed access and national/international fixed calling services in the same product market. Additional segmentation by business and residential services
M1a - Retail fixed access services	M1a/b – Retail domestic and international fixed access and calling services (Residential and Business customers)	
M1b – Retail national fixed call services	M1a/b – Retail domestic and international fixed access and calling services (Residential and Business customers)	
M1c – Retail fixed broadband services	M1c/d – Retail fixed broadband services (Residential and Business customers)	Segmentation of retail fixed broadband services sold to residential and business customers
M2 – Retail international outgoing call services	**M2 is now included in M1 and M5, respectively**	International fixed and mobile calls now within separate product markets for domestic and international fixed access and call services and domestic and international mobile telecommunications services, respectively
M2a - Retail international outgoing call services at a fixed location - Residential customers	M1a – Retail domestic and international fixed access and calling services (Residential customers)	
M2b - Retail international outgoing call services at a fixed location - Business customers	M1b – Retail domestic and international fixed access and calling services (Business customers)	
M2c – Retail international outgoing call services via a mobile device - Residential customers	M5a – Retail domestic and international mobile telecommunications services (Residential customers)	
M2d – Retail international outgoing call services via a mobile device - Business customers	M5b – Retail domestic and international mobile telecommunications services (Business customers)	
M3 – Retail national leased line services	**M3 – Retail domestic business connectivity services**	Inclusion of retail data centre access services (including, but not limited to, physical access to the facilities, colocation space and cross-connects)
M4 – Retail international leased line services	**M4 – Retail international business connectivity services**	Inclusion of retail IP transit services
M5 – Retail national mobile voice and broadband services	**M5 - Retail domestic and international mobile telecommunications services**	International and domestic mobile voice and broadband services are now within the same product market.
M5a – Retail national mobile voice and broadband services - Residential customers	M5a – Retail domestic and international mobile telecommunications services (Residential customers)	
M5b – Retail national mobile voice and broadband services - Business customers	M5b – Retail domestic and international mobile telecommunications services (Business customers)	

Table 1: Retail Candidate Markets (MDDD 2016 vs Current MDDD review)

Table 2 below summarises the findings of the Relevant Market assessment applied to each retail Candidate Market in the current MDDD review.

	Criterion applied by the TCT		
Candidate Markets	**Criterion 1: High and non-transitory barriers to entry**	**Criterion 2: No tendency towards effective competition**	**Criterion 3: Insufficiency of ex-post competition law**
M1a - Retail domestic and international fixed access and calling services (Residential customers)	✓	✓	✓
M1b - Retail domestic and international fixed access and calling services (Business customers)	✓	✓	✓
M1c - Retail fixed broadband services (Residential customers)	✓	✓	✓
M1d - Retail fixed broadband services (Business customers)	✓	✓	✓
M3 – Retail domestic business connectivity services	✓	✓	✓
M4 – Retail international business connectivity services	✓	✓	✓
M5a - Retail domestic and international mobile telecommunications services (Residential customers)	✓	×	×
M5b - Retail domestic and international mobile telecommunications services (Business customers)	✓	×	×

Table 2: Relevant Market assessment for each Candidate Market (Retail)

The following sections set out the findings for each of these retail markets.

3.1. M1 – Retail domestic and international fixed telephony and broadband services

In this section, CRA outlines its finding of a national Candidate Market for retail fixed telephony and broadband services. CRA has further defined this market M1[44] as split into four submarkets:

- M1a – Retail domestic and international fixed access and calling services (Residential customers);
- M1b - Retail domestic and international fixed access and calling services (Business customers);
- M1c – Retail fixed broadband services (Residential customers); and
- M1d - Retail fixed broadband services (Business customers).

CRA considers that the product scope of M1a and M1b includes fixed access, domestic and international fixed call services, and managed Voice over Internet Protocol ("**VoIP**") call services ("**fixed telephony**") that are sold without bundled broadband and/or IPTV services. This market includes submarkets for services sold to residential customers (i.e. M1a) and to business customers (i.e. M1b).

CRA also defines national submarkets for retail fixed broadband services sold to residential customers (i.e. M1c) and mass-market broadband products sold to Small-Medium Sized Enterprise ("**SME**") and Small Office Home Office ("**SOHO**") customers (i.e. M1d). Both submarkets include broadband services that are sold either without the bundling of any additional services, and broadband services sold as part of a bundle which includes IPTV and/or fixed telephony services.

CRA finds that all submarkets in this Candidate Market are also Relevant Markets and are therefore susceptible to ex-ante regulation.

3.1.1. Candidate Market definition

M1a and M1b - Retail domestic and international fixed access and calling services (Residential and Business customers)

CRA understands that in Qatar, residential and business customers can purchase fixed calls

[44] For a full reference of market numbers and their corresponding market names, see Appendix A.

and access either (i) without the bundling of any additional services ("**non-bundled**") or (ii) as part of a multi-play bundle with fixed access, broadband and pay TV services ("**multi-play bundle**").[45] Ooredoo sells domestic and international non-bundled fixed telephony services to residential and business customers.[46] Vodafone sells domestic and international non-bundled fixed telephony services to business customers only.[47] Both Ooredoo and Vodafone also sell domestic and international fixed telephony products as part of their multi-play bundles.[48]

CRA considers that non-bundled fixed telephony services should be the focal product of this market and the starting point for the market definition exercise.[49] CRA then applies the SSNIP test to determine if this product market should be widened beyond the focal product to include additional products and services, based on an assessment of demand-side and supply-side substitution. In doing so, CRA addresses the following questions:

1. Should international outgoing calls from a fixed location be part of the same market as fixed access and fixed voice calls?
2. Does the product market include fixed telephony services sold as part of a multi-play bundle?
3. Does the product market include fixed broadband services?
4. Does the product market include mobile services?
5. Does the product market include unmanaged Over-The-Top ("**OTT**")-based VoIP services?
6. Does the product market include managed VoIP services?
7. Are non-bundled fixed telephony services for residential and business customers in the same product market?
8. What is the geographic scope of these submarkets?

[45] This understanding of the market is subject to confirmation through a data request that CRA has sent to industry stakeholders.
[46] For Ooredoo's residential non-bundled fixed telephony tariff, see Ooredoo Qatar, "C05-03 Fiber broadband services – General Tariff Information", June 2025, Table 3, p. 11 (https://www.ooredoo.qa/web/wp-content/uploads/2025/06/C05-03-Consumer-Fibre-Broadband-services-022.pdf). For Ooredoo's business non-bundled fixed broadband tariff, see Ooredoo Qatar, "Ooredoo Service Tariff No. B01-01 - General Tariff Information", March 2024 (https://www.ooredoo.qa/web/wp-content/uploads/2024/03/B01-01-Ooredoo-Business-Landline-012.pdf).
[47] See, for example, Vodafone Qatar, "Tariff Document: Business (B25 Business Talk)", January 2024 (https://www.vodafone.qa/en/about-us/media/document/1551510481629/240125-tariff-notification-for-business-talk-.pdf).
[48] See, for example, Vodafone Qatar, "Tariff Document: Consumer Fixed (C03 GigaHome Services)", September 2025 (https://www.vodafone.qa/en/about-us/media/document/1551518665129/250902-tariff-notification-for-consumer-gigahome-service-v1.pdf). See also Ooredoo Qatar, "C05-03 Fiber broadband services – General Tariff Information", June 2025, Table 1 and paragraph 36, pp. 5 – 6 (https://www.ooredoo.qa/web/wp-content/uploads/2025/06/C05-03-Consumer-Fibre-Broadband-services-022.pdf).
[49] Retail fixed telephony services sold to residential and business customers as part of a multi-play bundle with fixed access, calls and broadband are included as part of the retail market for fixed broadband services (i.e. markets M1c and M1d). This is discussed further in this section.

1. Should international outgoing calls from a fixed location be part of the same market as fixed access and fixed voice calls?

Demand-side substitution

CRA considers that international fixed calls and domestic fixed calls are not effective demand-side substitutes because they serve different purposes. International fixed calls contact users located in other countries, whereas domestic fixed calls contact users in the same country. However, despite this functional difference, international and domestic fixed calls can be made using the same underlying fixed-line access subscription. A user who buys a fixed-line access subscription to make domestic fixed voice calls can also make an international fixed call using the same service.

As an alternative to using their fixed-line access subscription, a user who wishes to make an international fixed call through a different network than the network they use for domestic call services can either:

- Use a prepaid calling card service, which enables customers to originate calls from their own fixed network operator using traffic purchased from a pre-paid calling card operator; or
- Buy international minutes from an alternative service provider who offers carrier selection ("**CS**") or carrier pre-selection ("**CPS**") services.

CRA understands CS and CPS services are currently not offered in Qatar. Therefore, CRA considers it unlikely that consumers of international fixed calls will consider these services in conjunction with fixed access and domestic fixed calling services, when they are deciding which service provider in Qatar best suits their requirements.

CRA's view is that, from a demand-side perspective, while domestic and international fixed calling services are not necessarily substitutes, their reliance on the same underlying fixed access subscription and the similarity in their evolving competitive conditions supports considering them as part of the same product market.

Supply-side substitution

CRA considers that domestic and international fixed call services are likely to be supply-side substitutes. In particular, a provider of international fixed call services would likely find it profitable to switch to providing domestic fixed call services following a SSNIP for the latter, as a provider of international fixed calls is likely to already have the necessary infrastructure in place needed to provide domestic fixed calling services. Indeed, Ooredoo and Vodafone

already offer both services as part of their standard fixed telephony portfolios. Therefore, international and domestic fixed calling services are likely to be strong supply-side substitutes.

In conclusion, given that there is both demand and supply-side substitution between retail fixed telephony services and international fixed voice calls, CRA considers that these services are part of the same product market.

2. Does the product market include fixed telephony services sold as part of a multi-play bundle?

Demand-side substitution

CRA considers it unlikely that non-bundled fixed telephony services and fixed telephony services in multi-play bundles are demand-side substitutes. First, CRA considers it unlikely that a consumer of non-bundled fixed telephony services would switch to purchasing a multi-play bundle following a SSNIP in non-bundled fixed telephony services.

In CRA's view, consumers of non-bundled fixed telephony services are subscribed to these services because they only value telephony and for these consumers, there is no perceived value in the bundling of additional services available in a multi-play bundle (i.e. broadband and/or pay TV). A consumer who values both fixed telephony and broadband services would already be subscribed to a multi-play bundle. Consequently, CRA considers that consumers of non-bundled fixed telephony services represent a distinctive consumer segment with different requirements to consumers who are subscribed to multi-play bundles.

Supply-side substitution

CRA further considers that, on the supply-side, substitutability between these products is limited. In particular, a provider offering fixed telephony services only would need to require access to broadband infrastructure, which means incurring substantial costs in upgrading their core systems, such as provisioning, billing and customer support platforms. These investments are non-trivial and are possibly time-consuming to implement. While the emergence of VoIP services has closed the gap between traditional fixed telephony and broadband services, CRA considers that a provider of non-bundled fixed telephony services could not profitably and within a short timeframe begin offering broadband services in response to a SSNIP. Accordingly, bundled and non-bundled fixed telephony services are not considered supply-side substitutes.

In conclusion, given the lack of demand and supply-side substitution between non-bundled fixed telephony services and fixed telephony services that are sold as part of a multi-play bundle, CRA considers that fixed telephony services offered as part of a multi-play bundle are not part of this product market.

3. Does the product market include fixed broadband services?

Demand-side substitution

CRA's view is that it is highly unlikely that consumers consider these products as demand-side substitutes. Fundamentally, fixed broadband and telephony are used for different purposes. Consumers purchase fixed broadband services to access the internet, whereas consumers purchase fixed telephony services to make and receive fixed calls. Moreover, fixed broadband consumers have different needs and requirements to consumers of non-bundled fixed telephony services. Consumers of non-bundled fixed telephony services typically value having access to a voice communication service that is clear and uninterrupted. By contrast, fixed broadband customers will typically prioritise factors such as speeds, capacity and the ability to upload and download digital content.

CRA recognises that there has been a trend towards bundling these services as part of a multi-play bundle, but, in line with the discussion above, CRA considers that there is a separate and specific cohort of consumers who purchase non-bundled fixed telephony services. These consumers typically do not value and are not interested in broadband as a separate service.

Supply-side substitution

CRA considers that there is limited supply-side substitution between fixed telephony and fixed broadband. While the emergence of VoIP technologies has meant that both services can be delivered over a similar infrastructure, the feasibility and scale of required investments differ. A provider of fixed broadband services could relatively easily offer non-bundled fixed telephony services by investing in soft switches and minor billing platform upgrades, whereas a provider of non-bundled fixed telephony would need to incur higher costs to offer broadband services, which are discussed above.

In addition to this, CRA considers that a provider of fixed broadband services would not find it profitable to provide non-bundled fixed telephony services only in the event of a SSNIP for the latter given that this would serve only a limited customer segment of the Qatari fixed telephony

market.

In conclusion, CRA's view is that there are separate product submarkets for fixed broadband and fixed telephony services.

4. Does the product market include mobile services?

Demand-side substitution

CRA's view is that these products are unlikely to be demand-side substitutes. While both services provide the same basic functionality to end users, in that they both allow them to make and receive voice calls, CRA considers that there are substantial technical differences between the services that limit the extent of demand-side substitution. For example, a consumer who uses a mobile telephony service to make a voice call would value the ability to do so while "on the go". A consumer of fixed telephony services would be constrained by the lack of mobility offered by these services.

CRA considers that there are likely to be differences in the quality of service ("**QoS**") of mobile and fixed telephony voice calls. A consumer's experience of making or receiving a voice call on a mobile device is dictated by many factors, including:

- The quality of the network's coverage;
- The strength of the device's signal; and
- The technical capabilities of the device making the voice call.

As such, CRA considers it likely that, in the event of a SSNIP for fixed telephony services, consumers of these services are unlikely to switch to mobile telephony services to make their voice calls, because the quality of their experience is likely to be different on mobile compared to fixed.

Supply-side substitution

CRA considers that these products are also unlikely to be supply-side substitutes. A provider of retail mobile telephony services would find it difficult to provide fixed telephony services to retail customers in the event of a SSNIP for the latter. To provide fixed telephony services in Qatar, a retailer would need to hold a specific fixed licence from CRA. In addition, a mobile retailer would need to incur significant investment costs to deploy the infrastructure necessary to provide fixed telephony services.

Based on an assessment of demand and supply-side substitution factors, CRA's view is that retail mobile telephony services and retail fixed telephony services are in separate product markets.

5. Does the product market include unmanaged OTT-based VoIP services?

Qatar, like many other countries in the region and globally, has seen an increase in the penetration of smartphones and other smart devices. This increase in smartphone penetration has facilitated the spread of OTT-based VoIP applications and services which allow users to make and receive voice and video calls and send or receive messages over the internet, instead of using a traditional phone line.

In considering substitution to OTT-based VoIP in this section, CRA is referring to "unmanaged" OTT-based VoIP services.[50] Unmanaged OTT-based VoIP services are OTT services that depend on the public internet to give users access to these services. As such, an unmanaged OTT-based VoIP provider cannot guarantee the quality of service that is delivered to the end user.[51]

Demand-side substitution

In CRA's view, unmanaged OTT-based VoIP services are not an effective demand side substitute for traditional fixed telephony services. OTT-based VoIP services provide the same basic functionality as traditional fixed telephony, which is the ability to make and receive voice calls. However, CRA considers that consumers do not view unmanaged OTT-based VoIP services as a full substitute for traditional fixed telephony services, because the quality of a voice call on an unmanaged OTT-based VoIP application may be inferior to a call on a fixed telephony line. Given that a user of an unmanaged OTT-based VoIP service would need to have an active internet connection to make an unmanaged OTT-based VoIP call, call quality, including delay, may vary significantly based on the quality of the internet connection. This means that, in areas with a poor Wi-Fi signal, an unmanaged OTT user may struggle to complete or initiate a voice call. By contrast, fixed voice services generally provide calls of high and reliable quality. While quality has improved for unmanaged OTT applications in

[50] CRA acknowledges that there are also "managed VoIP" services which can impose a competitive constraint on traditional fixed telephony products in this market. CRA will consider the inclusion of "managed VoIP" services in the product market separately below.
[51] In line with the International Telecommunication Union ("**ITU**"), CRA considers that OTT services are mostly, but not always, "unmanaged". For more information, see ITU, "Economic impact of OTTs – Technical Report", 2017, p. 5 and Figure 1 (https://www.itu.int/dms_pub/itu-t/opb/tut/T-TUT-ECOPO-2017-PDF-E.pdf).

recent times, CRA considers some differences with fixed voice services still exist. These are such that unmanaged OTT-based VoIP services are not considered an effective demand-side substitute for traditional fixed telephony services.

The lack of interoperability between unmanaged OTT-based VoIP and fixed telephony services is a further barrier to demand-side substitution. While there are some unmanaged OTT applications that allow the user to make calls to fixed and mobile numbers,[52] CRA considers that these cases are relatively limited in Qatar, and to CRA's knowledge, there are no unmanaged OTT applications available which allow users to receive voice calls from outside of the platform in question. CRA's view is that this lack of interoperability limits the functional substitutability of unmanaged OTT-based VoIP services relative to fixed telephony.

Supply-side substitution

CRA further considers that it is unlikely that unmanaged OTT-based VoIP services and fixed telephony are supply-side substitutes. As CRA noted above, there would be substantial barriers for an OTT-based VoIP provider to enter the retail fixed voice market in Qatar, including the investment costs associated with deploying the necessary infrastructure to offer fixed services, and the need to acquire a fixed telecommunications licence. As such, CRA does not consider that there is supply-side substitution between unmanaged OTT-based VoIP and retail fixed telephony services.

In conclusion, given the lack of demand and supply-side substitution, CRA's view is that unmanaged OTT-based VoIP services are not part of the market for retail fixed telephony services.

6. Does the product market include managed VoIP services?

Alongside the "unmanaged" VoIP services discussed above, "managed" VoIP services are available to business customers in Qatar, whereby a service provider provides cloud-based telephony services that allow voice calls to be made over the internet.[53]

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[52] Google Meet is an example of an unmanaged OTT-based VoIP application that allows calls to be "dialled-out" to fixed and mobile numbers in Qatar. For more information, see Google Meet Help, "Countries where you can use a phone with Meet" (https://support.google.com/meet/answer/9683440).

[53] For example, Vodafone's "Business Talk" is a Managed VoIP service that "integrate[s] a dedicated business landline with Microsoft Teams, [which] allows businesses to fully leverage the capabilities of a modern Cloud PABX and equip their teams with cutting-edge collaboration tools." For more information, please see Vodafone Qatar, "Vodafone Business Talk" (https://www.vodafone.qa/en/business/businesstalk).

Demand-side substitution

Comparing the basic function of managed VoIP and other fixed telephony services, CRA considers that these are demand-side substitutes for business customers, because they offer the same ability to make and receive voice calls from a fixed location. As such, if a SSNIP was imposed on traditional non-bundled fixed telephony services, CRA considers that users of these services may switch to managed VoIP services.

CRA considers that managed VoIP services can deliver voice call quality comparable to traditional fixed telephony. Significant advancements in network infrastructure have ensured that managed VoIP services can deliver a highly reliable, low latency calling service, even during peak time. Consequently, CRA considers that, from an end user's perspective, managed VoIP services would be considered as an effective demand-side substitute to traditional fixed telephony services.

Last, CRA considers that managed VoIP services have similar critical use cases to traditional fixed telephony, particularly in their ability to support access to emergency services – a feature that has traditionally distinguished fixed telephony. While the implementation of this capability may vary among managed VoIP providers, CRA preliminarily views this as an additional factor that further aligns managed VoIP with the functional capabilities of fixed telephony services from a demand-side perspective.

Supply-side substitution

CRA considers that managed VoIP can be a supply-side substitute for fixed telephony services. Both managed VoIP and traditional fixed telephony services can be delivered over the same base layer infrastructure. If a provider of a traditional fixed telephony service wanted to provide a managed VoIP service, they could do so. However, this would require incremental, non-trivial investments in, for example, soft-switch technologies and new software platforms for call management and billing. These are comparably more cost-efficient technologies, meaning there is an ongoing cost saving involved in making this switch to providing managed VoIP services, which reduces this incremental investment. Indeed, service providers globally are typically replacing their traditional Public Switched Telephone Network ("**PSTN**") voice services with an equivalent managed VoIP service in any case. CRA considers that managed VoIP services will gradually replace PSTN calling within the next 3-5 years in Qatar. As such, CRA concludes that these services are effectively supply-side substitutes.

Based on the assessment of demand and supply-side substitution above, CRA

considers that traditional fixed telephony and managed VoIP services should be considered within the same product market.

7. Are non-bundled fixed telephony services for residential and business customers in the same product market?

Demand-side substitution

In Qatar, Ooredoo is the only service provider that sells non-bundled fixed telephony services to residential customers. In the business segment, both Ooredoo and Vodafone sell non-bundled fixed telephony services. This suggests that there are separate product markets for non-bundled fixed telephony services sold to residential customers and to business customers, given that there are different levels of competition between these segments.

CRA understands that, in Qatar, an SME, or a business operating from a residential address, could readily switch to purchasing a residential fixed telephony package. Meanwhile a residential customer is not able to switch to a business package without a valid business registration number. Given that there is only one-way substitution between business and residential fixed telephony services, CRA considers that residential and business fixed telephony services are best treated as distinct product markets.

Supply-side substitution

From a supply-side perspective, CRA considers that business and residential non-bundled fixed telephony services are not supply-side substitutes. Although both services are sold over the same base-level infrastructure, the provision of business fixed telephony services typically involves investing in bespoke configurations and service level agreements ("**SLAs**") giving faster fault repair and guaranteed response. By contrast, residential fixed telephony is supplied on a standardised, high-volume basis with comparably simple network provisions. As such, CRA considers that transitioning supply from one segment to the other would require substantial (and time-consuming) adjustments to and investments in network systems and provisioning processes, which are likely to limit the extent of supply-side substitution between business and residential telephony services.

CRA's view is that there should be separate product markets for retail non-bundled fixed telephony services sold to residential customers (M1a) and to business customers (M1b), respectively.

8. What is the geographic scope of these submarkets?

CRA's view is that these submarkets should be defined as national in scope. This is based on an assessment of the following criteria:

- First, CRA considers that, on the supply-side, both Ooredoo and Vodafone offer fixed telephony services to retail customers on a nationwide basis. Moreover, CRA has not seen any evidence of Qatar's service providers applying sub-national pricing.
- Second, CRA has not seen any evidence to date to show that conditions of competition in these submarkets (e.g. demand) differ on a sub-national basis.[54]
- Moreover, CRA does not observe any differences in the characteristics of users of non-bundled fixed telephony in different geographic regions across Qatar that might justify a sub-national geographic market definition (e.g. a notable preference for domestic mobile over a domestic fixed telephony service in a particular geographic region).

Based on the considerations above, CRA's conclusion is that the geographic scope of these submarkets should be defined as national.

M1c and M1d – Retail fixed broadband services (Residential and Business customers)

As discussed above, CRA considers there are separate product submarkets for retail fixed broadband services. CRA now defines the product scope of these submarkets, considering recent market and technological developments in the sector. In particular:

- In Qatar, residential fixed broadband services can be sold either without bundling any additional services, or as part of a multi-play bundle with retail fixed access, telephony and pay TV services. For business customers, fixed broadband services are only available as part of a multi-play bundle. Residential and business fixed broadband services are currently sold by both Ooredoo and Vodafone.[55]
- Retail fixed broadband services are currently delivered via a copper ("**xDSL**"), fibre or Fixed Wireless Access ("**FWA**") connection. In line with its intention to undertake a technology neutral MDDD review,[56] CRA's view is that its analysis of substitution should therefore not focus on the technologies used to deliver fixed broadband

[54] This understanding of the market is subject to confirmation through a data request that CRA has sent to industry stakeholders.
[55] CRA is seeking to confirm this understanding through its data request to industry stakeholders.
[56] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, p. 24 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).

services, but on the characteristics of different products that can provide fixed broadband services. This approach reflects how consumers make decisions when choosing between different fixed broadband options. Indeed, many consumers may not even be aware of the technologies used to deliver the fixed broadband services they use. Accordingly, CRA considers that it is appropriate to include all fixed broadband services in its product market definition, irrespective of the technologies used to deliver these services.[57]

CRA begins its analysis by defining a focal product as non-bundled fixed broadband services and assesses whether the product market definition should be widened to include possible substitutes. In taking this approach, CRA addresses the following questions:

1. Are retail multi-play bundles that include fixed broadband services part of the product market?
2. Are all bandwidths of retail fixed broadband products in the same product market?
3. Does the product market include retail mobile broadband services?
4. Does the product market include broadband services delivered over a satellite connection?
5. Are fixed broadband services for residential and business customers in the same product market?
6. What is the geographic scope of these submarkets?

1. Are retail multi-play bundles that include fixed broadband services part of the product market?

Demand-side substitution

CRA considers that non-bundled fixed broadband and fixed broadband services sold as part of a multi-play bundle are demand-side substitutes.

First, both Ooredoo and Vodafone offer these services without the bundling of any additional services and as part of a multi-play bundle. While the technical characteristics of these services varies, CRA does not consider these differences to be sufficiently material to limit the degree of substitution between these products.

[57] The exception to this is broadband services delivered via a satellite connection in Qatar. These are discussed in more detail below.

Second, both these products provide the same basic functionality, which is access to the internet. CRA considers that broadband is the 'anchor' product of multi-play bundles; consumers subscribe to multi-play bundles mainly for access to fixed broadband services. The fact consumers can obtain broadband either through non-bundled products or as part of a multi-play bundle indicates these are interchangeable in meeting the same core user need of broadband access.

Supply-side substitution

CRA considers that, on the supply-side, non-bundled fixed broadband services and broadband services sold as part of multi-play bundle are substitutable.

CRA considers that, in response to a SSNIP, a provider of non-bundled fixed broadband services could start to offer fixed broadband and other telecommunications services in a multi-play bundle within a relatively short time.[58] CRA observes that VoIP technologies have enabled fixed broadband providers to more easily offer voice services as an additional service in their portfolios. As discussed above, CRA notes that offering VoIP services over a broadband network would still require non-trivial investments in, for example, soft switches, but these would not represent a significant barrier to supply-side substitution. CRA also considers that these investments are likely to be relatively lower in a country such as Qatar, given its well-developed fixed-fibre network.

Considering that there is strong demand-side substitution and some credible supply-side substitution between non-bundled fixed broadband services and fixed broadband services sold as part of a multi-play bundle, CRA finds that there is a single product market encompassing both forms of supply.

2. Are all bandwidths of retail fixed broadband products in the same product market?

Demand-side substitution

CRA considers there is likely to be a "chain of substitution" across different fixed broadband bandwidths in Qatar.[59] In this, CRA is guided by the EC Notice, which acknowledges that even

[58] This reflection excludes pay TV services, which CRA recognises would need more time and investment to be offered as part of a multi-play bundle.
[59] The EC defines the chain of substitution as such that "even though customers of product A may not consider product C as an alternative, there may be a chain of substitution where product A's customers consider product B as a substitute and product B's customers consider product C as a substitute. Product A may then be indirectly constrained by competition from product C via such a chain of substitution." For more information, see EC, "Commission Notice on the definition of the relevant market for the purposes of Union competition law", February 2024, footnote 114, p. 28 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AC_202401645).

where significant product differentiation exists a chain of substitution may still justify defining a broader Relevant Market. Specifically, the EC Notice specifies that "the existence of a chain of substitution may lead the [EC] to consider defining relevant markets where products or areas at the extremes of the market are not directly substitutable."[60]

In practical terms, while a consumer of a 1 Gbps plan may not directly substitute for a 10 Gbps plan due to significant performance and pricing differences, they may still be willing to switch to the next closest bandwidth tier following a SSNIP of their current plan. This pattern of step-wise substitution suggests that different bandwidths are connected through a chain of substitution and can therefore reasonably be considered to fall within the same product market.

Supply-side substitution

CRA also considers it likely that there is strong supply-side substitution between different fixed broadband bandwidths.

This is despite the fact that there may be some high investment cost barriers for suppliers looking to provide the highest bandwidths of broadband. For example, a provider seeking to offer high-speed fixed broadband (e.g. 100 Mbps or above), would likely need to invest heavily in fibre infrastructure – an undertaking that involves substantial costs.

There are other factors beyond investment costs which may reduce the barriers to supplying different bandwidths and facilitate supply-side substitution. These are:

- The lack of licensing barriers when providing fixed broadband services of different bandwidths in Qatar;
- The presence of infrastructure competition at the wholesale level, given that there are now three competing passive infrastructure providers (i.e. QNBN, Ooredoo and Vodafone) in Qatar, all of whom could supply dark fibre access to a third party, thereby reducing investment costs; and
- The emergence of technologies that are fast to deploy, and that reduce the marginal cost of offering higher bandwidth fixed broadband products. For example, Gigabit

[60] EC, "Commission Notice on the definition of the relevant market for the purposes of Union competition law", February 2024, paragraph 87, p. 28 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AC_202401645).

Passive Optical Networks ("**GPON**")[61] typically offer broadband speeds of up to around 1 Gbps. These can be upgraded to XGS-PON, which offers speeds of up to 10 Gbps by simply upgrading the electronics, rather than time-consuming and expensive upgrades to the optical fibre infrastructure. 5G FWA also offers speeds of up to 500 Mbps, which is a considerable increase on speeds available over copper networks, without needing to deploy fibre to the customer premises.

Considering the reflections above on demand and supply-side substitution, CRA's view is that there is a single market encompassing all bandwidths used to provide retail fixed broadband service.

3. Does the product market include retail mobile broadband services?

Demand-side substitution

While mobile and fixed broadband services can serve the same function (i.e. providing internet access), CRA considers that, based on their respective product characteristics, they are sufficiently different to not be considered demand-side substitutes.

First, mobile broadband services are usually consumed by one person at a time, whereas fixed broadband services are often consumed by more than one person at a particular time (i.e. usually multiple members of a household). Moreover, there are significant differences in how fixed and mobile broadband services are offered to end users. Fixed broadband services are often sold to users on the basis of their download and upload speeds, which are often uncapped and may be subject to a Fair Usage Policy ("**FUP**").[62]

Mobile broadband services are, by comparison, typically limited by data caps (which means that users are prevented from using the service after exceeding a certain data threshold), or subject to speed throttling. A user who values having access to unlimited, uncapped data would not necessarily consider mobile broadband as an effective substitute for fixed broadband.

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[61] A type of high-speed fibre-optic access network technology used to deliver broadband services to homes and businesses. It's widely deployed by telecom operators and ISPs to provide Fibre to the Home ("**FTTH**") or Fibre to the Premises ("**FTTP**") solutions.

[62] A FUP may be part of the contractual terms of a consumer's broadband contract with ISP. Under the terms of a FUP, consumers may be limited in how much bandwidth they can consume to ensure the normal operation of the network. However, FUPs are usually flexible, and generally only apply in extreme circumstances. For more information, see Matt Powell, "What is an internet Fair Usage Policy?", March 2025, *Broadband Genie* (https://www.broadband.co.uk/broadband/help/guide-to-fair-usage-policies).

Second, fixed broadband is typically used where the end user demands high-capacity, low latency connections to facilitate access to data intensive activities such as video streaming, online gaming and remote working. By contrast, mobile broadband is more commonly used for "on-the-go" connectivity and is utilised on smartphones or mobile hotspots, or in situations where portability of internet access is required. While the expansion in availability of 5G in Qatar has improved speeds and reliability of mobile broadband connections,[63] CRA still considers that data caps and network congestion may limit the effectiveness of mobile broadband as a functional substitute for fixed broadband.

Supply-side substitution

On the supply-side, CRA considers that substitution between mobile and fixed broadband services is limited, for two reasons:

- First, a mobile broadband provider wishing to offer fixed broadband services would need a fixed licence that allowed them to sell retail fixed broadband services in Qatar;[64] and
- Second, a mobile broadband provider would need to invest significantly in developing a fixed network to provide retail fixed broadband services. CRA considers that these investment costs would be sufficiently large to disincentivise a provider of mobile broadband services from entering the fixed broadband market in response to a SSNIP in the latter.

In light of the assessment above on demand and supply-side substitution, CRA's view is that mobile broadband services fall within a separate product market from fixed broadband services.

4. Does the product market include broadband services delivered over a satellite connection?

A number of satellite providers are currently active in Qatar and contributing to a diverse range of satellite service offerings:

[63] For example, CRA notes that by Q3 2023, Qatar's 5G network penetration was 98.6 per cent, with approximately 1 million active 5G users in the country. For more information, please see Oxford Business Group, "Qatar's cybersecurity, cloud advancements key to diversification" (https://oxfordbusinessgroup.com/reports/qatar/2024-report/ict/enhanced-connectivity-advancements-in-cybersecurity-and-cloud-computing-capabilities-underscore-commitment-to-economic-diversification-overview/).
[64] This is in line with CRA's assessment of supply-side substitution between retail fixed telephony and mobile voice services set out in Section 3.1 above.

- Ooredoo and Vodafone provide satellite service via Inmarsat, which is a Geostationary Earth Orbit ("**GEO**") satellite service; and
- Starlink (SpaceX), which was licensed by CRA in 2022, provides public satellite telecommunications networks and services, particularly Low Earth Orbit ("**LEO**") satellite broadband services in Qatar.[65]

Demand-side substitution

CRA considers that these products are unlikely to be effective demand-side substitutes.

CRA notes that GEO satellite services are primarily aimed at business and mission-critical communications "in remote locations, such as deserts and coastal areas".[66] In CRA's view, satellite broadband services – particularly those provided by GEO satellites – serve a niche and specialised role and therefore do not directly compete with traditional fixed broadband services targeted at residential and mainstream business users.

These differences in use cases are partly driven by differences in the QoS delivered by a satellite broadband service versus a fixed broadband service. Satellite services typically offer lower, more variable bandwidths and higher latency compared to traditional fixed broadband services. As such, consumers with large data requirements, such as gamers, or e-commerce businesses, would likely not substitute their fixed broadband services for a GEO satellite service.

CRA acknowledges that LEO satellite broadband services delivered by Starlink could emerge over time as a substitute for traditional fixed broadband for some customers. Following its licensing by CRA to provide residential and business satellite broadband services in 2022, Starlink announced in July 2025 that it had become operational, and is now able to provide satellite broadband services across the State of Qatar.[67] CRA considers that this is a pivotal development in the country's digital development.

While increasing convergence in quality and performance between satellite and traditional fixed broadband services is expected over the coming years, CRA considers that it will take

[65] CRA, "CRA Issues a Telecommunications License to Starlink Satellite Qatar", September 2022 (https://www.cra.gov.qa/en/press-releases/cra-issues-a-telecommunications-license-to-starlink-satellite-qatar).
[66] Ooredoo Qatar, "Inmarsat Satellite Services" (https://www.ooredoo.qa/web/en/business/inmarsat-satellite-services/). See also Vodafone Qatar, "Vodafone Mobile Satellite Services" (https://www.vodafone.qa/en/business/services/mobile/satellite-services#satelliteservices).
[67] The Peninsula, "Starlink internet service now operational in Qatar, Elon Musk announces", July 2025 (https://thepeninsulaqatar.com/article/08/07/2025/starlink-internet-service-now-operational-in-qatar-elon-musk-announces).

time for significant commercial and competitive impacts of the new retail broadband services offered by satellite providers in Qatar to be seen. For now, satellite broadband services remain outside the defined product market for fixed broadband. However, CRA will maintain a 'watching brief' on these services as they evolve and may consider including them in the fixed broadband market in future MDDD reviews.

Supply-side substitution

From a supply-side perspective, CRA considers that satellite and fixed broadband services are not substitutes. The primary reason for this is that a satellite broadband provider would need to incur substantial costs to roll out a fixed network in Qatar. CRA considers that these investment costs would be sufficiently large to disincentivise a provider of satellite broadband services from entering the fixed broadband market in response to a SSNIP in the latter.

Based on a qualitative assessment of demand and supply-side substitution, CRA's view is that broadband services delivered via satellite do not fall within the same product market as traditional fixed broadband services. CRA intends to revisit this issue in its next MDDD review.

5. Are fixed broadband services for residential and business customers in the same product market?

Demand-side substitution

CRA considers that it is unlikely that fixed broadband products sold to residential and business customers are demand-side substitutes.

Second, the market offerings for fixed broadband services are different for business and residential customers. CRA expects that business customers may be able to negotiate broadband tariffs with additional SLAs to meet their operational needs, such as guaranteed uptimes, security guarantees, and 24/7 CPE monitoring.

Supply-side substitution

CRA considers that there is limited supply-side substitution between fixed broadband services sold to business and residential customers. While both broadband services are delivered over the same underlying fixed infrastructure, CRA considers that there would be additional non-trivial investments needed if a residential fixed broadband provider wished to offer a business fixed broadband product. These would include investments in:

- Dedicated 24/7 customer support;
- SLAs;
- Account management services;
- Marketing presence; and
- Branding.

While these would not be particularly costly to implement, CRA considers that it would take a substantial amount of time for a provider of residential fixed broadband services to start implementing these additional elements to start providing a business fixed broadband service. As such, these barriers limit the degree of supply-side substitution between residential and business fixed broadband services.

To conclude, considering the low level of demand and supply-side substitution between fixed broadband offerings to residential and business customers, CRA finds that there should be separate submarkets for broadband services for residential customers (M1c) and business customers (M1d).

6. What is the geographic scope of these submarkets?

CRA considers that both the M1c and M1d submarkets are national in scope. This is based on CRA's assessment of the following factors:

- On the supply-side, both Ooredoo and Vodafone compete at a national level. Vodafone has invested heavily since 2016 in deploying its own end-to-end fibre network across Qatar to compete directly with Ooredoo's existing national end-to-end fibre network.[68]
- CRA understands that QNBN has also invested in rolling out its own fixed infrastructure (i.e. dark fibre), such that it could provide widespread coverage to retail broadband providers. CRA expects that both QNBN and Vodafone will continue to invest in fixed network infrastructure, and both will focus on matching the nationwide fixed network footprint of Ooredoo.
- Both Ooredoo and Vodafone are licensed to provide fixed broadband services at a national level and can therefore provide these broadband services across the country.

[68] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, p. 11 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).

CRA's view is that the residential and business retail fixed broadband markets should be national in scope.

3.1.2. Relevant Market assessment

In this section, CRA applies the TCT to submarkets M1a and b, and M1c and d, respectively. This assessment determines whether these submarkets should be susceptible to ex-ante regulation. Each criterion of the test is considered below.

M1a and M1b - Retail domestic and international fixed access and calling services (Residential and Business customers)

Criterion 1 - High and non-transitory barriers to entry

CRA's view is that these submarkets are characterised by significant barriers to entry, as follows:

- First, a new entrant would need to hold the relevant licence issued by CRA if it wished to provide domestic and international fixed access and calling services to residential or business customers. CRA considers that applying for such a licence would be a time-intensive process for a new entrant, requiring, amongst other things, paying the prescribed licence fees, and meeting the CRA's financial, technical and legal criteria.
- Second, even if CRA were to grant a new licence, a new entrant would still need to incur significant sunk costs to deploy the infrastructure to deliver end-to-end domestic and international fixed access and calling services to residential and/or business customers in Qatar. While CRA considers that access to Ooredoo's duct network[69] – introduced as a remedy under submarket M8c in the MDDD 2016 – has helped reduce the investment costs associated with entering this submarket, a new entrant would still need to make substantial additional investments, for example in developing a national retail distribution channel, in order to compete effectively with the existing fixed broadband providers.
- Finally, even if a new entrant were able to overcome the technical and regulatory barriers discussed above, CRA considers that it could still face challenges in gaining market share in the short to medium term. This could be due to factors such as brand recognition and established customer relationships, which may contribute to a degree

[69] Ooredoo, "Reference Infrastructure Access Offer (RIAO)", June 2016, (https://www.ooredoo.qa/web/wp-content/uploads/2022/05/approved-riao-non-confidential-version-15jun.pdf).

of consumer stickiness, thus limiting take-up for a new entrant.

On the basis of the points outlined above, CRA considers that the first criterion of the TCT is fulfilled for both submarkets.

Criterion 2 - No tendency towards effective competition

CRA's view is that these submarkets are not tending towards effective competition. In particular, CRA has considered the following:

- First, CRA considers that there have been limited competitive developments in these submarkets since the MDDD 2016. CRA considers that the incentives for a new competitor to enter these submarkets over the next 3-5 years are likely limited, given decreasing volumes in the broader fixed voice market.
- Second, CRA understands that Ooredoo, as the only provider of residential fixed access and voice services, has 100 per cent market share in submarket M1a and that there has been no change in the market shares over time. CRA does not currently possess sufficient data to compute Ooredoo's and Vodafone's market shares in the business submarket (i.e. M1b),[70] however, CRA considers that Ooredoo is likely to have the largest market share in this submarket, given its status as the incumbent.
- Third, pricing evidence does not suggest that these submarkets are moving towards effective competition. For example, publicly available price benchmarking evidence in the latest TechInsights report prepared for CRA notes that fixed voice pricing in Qatar "has been broadly static for residential and business pricing across all baskets" since 2019.[71]
- Last, CRA has considered the growing penetration of unmanaged OTT-based VoIP services and recognises that these services may exert a competitive constraint on the traditional fixed telephony services offerings of service providers, but that CRA cannot conclude that the market is tending towards effective competition based solely on the presence of unmanaged OTT services in Qatar.[72]

Based on the analysis conducted above, CRA's view therefore is that the second

[70] CRA is requesting additional data on this submarket as part of its ongoing data and information request to industry stakeholders.
[71] TechInsights, "Telecom Price Baskets Benchmarking Study for Qatar, GCC and OECD averages - Report based on results from the AREGNET 2024 study", June 2025, p. 5 (https://www.cra.gov.qa/document/telecom-price-benchmarking-study-for-qatar-gcc-and-oecd-averages).
[72] CRA has requested evidence on the evolution of OTT traffic as part of its data request to industry stakeholders.

criterion of the TCT is fulfilled in both submarkets.

Criterion 3 - Insufficiency of ex-post competition law

CRA's view is that ex-post competition law alone is not sufficient to address concerns in these submarkets based on the following:

- First, CRA notes that there has been no track record of ex-post enforcement in either submarket since 2016. Rather than demonstrating the sufficiency of the ex-post competition framework, CRA considers that the absence of ex-post interventions more likely reflects that there are few market participants to raise complaints in the first place, reducing the likelihood of ex-post complaints.
- CRA's view is that market failures arising from anti-competitive behaviour are likely to be difficult to resolve in these submarkets, because ex-post investigations will be backward-looking, and will be focused on specific allegations of abuse, rather than structural competition problems in either submarket. They are also likely to be both complex and time consuming to investigate, possibly requiring many years to complete.
- CRA also considers that, while the number of customers in each submarket is likely to be small, they are likely to include vulnerable consumers of more limited digital or financial literacy. Anti-competitive behaviours in this market could result in significant harm to these consumers and addressing these issues using only the CRA's ex-post regime could be insufficient. Timely ex-ante intervention is therefore considered necessary to protect these consumers.
- Finally, given the structural characteristics of these submarkets, CRA considers that the application of ex-post competition law alone may conflict with the objective of achieving effective competition in the long run. For example, CRA considers that ex-ante provisions which promote efficient network investments are more effective in facilitating the development of long run competition, given that they provide the sector with forward-looking regulatory certainty, which an ex-post regime is not well suited to providing.

For the reasons outlined above, CRA considers that ex-post competition law is unlikely to be sufficient to address competition issues in either submarket. Therefore, the final criterion of the TCT is fulfilled in both submarkets.

M1c and M1d – Retail fixed broadband services (Residential customers) and Retail fixed broadband services (Business customers)

Criterion 1 - High and non-transitory barriers to entry

CRA is of the view that these submarkets are characterised by significant barriers to entry. CRA considers that these entry barriers are likely to be as follows:

- First, as with fixed telephony in the M1a and M1b, a new entrant would need to hold the relevant licence issued by CRA to provide fixed broadband services in Qatar. Acquiring such a licence is a time-intensive process, and requires, amongst other things, demonstrating an ability to meet CRA's financial, technical and legal criteria.
- Second, a new entrant would also need to incur significant sunk costs to deploy the infrastructure required to deliver end-to-end fixed broadband services to residential and business customers in Qatar. While CRA considers that access to Ooredoo's duct network has, to some extent, helped reduce the investment costs associated with entering this submarket, a new entrant would still need to make substantial additional investments in developing a national fixed network.

On the basis of the points outlined above, CRA considers that the first criterion of the TCT is fulfilled in both submarkets.

Criterion 2 - No tendency towards effective competition

CRA is of the view that these submarkets are not tending towards effective competition. In particular, CRA has considered the following factors:

- Vodafone is increasingly competing with Ooredoo through infrastructure-based competition rather than solely on service-based competition. Despite this expansion, it is unlikely that further entry into the market will significantly affect competitive dynamics in the near term. Whilst the launch of Starlink in Qatar is an important development, CRA considers that Starlink will not pose a competitive threat to Ooredoo and Vodafone within the timeframe of this MDDD review.
- CRA also notes that Ooredoo retains the largest market share in both submarkets in Qatar.

CRA therefore concludes that the second criterion of the TCT is fulfilled in both submarkets.

Criterion 3 - Insufficiency of ex-post competition law

CRA's view is that ex-post competition law is not sufficient to address concerns in these submarkets. In reaching this conclusion, CRA considers that the assessment of this criterion in submarkets M1a and M1b above also applies to these submarkets. In addition, CRA notes that the potential damage generated by anti-competitive behaviour in these submarkets would likely be significant, because the retail fixed broadband market is large in Qatar.

CRA therefore concludes that the third and final criterion of the TCT is also fulfilled in both submarkets.

3.1.3. Conclusion on M1

Considering the results after applying the TCT, CRA finds that Candidate Markets M1a, M1b, M1c and M1d are all Relevant Markets. Therefore, ex-ante regulation should apply to each submarket of this market.

3.2. M3 – Retail domestic business connectivity services

In this section, CRA outlines its finding of M3[73], a national Candidate Market for retail domestic business connectivity services, which includes all national dedicated business connectivity services, irrespective of the technologies used to deliver these services. This includes national leased lines, national Ethernet and IP-Virtual Private Network ("**VPN**") services (jointly, "**domestic business connectivity services**"). This market definition also includes retail access to data centres, including access to colocation facilities within data centres and cross-connect services required to establish interconnection within these facilities.[74] This market includes domestic business connectivity services across all available bandwidths and distances (if applicable).

Please note the list of products provided above is non-exhaustive. A more detailed mapping of products for each of these submarkets is provided in Appendix C.

In line with the scope set out above, CRA includes all domestic business connectivity services in its product market definition, irrespective of the technologies used to deliver these services.

[73] For a full reference of market numbers and their corresponding market names, see Appendix A.
[74] CRA understands that data centre access (including, but not limited to, physical access to the facilities, colocation space and cross-connects) is currently purchased by unlicensed providers of connectivity in Qatar. Therefore, consistent with its discussion in the wholesale context in market M9 below in Section 3.8, these retail-equivalent services are considered within the scope of products covered by this MDDD review.

This is consistent with CRA's approach of undertaking a technology neutral MDDD review.[75]

CRA finds that this Candidate Market is also a Relevant Market, susceptible to ex-ante regulation.

3.2.1. Candidate Market definition

CRA has considered a selection of business connectivity products that are currently sold in Qatar by licensed service providers, including:

- National leased lines (Time-division multiplexing ("**TDM**")- based);[76]
- IP-VPN Multiprotocol Label Switching ("**MPLS**") services;
- Ethernet services; and
- Very Small Aperture Terminal ("**VSAT**") services.

CRA begins its market definition assessment by considering TDM-based retail national leased lines as the focal product of its new market definition. TDM-based retail leased lines provide leased line connectivity between two points in Qatar. These are Layer 1 services, referring to the physical layer of the network, which comprises ducts, cables, and transmission equipment that facilitate the transmission of data from one point to another.[77]

CRA applies the hypothetical SSNIP test to determine if this product scope should be widened to include other business connectivity products, based on an assessment of demand and supply-side substitution. In doing so, CRA addresses the following questions:

1. Are international leased lines included in the same product market as national leased lines?
2. Does the product market include Ethernet services?
3. Are other business connectivity services (e.g. IP-VPN, VSAT services) included in this product market?
4. Are fixed broadband services delivered to business customers included as part of this

[75] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, p. 24 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).
[76] TDM is a method of transmitting multiple independent signals over a single communication channel by dividing the channel into successive time slots, with each signal being transmitted during its allocated time slot. As regards to Ooredoo's national leased lines product, CRA notes that this provides TDM connection over a copper network. For more information, see Ooredoo Qatar, "Ooredoo Service Tariff No. B12-01 - General Tariff Information", November 2022 (https://www.ooredoo.qa/web/wp-content/uploads/2022/11/B12-01-National-Lease-Lines-002.pdf).
[77] For more information on Layer 1 links, please see OSI, "Physical Layer" (https://osi-model.com/physical-layer/).

product market?

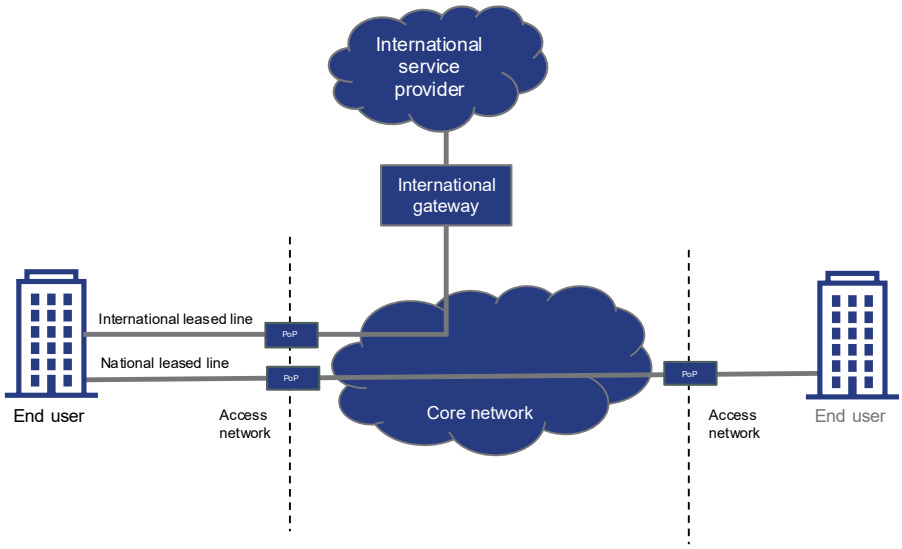
5. Is there a single product market definition encompassing all bandwidths of domestic business connectivity services?
6. What is the geographic scope of this market?

1. Are international leased lines included in the same product market as national leased lines?

Before considering the demand and supply-side substitutability of national and international leased lines, it is important to first define national and international leased lines. Both national and international leased line services offer physical and virtual dedicated capacity to large business users to convey data related traffic on a Point-to-Point ("**P2P**") or Point-to-Multipoint ("**P2MP**") basis.[78] As shown in **Figure 4** below:

- **National leased lines** are dedicated circuits that connect two locations within the same country. They are used for secure and high-capacity data transmission within national borders.
- **International leased lines** are dedicated circuits that provide direct connectivity between locations in different countries. These lines are used to support cross-border data communications, enabling reliable and consistent international network connectivity. International leased lines typically consist of two distinct segments: an international leg and a national leg. The international leg connects Qatar to foreign destinations via submarine cables, terrestrial or satellite links, while the national leg covers the domestic portion, linking the international gateway facility to the end customer's premises within Qatar. Both segments are essential components of the overall service.

[78] A P2P service establishes a dedicated connection between two specific endpoints (e.g. a direct link between a central office and a single remote office). A P2MP service connects one central location to multiple remote sites (e.g. a connection between a central office and many regional offices).



Source: CRA understanding of national and international leased line services.

Notes: Core network: central part of the network which provides high-capacity, long distance connectivity and handles functions such as routing and transmission.
Access network: part of the network that connects end users to the SP's core network.
International gateway: network point that connects a national telecommunications network to foreign networks, enabling international connectivity through undersea cables, satellites or cross-border terrestrial links.

Figure 4: National and international leased lines

Demand-side substitution

CRA considers that national and international leased lines offer different forms of connectivity. National leased lines connect to two or more points within the same country, while international leased lines connect a point in Qatar to a point overseas. Therefore, from a demand-side perspective, a consumer would not be able to substitute a national leased line for an international leased line, in the event of a SSNIP in the former.

CRA recognises that the competitive conditions in the national and international leased lines markets differ sufficiently to justify separating these two services into distinct markets. In Qatar, only licensed providers are permitted to offer national leased line services. However, for international leased line services, several international operators maintain Points of Presence ("**PoPs**") in Qatar. While these operators are not licensed domestically and therefore cannot compete with licensed providers in delivering the domestic leg of international leased lines, these PoPs enable them to offer retail international leased lines (based on buying the terminating segment from Ooredoo or Vodafone at the wholesale level).

Supply-side substitution

On the supply side, CRA considers that there is likely to be some degree of supply-side

substitution between national and international leased lines, given that both services are offered by Ooredoo and Vodafone, who operate national fixed networks and have access to international capacity.

Based on the assessment of demand and supply-side substitution above, CRA considers that international leased lines and national leased lines should be in separate product markets.

2. Does the product market include Ethernet services?

Ethernet services are Layer 2 services, which operate at the data link layer of the network. Like Layer 1, these services provide a P2P connection for transferring data across telecoms networks, but additionally include mechanisms to ensure reliable delivery, such as error detection and correction.[79] Both Ooredoo and Vodafone are currently offering these services as part of their business connectivity portfolios.[80]

Demand-side substitution

CRA considers Ethernet connectivity services are demand-side substitutes for national leased lines. From a functional perspective, Ethernet and national leased line services serve the same purpose, which is to provide business customers with a dedicated and private connection. CRA considers that, in the event of a SSNIP on national leased line products, a significant portion of customers would be willing to substitute national leased lines with equivalent-bandwidth Ethernet services. This substitution effect is expected to be especially pronounced among customers located further from the exchange, for whom national leased line prices tend to be higher than those of equivalent Ethernet services.

Supply-side substitution

On the supply side, CRA considers that there is substitution between national leased lines and Ethernet connections. CRA considers that Ethernet represents a technology upgrade on the legacy TDM-based national leased line services. Therefore, in the case of a SSNIP for national (TDM-based) leased lines, CRA considers that a provider of Ethernet services would,

[79] For more information on Layer 2 links, please see OSI, “Data Link Layer” (https://osi-model.com/data-link-layer/).
[80] For example, both Ooredoo and Vodafone have tariffs for “Ethernet VPN” services, which CRA understands to be a national ethernet service. See, for example, Ooredoo Qatar, “Ooredoo Service Tariff No. B15-01 - General Tariff Information”, October 2023 (https://www.ooredoo.qa/web/wp-content/uploads/2023/10/B15-01-Ethernet-VPN-006.pdf). See also Vodafone Qatar, “Tariff Document Template: Business (B10 Ethernet VPN)”, February 2019 (https://www.vodafone.qa/en/about-us/media/document/1551486548196/190220_tariff-notification-ethernet-vpn.pdf).

hypothetically, be able to provide the slower legacy TDM-based national leased lines.

In view of the arguments on demand and supply-side substitution above, CRA considers that Ethernet services should be considered as part of the same product market for national leased lines. CRA considers additional Layer 2 services should also be included within this product scope. These are set out in more detail in Appendix C.

3. Are other business connectivity services (e.g. IP-VPN, VSAT services) included in this product market?

VSAT services

VSAT services enable connectivity through small antennas which send and receive data through satellites. CRA's view is that VSAT services should not be included within the product market definition alongside national leased lines and Ethernet connectivity services. CRA does not consider satellite connectivity services as an effective demand or supply-side substitute for traditional fixed connectivity services. While national leased lines/Ethernet and VSAT services provide dedicated P2P and P2MP connectivity in Qatar, CRA's view is that VSAT has a different use case to Ethernet and national leased lines, as it is predominantly used to provide connectivity to customers in remote locations in Qatar.[81]

Therefore, CRA does not include VSAT services in the product scope of the domestic business connectivity market.

IP-VPN services

IP-VPN services are Layer 3 (network layer) services that enable communication across multiple Layer 2 links by managing the routing and addressing of data between source and destination across telecom networks.[82] As a P2MP solution, IP-VPN is well-suited for customers with multiple locations who wish to interconnect their sites.[83]

In the following sections, CRA analyses demand and supply substitutability between IP-VPN

[81] CRA notes that Ooredoo's VSAT VPN connectivity services are marketed on their website as "extend[ing] traditional end-to-end connectivity solutions [to] remote sites in Qatar." For more information, see Ooredoo Qatar, "VSAT VPN Connectivity Services" (https://www.ooredoo.qa/web/en/business/vsat-vpn/).
[82] For more information on Layer 3, please see OSI, "Network Layer" (https://osi-model.com/network-layer/).
[83] For more information, see Vodafone Qatar, "Tariff Document: Business (B03 IP VPN)", February 2020, p. 1 (https://www.vodafone.qa/en/about-us/media/document/1551486548772/200213-tariff-notification-for-corporate-internet-v1.pdf).

services and national leased lines/Ethernet connections.

Demand-side substitution

From a demand-side perspective, CRA considers that IP-VPN services are substitutes for national leased lines and Ethernet connectivity services. Indeed, IP-VPN services provide a very similar function to traditional leased lines, in that they offer connectivity between business sites in Qatar with a guaranteed bandwidth. A leased line customer may be willing to switch to a national IP-VPN, given that the latter is essentially an upgrade on legacy TDM-based national leased lines.

Supply-side substitution

CRA considers that IP-VPN and Ethernet connectivity services are supply-side substitutes. In particular, CRA considers that IP-VPN and Ethernet based connectivity services are conveyed over the same base-layer network infrastructure. As such, CRA considers that in the event of a SSNIP for IP-VPN services, an Ethernet connectivity provider should be able to switch to providing IP-VPN services without incurring significant costs. Therefore, CRA considers that there is likely to be supply-side substitution between domestic connectivity and IP-VPN services.

In summary, CRA's view is that IP-VPN services should be considered as part of the product market for national leased lines and Ethernet-based connectivity services.

CRA includes additional Layer 3 services as part of this market definition. More detail on these services is provided in Appendix C.

4. Are fixed broadband services delivered to business customers included as part of this product market?

Demand-side substitution

CRA's view is that fixed broadband services and domestic business connectivity services are not demand-side substitutes, because these products serve fundamentally different purposes. For example, fixed broadband services facilitate access to the internet, while domestic business connectivity services provide dedicated connectivity between two or more points in the country.

CRA further notes that these products often differ in both characteristics and price. For

example, domestic business connectivity services are typically priced higher than retail fixed broadband services for businesses, as they offer enhanced features such as lower latency, dedicated connectivity between two or more sites over a closed circuit, and a higher degree of security and control over traffic routing.[84] As such, CRA considers that domestic business connectivity services are generally better suited to large businesses with specific data requirements, whereas fixed broadband services are better suited to meet the data needs of SME customers.

Supply-side substitution

CRA considers that there is limited supply-side substitution between domestic business connectivity services and fixed broadband services for business customers. While a provider of domestic business connectivity services would often have the necessary last-mile infrastructure in place to deliver a retail fixed broadband product over their existing network, CRA considers that there would be significant commercial costs and time involved in doing so.

Therefore, CRA's view is that retail fixed broadband services are in a separate product market to domestic business connectivity services.

5. Is there a single product market definition encompassing all bandwidths of domestic business connectivity services?

Demand-side substitution

CRA considers that there is demand-side substitution across domestic business connectivity services of different bandwidths. First, different bandwidths of domestic business connectivity services are substitutable from a functional and technical perspective, given that businesses can use a range of lower bandwidth products as a substitute for a higher bandwidth product, or they can use a higher bandwidth product to meet lower capacity needs. As with retail fixed broadband services of different bandwidths, CRA's view is that there is a "chain of substitution" across domestic business connectivity services of different bandwidths.[85]

[84] For example, Ooredoo describes its national Ethernet service as "combining Ethernet capabilities with the security and reliability of private networking through Ooredoo's Gigabit Internet Protocol backbone." For more information, please see Ooredoo Qatar, "Ooredoo Service Tariff No. B15-01 - General Tariff Information", October 2023, p. 5 (https://www.ooredoo.qa/web/wp-content/uploads/2023/10/B15-01-Ethernet-VPN-006.pdf).
[85] For more information on the "chain of substitution" argument, please see footnote 59 above.

Supply-side substitution

CRA considers that there is likely strong demand-side substitution across domestic business connectivity services of different bandwidths. The underlying infrastructure needed to provide different bandwidths of domestic business connectivity services is similar, meaning that a service provider would not have to incur significant costs to provide a higher or lower bandwidth service, following a SSNIP for the focal bandwidth.

Therefore, in a view of the presence of both demand and supply-side substitution, CRA considers that there is a single market for domestic business connectivity products of different bandwidths.

6. What is the geographic scope of this market?

CRA's view is that a national geographic market definition is appropriate for this market. CRA's reasoning for this is as follows:

- First, all providers of domestic business connectivity services are licensed to offer these services on a national basis in Qatar.
- CRA's view is that both Ooredoo and Vodafone primarily provide retail domestic business connectivity services at a national level.[86] CRA notes that there is little evidence to suggest that competition in this market is developing on a sub-national basis. Indeed, CRA observes that both Ooredoo and Vodafone apply national pricing for domestic business connectivity services across Qatar, which, in CRA's view, reinforces the view that the market is national.

To conclude, CRA's view is that the retail domestic business connectivity market should be defined as national in scope.

3.2.2. Relevant Market assessment

In this section, CRA applies the TCT to the Candidate Market for domestic business connectivity services described above. This is to determine if the market should be susceptible

[86] CRA recognises that there are some minor exceptions to this. For example, Vodafone notes in its Ethernet and IP-VPN tariff documents that it is not able to provide either of these services in the Pearl development in Doha. However, given that this exception is limited in scope, CRA considers that they do not materially affect the overall conclusion of a national geographic market. For more information on Vodafone's service delivery limitations, please see Vodafone Qatar, "Tariff Document: Business (B03 IP VPN)", February 2020, p. 2 (https://www.vodafone.qa/en/about-us/media/document/1551486548772/200213-tariff-notification-for-corporate-internet-v1.pdf) . See also Vodafone Qatar, "Tariff Document: Business (B10 Ethernet VPN)", February 2019, p. 2 (https://www.vodafone.qa/en/about-us/media/document/1551486548196/190220_tariff-notification-ethernet-vpn.pdf).

to ex-ante regulation. Each criterion of the test is considered below.

Criterion 1 - High and non-transitory barriers to entry

CRA considers that there are high barriers to entry in the domestic business connectivity market. CRA reaches this view based on an assessment of the following factors:

- First, there are high sunk costs involved in deploying the necessary infrastructure needed to provide end-to-end domestic connectivity services in Qatar. CRA considers that this investment barrier could be overcome in several ways. For example, a new entrant could purchase wholesale active and passive inputs to support the deployment of end-to-end connectivity products. While these options would reduce investment costs, a new entrant would still need to make sizeable investments to provide retail domestic business connectivity services.
- Second, there are licensing barriers to providing retail domestic business connectivity services in Qatar. A new entrant would need to be licensed with CRA to be able to provide these services.
- Finally, CRA understands that this market is characterised by relatively long multi-year contracts. These contractual arrangements increase switching costs.

On the basis of the points outlined above, CRA considers that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA considers that this market is not tending towards effective competition. This view is made based on the following observations:

- Ooredoo still retains the highest volume and revenue market shares in the domestic business connectivity services market; and
- CRA considers that pricing for domestic business connectivity services is high.

Reflecting on the analysis above, CRA sees limited signs of effective competition emerging in this market. Therefore, CRA considers that the second criterion of the TCT is fulfilled.

Criterion 3 - Insufficiency of ex-post competition law

CRA's view is that ex-post competition law will not be sufficient to address competition

concerns in this market. In reaching this conclusion, CRA considers that the insights on the application of this criterion in other retail markets discussed in this section also apply here. In addition to these points, CRA notes that the potential damage generated by anti-competitive behaviour in this market may be significant, given that this is a strategically important market to the State of Qatar in achieving its national objectives of becoming a global digital hub.

Therefore, CRA's view is that criterion 3 of the TCT is fulfilled.

3.2.3. Conclusion on M3

CRA finds that the Candidate Market for domestic business connectivity services market is also a Relevant Market, susceptible to ex-ante regulation.

3.3. M4 – Retail international business connectivity services

In this section, CRA outlines its finding of M4[87], a national Candidate Market for retail international business connectivity service, which includes all international business connectivity services, irrespective of the technologies used to deliver these services. This includes International Private Leased Circuit ("**IPLC**") international leased lines, Global Ethernet, retail IP transit services and Global IP-VPN services (jointly, "**international business connectivity services**").[88] This market includes international business connectivity services across all available bandwidths.

CRA finds that this Candidate Market is also a Relevant Market, susceptible to ex-ante regulation.

3.3.1. Candidate Market definition

In Qatar, a range of international business connectivity products are currently offered by Ooredoo and Vodafone.

CRA begins its market definition assessment by considering IPLC international leased lines as the focal product of its new market definition. These provide leased line connectivity

[87] For a full reference of market numbers and their corresponding market names, see Appendix A.
[88] CRA's understands that retail IP transit is purchased by unlicensed providers of connectivity in Qatar. Consistent with its discussion in the wholesale context in market M10 below in Section 3.9 these services are considered within the scope of products covered by this MDDD review.

between two or more locations in different countries. CRA then applies the SSNIP test to determine if the product market should be widened to include additional services. In doing so, CRA addresses the following questions:

1. Is there a single product market for international leased lines and domestic business connectivity services?
2. Are other international business connectivity services (e.g. Global Ethernet and Global IP-VPN) included in the same product market?
3. Is there a single product market definition encompassing all bandwidths of international business connectivity services?
4. What is the geographic scope of this market?

1. Is there a single product market for international leased lines and domestic business connectivity services?

As CRA established above in the context of domestic business connectivity services, there are separate product markets for international leased lines and retail domestic business connectivity services, primarily because these products are not demand-side substitutes. These products serve different connectivity needs for their users. Domestic business connectivity services connect to two or more points within the same country, whereas international leased lines connect a point in Qatar to a point overseas.

The competitive dynamics of the two markets differ. In the case of international leased lines, Ooredoo and Vodafone face competition from international service providers that have established PoPs in Qatar. As discussed above, while these operators are not licensed domestically and therefore cannot compete with licensed providers in delivering the domestic leg of international leased lines, end customers effectively have a choice with respect to the international leg of these services.

As such, CRA considers that there should be separate product markets for international leased line services and domestic business connectivity services.

2. Are other international business connectivity services (e.g. Global Ethernet and Global IP-VPN) included in the same product market?

In line with CRA's analysis above on the product scope of the domestic business connectivity services market, CRA considers that Global IP-VPN and Global Ethernet services should be

considered as part of the product market for IPLC international leased lines.

Demand-side substitution

CRA considers that these services are substitutable on the demand-side, given that they provide a very similar connectivity function to IPLCs.

Supply-side substitution

On the supply-side, CRA's view is that Global Ethernet and Global IP-VPN products are substitutes for IPLC international leased lines. These services are typically delivered over the same underlying international transmission infrastructure. As such, CRA considers that service providers with established global or regional backbone networks and PoPs, could flexibly reconfigure their offerings to deliver any of these connectivity services with relatively limited additional investments.

Therefore, based on the arguments for demand and supply-side substitution above, CRA considers both Global IP-VPN and Global Ethernet services should be considered in the same product market for IPLC international leased lines.

3. Is there a single product market definition encompassing all bandwidths of international business connectivity services?

Demand-side substitution

In line with its discussion of the domestic business connectivity services market above, CRA considers that there is demand-side substitution across international business connectivity services of different bandwidths. Even though the lowest and highest bandwidth products are not direct demand-side substitutes, CRA considers that these are connected through a "chain of substitution", which makes different bandwidths of international business connectivity services interdependent, given that a user could opt to upgrade or downgrade their bandwidth in response to a SSNIP for their current bandwidth level.

Supply-side substitution

CRA further considers that different bandwidths of international business connectivity services are supply-side substitutes. The underlying transmission technology required to provide different bandwidth products is similar, meaning that it would not be costly or time-consuming for a provider of one bandwidth to offer a different bandwidth, in response to a SSNIP for a particular bandwidth.

As such, CRA considers that there should be a single product market for international business connectivity services of different bandwidths.

4. What is the geographic scope of this market?

CRA considers that a national geographic market definition is appropriate for the same reasons set out in the context of the domestic business connectivity services geographic market definition above, which are:

- All providers of international business connectivity services are licensed to provide these services in Qatar on a national level;
- Competition in this market is considered on a national level; and
- By its nature, the product cannot be offered or limited to a sub-national market within Qatar.

To conclude, given the factors outlined above, CRA's view is that the retail international business connectivity market should be defined as national in scope.

3.3.2. Relevant Market assessment

In this section, CRA applies the TCT to Candidate Market for international business connectivity services defined above, to determine if this market is also a Relevant Market, susceptible to ex-ante regulation. Each criterion of the test is considered below.

Criterion 1 - High and non-transitory barriers to entry

CRA's view is that the retail international business connectivity market is characterised by high and non-transitory barriers to entry. These barriers include the following:

- First, as with the M3, CRA considers that licensing barriers exist for new entrants seeking to offer end-to-end international business connectivity services. Although international carriers can provide connectivity between Qatar and foreign destinations without holding a local licence, they are unable to deliver full end-to-end services independently. This is because, as set out above, they must rely on licensed Qatari service providers to supply the domestic leg of the connection.
- Second, as in other retail markets, CRA considers that a new entrant would need to make significant investments to provide end-to-end international connectivity services to enterprise users in Qatar.

- Finally, CRA considers that the retail international business connectivity market is likely to exhibit limited switching, due to the relatively small number of enterprise connections in Qatar, the prevalence of long-term contracts between service providers and enterprise users, and the bespoke and technically complex nature of some of these contracts.

Therefore, on the basis of the points outlined above, CRA considers that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA also considers that this market is not tending towards effective competition. CRA's conclusions are made based on an assessment of the following factors:

- First, CRA notes that since 2016, there have been very limited changes in the market shares of service providers.
- Second, CRA understands that prices for international business connectivity services may be high in Qatar.
- Last, CRA recognises that several planned regulatory and market initiatives aim to enhance Qatar's digital infrastructure. For example, Ooredoo's recently published Ooredoo's Reference Offer for Access to Ooredoo Data Centres ("**AOQDC**"),[89] the planned development of carrier-neutral data centres for Qatar,[90] and the planned Standard Offer for Access ("**SOA**") to Qatar's Submarine Cable Landing Stations ("**SCLS**") are expected to improve downstream retail competition in this market by reducing bottlenecks in access to international capacity and content.[91] However, CRA considers that these initiatives may not fully address the additional competition issues that could arise from dominance in this market segment, and that additional remedies may be necessary, especially as Ooredoo and Vodafone will retain control over the key wholesale international connectivity services such as cable landing stations ("**CLSs**").

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[89] Ooredoo Qatar, "Reference Offer to access to Ooredoo Qatar Data Centers for connecting customers", September 2024 (https://www.ooredoo.qa/web/wp-content/uploads/2024/10/2024-10-01-Access-to-OQDC-for-SPs-Final-version-after-CRAs-approval-Non-confidential.pdf).
[90] For example, Gulf Data Hub ("**GDH**") is planning to expand its portfolio of carrier neutral data centres in the wider GCC region, by opening two data centre facilities in Qatar. For more information, please see GDH, "Locations" (https://gulfdatahub.ae/locations#future-plan).
[91] CRA considers that in this case, SCLS refers to the CLS in a defined location that houses the optical fibre submarine cable system terminal equipment and that of associated terrestrial systems. For more information, see CRA, "CRA Standard Offer for Access to Submarine Cable Landing Station (SCLS) International Connectivity Services Regulation & Guidelines Consultation Document", March 2025, p. 75 (https://www.cra.gov.qa/-/media/System/1/6/2/6/162692F2780F5E72A634CB2121A1C5EB/2025-03-09-SOA-for-SCLS-2nd-Consultation-document-v4-for-website-publication.ashx).

As such, while there have been some competitive developments in this market, CRA considers that high market shares, combined with the lack of direct competitive constraints, mean that the second criterion of the TCT is fulfilled.

Criterion 3 - Insufficiency of ex-post competition law

CRA's view is that ex-post competition law is not sufficient to address concerns in this market. CRA considers that the arguments outlined in relation to the M3 above are also applicable to this submarket.

CRA considers that ex-post competition law will not be sufficient on its own to address competition concerns in the international business connectivity services market. Therefore, CRA's view is that criterion 3 of the TCT is fulfilled.

3.3.3. Conclusion on M4

CRA finds that the international business connectivity services market is both a Candidate and a Relevant Market, and therefore susceptible to ex-ante regulation.

3.4. M5 – Retail domestic and international mobile telecommunications services

In this section, CRA outlines its definition of M5[92], a Candidate Market for retail domestic and international mobile telecommunications services, which includes mobile access services, domestic and international calls made from a mobile device (including outbound roaming),[93] Short Message Service ("**SMS**"), data services (including data services sold as part of a bundle with mobile broadband services), Machine-to-Machine ("**M2M**") connections[94] and services sold on prepaid and postpaid plans. As with other retail markets in this section, CRA finds that

[92] For a full reference of market numbers and their corresponding market names, see Appendix A.
[93] CRA considers that retail outbound international mobile roaming services (i.e. outbound voice, data and messaging), should be considered within the scope of the retail mobile telecommunications market definition. While there is limited demand and supply-side substitution between international outbound mobile roaming and domestic mobile services, CRA considers that they should be included in the same product market on the basis that Qatari mobile consumers have the same choice of Mobile Network Operators ("**MNOs**") for international outbound roaming services as they do for domestic mobile services. As such, when a consumer decides to subscribe to a particular MNO, CRA's view is that it is likely that they jointly consider the cost of domestic and international roaming services in their purchasing decision.
[94] CRA considers that M2M connections (e.g. connected cars, smart meters and IoT devices) are in the same product market as other mobile access services. While these services are not demand-side substitutes for traditional mobile access services (i.e. because they are offered separately to other business mobile telephony plans, and only allow M2M communications rather than traditional mobile telephony services), CRA considers that M2M connections are supply-side substitutes as they rely on mobile network access to function (e.g. using SIM cards, mobile spectrum, and core network systems).

this market is segmented by services sold to residential customers (i.e. M5a) and to business customers (i.e. M5b).

CRA finds that neither Candidate Market submarkets are Relevant Markets and therefore they are not susceptible to ex-ante regulation.

3.4.1. Candidate Market definition

In Qatar, mobile services are delivered through retail mobile access services, which refer to the set of services that enable an end user to connect to and use a service provider's mobile network. These services may be offered on a standalone basis (e.g. where a customer purchases a SIM card and adds prepaid credit or selects a Pay-As-You-Go ("**PAYG**") plan for voice, messaging, and/or data), or on a bundled basis (e.g. where a customer pays a recurring fee for a package that includes access to the network along with an allowance of calls, messages and data).

CRA considers retail mobile access services should be the focal product in the assessment of this market. To this, CRA applies a SSNIP test to determine if the product market should be widened. In taking this approach, CRA addresses the following questions:

1. Are domestic mobile calls and messaging services in the product market?
2. Are international outgoing call and messaging services from a mobile device included in the product market?
3. Are mobile data services (whether sold as part of a bundle with other mobile services, or as a dedicated mobile broadband service), included in the product market?
4. Are fixed telephony services part of the product market?
5. Are fixed broadband services included in the product market?
6. Does the product market include OTT calling and messaging services?
7. Is there a single product market for prepaid and postpaid mobile services?
8. Are residential and business customers in the same product market?
9. What is the geographic scope of this market?

1. Are domestic mobile calls and messaging services in the product market?

Demand-side substitution

CRA considers that mobile access, calls and messaging services are complements, rather than direct demand-side substitutes. While mobile access and calls/messaging perform

different functions and are not necessarily substitutable, the former is a prerequisite for the latter.

In Qatar, mobile access, voice, and messaging services are typically offered as part of bundled prepaid or postpaid plans by the country's two MNOs – Ooredoo and Vodafone. CRA considers that consumers assess the total cost of mobile access alongside domestic voice and SMS services when selecting prepaid or postpaid plans.

Supply-side substitution

CRA also considers that mobile access and domestic calling/messaging services are likely to be supply-side substitutes. CRA considers that the design of mobile networks is such that, in the event of a SSNIP for a mobile access service, a provider of domestic calling and messaging services should be able to provide access services without incurring significant costs. This is especially the case as mobile operators typically invest in and deploy network infrastructure that enables them to offer access, domestic call and messaging services all at the same time.

To conclude, CRA considers that the extent of demand- and supply-side substitution supports defining a single product market encompassing mobile access, voice, and messaging services.

2. Are international outgoing call and messaging services from a mobile device included in the product market?

Demand-side substitution

CRA's view is that domestic and international mobile services fall within the same product market definition. This conclusion is made despite the fact that, in the first instance, domestic and international mobile services serve distinct functional purposes. For example, if an end user wished to make or receive an international mobile call or use SMS, they could not substitute it with domestic mobile services in response to a SSNIP.

At the same time, CRA recognises that an increasing number of mobile plans offered in Qatar include both domestic and international minutes in the same bundled offering. This suggests that mobile customers consider both services together when evaluating the overall value of a mobile plan. As such, when faced with a SSNIP for international calling services, consumers may respond not by switching from international calls to domestic calls, but by switching to an

alternative plan that offers better value through bundled international and domestic calling services. Consequently, CRA considers that these services are substitutes at the plan level rather than at the level of individual calls and messages.

Supply-side substitution

CRA considers that supply-side substitution is likely between domestic and international mobile services. The underlying infrastructure required to provide both services – such as interconnection arrangements, routing, and switching systems – is similar. Accordingly, in the event of a SSNIP on domestic mobile calling and messaging services, it is likely that a provider of international mobile services could begin offering domestic services, and vice versa.

Based on an assessment of demand and supply-side substitution, CRA concludes that domestic and international mobile services are part of the same product market.

3. Are mobile data services (whether sold as part of a bundle with other mobile services, or as a dedicated mobile broadband service), included in the product market?

Demand-side substitution

From a demand-side perspective, CRA observes that, in Qatar, mobile data and telephony are often consumed jointly through bundled packages. Indeed, in Qatar, there are no mobile plans that allow customers to buy SMS and calls separately to mobile data. Even if mobile data is not included in the monthly allowance of a mobile bundle, it would still be available through a dedicated mobile broadband service on PAYG rates. As such, when consumers evaluate the value of a mobile plan based on price and non-price factors, CRA considers it likely that they assess this value based on a joint assessment that considers calls, SMS and data allowances together.

Supply-side substitution

From a supply-side perspective, CRA considers that mobile data and telephony services are substitutes. Mobile data services (whether bundled or as part of a mobile broadband plan) are provided over the same infrastructure as mobile calls and messaging services.

To conclude, CRA considers that there is a single product market for mobile telephony and data services.

4. Are fixed telephony services part of the product market?

CRA considers that fixed and mobile telephony services are not in the same product market. CRA established the reasons for this in the context of its review of the retail domestic and international fixed telephony and broadband services market (M1) in Section 3.1 above. CRA refers to and maintains those findings for the purposes of its assessment in this market.

5. Are fixed broadband services included in the product market?

CRA considers that fixed and mobile broadband services are not in the same product market. CRA established the reasons for this in the context of its review of the retail domestic and international fixed telephony and broadband services market (M1) in Section 3.1 above. CRA refers to and maintains those findings for the purposes of its assessment in this market.

6. Does the product market include OTT calling and messaging services?

Demand side substitution

CRA considers that the gap between OTT and mobile services has closed in recent times. However, CRA's view is that OTT-based VoIP services are unlikely to effectively replace mobile telephony services completely, not least because in order to make an OTT-based VoIP call, a user would still need a mobile access subscription. Moreover, while both services offer the ability to make and/or receive calls to/from domestic and international locations, a key barrier to effective substitution is the lack of interoperability between OTT and mobile telephony services. Indeed, most OTT services only allow voice/SMS termination on the same application where it originated.

CRA also considers that relative pricing differences between OTT and mobile telephony services can also limit the degree of demand-side substitution between the two. While OTT calls are typically "free" for calls made between parties on the same platform, making an OTT call in the first place requires the end user to have paid for access to an internet connection. Therefore, for a user without an internet connection, the marginal cost of making an OTT call is likely to be higher than a traditional mobile voice call, as this would require them to first purchase a subscription to access the internet.

In view of the above, CRA's view is that, although there is some degree of partial substitution between OTT and mobile telephony services, this is insufficient to qualify OTT services as effective demand-side substitutes for mobile telephony services. Therefore, based on an

assessment of demand-side substitution, CRA considers that OTT and mobile telephony services do not currently fall within the same relevant market.

Supply-side substitution

CRA considers that there is currently limited supply-side substitution between mobile telephony services in Qatar and OTT services. Currently, there are barriers to entering the Qatari mobile market for an OTT provider, which include, but are not limited to:

- Licensing barriers to an OTT provider to providing retail mobile services;
- High costs involved in deploying the requisite network infrastructure to be able to provide retail mobile services;
- Barriers to acquiring the necessary mobile spectrum to provide mobile services in Qatar; and
- Challenges involved in developing a nationwide mobile retail distribution network.

Therefore, in light of these supply-side barriers, CRA considers it to be unlikely that an OTT provider would be able to provide retail mobile services in a timely manner, following a SSNIP for mobile services.

To conclude, CRA considers that considering the assessment of demand and supply-side substitution above, OTT services should not be included in the same product market as retail mobile services.

7. Is there a single product market for prepaid and postpaid mobile services?

Before considering if there is a single product market for prepaid and postpaid mobile plans, CRA considers it important to define the dimensions of these plans in the Qatari context:

- First, both service providers sell ***prepaid mobile plans*** that deliver mobile services (including access) with a range of spending options for a predefined usage credit and duration. Traditionally, access to these plans was facilitated through the purchase of a SIM card, and separately, consumers would purchase their calling and messaging services as part of a PAYG plan, as and when needed. However, in recent times, service providers have increasingly started bundling monthly allowances of calling minutes and SMS (and data) together through a single “lump-sum” payment and when allowances for these services are exceeded, PAYG rates apply.
- Second, both service providers also sell ***postpaid mobile plans***, for which they are

billed after a certain period of use (usually monthly). In Qatar, postpaid mobile charges usually include a combination of minutes, SMS and data allowances as part of the monthly charge that a consumer pays to the service provider.

CRA notes that, in Qatar, the majority of mobile contracts are prepaid rather than postpaid.

Demand-side substitution

CRA's view is that there is strong demand-side substitution between prepaid and postpaid mobile services. Both plan types offer the same basic functionality to end users of retail mobile services. However, there are some differences in the product characteristics of these services, which may constrain the degree of demand-side substitution, such as billing arrangements, contract lengths and usage allowances.

There are also headline pricing differences between postpaid and prepaid mobile offerings, with postpaid services generally costing more per month than prepaid contracts. However, CRA considers that this may not be a barrier to switching if the consumer considers the total value of a mobile bundle when choosing between a postpaid and prepaid mobile plan, and not just the headline price.

Given the above, CRA considers that prepaid and postpaid mobile plans show a high degree of demand-side substitutability.

Supply-side substitution

CRA considers that prepaid and postpaid mobile services are also likely to be supply-side substitutes. In general, both services are delivered over the same basic mobile infrastructure. Moreover, there is also an overlap in the sales and distribution channels used for prepaid and postpaid mobile services. For example, prepaid and postpaid plans and credit top-ups for PAYG prepaid plans can be purchased from the retail outlets of service providers, or from third party suppliers such as supermarkets. Therefore, it is likely that a provider of prepaid or postpaid mobile services already has the required distribution channels in place to offer the other.

As such, CRA considers that there is supply-side substitution between postpaid and prepaid mobile services.

To conclude, CRA's view is that there is a single product market encompassing prepaid and postpaid mobile services.

8. Are residential and business customers in the same product market?

Demand-side substitution

CRA considers that the services sold to these consumer groups are not demand-side substitutes, based on differences in tariff structures, contractual arrangements, and functional use cases.

In CRA's view, business users generally require higher and more consistent allowances of international voice calls and data roaming compared to residential users. CRA considers that this difference in user profiles supports placing residential and business user groups in separate product markets.

Moreover, CRA considers that there are differences in the contractual and billing terms between residential and business mobile plans. Business plans usually have customised contracts and/or are available through bulk discounts to organisations. Residential plans are, by contrast, much more tailored to an individual consumer.

Finally, CRA considers that the functional use cases also differ significantly between business and mobile services. Business users frequently integrate mobile services into enterprise systems to support operational continuity and mobile workforce needs. Residential users, by comparison, primarily use mobile services for personal communication and entertainment, with limited integration into professional workflows. These factors limit the degree of demand-side substitution between business and residential services.

Supply-side substitution

CRA's view is that mobile services for business and residential customers are also unlikely to be strong supply-side substitutes. While both services are provided over a common network infrastructure, the provision of business mobile plans often requires additional investments in areas such as enhanced security, bespoke roaming, SLAs and reporting, Operations Support System ("**OSS**")/Business Support System ("**BSS**") changes and account management.

Moreover, the retail and account management channels for business mobile services differ from those used for residential customers. For example, business services frequently rely on

direct account management, dedicated sales teams, and enterprise-focused support, whereas residential services are distributed through mass-market retail outlets, online channels, and, in the case of Qatar, supermarket outlets. Establishing these differentiated sales and support capabilities would require significant investment and time, including hiring and training personnel, developing billing systems, and implementing customer service processes suitable for servicing the residential market.

In light of the assessment of demand and supply-side substitution above, CRA's view is that there should be separate submarkets for retail mobile services sold to residential (i.e. M5a) and business (i.e. M5b) customers.

9. What is the geographic scope of this market?

CRA considers the submarkets of M5 should be defined as national in scope. This is based on CRA's assessment of the following factors:

- Retail mobile service pricing in Qatar is applied uniformly nationwide;
- CRA has not seen any evidence that demand for mobile telephony services varies on a sub-national basis; and
- Mobile services are provided nationally by Ooredoo and Vodafone through their extensive 5G mobile networks. MNOs are licensed on a national level to provide mobile telephony services.

Based on the arguments set out above, CRA's conclusion is that the retail mobile telecommunications services submarkets should be national in scope.

3.4.2. Relevant Market assessment

In this section, CRA applies the TCT to the Candidate Markets for retail mobile telecommunications services to determine if they are also Relevant Markets, susceptible to ex-ante regulation. The submarkets for residential and business customers are considered together. Each criterion of the test is considered in detail below.

M5a and M5b - Retail domestic and international mobile telecommunications services (Residential and Business customers)

Criterion 1 - High and non-transitory barriers to entry

CRA is of the view that these submarkets are characterised by significant barriers to entry. CRA considers that these entry barriers are likely to be as follows:

- First, a new entrant would need to hold the relevant licence with CRA to provide retail mobile services in Qatar. CRA considers that applying for such a licence would be a time-intensive process for a new entrant, requiring, amongst other things, paying the prescribed licence fees, and meeting CRA's commercial, technical and legal criteria.[95] Furthermore, a new entrant would require access to suitable spectrum.
- CRA considers that significant structural barriers exist in deploying the necessary network infrastructure to provide end-to-end mobile services in Qatar, including investments in base stations, antennas, and backhaul equipment. Some of these barriers – particularly those related to passive infrastructure – could potentially be addressed by taking advantage of regulated reference access offers and by negotiating commercial agreements with Ooredoo and Vodafone for access to mobile towers and sites. However, CRA considers this process to be time- and resource-intensive.
- Finally, even if a theoretical entrant were able to overcome the technical and regulatory barriers discussed above, CRA considers that they would have to make significant investments in developing a brand to compete with established players.

On the basis of the points outlined above, CRA considers that the first criterion of the TCT is fulfilled in both submarkets.

Criterion 2 - No tendency towards effective competition

CRA's view is that these submarkets, as in 2016, are effectively competitive.

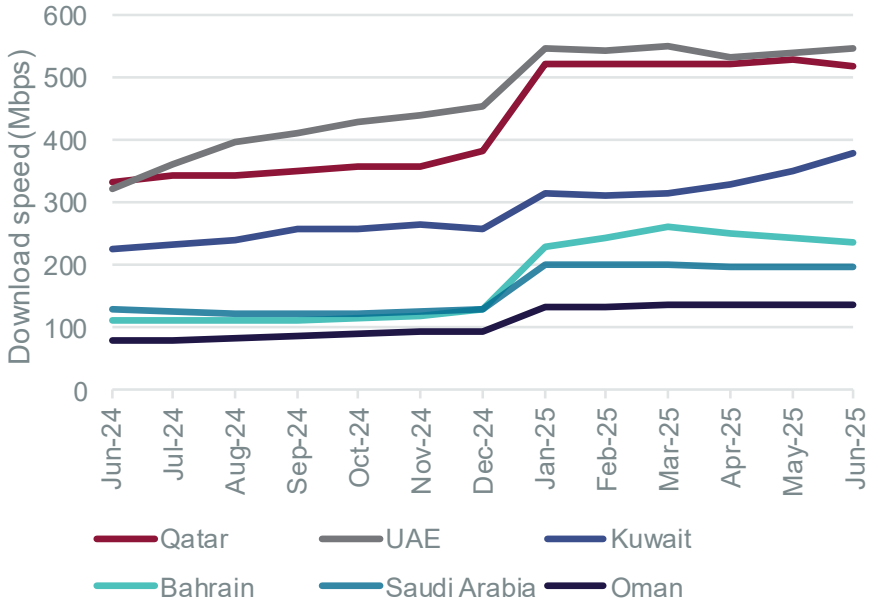
- First, based on the evolution of retail mobile market shares since 2016, CRA considers that this evidence is mixed, in terms of the tendency of both submarkets towards effective competition. Whereas Vodafone has increased both its volume and revenue

[95] ictQATAR, "MOBILE LICENSE APPLICATION PROCEDURES - For Pre-Qualified Candidates Wishing to Apply for a License to Provide Public Mobile Networks and Services in the State of Qatar", July 2007, Section 4.3, p. 4 (https://www.cra.gov.qa/-/media/System/8/6/F/2/86F2904B74D856A18C01BCF783BD7BF2/MobileLicense_ApplicationProcedures.ashx).

market shares over time, Ooredoo still holds majority shares in both submarkets. However, market shares alone do not provide sufficient evidence to conclude that the retail mobile submarkets are moving towards effective competition.

- CRA considers the retail mobile submarkets are characterised by ongoing product innovation. Ooredoo and Vodafone offer a wide range of promotional tariffs, which include not only competitive pricing, but also tailored non-price benefits to attract and retain consumers. Both service providers have also started offering separate data allowances specifically for social media applications as part of the packages they sell for mobile plans.
- Moreover, analysis of pricing indicators suggests that the prices of mobile telephony services in Qatar have been falling in recent years.[96] The latest TechInsights report finds that "prices for mobile voice have generally declined" over time, especially for higher use packages.[97] This report shows that Qatar's mobile voice and data prices are relatively low when compared to benchmarks, ranking lower than the GCC average across all mobile baskets. While Qatar continues to rank highly compared to the OECD average, this result is heterogeneous across different mobile baskets.[98]
- In addition, while OTT services are not considered an effective substitute for mobile, CRA considers that the emergence of OTT services is likely to impose a competitive constraint on MNOs, particularly when it comes to international mobile calling and messaging services.
- CRA also recognises that consumers and enterprise users alike are benefiting from technological innovations pioneered by Ooredoo and Vodafone with the near-universal coverage of 5G in Qatar and the associated benefits that come from this. CRA considers these are indicative of a competitive market.
- Last, as shown in **Figure 5** below, median mobile download speeds have risen rapidly in Qatar over the last 12 months. CRA's view is that the rising download speeds are indicative of a trend towards increasing product innovations in the Qatari mobile market.

[96] CRA has requested further data on pricing as part of its data request to industry stakeholders.
[97] TechInsights, "Telecom Price Baskets Benchmarking Study for Qatar, GCC and OECD averages - Report based on results from the AREGNET 2024 study", June 2025, p. 5 (https://www.cra.gov.qa/document/telecom-price-benchmarking-study-for-qatar-gcc-and-oecd-averages).
[98] TechInsights, "Telecom Price Baskets Benchmarking Study for Qatar, GCC and OECD averages - Report based on results from the AREGNET 2024 study", June 2025, p. 4 (https://www.cra.gov.qa/document/telecom-price-benchmarking-study-for-qatar-gcc-and-oecd-averages).



Source: Ookla, "Speedtest Global Index - Median Country Speeds Updated June 2025" (https://www.speedtest.net/global-index, accessed July 2025).

Note: Speeds are provided on a rolling three-month average basis.

Figure 5: Median mobile download speeds, Qatar vs GCC (June 2024 - June 2025)

On balance, CRA's assessment is that both retail mobile submarkets continue to exhibit characteristics consistent with a market that is effectively competitive. Therefore, the second criterion of the TCT is failed.

Criterion 3 - Insufficiency of ex-post competition law

Given that CRA has preliminarily determined that this market is tending towards effective competition, it is not necessary to evaluate this market under this criterion.

3.4.3. Conclusion on M5

Considering the results after applying the TCT, CRA's conclusion is that the Candidate Markets for retail domestic and international mobile telecommunications services are not Relevant Markets and that further ex-ante regulation is not required in this market. This view is based on CRA's assessment that both submarkets, as in 2016, are effectively competitive.

Summary of wholesale Candidate and Relevant Markets

Table 3 below sets out the wholesale Candidate Markets as defined by the MDDD 2016, alongside the equivalent Candidate Markets for this MDDD review. All Candidate Markets are national in scope. This is in line with the geographic market definitions under the MDDD 2016.

MDDD 2016 Candidate Market	Candidate Market in this MDDD review	Key change from MDDD 2016
M6 – Wholesale call origination on public telecommunications networks at a fixed location	**M6 – Wholesale call origination on public telecommunications networks at a fixed location**	N/A
M7 – Wholesale termination on individual telecommunications network at a fixed location	**M7 – Wholesale termination on individual telecommunications networks at a fixed location**	N/A
M8 - Wholesale physical access to network infrastructure		
M8a - Physical access to SPs' mobile sites, masts, towers, including relevant ancillary facilities/services and colocation space	**M8 – Wholesale access to mobile infrastructure**	N/A
M8b – Physical access to SPs' dark fibre and copper, including relevant ancillary facilities/services and colocation space	**M9 – Wholesale Local Access services provided at a fixed location**	Consolidation of submarkets M8b and M8c in market M8. Inclusion of VULA products in market M8 and access to data centres (including, but not limited to, physical access to the facilities, colocation space and cross-connects)
M8c – Physical access to SPs' ducts, including relevant ancillary facilities/services and colocation space	**M9 – Wholesale Local Access services provided at a fixed location**	
M8d – Functional access to international gateway facilities required to gain international connectivity (including, but not limited to, physical access to the facilities, colocation space, cross-connects and other relevant ancillary facilities and/or services)	**M10 - Wholesale international connectivity services**	Product scope includes wholesale IP transit services which were not covered in MDDD 2016
M9 – Wholesale Broadband Access services at a fixed location	**M11 – Wholesale Broadband Access services at a fixed location**	Technology neutral product market which includes only bitstream products. VULA is now included in market M9
M10 – National trunk segment of (national and international) wholesale leased line services	**M12 – National trunk segment of (domestic and international) wholesale business connectivity services**	Inclusion of core network ducts and dark fibre
M11 – Terminating segment of (national and international) wholesale leased line services	**M13 – National terminating segment of (domestic and international) wholesale business connectivity services**	N/A
M12 - International transit segment of international wholesale leased lines services	**M14 - International transit segment of international wholesale business connectivity services**	N/A
M13 - Wholesale access and origination on public mobile networks	**M15 - Wholesale access and origination on public mobile networks**	N/A
M14 – Wholesale termination on individual mobile networks	**M16 – Wholesale termination on individual mobile networks**	N/A

Table 3: Wholesale Candidate Markets (MDDD 2016 vs Current MDDD review)

Table 4 summarises the findings of the Relevant Market assessment applied to the Candidate Markets.

	Criterion applied by the TCT		
Candidate Markets	**Criterion 1: High and non-transitory barriers to entry**	**Criterion 2: No tendency towards effective competition**	**Criterion 3: Insufficiency of ex-post competition law**
M6 – Wholesale call origination on public telecommunications networks at a fixed location	✓	✓	×
M7 - Wholesale termination on individual telecommunications networks at a fixed location	✓	✓	✓
M8 – Wholesale access to mobile infrastructure	Subject to industry views through public consultation		
M9 – Wholesale Local Access services provided at a fixed location	✓	✓	✓
M10 – Wholesale international connectivity services	✓	✓	✓
M11 – Wholesale Broadband Access services provided at a fixed location	✓	✓	✓
M12 – National trunk segment of (domestic and international) wholesale business connectivity services	✓	✓	✓
M13 - National terminating segment of (domestic and international) wholesale business connectivity services	✓	✓	✓
M14 - International transit segment of international wholesale business connectivity services	✓	×	×
M15 - Wholesale access and origination on public mobile networks	✓	×	×
M16 – Wholesale termination on individual mobile networks	✓	✓	✓

Table 4: Relevant Market assessment for each Candidate Market (Wholesale)

The following sections set out the findings for each of these wholesale markets.

3.5. M6 – Wholesale call origination on public telecommunications networks at a fixed location

In this section, CRA outlines its finding of M6[99], a national Candidate Market for wholesale call origination services on public telecommunications networks at a fixed location. These services are defined as the provision of telecommunications infrastructure and capabilities that enable the initiation of voice calls from a fixed location. The scope of the market includes all origination services, regardless of the destination of the call, whether within the same network ("**on-net**") or made between different networks ("**off-net**"), and whether the call terminates domestically or internationally.

CRA finds that this Candidate Market is not a Relevant Market and should no longer be susceptible to ex-ante regulation.

3.5.1. Candidate Market definition

Call origination services are relevant in contexts such as prepaid calling cards, CS and CPS, where the calling customer chooses to have their call routed through a network different from the one providing their line rental services. As discussed in Section 3.1, the take-up of these services in Qatar is minimal. In addition, CRA understands CS and CPS services are not currently offered in the country.

CRA defines the focal products of this market as telephony origination services at a fixed location. It then applies the SSNIP test to answer the following questions on the product scope of the market:

1. Does the product market include mobile call origination services?
2. What is the geographic scope of this market?

1. Does the product market include mobile call origination services?

As part of this review, CRA does not consider that wholesale mobile call origination services are an effective substitute for wholesale fixed call origination services. This is because, as set out in the context of M1, mobile call services do not form an effective substitute to fixed call services.

[99] For a full reference of market numbers and their corresponding market names, see Appendix A.

2. What is the geographic scope of this market?

CRA considers a national geographic market definition is appropriate for this market, for the following reasons:

- First, as set out in the context of market M1, CRA has not seen any evidence of varying demand for retail fixed telephony and, by extension, wholesale call origination services on a sub-national level;
- Second, both operators set prices at a national level for fixed call origination services; and
- Third, in terms of network coverage, both Ooredoo and Vodafone offer fixed call origination services on a national level.

Given the above, CRA concludes that it is appropriate to define a product market for wholesale call origination services at a fixed location and that that market is national.

3.5.2. Relevant Market assessment

In this section, CRA applies the TCT to the Candidate Market for wholesale call origination services at a fixed location. Each criterion is considered in more detail below.

Criterion 1 - High and non-transitory barriers to entry

CRA is of the view that this market is characterised by significant barriers to entry. This is for the similar reasons set out in the context of market M1 above. In particular:

- A new entrant would need to hold the relevant licence, if it wished to provide call origination services. CRA considers that applying for such a licence would be a time-intensive process for a new entrant, requiring, amongst other things, paying the prescribed licence fees, and meeting the CRA's financial, technical and legal criteria.
- A new entrant would need to incur significant investment costs to enter the market. Although some of these costs have been reduced following the remedies introduced in the MDDD 2016 – such as regulated access to Ooredoo's duct network – as discussed above in the context of market M1, CRA considers that additional substantial costs would still apply.

On the basis of the points outlined above, CRA considers that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA believes that this market is not currently tending towards effective competition. As discussed in the context of market M1 above, there is currently no demand for these services and the market is fully characterised by self-supply, with both Vodafone and Ooredoo self-supplying their fixed call origination services.

In light of the above, CRA concludes that this market is not be tending towards effective competition, and it is not projected to do so over the timeframe of this MDDD review. Therefore, the second criterion of the TCT is fulfilled in this market.

Criterion 3 - Insufficiency of ex-post competition law

CRA believes that ex-post competition rules will be generally sufficient to intervene in this market.

- CRA notes ex-post competition rules can generally more easily deal with potential breaches at a retail level rather than at wholesale level where access may often constitute a bottleneck. Given the potential complexity of any disputes or complaints, these cases are likely to require substantial resources and time to be resolved. This, in turn, could result in significant harm to the access seekers who depend on the wholesale fixed call origination services to compete in the relevant downstream markets.
- However, as described above in criterion 2, all fixed telephony providers in Qatar currently self-supply fixed call origination services. In the event that new entrants enter the retail fixed telephony market, CRA considers it unlikely that they would need to rely on third-party wholesale fixed call origination services, especially given that interconnection is obligatory on all licensees in Qatar.[100] Moreover, CRA has issued formal dispute resolution guidelines to deal with access and interconnection issues in 2015.[101] Considering this, CRA's view is that it is unnecessary to implement specific ex-ante regulation in the wholesale fixed call origination market.

[100] ictQatar, "LICENSE For the Provision of Public Fixed Telecommunications Networks and Services", October 2007, p. 4 (https://www.cra.gov.qa/-/media/CRA/Licensing/QTel_FixedLicense.ashx?la=en&hash=A4CC9C3F9E5357099E74D0E7BC9154AAD989F109). See also ictQatar, "LICENSE For the Provision of Public Fixed Telecommunications Networks and Services", April 2010, p, 4 (https://www.cra.gov.qa/-/media/CRA/Licensing/VodafoneFixedLicense29April.ashx?la=en&hash=A7B7815F165222C0C87EA7B9178ED4231E300FD5)

[101] CRA, "Dispute Resolution Procedures", February 2015, pp. 5 – 11 (https://www.cra.gov.qa/document/dispute-resolution-procedures).

To conclude, CRA considers that ex-post measures will be sufficient to deal with any anti-competitive issues that arise in this market.

3.5.3. Conclusion on M6

Taking into account the above evidence, CRA finds that the Candidate Market for wholesale fixed call origination services at a fixed location is not also a Relevant Market and therefore is no longer susceptible to ex-ante regulation.

3.6. M7 – Wholesale termination on individual telecommunications networks

In this section, CRA outlines its finding of M7[102], separate Candidate Markets for wholesale fixed call termination services on each fixed network in Qatar. CRA finds this market includes the termination of all calls on a licensee's fixed network, regardless of the origin of the call (e.g. nationally or internationally) or the underlying technology used to deliver the service.

CRA finds these Candidate Markets are also Relevant Markets and therefore are susceptible to ex-ante regulation.

3.6.1. Candidate Market definition

Wholesale fixed call termination services are those services which allow for termination of a call on a service provider's fixed line that has been initiated by another provider, regardless of whether that call originated over a fixed or a mobile network. The applicable regulatory regime to wholesale call termination is referred to as Calling Party Pays ("**CPP**"), which works as follows:

- Fixed network operator A receives a call from operator B; and
- Operator A handles the termination of the call, and charges operator B a wholesale termination fee.

Therefore, each operator has a monopoly on termination on its own network.

In its market definition assessment, CRA defines the focal products of this market as wholesale termination services on individual networks at a fixed location, and to this, it applies the SSNIP test to address the following questions:

[102] For a full reference of market numbers and their corresponding market names, see Appendix A.

1. Do any demand-side substitutes exist to wholesale fixed termination services?
2. Do any supply-side substitutes exist to wholesale fixed termination services?
3. What is the geographic scope of this market?

1. Do any demand-side substitutes exist to wholesale fixed termination services?

CRA considers that there are no effective direct demand-side substitutes to wholesale fixed termination services on a given network. That is, a provider who needs to terminate a call on a fixed network could not purchase termination services on another network and still terminate that call to the intended number. This is because each network operator has control over terminating calls to its fixed customers.

2. Do any supply-side substitutes exist to wholesale fixed termination services?

There is no supply-side substitution for fixed termination on an individual network. A fixed telephony provider who has originated a call on behalf of a customer has no technical alternative but to terminate the call on the network of the provider that the called party has subscribed to.

3. What is the geographic scope of this market?

CRA considers the geographic scope of this market to be national, based on an assessment of the following factors:

- First, aligned to its review of market M1, CRA has not seen evidence that demand for non-bundled fixed telephony and, by extension, demand for wholesale fixed call termination services, varies on a sub-national basis;
- Second, both operators set prices at a national level for fixed call termination services; and
- Third, both Ooredoo and Vodafone offer fixed call termination services on a national level.

In summary, CRA concludes that the market for wholesale call termination on individual fixed networks is national in scope.

3.6.2. Relevant Market assessment

In this section, CRA applies the TCT to the Candidate Markets for wholesale call termination

services at a fixed location. Each criterion is considered in more detail below.

Criterion 1 - High and non-transitory barriers to entry

CRA is of the view that these markets are characterised by significant barriers to entry. Barriers to entry in these markets are both high and enduring, as each operator retains exclusive control over the termination of calls to its own retail customers. As a result, neither new entrants nor existing competitors can offer call termination services to another operator's customers, effectively preventing entry into that segment of the market.

On this basis, CRA concludes that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA has not seen any evidence to suggest that these markets will tend to competition in the absence of ex-ante regulation:

- First, the nature of these markets is such that each fixed operator holds a 100 per cent share of the calls terminated on its own network.
- Second, rising volumes in minutes subject to fixed termination charges suggest that there is no competitive constraint, e.g. from mobile or OTT-based calls, on wholesale fixed termination services.

On the basis of the points outlined above, CRA considers that the second criterion of the TCT is fulfilled.

Criterion 3 - Insufficiency of ex-post competition law

CRA considers that relying solely on ex-post competition law is insufficient to ensure that fixed call termination rates are set at competitive levels. In reaching this conclusion, CRA considers that the insights from the other wholesale markets discussed in this document also apply here. As a provider who needs to terminate a call on one fixed network cannot purchase termination services on another network and still terminate that call to the intended number, CRA's view is that ex-ante regulation is likely to be required to ensure that each operator offers these services at reasonable price and non-price conditions. In the absence of such ex-ante regulation, a fixed network operator may have the incentive to restrict access to its network or engage in excessive pricing behaviours.

On the basis of the points outlined above, CRA considers that the third criterion of the

TCT is fulfilled.

3.6.3. Conclusion on M7

CRA finds that the Candidate Markets for wholesale termination services on individual telecommunications networks at a fixed location are also Relevant Markets and are susceptible to ex-ante regulation.

3.7. M8 – Wholesale access to mobile infrastructure

In this section, CRA outlines its finding of M8[103], a national Candidate Market for wholesale access to passive mobile infrastructure, encompassing:

- Mobile sites, masts and towers; and
- Relevant ancillary services and colocation space.

Given recent changes in the market structure in Qatar, CRA is seeking to consult with industry stakeholders on whether this Candidate Market should be re-assessed as a Relevant Market, and therefore potentially susceptible to ex-ante regulatory intervention.

3.7.1. Candidate Market definition

CRA considers that recent developments in this market are relevant to the market definition process. In particular the establishment of a third-party tower company, the result of a joint venture between Ooredoo, Zain and TASC Towers to create the TowerCo.[104] CRA is concerned that the TowerCo may detrimentally alter the competitive dynamics of the local market by consolidating control over a significant proportion of passive mobile infrastructure in the country, under a single entity. Such consolidation may potentially raise entry barriers by limiting access to essential sites or may reduce the scope for future site sharing agreements. As such, CRA determines it necessary to include this market as a Candidate Market in this MDDD review and to consider including it as a Relevant Market subject to a dominance assessment and the imposition of ex-ante regulatory obligations.

The product scope of this Candidate Market includes physical access to mobile masts,

[103] For a full reference of market numbers and their corresponding market names, see Appendix A.
[104] The proposed transaction will consolidate approximately 30,000 towers across six MENA markets in a single independent TowerCo. For more information, please see Ooredoo, "Ooredoo, Zain and TASC Towers Create the Largest Tower Company in the MENA Region Valued at USD 2.2 Billion", December 2023 (https://www.ooredoo.com/en/media/news_view/ooredoo-zain-and-tasc-towers-create-the-largest-tower-company-in-the-mena-region-valued-at-usd-2-2-billion/).

towers and monopoles, and access to the relevant ancillary facilities, such as, but not limited to, access to the land, building, power and air-conditioning facilities relevant to these sites.

What is the geographic scope of this market?

CRA considers the geographic scope of this market to be national, because:

- CRA has not seen any evidence to suggest that the nature of demand and the characteristics of mobile users in Qatar vary significantly on a sub-national level; and
- The network coverage of both MNOs who deploy mobile infrastructure is national in scope, in line with their licensed obligations. Likewise, the pricing of retail mobile services is considered on a national level.

Based on the arguments above, CRA's view is that the geographic scope of the mobile infrastructure access market should be defined as national.

3.7.2. Relevant Market assessment

CRA invites views from industry stakeholders on whether this market should be considered as a Relevant Market, susceptible to ex-ante regulation. In particular, stakeholders are asked to comment on how the creation of the TowerCo may influence competition and market dynamics in Qatar.

3.7.3. Conclusion on M8

CRA has not yet decided whether this market should be designated a Relevant Market. While existing regulations already require MNOs to share mobile infrastructure, [105] CRA recognises that the recent formation of the TowerCo may give rise to new competition concerns.

CRA therefore seeks stakeholders' views on whether the market for access to passive mobile infrastructure should be re-assessed as a Candidate and a Relevant Market and, if so, whether

[105] For example, Article 8 of the Regulation for the Construction Installation and Sharing of Radio Communications Sites includes sharing obligations applicable to both licensees, covering both new and existing sites, which includes "[t]he mobile tower structures, antennas, and any component installed in sending and receiving telecommunication signals from a mobile communications source (cell phones) and transmitting those signals to the central server of telecommunications networks." For more information, please see CRA, "Regulations for the Construction, Installation, and Sharing of Radio Communications Sites", July 2025, pp. 12, 51 – 56 (https://www.cra.gov.qa/-/media/System/F/4/A/5/F4A5FA1D4F785EB4A80F0932B07F123D/Regulations-for-the-Construction-Installation-and-Sharing-of-Radio-Communications-Sites.ashx).

ex-ante regulatory obligations should be applied.

3.8. M9 – Wholesale Local Access services provided at a fixed location

In this section, CRA outlines its finding of M9[106], a Candidate Market for wholesale local access ("**WLA**") services provided at a fixed location. This market encompasses all relevant infrastructure (primarily passive but also including certain active components) within the fixed access network that are required to enable licensed service providers provide retail services to end users. The product scope of this market includes:

- VULA, dark fibre and access to passive infrastructure services from the network termination point at the customer premises to the local exchange;
- Access to passive infrastructure (i.e. ducts, poles, trenches and manholes) that is needed to reach data centres and/or a CLS;
- Access to colocation facilities and other telecommunication facilities, including buildings and sites and other ancillary services (e.g. power and air conditioning); and
- Access to patch cables and data centres (including, but not limited to physical access to the facilities, colocation space and cross-connects).[107, 108]

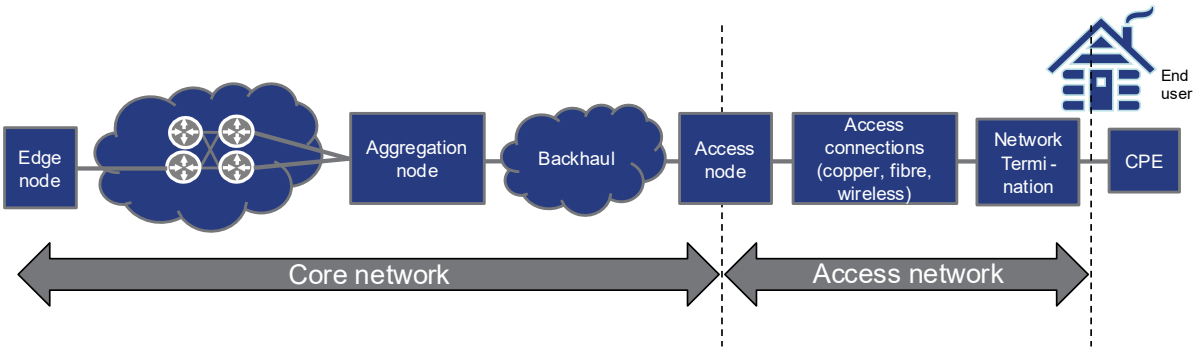
The market structure includes WLA services used both for self-supply, and for provision of WLA services to third-party licensees. CRA finds that this market be defined as national in geographic scope, and that this market is susceptible to ex-ante regulation.

3.8.1. Candidate Market definition

WLA services typically refer to the infrastructure – primarily passive but including some active components – within the access network that service providers use to connect to customers in the "last mile". These services are typically used by service providers as an input for offering a suite of downstream retail products including fixed telephony, fixed broadband, business connectivity services, and mobile backhaul. This differs to the core network which typically includes high-capacity transmission infrastructure used to carry aggregated traffic between

[106] For a full reference of market numbers and their corresponding market names, see Appendix A.
[107] Cross-connect services in this market refer to the physical interconnection between a service provider's rack and its customer's rack within the same data centre facility, enabling customer connectivity to the service provider's network. Ooredoo Qatar, "Reference Offer to access to Ooredoo Qatar Data Centers for connecting customers", September 2024 (https://www.ooredoo.qa/web/wp-content/uploads/2024/10/2024-10-01-Access-to-OQDC-for-SPs-Final-version-after-CRAs-approval-Non-confidential.pdf).
[108] The cross-connect may be provided as an active service (where powered electronic or optical equipment is required) or a passive service (where only non-powered components such as cables, patch panels and terminal blocks are required). This market includes both cross-connects within data centres for both local customer connectivity and international customer connectivity.

edge nodes, data centres, and other core network nodes, without directly connecting to end users. **Figure 6** below illustrates these differences between the core and access network.



Source: CRA understanding of the core and fixed access network.

Notes: Core network: central part of the network which provides high-capacity, long-distance connectivity and handles functions such as routing, switching and transmission.
Aggregation node: network point that consolidates traffic from multiple access nodes before forwarding it to the core network.
Edge node: network device which connects the core network to other networks.
Backhaul network: Provides the transmission links between the access nodes and the core network.
Access node: The demarcation point between access and core networks.
Access network: Provides the "last mile" link to the customer premises.
Network Termination: the interface sited at the customer's premises.

Figure 6: The core and fixed access network

Currently in Qatar, there are three active service providers in the WLA market: Ooredoo, Vodafone, and QNBN.

As part of its market assessment, CRA will consider how the product scope of the WLA market should be defined. In doing so, CRA will address the following questions on the product scope of the WLA market:

1. Should fixed access ducts and dark fibre be included as part of the same product market?
2. Are VULA services included in the relevant product market definition?
3. Are bitstream access services included in the same product market as WLA services?
4. Does the product market include access to data centres (including, but not limited to, physical access to the facilities, colocation space and cross-connects)?
5. What is the geographic scope of this market?

1. Should fixed access ducts and dark fibre be included as part of the same product market?

Demand-side substitution

Fixed access ducts and dark fibre are not direct demand-side substitutes, because they are used for different purposes in the telecommunications network value chain. For example, fixed access ducts provide the physical pathway necessary for deploying network infrastructure, whereas dark fibre consists of unlit transmission strands that are ready to be "lit" and activated for use by the end user.

While these products are not functional substitutes, CRA considers that from a demand-side perspective, wholesale customers require access to both ducts and dark fibre to deploy a national fibre network in Qatar. As such, CRA preliminarily views fixed access ducts and dark fibre as complementary inputs rather than substitutes. Given that access seekers may need to use both components when building a fibre network in different areas, CRA notes there is a strong demand-side case for defining a single product market for WLA services that includes access to both ducts and dark fibre.

Supply-side substitution

CRA further considers that supply-side substitution between fixed access ducts and dark fibre is likely, as both rely on the same underlying infrastructure, such as fibre cables and conduits. Moreover, the marginal cost of shifting supply between ducts and dark fibre is relatively low, especially when an access provider already owns one of these infrastructure components. CRA does recognise that it would take a significant amount of time for an access provider to, for example, deploy a fibre network within existing ducts. However, CRA's view is that, in the event of a SSNIP for dark fibre services, a licensed access provider currently offering duct services may find it economically viable to deploy dark fibre services, given that the marginal cost would be reduced if the necessary duct infrastructure is already in place.

Based on the analysis of demand and supply-side substitution above, CRA considers that fixed access ducts and dark fibre should be considered as part of the product market for WLA services. To address the remaining questions on the product scope of this market, CRA will consider these services as the focal product of the WLA services market.

2. Are VULA services included in the relevant product market definition?

CRA is of the view that VULA is an alternative to ducts and dark fibre in the fixed access network. Aligned with emerging regulatory precedent from the EC's latest recommendation on Relevant Markets, CRA considers that VULA is a functional substitute for physical unbundling of fibre (i.e. ducts and dark fibre) in areas where unbundling is not economically or technically feasible. Indeed, the EC stipulated that in these cases, "VULA should provide […] the wholesale access seeker with the same degree of product functionality as physical unbundling".[109]

The EC also went further to describe that "the migration trends from passive access products towards VULA [means that], a properly specified VULA product could become the main wholesale access product in the future".[110] Therefore, on this basis, CRA considers that including VULA services in the same product market as fixed access ducts and dark fibre reflects how access seekers increasingly make investment decisions, which is by considering all "last mile" access service options when considering how to provide services.

CRA therefore concludes that VULA services should be included in the same product market as ducts and dark fibre within the fixed access network.

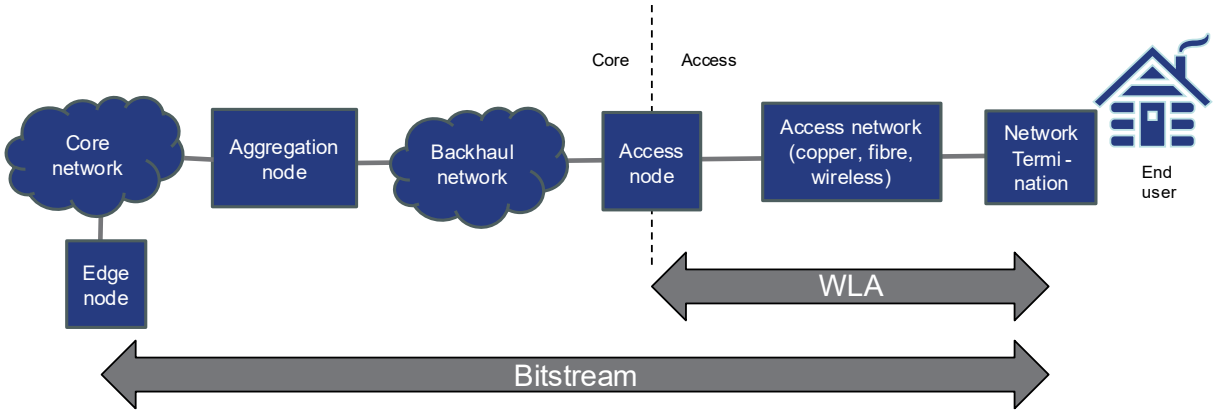
3. Are bitstream access services included in the same product market as WLA services?

Demand-side substitution

CRA considers that on the demand-side, there is limited substitutability between WLA and bitstream access services. This is because the services serve fundamentally different purposes on the demand side, as illustrated in **Figure 7** below. Bitstream access is an active wholesale broadband product that enables service providers to offer broadband services to end users by leveraging a wholesale operator's network infrastructure. Unlike passive access products, bitstream involves the use of active network elements managed by the wholesale provider, such as transmission equipment and aggregation nodes. This allows access seekers

[109] EC, "COMMISSION RECOMMENDATION on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code", December 2020, p. 26 (https://ec.europa.eu/newsroom/dae/redirection/document/72442).
[110] EC, "COMMISSION RECOMMENDATION on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code", December 2020, p. 27 (https://ec.europa.eu/newsroom/dae/redirection/document/72442).

to deliver broadband services without deploying their own physical “last mile” infrastructure. However, bitstream services do not provide access seekers with the same level of control and flexibility as WLA services, potentially limiting their ability to offer certain retail services.



Source: CRA understanding of WLA and bitstream services.
Please see **Figure 6** for definitions.

Figure 7: WLA and bitstream[111]

Moreover, access seekers using WLA services must make significant investments in other parts of the network – such as core network and active infrastructure products – to effectively utilise WLA services. These investments would become redundant if they were to switch exclusively to bitstream services. Therefore, in the event of a SSNIP for WLA services, CRA does not expect wholesale customers to switch to purchasing bitstream services.

Supply-side substitution

CRA also does not consider bitstream services and WLA services to be supply-side substitutes. In line with its discussion of demand-side substitution above, CRA considers that WLA and bitstream access services serve different functions, and require different ancillary network services, despite relying on the same underlying infrastructure. Therefore, in the event of a SSNIP for WLA service, CRA considers that a service provider offering bitstream access services would need to incur significant financial and administrative costs to reconfigure its network to offer a WLA service.

Based on the analysis of demand and supply-side substitution above, CRA therefore considers that WLA and bitstream access services are in separate product markets.

[111] This figure illustrates the relationship between last-mile services within the WLA market and bitstream; other WLA services such as access to data centres are not illustrated here.

CRA finds that bitstream access services are in the WBA services market, as discussed further in Section 3.10 below.

4. Does the product market include access to data centres (including, but not limited to, physical access to the facilities, colocation space and cross-connects)?

The strategic importance of access to data centres (including, but not limited to, physical access to the facilities, colocation space and cross-connects) has increased substantially in Qatar since 2016. In particular, cross-connect infrastructure, much like ducts or dark fibre, currently represent a key bottleneck facility in Qatar, which CRA has already recognised by mandating their inclusion in the AOQDC.[112] Access to data centres (including, but not limited to, physical access to the facilities, colocation space and cross-connects) are therefore not merely ancillary services, but integral to enabling end-to-end service delivery over passive infrastructure like dark fibre.

Therefore, CRA's view is that access to data centres (including, but not limited to, physical access to the facilities, colocation space and cross-connects) should be included within the market definition of WLA services, reflecting both the technical reality of integrated network infrastructure and the regulatory necessity of comprehensive market oversight.[113]

5. What is the geographic scope of this market?

CRA finds that the WLA market should be defined as national in scope. CRA is of the view that infrastructure-based competition now takes place at a national level. All three service providers (Vodafone, QNBN, and Ooredoo) now have networks that cover most or all of the country. CRA believes that Vodafone's and QNBN's recent investments and expansion of their fixed network infrastructures have enabled them to compete nationally with Ooredoo.

Based on the arguments above, CRA's view is that the WLA services market should be national in scope.

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[112] Ooredoo Qatar, "Reference Offer to access to Ooredoo Qatar Data Centers for connecting customers", September 2024, Figure 2, pp. 13, 14, 30 – 31, 33 (https://www.ooredoo.qa/web/wp-content/uploads/2024/10/2024-10-01-Access-to-OQDC-for-SPs-Final-version-after-CRAs-approval-Non-confidential.pdf).
[113] All cross-connect services within data centres offered by service providers should be included in this market – not only the ones sold to licensed providers in line with the AOQDC, but also those sold to unlicensed providers.

3.8.2. Relevant Market assessment

In this section, CRA applies the TCT to the Candidate Market for WLA services to determine if it is a Relevant Market, susceptible to ex-ante regulation. Each criterion of the test is considered in detail below.

Criterion 1 - High and non-transitory barriers to entry

CRA's view is that there are high and non-transitory barriers to entry in the WLA services market. These barriers are as follows:

- First, the fixed access network is the most expensive and most difficult part of the fixed network to replicate. Indeed, new entrants would have to make significant investments in, for example, civil works to deploy access network infrastructure.
- Second, CRA considers that there are licensing barriers in Qatar to deploying a fixed network, as a new entrant would need to hold the relevant licence if it wished to provide WLA services in Qatar. This is likely to be a significant administrative task for a new entrant.
- Third, considering that there are now three service providers providing WLA services across Qatar, CRA does not consider that further entry of a new service provider in this market will be economically viable in the near future.

Therefore, on the basis of the arguments above, CRA considers that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA's view is that this market is not tending towards effective competition. The reasons for this are as follows:

- First, despite Vodafone and QNBN's recent network rollouts, CRA understands that Ooredoo is the only provider of all WLA services on a national basis. Based on current information available, CRA considers that Ooredoo is likely to hold majority shares across all WLA products, due to its position as the incumbent in this market.[114]
- Second, CRA notes that there has been a lack of take-up of wholesale services to date, which, in CRA's view, may indicate that the market is not tending towards

[114] CRA has requested evidence on available capacity of WLA services (including self -supply and supply to third parties), as part of its data request to industry stakeholders.

effective competition.

Therefore, on the basis of this evidence, CRA considers that the second criterion of the TCT is fulfilled.

Criterion 3 - Insufficiency of ex-post competition law

CRA's view is that ex-post competition law alone is unlikely to be sufficient to address market failures in the WLA services market. The reasons for this are as follows:

- CRA considers that the lack of effective competition and structural barriers to entry make it less likely than an ex-post complaint would be raised in this market. Moreover, CRA considers that removing ex-ante regulation in this market and relying solely on ex-post competition law would create a significant risk to access seekers. CRA considers that absent ex-ante regulation, a service provider may have no commercial incentive to provide access to its infrastructure in this market. Where access is offered, it may be done on a discriminatory or anti-competitive basis.
- While CRA has the necessary economic toolkit in place to investigate ex-post complaints in this market, it considers that complaints would likely be time consuming and complex to investigate. CRA considers such investigations to be even more challenging than those in downstream retail markets, as economic harm at the wholesale level is often harder to detect.
- CRA considers that anti-competitive behaviour in the WLA market could lead to serious harm in downstream retail markets. Denial of access, discriminatory conditions, or excessive pricing would directly undermine the ability of alternative providers to compete.
- From a forward-looking perspective, CRA considers that the dependency on ex-ante regulation is likely to remain high, given that access seekers continue to require access to WLA services as they continue their network rollout. As such, CRA maintains that specific ex-ante regulation is therefore still relevant to ensure that access seekers are provided with WLA services on a fair, reasonable and non-discriminatory basis.

Therefore, on the basis of this evidence, CRA considers that the third criterion of the TCT is fulfilled.

3.8.3. Conclusion on M9

Considering the results of the TCT, CRA finds that the WLA market is both a Candidate and

a Relevant Market, susceptible to ex-ante regulation.

3.9. M10 – Wholesale international connectivity services

In this section, CRA outlines its finding of M10[115], a Candidate Market for wholesale international connectivity services. This market comprises access to international bandwidth or capacity required to connect Qatar's networks with those outside the country, regardless of the specific product or technology used to enable the underlying connectivity. The product scope of this market includes:

- Access to/colocation at an international gateway facility in Qatar (e.g. a CLS), required to gain access to international capacity, end-to-end between Qatar and any destination country;
- Cross-connects at an international gateway facility; and
- IP transit services.

The market structure includes international business connectivity services used both for self-supply and for the wholesale provision of such services to third-party licensees. CRA finds that this market is national in geographic scope and considers that it is also a Relevant Market, susceptible to ex-ante regulation.

3.9.1. Candidate Market definition

Wholesale international connectivity services cover access to international bandwidth and capacity needed to connect to networks outside of Qatar. These wholesale services, combined with other wholesale services such as WLA, WBA and trunk and terminating segments of wholesale business connectivity services,[116] are used to provide retail end-to-end domestic and international connectivity services in Qatar.

International connectivity services can be delivered through access to, or colocation, at an international gateway facility, which enables an access seeker to access international capacity directly from that facility. This capacity is provided by either terrestrial or submarine cables. For the purposes of its market definition assessment, CRA considers this to include access to

[115] For a full reference of market numbers and their corresponding market names, see Appendix A.
[116] Trunk and terminating segments of wholesale business connectivity services are discussed further as part of M12 and M13 below respectively.

cross-connects at international gateway facilities.[117, 118] Currently in Qatar, there are several international gateway facilities owned and operated by Ooredoo and Vodafone.

There is an ongoing consultation being conducted by CRA on a SOA to SCLS in Qatar. This plan aims to implement a symmetric access remedy, requiring all SCLS owners to provide open access to international connectivity services on fair, reasonable, and non-discriminatory terms.[119] CRA considers that this approach is an important step forward in achieving the State of Qatar's stated strategic ambitions of becoming a regional and global digital hub. However, as outlined in CRA's second SCLS public consultation, the implementation of the SOA alone does not eliminate the need for a full review of this market under the MDDD process, which permits the imposition of ex-ante economic remedies on operators found to be dominant.[120]

CRA considers that access to, or colocation at an international gateway facility, should be the focal product of this market and the starting point for this market definition exercise. CRA then addresses the following questions to determine the appropriate set of products and services to be included within this market:

1. Is satellite capacity delivered through access to earth stations included in the product market?
2. Are IP peering and IP transit services in the same product market as wholesale international connectivity services?
3. What is the geographic scope of the market?

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[117] In the context of international gateway facilities, cross-connects link the access seeker's equipment to an international capacity provider's equipment within the international gateway facility. These connections facilitate high-speed, low-latency, and secure data exchange, and are essential for efficient delivery of international connectivity services.
[118] CRA considers all cross-connect services at international gateway facilities offered by service providers should be included in this market, including both services sold to licensed and unlicensed providers.
[119] CRA, "CRA Standard Offer for Access to Submarine Cable Landing Station (SCLS) International Connectivity Services Regulation & Guidelines – Consultation Document", March 2025 (https://www.cra.gov.qa/-/media/System/1/6/2/6/162692F2780F5E72A634CB2121A1C5EB/2025-03-09-SOA-for-SCLS-2nd-Consultation-document-v4-for-website-publication.ashx).
[120] As CRA outlines in its public consultation, "[t]he obligations set forth in this Regulation are without prejudice to the obligations regarding submarine cable landing stations that have been imposed on any licensee found dominant in the relevant market consequent to Notice and Orders Designation Of Ooredoo Q.S.C. And Vodafone Qatar Q.S.C. as Dominant Service Providers In Specified Relevant Markets of May 9th, 2016 (CRARAC 09/05/2016 A) **and any future Market Definition and Dominance Designation (MDDD) review process conducted by the [CRA]**. [CRA] may, as it deems necessary, require additional obligations to a SCLS Owner that has been found dominant in the relevant market and such additional obligations should be incorporated into a reference offer of access that is aligned and inclusive of the structure and framework of the SOA to SCLS as described in this Regulation and any guideline to be issued by [CRA] in this regard." (Emphasis added). For more information, please see CRA, "CRA Standard Offer for Access to Submarine Cable Landing Station (SCLS) International Connectivity Services Regulation & Guidelines – Consultation Document", March 2025, pp. 81 – 82 (https://www.cra.gov.qa/-/media/System/1/6/2/6/162692F2780F5E72A634CB2121A1C5EB/2025-03-09-SOA-for-SCLS-2nd-Consultation-document-v4-for-website-publication.ashx).

1. Is satellite capacity delivered through access to earth stations included in the product market?

CRA considers that cable-based connectivity and satellite-based connectivity are not substitutable. Reflecting the assessment of satellite services in the retail fixed broadband market in Section 3.1 above, CRA considers that there is a significant difference in the quality of cable-based international connectivity compared to satellite-based connectivity. Satellite connectivity typically offers lower bandwidth and higher latency compared to cable-based solutions for delivering international connectivity in Qatar. Furthermore, CRA does not consider satellite-based connectivity to be as resilient as cable-based alternatives.

In addition, there are significant capacity differences between submarine and terrestrial cables and satellite connections, with submarine cables generally offering substantially higher capacity. As a result, satellite connectivity is of limited viability as a substitute for cable-based infrastructure from a licensee's perspective.

Finally, CRA considers that satellite connections serve different use cases to submarine and terrestrial cables, with satellite being used in Qatar as a "last resort" to deliver wholesale international connectivity in areas where it is economically or technically unfeasible to land a submarine or terrestrial cable.

Therefore, in view of the arguments above, CRA preliminarily concludes that satellite capacity delivered through access to earth stations are not in the same product market as cable-based connectivity.

2. Are IP peering and IP transit services in the same product market as wholesale international connectivity services?

IP peering

IP peering refers to the direct exchange of internet traffic between ISPs in Qatar, allowing them to route traffic to each other's networks without relying on or paying a third-party IP transit service provider.

CRA's view is that IP peering is not a substitute for international connectivity services, defined by access to/colocation at international gateway facilities. IP peering serves a fundamentally different purpose compared to wholesale international connectivity services, as it covers

domestic connectivity via a local internet exchange point ("**IXP**") whereby traffic is exchanged directly between two networks with no third-party involvement. By comparison, wholesale international connectivity services involve the provision of physical space and connectivity in proximity to submarine CLS or other critical infrastructure and typically operate at the physical and transport layers [121] of the network. These services are not functionally substitutable, as acquiring one does not eliminate the need for the other.

IP transit

In the Qatari context, IP transit services are used to carry traffic to/from the internet outside of Qatar. This transit capacity is offered in Qatar by both Ooredoo and Vodafone. IP transit services offer a layer 3 (IP network) connection to the global internet.

In considering substitutability between IP transit services and access to international gateway facilities, CRA notes that these are not functional substitutes: buying IP transit would not remove the need for physical colocation if a network operator needed to interconnect at an international gateway facility. However, there is a functional interdependence between IP transit services and access to international gateway facilities. Specifically, operators may wish to have a physical presence at key interconnection points, such as at a CLS, in order to access IP transit services. Therefore, from the perspective of an access seeker, procuring colocation space may not be an end in itself, but rather a means for obtaining access to global transit services.

From a demand-side perspective, an access seeker may view these components together as integrated inputs to achieve a single functional objective, i.e. securing internet connectivity. The combination of these products, along with how access seekers perceive them, justifies treating both within the same product market for wholesale international connectivity services.

To conclude, CRA's view is that IP transit services are in the same product market as wholesale international connectivity services while IP peering services are outside of the product market definition.

[121] The layer of infrastructure and protocols ensuring that data can be carried efficiently and reliably from one point to another across the network.

3. ***What is the geographic scope of the market?***

CRA's view is that a national product scope for wholesale international connectivity services is valid. In reaching this conclusion, CRA has considered the following:

- First, operators of international gateway facilities are licensed at a national, and are therefore able to provide their services across the country; and
- Second, CRA has not seen any evidence which implies that the competitive conditions in the wholesale international connectivity services market would vary in different geographic regions of Qatar.

Based on the arguments above, CRA's view is that the wholesale international connectivity services market is national in scope.

3.9.2. Relevant Market assessment

In this section, CRA applies the TCT to the Candidate Market for wholesale international connectivity services to determine if this market is also a Relevant Market, susceptible to ex-ante regulation. Each criterion of the test is considered in detail below.

Criterion 1 - High and non-transitory barriers to entry

CRA is of the view that this market is likely characterised by high and non-transitory barriers to entry. This is for similar reasons set out in the context of other wholesale markets, in particular:

- There are significant time and financial investments that a new access provider would need to incur to build an international gateway facility in Qatar; and
- These access providers would need to be licensed by CRA to build and operate an international gateway facility.

For these reasons, CRA considers that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA also considers that this market is not tending towards effective competition for the following reasons:

- First, based on current information available,[122] CRA considers that the underlying market structure has remained largely unchanged since 2016.
- CRA's planned symmetrical remedies as part of the SOA are aimed at addressing strategically important issues regarding access to existing SCLS infrastructure including the requirement for fair and reasonable pricing. However, as set out above, these measures may not fully resolve the additional competition concerns that could arise from dominance in this market segment, and that further remedies may be necessary.

In line with the reasons set out above, CRA considers that the second criterion of the TCT is fulfilled.

Criterion 3 - Insufficiency of ex-post competition law

CRA's view is that its ex-post competition law will not be sufficient to remedy anti-competitive conduct in this market. In line with its discussions of the WLA market in Section 3.8 above, this criterion is passed based on the same observations. CRA also notes that:

- As CRA has established in its assessment of this market, CLS are essential bottleneck facilities and important infrastructure assets to the State of Qatar. While the CRA's SOA to CLS will alleviate issues around access and fair pricing, the Relevant Market status should be retained until it is demonstrated that it is no longer needed.
- From a forward-looking perspective, CRA considers that the dependency on ex-ante regulation is likely to remain high, given the importance of this wholesale market to Qatar's broader national strategic ambitions of becoming a global digital hub. Therefore, to incentivise future investment to help the country achieve these goals, CRA considers that it is important that ex-ante regulation is retained in this market.

Therefore, CRA considers that the third criterion of the TCT is fulfilled.

3.9.3. Conclusion on M10

Considering the results of the TCT assessment, CRA finds that this market is both a Candidate and a Relevant Market, susceptible to ex-ante regulation.

[122] To confirm this understanding, CRA has requested evidence on total international bandwidth capacity in CLS as part of its data request to industry stakeholders.

3.10. M11 – Wholesale Broadband Access services at a fixed location

CRA outlines its finding of M11[123], a Candidate Market for wholesale broadband access ("**WBA**") services at a fixed location. This market encompasses bitstream products offered by service providers to deliver downstream retail fixed broadband and fixed telephony services, irrespective of the underlying technology. The market includes WBA services used both for self-supply by vertically integrated operators and for the provision of WBA services to third-party service providers. CRA finds that this market is national in geographic scope. CRA also finds that this market is a Relevant Market, susceptible to ex-ante regulation.

3.10.1. Candidate Market definition

WBA services refer to those services which are used as a wholesale input to provide retail fixed broadband and telephony services in the downstream market. As part of this MDDD review, CRA considers that the market should only include bitstream access services. VULA is no longer found to be part of this market, as it is currently included within the scope of M9, as outlined above.

As discussed in Section 3.8 above, bitstream access is an active wholesale broadband product that allows service providers to deliver broadband to end users using the incumbent's managed network infrastructure. Unlike passive access, it includes active elements like transmission equipment and aggregation nodes, enabling access seekers to provide nationwide coverage through a limited number of interconnection points, without deploying extensive infrastructure themselves. Bitstream access presents a practical solution to reduce upfront network costs for new entrants to the downstream retail market, as well as for existing operators seeking to expand into areas where they have not yet deployed their own infrastructure. However, because the access provider retains control over the connection to the access seeker, the ability to offer highly differentiated retail services is limited.

In defining the product scope for bitstream access services, CRA uses a technology-neutral approach to market definition. This approach aligns with its retail-level product market definition in M1. Accordingly, CRA considers that the relevant wholesale market should also encompass FWA bitstream products, given that FWA broadband services are included within the scope of the market M1. However, consistent with the M1 definition, CRA does not consider satellite-based bitstream services to form part of the relevant product market.

[123] For a full reference of market numbers and their corresponding market names, see Appendix A.

Ooredoo is the only provider currently facing a regulatory obligation to offer wholesale bitstream access. However, there has been no demand for this service so far. As a result, all bitstream services are currently self-provided.

CRA considers that no further segmentation is necessary within this market. Therefore, the market definition is found to include all wholesale bitstream services, irrespective of the underlying technology used to deliver these services.

What is the geographic scope of this market?

CRA considers a national scope for this market to be appropriate because:

- Service providers are licensed at a national level and are authorised to offer WBA throughout Qatar; and
- To date, CRA has not observed any evidence suggesting that competitive conditions in the WBA market differ at a sub-national level.

3.10.2. Relevant Market assessment

In this section, CRA applies the TCT to the Candidate Market for WBA services. Each criterion is considered in more detail below.

Criterion 1 - High and non-transitory barriers to entry

CRA is of the view that this market is characterised by significant barriers to entry. In particular:

- The deployment of the necessary network infrastructure to provide bitstream services involves significant time and administrative effort. CRA notes that a new service provider could partially overcome these barriers by, for example, negotiating a wholesale access arrangement with QNBN for access to their dark fibre network, which could reduce network rollout costs required to deploy the passive infrastructure needed to provide WBA services. However, CRA considers that even in this case, a new entrant would still need to make significant investments in active network infrastructure needed to provide WBA services.
- A new entrant would also need to overcome existing licensing barriers in Qatar to be authorised to offer WBA services.

CRA concludes that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA considers that this market is not tending towards effective competition. The market remains entirely characterised by self-supply with no evident demand for regulated wholesale services at present. Also, CRA has not seen any evidence this will change to a material extent over the next 3-5 years. As such, CRA considers that ex-ante regulation remains necessary to ensure effective competition in downstream markets.

CRA considers that the second criterion of the TCT is fulfilled.

Criterion 3 - Insufficiency of ex-post competition law

CRA considers that ex-post competition law is not sufficient to address concerns in this market. CRA considers that the insights on the application of this criterion to other wholesale markets, as described above, also apply to this market.

Therefore, CRA considers that the third criterion of the TCT is fulfilled.

3.10.3. Conclusion on M11

CRA finds that the market for WBA at a fixed location is both a Candidate and a Relevant Market, susceptible to ex-ante regulation.

3.11. M12 – National trunk segment of (domestic and international) wholesale business connectivity services

In this section, CRA outlines its finding of M12[124], a Candidate Market for national trunk segments of (domestic and international) business connectivity services. CRA finds this market includes all core network infrastructure inputs required to provide retail business connectivity services, covering both active products – such as the national trunk segment of wholesale business connectivity services – and passive products, such as core network ducts and dark fibre. This market accounts for both self-supply and third-party provision of national trunk segment services and is defined as national in scope. CRA finds this market is both a Candidate and Relevant Market, susceptible to ex-ante regulation.

[124] For a full reference of market numbers and their corresponding market names, see Appendix A.

3.11.1. Candidate Market definition

National trunk segments of business connectivity refer to the core, high-capacity transmission links that connect major network nodes across a country – typically between cities, data centres, or network exchange points. These segments form the backbone of a telecom network used to deliver business-grade retail connectivity services.

CRA understands that national trunk segments of wholesale business connectivity services in Qatar are currently operated by Ooredoo, Vodafone, and QNBN. Since 2016, Vodafone has made significant investments in expanding its fibre network, resulting in core network coverage that now rivals Ooredoo's.[125] Similarly, QNBN has made substantial investments in developing national trunk infrastructure.

Consistent with its approach in the retail business connectivity market, CRA considers the focal product in this market to comprise all wholesale trunk segments of business connectivity services, regardless of the underlying technology used or specific product features.

As part of this assessment, CRA addresses the following questions:

1. Are national trunk segments of wholesale business connectivity services in the same product market as the national terminating segments of wholesale business connectivity services?
2. Is access to core network ducts and dark fibre in the same product market as the national trunk segment of wholesale business connectivity services?
3. What is the geographic scope of this market?

1. Are national trunk segments of wholesale business connectivity services in the same product market as the national terminating segments of wholesale business connectivity services?

Demand-side substitution

CRA does not consider national terminating segments to be demand-side substitutes with national trunk segments of wholesale business connectivity services as these products serve

[125] Since 2018 for example, Vodafone Qatar has invested more than QR 1.5 billion in the development and improvement of its advanced GigaNet Network. For more information, see Vodafone Qatar, "Annual Report 2021", p. 11 (https://www.vodafone.qa/en/investor-relations/media/document/1551495936192/vf_annual_report_2021-eng-04_04_2022.pdf).

fundamentally different purposes. Terminating segments connect the customer's premises to the nearest exchange or operator PoP, providing so-called "last-mile" connectivity. Trunk segments, as discussed above, connect core network sites over long distances – either between locations within Qatar or between a local site and an international gateway within the country. Accordingly, a business with a central office requiring connectivity to a local branch could not rely on a trunk segment alone, as that would not reach the end user premises. Conversely, a terminating segment lacks the distance reach and capacity required to transport data between geographically distant points across the country.

Supply-side substitution

CRA further considers supply-side substitutability between national trunk segment services and national terminating segment services to be limited, as shifting between the provision of these two services would require significant investment and involve high upfront sunk costs. For instance, a provider of national trunk segment services would need to invest heavily in deploying an access network in order to offer national terminating segment services in Qatar. Conversely, although deploying core network infrastructure is generally less costly than access network deployment, a provider of national terminating segment services would still need to make substantial investments – in both time and resources – to build out a core network capable of supporting national trunk segment services.

In conclusion, given the very limited demand- and supply-side substitution between national trunk and terminating segments of wholesale business connectivity services, CRA considers that these products fall within separate markets.

2. Is access to core network ducts and dark fibre in the same product market as the national trunk segment of wholesale business connectivity services?

CRA considers that core network ducts and dark fibre are demand-side substitutes for the trunk segment of business connectivity services. CRA acknowledges that this including both in one market would include entail a mix of both active and passive services. However, it considers this approach to be justified for several reasons:

- First, both lit and dark fibre, which are laid in telecom ducts, can be used to provide high-capacity backbone connectivity, thereby fulfilling the same core-functionality of national trunk segment services.
- Second, this approach reflects market realities, particularly in how access seekers make investment decisions. It aligns with the ladder of investment principle, which

recognises that operators make different investment choices depending on their stage of development. For example, some access seekers – particularly those seeking greater control over their networks – may prefer to self-supply trunk segment services by leasing duct access and deploying (and lighting) dark fibre.

Based on the assessment above, CRA considers that core network ducts and dark fibre should be included in the same product market as national trunk segments of wholesale business connectivity services.

3. What is the geographic scope of this market?

CRA considers a national geographic scope to be valid because:

- As set out in the context of markets M3 and M4 – the corresponding downstream retail markets to the national trunk segment – CRA has not seen evidence suggesting that demand for national trunk segment services varies at a sub-national level; and
- The expansion of core network infrastructure means that all three providers currently offering these services – Ooredoo, Vodafone, and QNBN – do so on a nationwide basis. CRA is not aware of any geographic regions where any licensee has exclusivity in providing coverage.[126] As such, CRA does not see merit in defining sub-national geographic markets for the market M12.

In summary, CRA concludes that the market for national trunk segment of wholesale business connectivity services is national in scope.

3.11.2. Relevant Market assessment

In this section, CRA applies the TCT to the market for national trunk segments of wholesale business connectivity services. Each criterion is considered in more detail below.

Criterion 1 - High and non-transitory barriers to entry

CRA is of the view that this market is characterised by significant barriers to entry.

- While barriers to entry in the national trunk segment market are lower than in other wholesale fixed markets – due to the comparatively lower cost of rolling out core

[126] To confirm this understanding, CRA has requested coverage data from service providers as part of its data request.

network infrastructure versus fixed access networks – the barriers are still significant. A new entrant would face substantial financial and administrative hurdles, including the need to build a national fibre backbone, which involves high sunk costs and long-term investment commitments.

- CRA notes, however, that entry by two players – Vodafone and QNBN – into the national trunk segment demonstrates that market entry is possible under certain conditions. While these developments are encouraging, they are not yet sufficient to conclude that barriers to entry have fallen to a level that would justify deregulation of this market. Evidence of sustained, large-scale competitive supply, effective price competition, and the ability of entrants to exert material competitive pressure on the incumbent would be necessary to reconsider this initial view. CRA will continue to monitor market developments and remains open to reassessing the need for regulation in this market.

CRA therefore concludes that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA considers that this market is not tending towards effective competition. CRA acknowledges that the structure of this market has changed since 2016, with two alternative providers – Vodafone and QNBN – emerging to compete with Ooredoo in the provision of wholesale trunk segment services. As discussed above, Vodafone has expanded its network coverage, while QNBN has entered the market. However, the market remains entirely characterised by self-supply in that Vodafone uses this service for its own retail operations, while QNBN uses it to provide dark fibre.

On the basis of the points outlined above, CRA considers that the second criterion of the TCT is fulfilled.

Criterion 3 - Insufficiency of ex-post competition law

CRA considers that ex-post competition law is not sufficient to address concerns in this market. The insights from the application of this criterion to other wholesale markets discussed in this document also apply here.

On this basis, CRA considers that the third criterion of the TCT is fulfilled.

3.11.3. Conclusion on M12

CRA finds that the market for national trunk segment of (domestic and international) wholesale business connectivity services is both a Candidate and a Relevant Market, susceptible to ex-ante regulation.

3.12. M13 – National terminating segment of (domestic and international) wholesale business connectivity services

In this section, CRA defines M13[127], a Candidate Market for national terminating segments of business connectivity services, covering both domestic and international connectivity. CRA finds that this market encompasses all active fixed access segments of wholesale business connectivity services that are necessary to support the provision of retail business connectivity services. This market accounts for both self-supply and third-party provision of national terminating segment services and is defined as national in scope. CRA finds that this Candidate Market is also a Relevant Market, susceptible to ex-ante regulation.

3.12.1. Candidate Market definition

As discussed in the context of the market M12, the national terminating segment of wholesale business connectivity refers to the "last-mile" portion of a wholesale telecom service that connects a customer's premises to the nearest network point, such as a local exchange or PoP within the national territory.

National terminating segments of wholesale business connectivity services in Qatar are currently provided by Ooredoo and Vodafone. Both operators primarily use these services to support their own downstream retail operations (i.e. self-supply), though they are also permitted to supply them to third-party licensees. Since 2016, CRA understands Vodafone has entered the market and achieved nationwide terminating segment coverage. The market remains entirely characterised by self-supply.

Consistent with its approach in the retail business connectivity market, CRA considers the focal product in this market to comprise all wholesale terminating segments of business connectivity services, regardless of the underlying technology used or specific product features.

[127] For a full reference of market numbers and their corresponding market names, see Appendix A.

As part of this assessment, CRA will address the following questions:

1. Are WBA services in the same product market as national terminating segments of wholesale business connectivity services?
2. Are WLA services in the same product market as national terminating segment of wholesale business connectivity services?
3. Are national trunk and terminating services of (domestic and international) business connectivity services in the same product market?
4. What is the geographic scope of this market?

1. Are WBA services in the same product market as national terminating segments of wholesale business connectivity services?

CRA considers that WBA services are not in the same market as terminating segments of wholesale business connectivity services. This view aligns with the corresponding retail market definitions for markets M1c/d and M3/4, where M1c/d corresponds to retail fixed broadband services linked to WBA, and M3/4 corresponds to retail business connectivity services linked to the terminating segment. Since these retail markets are distinct and separate, it follows that WBA and national terminating segments are neither demand-side nor supply-side substitutes at the wholesale level and therefore should belong to separate markets.

CRA concludes that WBA services are not in the same product market as national terminating segments of wholesale business connectivity services.

2. Are WLA services in the same product market as national terminating segment of wholesale business connectivity services?

Access seekers utilising national terminating segments of wholesale business connectivity services generally require less infrastructure investment to deliver retail business connectivity compared to those relying on WLA services. Unlike WLA services, providers of national terminating segment services offer a more managed solution by aggregating traffic at a limited number of points. This allows access seekers to deliver nationwide business connectivity with only a few interconnection points, without the need to deploy their own access network. Consequently, these services are better suited to new market entrants or existing providers who have not yet developed extensive infrastructure to support retail business connectivity services.

Based on the points above, CRA concludes WLA services are not in the same product market as national terminating segments of wholesale business connectivity services.

3. Are national trunk and terminating services of (domestic and international) business connectivity services in the same product market?

CRA considers that trunk and terminating services of (domestic and international) business connectivity services are not in the same product market. CRA established the reasons for this in the context of its review of market M12 in Section 3.11 above. CRA refers to and maintains those findings for the purposes of its assessment in this market.

4. What is the geographic scope of this market?

CRA considers a national geographic scope is valid for this market, because:

- As set out in the context of markets M3 and M4 – the corresponding downstream retail markets to the national terminating segment – CRA has not, to date, seen evidence suggesting that demand for national terminating segment services varies at a sub-national level; and
- From a supply-side perspective, the expansion of terminating segment infrastructure means that both current providers – Ooredoo and Vodafone – now offer these services on a nationwide basis.

In summary, CRA concludes that the market for national terminating segment of wholesale business connectivity services is national in scope.

3.12.2. Relevant Market assessment

In this section, CRA applies the TCT to the market for national terminating segments of wholesale business connectivity services. Each criterion is considered in more detail below.

Criterion 1 - High and non-transitory barriers to entry

CRA's view is that this market is characterised by significant barriers to entry:

- First, consistent with its analysis of the WBA and WLA markets, CRA considers that national terminating segment services are delivered over the fixed access network – the costliest and most time-intensive component of the fixed network to replicate. While

a new entrant could potentially negotiate access to QNBN's dark fibre network to reduce the rollout costs associated with the passive infrastructure element of national terminating segments for business connectivity, CRA considers that the investment costs would nevertheless remain high.

- Second, a new entrant seeking to provide such services would require the appropriate licensing from CRA. CRA considers that applying for such a licence would be a time-intensive process for a new entrant, requiring, amongst other things, paying the prescribed licence fees, and meeting the CRA's financial, technical and legal criteria.

On the basis of the points outlined above, CRA considers that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA considers that this market is likely not tending towards effective competition. The market continues to be characterised by self-supply. At the retail level, CRA considers that Ooredoo is likely to retain a strong position in the provision of terminating segment services over at least the next 3-5 years.

On the basis of the points outlined above, CRA considers that the second criterion of the TCT is fulfilled.

Criterion 3 - Insufficiency of ex-post competition law

CRA considers that ex-post competition law is insufficient to address concerns in this market. CRA considers that the assessment of this criterion in other wholesale markets discussed in this document also applies here.

On this basis, CRA concludes that the third criterion of the TCT is fulfilled.

3.12.3. Conclusion on M13

CRA finds that the market for national terminating segment of (domestic and international) wholesale business connectivity services is both a Candidate and a Relevant Market, susceptible to ex-ante regulation.

3.13. M14 – International transit segment of international wholesale business connectivity services

In this section, CRA defines M14[128], a Candidate Market for business connectivity products used to transfer data from/to destinations outside of Qatar. This covers the transit capacity from the international gateway facility to the PoP of the service provider offering the terminating segment of the international leased line outside Qatar. As in MDDD 2016, this market is found not to be a Relevant Market and therefore not susceptible to ex-ante regulation.

3.13.1. Candidate Market definition

The product scope of this market includes wholesale leased line capacity used to convey data traffic between Qatar's international gateway facilities and PoPs of international service providers located outside Qatar. This capacity typically forms part of dedicated, P2P international connections used by:

- Licensed public telecommunications providers in Qatar; and
- International operators purchasing capacity to interconnect with Qatari networks.

Wholesale IP transit/internet peering services are not included within the scope of this market due to distinct functional characteristics, customer groups, and substitutability profiles.

What is the geographic scope of this market?

CRA considers that the geographic scope of this market is national. This reflects that all capacity entering and exiting Qatar must go through an international gateway facility located within the country.

3.13.2. Relevant Market assessment

In this section, CRA applies the TCT to the market for wholesale business connectivity products that are used to transfer data from/to destinations outside of Qatar. Each criterion is considered below.

Criterion 1 - High and non-transitory barriers to entry

CRA is of the view that there are high barriers to entry in this market. These arise from the

[128] For a full reference of market numbers and their corresponding market names, see Appendix A.

capital-intensive nature of international connectivity infrastructure, such as:

- Investment in submarine cable systems and landing stations;
- Access to international gateways and capacity agreements;
- Regulatory and operational requirements for cross-border interconnection; and
- Economies of scale that favour established global carriers

CRA therefore concludes that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA is of the view that this market exhibits a strong tendency towards effective competition, given that it is characterised by:

- Multiple supply sources, including domestic licensees (i.e. Ooredoo and Vodafone) and global capacity providers (e.g. GBI); and
- Partnerships between domestic and international carriers, enhancing redundancy and service diversity.

In CRA's view, there is no evidence to suggest that there are issues of market dominance or systematic price or access discrimination in this market. Indeed, it appears that there is a strong degree of competition at the wholesale level (i.e. between capacity providers) and the upstream infrastructure level (i.e. between cable systems). Moreover, the international nature of this segment (i.e. involving interconnection between networks in multiple jurisdictions) introduces an additional competitive constraint, as operators can source capacity via third countries or regional hubs (e.g. UAE, Oman and Bahrain).

On the basis of the points outlined above, CRA considers that the second criterion of the TCT is not fulfilled and this market still exhibits a strong tendency towards effective competition.

Criterion 3 - Insufficiency of ex-post competition law

Given that the market exhibits a tendency towards effective competition, CRA does not consider it necessary to evaluate this market under this criterion.

3.13.3. Conclusion on M14

CRA finds that this Candidate Market is not a Relevant Market and should not be susceptible to ex-ante regulation.

3.14. M15 – Wholesale access and origination on public mobile networks

In this section, CRA outlines its finding of M15[129], a national Candidate Market for wholesale access and origination on public mobile networks. The product scope of this market captures all access and origination services on (i.e. this includes but is not limited to voice calls, SMS and data) on Ooredoo's and Vodafone's mobile networks. CRA finds that this Candidate Market is not a Relevant Market and is not susceptible to ex-ante regulation.

3.14.1. Candidate Market definition

In Qatar, these services are currently offered by both MNOs in form of self-supply[130].

In line with the relevant retail mobile submarkets, fixed-based access services and fixed call origination services (e.g. WBA, and fixed call origination services) are not considered effective substitutes to mobile access and origination services and hence are excluded from this market. This reflects the discussion at the retail level, which considers that fixed services are not an effective substitute for mobile services. Consequently, if faced with a SSNIP in a mobile access and origination service, a licensee using that service as an input to a retail mobile service would not switch to purchasing a WBA service.

Therefore, CRA considers that there should be a dedicated product market for mobile access and origination services.

What is the geographic scope of this market?

As with other wholesale markets, CRA considers that this market is national in scope. CRA has not seen evidence which would suggest that the nature of demand and the characteristics of mobile users in Qatar vary significantly on a sub-national level. In addition, the network coverage of both MNOs is national, in line with their licence obligations. Likewise, the pricing of retail mobile services is considered on a national level.

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[129] For a full reference of market numbers and their corresponding market names, see Appendix A.
[130] CRA notes that there may be some limited demand for mobile origination to provide mobile freephone services. However, CRA considers that all mobile origination—whether for standard calls, SMS, or access to special services like freephone numbers—is exclusively facilitated through the existing networks and infrastructure of Ooredoo and Vodafone.

In summary, CRA concludes that the geographic market definition is national.

3.14.2. Relevant Market assessment

In this section, CRA applies the TCT to the wholesale mobile access and origination market. Each criterion is considered below.

Criterion 1 - High and non-transitory barriers to entry

CRA considers that there are high barriers to entry in this market. In particular, there are sunk costs in investing in mobile network infrastructure, access to mobile spectrum and licensing barriers. The scale of investments needed to enter the markets may limit the scope for entry.

CRA therefore concludes that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA is of the view that this market exhibits a tendency towards effective competition. As this wholesale market is currently used for self-supply only, the market shares reflect those of both MNOs in the relevant retail mobile markets, where CRA concluded that those markets were tending to competition. As such, CRA also considers that this market is tending towards competition, in the context that it is composed entirely of self-supply.

CRA therefore concludes that the second criterion of the TCT is failed as the market is tending towards effective competition.

Criterion 3 - Insufficiency of ex-post competition law

Given that the second criterion of the TCT is failed, it Is not necessary to evaluate this market under the third criterion.

3.14.3. Conclusion on M15

CRA finds that this Candidate Market is not a Relevant Market and should not be susceptible to ex-ante regulation, given that it is tending towards effective competition.

3.15. M16 – Wholesale termination on individual mobile networks

In this section, CRA outlines its finding of M16[131], a separate national Candidate Markets for wholesale mobile termination services on each mobile network in Qatar. CRA finds that these Candidate Markets are Relevant Markets and are susceptible to ex-ante regulation.

3.15.1. Candidate Market definition

Wholesale mobile termination services refer to the services that enable the termination of a voice call or message on a service provider's mobile network, after being initiated by another provider – regardless of the technology used or the origin of the call or message. In Qatar, mobile termination is offered under the CPP regulatory regime, which means that the network operator who is the receiver and terminator of the call, charges a wholesale termination fee to the service provider initiating the call. In Qatar, wholesale mobile termination services are currently offered by both Ooredoo and Vodafone.

As part of this MDDD review, CRA will retain the SMS termination services as part of the market for mobile calling termination services. In doing so, its definition of the termination market matches its retail market definition for mobile telecommunication services (i.e. M5).

As such, CRA defines the focal products of this market as wholesale mobile termination services, which includes termination of mobile calling and messaging services. As part of this section, it addresses the following questions:

1. Do any demand-side substitutes exist to wholesale mobile termination services?
2. Do any supply-side substitutes exist to wholesale mobile termination services?
3. What is the geographic scope of this market?

1. Do any demand-side substitutes exist to wholesale mobile termination services?

CRA considers that there are no viable demand-side alternatives to wholesale mobile termination services. Call or message termination must occur on the mobile network of the recipient. This means that a provider cannot select a different network to complete the termination when connecting with a specific mobile network. As a result, if a mobile operator increases its termination charges by a SSNIP, the calling provider cannot switch to another network to avoid these higher fees.

[131] For a full reference of market numbers and their corresponding market names, see Appendix A.

CRA does not consider that indirect competitive constraints to wholesale mobile termination services may arise from other retail services as to render a SSNIP unprofitable.

Therefore, CRA does not consider that there are any effective demand-side substitutes for wholesale mobile termination services on individual networks.

2. Do any supply-side substitutes exist to wholesale mobile termination services?

CRA's view is that there are no wholesale products that are supply-side substitutes for wholesale mobile termination services. An MNO who has originated a call on behalf of a customer has no technical alternative but to terminate the call on the network of the provider that the called party has subscribed to.

In view of the arguments on demand and supply-side substitution above, CRA considers that it is appropriate to define separate product markets for mobile termination services on each mobile network in Qatar.

3. What is the geographic scope of this market?

CRA considers the geographic scope of this market to be national, based on an assessment of the following factors:

- CRA has not seen evidence which would imply that demand for mobile telephony services varies on a sub-national basis;
- Second, both operators set prices at a national level for mobile call and SMS termination services; and
- Third, both Ooredoo and Vodafone offer mobile call and SMS termination services on a national level.

In summary, CRA concludes that the market for wholesale call termination on individual mobile networks is national in scope.

3.15.2. Relevant Market assessment

In this section, CRA applies the TCT to the market for wholesale termination services on individual mobile networks. Each criterion is considered below.

Criterion 1 - High and non-transitory barriers to entry

CRA is of the view that these markets are characterised by significant barriers to entry. Barriers to entry in these markets are both high and enduring, as each operator retains exclusive control over the termination of calls and messages to its own retail customers. As a result, neither new entrants nor existing competitors can offer mobile termination services to another operator's customers, effectively preventing entry into that segment of the market.

CRA concludes that the first criterion of the TCT is fulfilled.

Criterion 2 - No tendency towards effective competition

CRA has not seen any evidence to suggest that these markets will tend to competition in the absence of ex-ante regulation. The nature of these wholesale services makes barriers to entry high and non-transitory. Each MNO holds a 100 per cent share of the calls and messages terminated on its network.

CRA considers that the second criterion of the TCT is fulfilled.

Criterion 3 - Insufficiency of ex-post competition law

CRA considers that relying solely on ex-post competition law is insufficient to ensure that mobile termination rates are set at competitive levels. In particular, CRA considers that the insights from market 7 (M7) also apply to this market.

CRA considers that the third criterion of the TCT is fulfilled.

3.15.3. Conclusion on M16

In view of the above, CRA's concludes that the markets for termination services on individual mobile networks are both Candidate and Relevant Markets, susceptible to ex-ante regulation.

4. Emerging Candidate Markets and approach to future market assessments

Principle 7 in CRA Statement on the ICT Competition Framework Review and Update 2024-2026 states that CRA should consider the impact of relevant emerging technologies on competition dynamics.[132] Consistent with this principle, which was broadly agreed to by all respondents to the public consultation,[133] CRA has identified two additional emerging Candidate Markets that it wishes to consult on with industry stakeholders as part of this MDDD review.

These markets reflect emerging technological developments and competitive dynamics that have evolved since the MDDD 2016. Given the time gap between MDDD reviews, CRA considers it necessary to include emerging Candidate Markets that address potential competition issues in nascent but strategically important service areas, including private 5G networks and emerging satellite services. CRA's MDDD methodology explicitly allows for the identification of Candidate Markets based on international best practice, recent market developments in Qatar and broader technological developments, regardless of whether the Candidate Markets would end up being susceptible to ex-ante regulation.

4.1. M17 – Non-public mobile business connectivity services

CRA notes that while the current market for non-public high quality, low latency retail mobile business connectivity for business use is nascent and developing, CRA has concerns about the potential for competition issues to emerge in terms of access to and pricing of these services over the next few years. To ensure CRA can monitor developments in this market (including, for example, collecting regular data through the MDDD reporting template), this market, M17[134], should be included as an emerging Candidate Market.

4.1.1. Candidate Market definition

CRA finds that the following market should be considered as an emerging Candidate Market:

- **Non-public mobile business connectivity:** The provision of high quality, low latency mobile connectivity for business use via private 5G networks at dedicated enterprise

[132] CRA, CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025, pp. 24 – 25 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-EN-final-for-publication.ashx).
[133] CRA, Summary of public consultation response to CRA Statement on the ICT Competition Framework Review and Update 2024-2026, July 2025 (https://www.cra.gov.qa/-/media/System/6/F/9/E/6F9EF2BABA6F5EAA91D78B21E51BE782/2025-07-08-CRA-ICT-Competition-Framework-Review-Summary-of-Responses-EN-final.ashx).
[134] For a full reference of market numbers and their corresponding market names, see Appendix A.

sites, where service is not available to the general public, with applications requiring specialised connectivity performance, security, and control not achievable via public mobile networks or traditional Wi-Fi.

This market definition encompasses services with the following characteristics:

- Deployment at specific enterprise premises or industrial sites;
- Enhanced security features and network isolation from public networks;
- Ultra-low latency capabilities required for mission-critical applications;
- High reliability and availability guarantees;
- Customisable network configurations and dedicated spectrum access; and
- Advanced network slicing capabilities.

What is the geographic scope of this market?

CRA's view is that this emerging Candidate Market should be defined as national in scope, reflecting the licensing framework in Qatar and the need for consistent regulatory oversight across all potential deployment locations.

4.1.2. Relevant Market assessment

At this stage, CRA has decided not to conduct a full TCT assessment for this emerging Candidate Market, given the nascent nature of the services. However, CRA will monitor market developments and consider whether this market meets the criteria for ex-ante regulation as deployment and adoption of non-public mobile business connectivity develops in Qatar.

4.1.3. Conclusion on M17

CRA's view is that non-public mobile business connectivity services should be designated as an emerging Candidate Market for monitoring purposes. CRA will conduct regular assessments of market developments to determine whether this market should subsequently be designated as part of a future MDDD assessment as a Relevant Market subject to ex-ante regulation.

4.2. M18 – High-quality satellite mobile broadband and connectivity services

CRA notes the current market for high quality satellite mobile broadband and connectivity services is nascent and developing – with specific services such as Mobile Satellite Internet

("**MSI**") and Direct-to-Device ("**D2D**") services yet to be launched in Qatar. However, CRA wants to ensure there are tools available to monitor developments in this emerging market (through, for example, collecting regular data on these technologies through the MDDD reporting template). As a result, it considers that this market, M18[135], should be included as an emerging Candidate Market.

4.2.1. Candidate Market definition

CRA finds that the boundaries of this emerging Candidate Market are as follows: wholesale and retail provision of broadband and/or mobile connectivity services delivered via satellite directly to user terminals, including but not limited to MSI and D2D services, where such services are capable of providing functionally equivalent (or substitutable) connectivity to mobile broadband or mobile telecommunication services for Qatari end users.

This market definition encompasses MSI services and D2D satellite services. CRA finds that this market includes services delivered via satellite where they provide effective substitutes or complements to mobile telecommunications services but excludes traditional satellite TV broadcasting services.

What is the geographic scope of this market?

CRA's view is that this emerging Candidate Market should be defined as national in scope, reflecting the coverage characteristics of satellite services and the national licensing framework in Qatar.

4.2.2. Relevant Market assessment

Given the early stage of satellite connectivity service development in Qatar, CRA has decided not to conduct a full TCT assessment at this time. However, CRA recognises the strategic importance of monitoring this market as satellite technologies mature and deployment accelerates globally.

4.2.3. Conclusion on M18

CRA finds that satellite broadband and mobile connectivity services should be designated as

[135] For a full reference of market numbers and their corresponding market names, see Appendix A.

an emerging Candidate Market for monitoring purposes. This will enable CRA to track market developments, assess competitive dynamics, and determine appropriate regulatory responses as these services launch and mature in Qatar.

4.3. Future market assessment approach

CRA emphasises that the designation of these additional emerging Candidate Markets does not predetermine any future regulatory outcomes. Rather, these designations enable systematic monitoring and assessment of market developments in strategically important service areas.

CRA will further, as relevant:

- Conduct regular market monitoring through MDDD reporting requirements;
- Assess whether market conditions warrant full TCT analysis;
- Consider specific market reviews if evidence of competition problems emerges; and
- Evaluate whether these markets should be designated as Relevant Markets in future MDDD cycles.

The inclusion of these additional emerging Candidate Markets reflects CRA's commitment to maintaining a forward-looking regulatory framework that can adapt to technological developments and emerging competitive dynamics in Qatar's telecommunications sector.

5. Consultation questions

CRA invites feedback on its findings as presented in this Consultation Document. This covers a review of the CRA's existing Methodology and the proposed amendments, the definition of Candidate Markets, the assessment of Relevant Markets and any additional inputs which may be relevant for consideration in the current phase of the MDDD review. While CRA would like to receive input on the following questions, stakeholders are also invited and encouraged to provide any further comments and justified views on the Consultation Document in general and specific to any of its sections.

5.1. CRA's Methodology (revisions to the Notice of Methodology)

5.1.1. Question 1

Do you agree with the current approach to defining Candidate Markets in the context of the MDDD process? If not, please provide a comprehensive and evidenced justification for your position and any alternative approaches to defining Candidate Markets for the current MDDD review.

5.1.2. Question 2

Do you agree with the approach to identifying Relevant Markets in the context of the MDDD process? If not, please provide a comprehensive and evidenced justification for your position and any alternative approaches to identify Relevant Markets in the current MDDD review.

5.1.3. Question 3

Do you agree with the amendments to the methodology, which is applicable to both the ex-ante and ex-post competition investigations (as set out in Appendix E)? Do you consider any further amendments are necessary in the context of the current ICT Competition Framework review and update?

5.1.4. Question 4

Do you agree that the amendments to the methodology will support future ex-post investigations into cases involving digital platforms, as aligned with the current draft Competition Policy Update (published for consultation)?

5.2. Assessment of retail and wholesale Candidate and Relevant Markets

In your response to the following questions please specify which Candidate/Relevant Market it applies to – naming them explicitly and in the order in which they are presented in this

Consultation Document.

5.2.1. Question 1

Do you agree with CRA's definition of each Candidate/Relevant Market? In particular:

a) Do you agree with the inclusion of wholesale products relating to the obtaining access to data centres (including, but not limited to, physical access to the facilities, colocation space and cross-connects) in M9?

b) Do you agree with the inclusion of retail products related to the obtaining access to data centres (including, but not limited to, physical access to the facilities, colocation space and cross-connects) in M3?

c) Do you agree with the inclusion of wholesale IP transit services in M10?

d) Do you agree with the inclusion of retail IP transit services in M4?

e) Do you agree with the finding that VULA should be included in the product scope of M9?

If you disagree with any of the above findings, please provide your alternative view and, where necessary, please support it with relevant evidence and analysis.

5.2.2. Question 2

Do you agree with CRA's conclusions on the list of Candidate Markets that are also Relevant Markets, and susceptible to ex-ante regulation? If not, please provide your alternative view and, where necessary, please support it with relevant evidence or analysis.

5.2.3. Question 3

Do you consider that the appropriate set of products included within the scope of each Candidate and Relevant Market, are outlined in Appendix C? If not, please provide details of what changes should be considered to the product scope. Please include the rationale for any changes suggested and provide evidence, where available.

5.3. Additional issues and considerations

5.3.1. Question 1

Do you agree with CRA's inclusion of the two additional (emerging) Candidate Markets as outlined in Section 4? If not, please provide your alternative view and, where necessary, please support it with relevant evidence or analysis.

5.3.2. Question 2

Do you agree with CRA's future market assessment approach of the identified emerging candidate markets as set out in Section 4.3?

5.3.3. Question 3

In Section 3.7, CRA sets out its decision to reintroduce wholesale mobile infrastructure access as a Candidate Market (i.e. M8). CRA anticipates that the competitive dynamics of this Candidate Market are likely to change, as a result of the entry of the TowerCo. CRA is seeking the views of industry on the susceptibility of this Candidate Market to ex-ante regulation, as a result of this market development.

a) Please provide your views on the current competitive dynamics in this Candidate Market, including the effectiveness of existing mobile infrastructure sharing regulations. Where possible, please support your views with detailed evidence.
b) What impact do you anticipate the entry of the TowerCo will have on the competitive dynamics within this Candidate Market?
c) How does this Candidate Market perform against each criterion of the TCT?

5.3.4. Question 4

In relation to the current MDDD review, are there any additional issues or considerations you would like to raise? In particular, are there any additional markets or products and services that should be considered as part of this review? Please provide details and supporting evidence where applicable.

6. How to respond to the Consultation Document

6.1. Consultation procedures

Stakeholders and interested parties are invited to provide their views and comments on any aspect of this consultation and to respond to the specific questions raised herein. When responding, interested parties are asked to make clear reference to the page and/or question number and to provide background, context and supporting information. This will enable CRA to take better account of the underlying reasoning.

All submissions received in response to this consultation will be carefully considered by CRA. However, it should be noted that nothing included in the Consultation Document is final or binding, and CRA is under no obligation to adopt or implement any comments or findings.

Responses to this consultation (and questions about this consultation) should be submitted by email to: raconsultation@cra.gov.qa. The subject reference in the email should be stated as “MDDD - Consultation on Methodology and Market Definition”. It is not necessary to provide a hard copy. The deadline to respond to this consultation is **November 26, 2025**.

6.2. Consultation response template

Responses to this Consultation Document must be provided in the template format provided below in **Table 5**. Responses not in this template format may be disregarded.

Respondent: [Name of company, organization, or individual]

Question reference	Response/Comments
[If relevant, please specify the number of the question or the page number of the consultation]	[Please provide your responses and comments in relation to the question or page mentioned in the first column]
[….]	

Table 5: Consultation response template

6.3. Publication of comments

In the interests of transparency and accountability, CRA may publish the responses to this

Consultation Document on its website (at www.cra.gov.qa). All responses will be processed and treated as non-confidential unless confidential treatment has been requested by the respondents. To claim confidentiality of information in submissions, respondents must provide a non-confidential version of such material in which all information considered confidential has been redacted and replaced with “[CONFIDENTIAL]” or “[CONFIDENTIAL INFORMATION]”.

A comprehensive justification must be provided for each section of a response that respondents wish to be treated as confidential. Respondents cannot request confidentiality for the entire response or whole sections of the response.

While CRA will endeavour to respect the wishes of respondents, in all instances the decision to publish responses (in full or in part) will be at the sole discretion of CRA.

By responding to this Consultation Document, respondents will be deemed to have waived all copyright and/or intellectual property rights over the material provided.

Appendix A: List of Candidate and Relevant Markets in the current MDDD review

Market number	Market name
M1	**Retail domestic and international fixed telephony and broadband services**
M1a	**Retail domestic and international fixed access and calling services (Residential customers)**
M1b	**Retail domestic and international fixed access and calling services (Business customers)**
M1c	**Retail fixed broadband services (Residential customers)**
M1d	**Retail fixed broadband services (Business customers)**
M3	**Retail domestic business connectivity services**
M4	**Retail international business connectivity services**
M5	Retail domestic and international mobile telecommunications services
M5a	Retail domestic and international mobile telecommunications services (Residential customers)
M5b	Retail domestic and international mobile telecommunications services (Business customers)
M6	Wholesale call origination on public telecommunications networks at a fixed location
M7	**Wholesale termination on individual telecommunications networks at a fixed location**
M8	Wholesale access to mobile infrastructure
M9	**Wholesale Local Access services at a fixed location**
M10	**Wholesale international connectivity services**
M11	**Wholesale broadband access services at a fixed location**
M12	**National trunk segment of (domestic and international) wholesale business connectivity services**
M13	**National terminating segment of (domestic and international) wholesale business connectivity services**
M14	International transit segment of international wholesale business connectivity services
M15	Wholesale access and origination on public mobile networks
M16	**Wholesale termination on individual mobile networks**
M17	Non-public mobile business connectivity services
M18	High-quality satellite mobile broadband and connectivity services

Note: The following Candidate Markets **(highlighted in bold and dark grey in the table above)** have been defined as Relevant Markets for this MDDD review: M1 (including 4 sub-markets), M3, M4, M7, M9, M10, M11, M12, M13, M16.

Appendix B: Abbreviations

Abbreviation	Explanation
AI	Artificial Intelligence
AOQDC	Access to Ooredoo Data Centres
ARF	Applicable Regulatory Framework
BSS	Business Support System
CLSs	Cable Landing Stations
CPP	Calling Party Pays
CPS	Carrier Pre-selection
CRA	The Communications Regulatory Authority of Qatar
CRTC	Canadian Radio-television and Telecommunications Commission
CS	Carrier Selection
CSTC	Communications, Space and Technology Commission
DSPs	Dominant Service Providers
EC	European Commission
FTTH	Fibre to the Home
FTTP	Fibre to the Premises
FUP	Fair Usage Policy
FWA	Fixed Wireless Access
GBI	Gulf Bridge International
GCC	Gulf Cooperation Council
GDH	Gulf Data Hub
GEO	Geostationary Earth Orbit
GPON	Gigabit Passive Optical Networks
HMT	Hypothetical Monopolist Test
ICT	Information and Communications Technology
IMDA	Info-communication Media Development Authority
IoT	Internet of Things
IPLC	International Private Leased Circuit
ITU	International Telecommunication Union
IXP	Internet Exchange Point
KFTC	Korea Fair Trade Commission
LEO	Low Earth Orbit
M2M	Machine-to-Machine
MDDD	Market Definition and Dominance Designation
MENACA	MENA Cloud Alliance
MNOs	Mobile Network Operators
MPLS	Multiprotocol Label Switching

Abbreviation	Explanation
MSI	Mobile Satellite Internet
OSS	Operations Support System
OTT	Over-The-Top
P2MP	Point-to-Multipoint
P2P	Point-to-Point
PAYG	Pay-As-You-Go
PoPs	Points of Presence
PSTN	Public Switched Telephone Network
QIA	Qatar Investment Authority
QNBN	Qatar National Broadband Network
QoS	Quality of Service
SCLS	Submarine Cable Landing Stations
SLAs	Service Level Agreements
SME	Small-Medium Sized Enterprise
SMP	Significant Market Power
SMS	Short Message Service
SOA	Standard Offer for Access
SOHO	Small Office Home Office
SSNDQ	Small but Significant Non-transitory Decrease of Quality
SSNIP	Small but Significant Non-transitory Increase in Price
TCT	Three Criteria Test
TDM	Time-division multiplexing
TRA	Telecommunications Regulatory Authority
VAS	Value-Added Services
VoIP	Voice over Internet Protocol
VPN	Virtual Private Network
VSAT	Very Small Aperture Terminal
VULA	Virtual Unbundled Local Access
WBA	Wholesale Broadband Access
WFTMR	Wholesale Fixed Telecoms Market Review
WLA	Wholesale Local Access
xDSL	Digital Subscriber Line (Copper)

Appendix C: Mapping of services to Candidate and Relevant Markets

Table 6 below provides an overview of the services included in each market considered within this MDDD review. Please note this is provided for convenience only and should not be taken to be an exhaustive list of services.

Candidate and Relevant Market	Services included

M1 - Retail domestic and international fixed telephony and broadband services
• **M1a – Retail domestic and international fixed access and calling services (Residential customers)**
• **M1b - Retail domestic and international fixed access and calling services (Business customers)**
• **M1c - Retail fixed broadband services (Residential customers)**
• **M1d - Retail fixed broadband services (Business customers)**
	M1a - Retail domestic and international fixed access and calling services (Residential customers)
	• Fixed access/line rental services for residential customers
	• Fixed call services for residential customers, including:
	  ○ National fixed calls (including local and national fixed-to-fixed calls, fixed-to-mobile calls, emergency call services, calls to toll free numbers and special services)
	  ○ Value-added Services ("VAS") and ancillary services (e.g. voicemail, Caller Line Identification, Call Waiting, Conference Calling and Call Forwarding)
	  ○ International outgoing calls from a fixed line
	• All related fixed-line installation services
	
	M1b - Retail domestic and international fixed access and calling services (Business customers)
	• Fixed access/line rental services for business customers
	• Fixed call services for business customers, including:
	  ○ National fixed calls (including local and national fixed-to-fixed calls, fixed-to-mobile calls, emergency call services, calls to toll free numbers and special services)
	  ○ VAS and ancillary services (e.g. voicemail, Caller Line Identification, Call Waiting, Conference Calling and Call Forwarding)
	  ○ International outgoing calls from a fixed line
	• Managed VoIP services
	• All related fixed-line installation services
	
	M1c - Retail fixed broadband services (Residential customers)
	• Fixed broadband services for residential customers (e.g. DSL, FWA and fibre-based broadband), including:
	  ○ Non-bundled fixed broadband services
	  ○ Multi-play bundles which include fixed broadband services
	• All related fixed broadband installation services for residential customers

Candidate and Relevant Market	Services included

	M1d - Retail fixed broadband services (Business customers)
	• Fixed broadband services for business customers (e.g. DSL, FWA and fibre-based broadband), including:
	  ○ Non-bundled fixed broadband services
	  ○ Multi-play bundles which include fixed broadband services
	• All related fixed broadband installation services for business customers

M3 - Retail domestic business connectivity services	• All domestic dedicated business connectivity services (including P2P or P2MP, using physical or virtual capacity – i.e. Layer 1, 2 and 3 services), including:
	  ○ National leased lines
	  ○ National ethernet-based services
	  ○ National IP-VPN services
	  ○ Software Defined Networks
	  ○ Business Internet services
	  ○ Retail access to data centres (including, but not limited to, physical access to the facilities, colocation space and cross-connects)
	• All related setup/installation services

M4 - Retail international business connectivity services	• All international dedicated business connectivity services (including P2P or P2MP, using physical or virtual capacity – i.e. Layer 1, 2 and 3 services), including:
	  ○ IPLC international leased lines
	  ○ Global ethernet-based services
	  ○ Global IP-VPN services
	  ○ Retail IP transit services
	• All related setup/installation services

M5 – Retail domestic and international mobile telecommunications services
• **M5a – Retail domestic and international mobile telecommunications services (Residential customers)**
• **M5b - Retail domestic and international mobile telecommunications services (Business customers)**
	M5a - Retail domestic and international mobile telecommunications services (Residential customers)
	• Mobile access services for residential customers
	• Mobile voice calling services for residential customers, including:
	  ○ National mobile calls (including mobile-to-mobile call, mobile-to-fixed call, mobile calls to special numbers (i.e. non-geographic numbers)
	  ○ All mobile VAS and ancillary services
	  ○ International outgoing calls from a mobile device
	• Mobile messaging services (SMS), including:
	  ○ National messaging services
	  ○ International outgoing messaging services
	• Mobile data services for residential customers, including:
	  ○ Dedicated mobile broadband services
	  ○ Data services sold as part of a bundle including mobile calling and messaging services
	• Roaming services for residential customers, including:

Candidate and Relevant Market	Services included
	○ Outgoing roaming services (i.e. voice, messaging, and data) used while abroad • Prepaid and postpaid mobile services for residential customers **M5b - Retail domestic and international mobile telecommunications services (Business customers)** • Mobile access services for business customers • Mobile voice calling services for business customers, including: ○ National mobile calls (including mobile-to-mobile call, mobile-to-fixed call, mobile calls to special numbers (i.e. non-geographic numbers) ○ All mobile VAS and ancillary services ○ International outgoing calls from a mobile device • Mobile messaging services (SMS), including: ○ National messaging services ○ International outgoing messaging services • Mobile data services for business customers, including: ○ Dedicated mobile broadband services ○ Data services sold as part of a bundle including mobile calling and messaging services • Roaming services for business customers, including: ○ Outgoing roaming services (i.e. voice, messaging, and data) used while abroad • Mobile enterprise M2M connections • Prepaid and postpaid mobile services for business customers
M6 - Wholesale call origination on public telecommunications networks at a fixed location	• Fixed call origination services, including fixed call origination from a residential and/or a business fixed line
M7 - Wholesale termination on individual telecommunications networks at a fixed location	• Fixed call termination services
M8 – Wholesale access to mobile infrastructure	• Access to mobile sites, masts and towers • Relevant ancillary services and colocation space
M9 - Wholesale Local Access services provided at a fixed location	• Access to passive and active infrastructure in the fixed access network, including access to: ○ Ducts, poles, trenches and manholes needed to reach data centres and/or a CLS in Qatar

Candidate and Relevant Market	Services included
	○ VULA, dark fibre and access to passive infrastructure services from the network termination point at the customer premises to the local exchange • Access to colocation facilities and other telecommunication facilities, including buildings and sites and other ancillary services (e.g. power and air conditioning) • Wholesale access to data centres (including, but not limited to, physical access to the facilities, colocation space and cross-connects) • Access to patch cables
M10 - Wholesale international connectivity services	• Access to/colocation at an international gateway facility in Qatar (e.g. a CLS), required to gain access to international capacity, end-to-end between Qatar and any destination country • Cross-connect services in an international gateway facility • Wholesale IP transit services • All relevant ancillary facilities/services and colocation space in international gateway facilities
M11 - Wholesale Broadband Access services at a fixed location	• All wholesale bitstream services (i.e. over a copper, fibre or FWA network) which may be used to provide fixed broadband services
M12 - National trunk segment of (domestic and international) wholesale business connectivity services	• All core network segments of wholesale (domestic and international) business connectivity services including trunk segment, dark fibre, duct access and managed network transmission services.
M13 - National terminating segment of (domestic and international) wholesale business connectivity services	• National terminating segments of wholesale (domestic and international) business connectivity services and managed network transmission services
M14 - International transit segment of international wholesale business connectivity services	• Transit capacity from the international gateway to the PoP of the service provider offering
M15 – Wholesale access and origination on public mobile networks	• Wholesale mobile access services • Wholesale call origination services • Wholesale data origination services

Candidate and Relevant Market	Services included
M16 - Wholesale termination on individual mobile networks	• Mobile call, data and messaging (SMS) termination services
M17 – Non-public mobile business connectivity services	• High quality, low latency mobile connectivity for business use via private 5G networks at dedicated enterprise sites
M18 – High-quality satellite mobile broadband and connectivity services	• Wholesale and retail provision of broadband and/or mobile connectivity services delivered via satellite directly to user terminals, including but not limited to MSI and D2D services

Table 6: Services included in Candidate and Relevant Markets

Table 7 below provides a mapping of retail Candidate and Relevant Markets to wholesale Candidate and Relevant Markets.

Retail Candidate and Relevant Market	Wholesale Candidate and Relevant Market
M1 - Retail domestic and international fixed telephony and broadband services	
M1a – Retail domestic and international fixed access and calling services (Residential customers) **M1b - Retail domestic and international fixed access and calling services (Business customers)**	• M6 - Wholesale call origination on public telecommunications networks at a fixed location • M7 - Wholesale termination on individual telecommunications networks at a fixed location • M8 – Towers for wireless access • M9 – Wholesale Local Access services at a fixed location (VULA, dark fibre, ducts) • M10 – Wholesale international connectivity services • M11 - Wholesale Broadband Access at a fixed location (Bitstream) • M12 and 13 – Trunk and Terminating segments • M14 – International segment of wholesale business connectivity services • M16 - Wholesale termination on individual mobile networks
M1c – Retail fixed broadband services (Residential customers)	• M8 – Towers for wireless access • M9 – Wholesale Local Access services at a fixed location (VULA, dark fibre, ducts) • M10 – Wholesale international connectivity services

Retail Candidate and Relevant Market	Wholesale Candidate and Relevant Market
M1d – Retail fixed broadband services (Business customers)	• M11 - Wholesale Broadband Access at a fixed location (Bitstream) • M12 and / or M13 – Trunk and Terminating (to reach / access to the international gateway) • M14 – International segment of wholesale business connectivity services
M3 – Retail domestic business connectivity services	• M8 – Towers for wireless access • M9 – Wholesale Local Access Services at a fixed location (dark fibre, ducts) • M12 - National trunk segment of (national and international) wholesale business connectivity services • M13 – National Terminating segment of (national and international) wholesale business connectivity services
M4 - Retail international business connectivity services	• M8 – Towers for wireless access • M9 – Wholesale Local Access services at a fixed location (dark fibre, ducts) • M10 – Wholesale international connectivity services • M12 - National trunk segment of (national and international) wholesale business connectivity services • M13 – National Terminating segment of (national and international) wholesale business connectivity services • M14 – International segment of wholesale business connectivity services
M5 – Retail domestic and international mobile telecommunications services	
M5a – Retail domestic and international mobile telecommunications services (Residential customers) **M5b – Retail domestic and international mobile telecommunications services (Business customers)**	• M7 - Wholesale termination on individual telecommunications networks at a fixed location • M8 – Wholesale access to mobile infrastructure • M9 – Wholesale Local Access services at a fixed location (dark fibre, ducts) • M10 – Wholesale international connectivity services • M12 - National trunk segment of (national and international) wholesale business connectivity services • M13 – National Terminating segment of (national and international) wholesale business connectivity services • M14 – International segment of wholesale business connectivity services • M15 – Wholesale access and origination on public mobile networks • M16 - Wholesale termination on individual mobile networks

Table 7: Mapping of retail to wholesale Candidate and Relevant Markets

Appendix D: Global benchmarking of market definition methodologies

	Market definition methodologies						
Regulator	**Country/Region**	**Demand and supply-side substitution**	**Define product markets**	**Define geographic markets**	**SSNIP test**	**TCT**	**Notes**
Canadian Radio-television and Telecommunications Commission (CRTC)	Canada	✓	✓	✓	✓	✓	(i) There is no compelling evidence to include wireless and satellite services in the market for wholesale high-speed access services;[136, 137] (ii) Essentiality test is also utilised as a supplementary tool for market definition[138]
Commission for Communications Regulation (ComReg)	Ireland	✓	✓	✓	✓	✓	(i) ComReg also assesses the degree to which any indirect constraints arising from downstream retail markets might effectively impact wholesale market behaviour before assessing the geographic scope of the market[139]

[136] CRTC, "Telecom Regulatory Policy CRTC 2024-180", August 2024, paragraph 10 (https://crtc.gc.ca/eng/archive/2024/2024-180.pdf) ("When defining markets for the purposes of applying the Essentiality Test, the Commission must consider the correct group of services for the purpose of assessing whether wholesale access should be mandated. In Telecom Decision 2019-343, the Commission indicated that both aspects of the product market are generally considered, namely, the downstream market (i.e. where retail end-users obtain services), and the upstream market (i.e. where competitors obtain services from wholesale service providers)").
[137] CRTC, "Telecom Regulatory Policy CRTC 2015-326", July 2015, paragraph 54 (https://crtc.gc.ca/eng/archive/2015/2015-326.pdf) ("Wholesale HSA services provide a high-speed path between a competitor's end-customer premises (e.g. a house) and an interface on an incumbent carrier's network where the competitor connects and routes its end-customer traffic onto its own network. Competitors use wholesale HSA services to offer various services, including local phone, television, and retail Internet access services.").
[138] CRTC, "Telecom Regulatory Policy CRTC 2024-180", August 2024, Appendix to Telecom Regulatory Policy 2024-180, paragraph 2 (https://crtc.gc.ca/eng/archive/2024/2024-180.pdf) ("The Essentiality Test proceeds by first defining relevant markets, and then assessing three components: the input component, the competition component, and the duplicability component. A wholesale service must meet all three components […] to be considered essential for competition"). The input component queries if the service or facility in the upstream (wholesale) market is required as an input to provide telecommunications services in the downstream (retail) market. The competition component queries if the service or facility is controlled by a firm that has upstream market power, such that withdrawing the service would result in a lessening or prevention of downstream of competition. The duplicability component queries if it is feasible for competitors to duplicate the functionality of the upstream service or facility.
[139] ComReg, "Market Review - Physical Infrastructure Access (PIA) Market Review", January 2024, paragraph 3.3, p. 37 (https://www.comreg.ie/media/dlm_uploads/2024/01/ComReg2405.pdf).

	Market definition methodologies						
Regulator	**Country/Region**	**Demand and supply-side substitution**	**Define product markets**	**Define geographic markets**	**SSNIP test**	**TCT**	**Notes**
Communications, Space and Technology Commission (CSTC)	Saudi Arabia	✓	✓	✓	✓	✓	(i) May identify and prioritise key markets that play a pivotal role in the broader national developmental objectives and have a strategic importance to the Kingdom[140]
Danish Business Authority (DBA)	Denmark	✓	✓	✓	✓	✓	
European Commission (EC)	European Union	✓	✓	✓	✓	✓	(i) Harmonized framework across member states, but flexibility for NRAs to include separate markets for ex-ante regulation (ii) Updated market definition notice from February 2024 emphasising the importance of non-price parameters of competition in defining markets, including quality, sustainability, efficiency, durability, value, reliability of supply, degree of privacy protection, and level of innovation

[140] CST, "Regulations for Designation of Markets & Dominance in the Telecom Sector", August 2024, paragraph 5-4, p. 6 (https://istitlaa.ncc.gov.sa/en/transportation/citc/mddd/Documents/Regulations%20for%20Designation%20of%20Markets%20&%20Dominance%20in%20the%20Telecom%20Sector.pdf).

	Market definition methodologies						
Regulator	**Country/Region**	**Demand and supply-side substitution**	**Define product markets**	**Define geographic markets**	**SSNIP test**	**TCT**	**Notes**
Info-communication Media Development Authority (IMDA)	Singapore	✓	✓	✓	✓		(i) Where appropriate, the IMDA may define a market based on a "temporal" dimension as the timing in production, consumption and purchasing of products and services can affect market definition
Korea Fair Trade Commission (KFTC)[141]	South Korea	✓	✓	✓	✓		(i) If the service provided is nominally free of charge, then non-price factors such as quality and cost can also be considered as variables to aid market definition; and (ii) KFTC also utilises the Elzinga-Hogarty test to define relevant markets[142]
Office of Communications (Ofcom)	United Kingdom	✓	✓	✓	✓	✓	(i) Candidate Markets may be based on EU recommendations

[141] The KFTC is the competition regulator of South Korea and not strictly the telecommunications regulator. However, the KFTC still outlines a market definition methodology that is applicable in South Korea. Moreover, given that their focus is primarily ex-post competition cases, the TCT may not be reflected in their published methodology documents, but CRA has not seen any evidence to date which suggests that this is applied in practice by the KFTC or the KCC.

[142] USLegal, "Elzinga-Hogarty Test Law and Legal Definition" (https://definitions.uslegal.com/e/elzinga-hogarty-test/) ("In a merger setting, the purpose of the [Elzinga-Hogarty] test is to analyze patterns of consumer origin and destination and then to use that information. The [Elzinga-Hogarty] test is a matter of looking at how many people leave an area to get services (outflow) and how many people come into an area to get services (inflow). Both inflow and outflow are important in determining how much prices would have to increase within that area before lost business would make the price increase unprofitable").

	Market definition methodologies						
Regulator	**Country/Region**	**Demand and supply-side substitution**	**Define product markets**	**Define geographic markets**	**SSNIP test**	**TCT**	**Notes**
Telecommunications and Digital Government Regulatory Authority (TDRA)	UAE	✓	✓	✓	✓		(i) Defining the relevant market(s) on a forward-looking basis, but this may not be necessary for an ex-ante assessment of market power (ii) Consideration of other market dimensions such as the functional level of the market (i.e. whether products and services sold in the market are sold to wholesale or retail customers), bundled products and temporal scope in the market definition exercise
Telecommunications Regulatory Authority (TRA)	Bahrain	✓	✓	✓	✓	✓	
Telecommunications Regulatory Authority (TRA)	Oman	✓	✓	✓	✓	✓	(i) Consideration of any other factors that, in the TRA's opinion, reasonably affect market definition

Source: For CRTC's market definition methodology see CRTC, "Telecom Regulatory Policy CRTC 2024-180", August 2024, Appendix A, paragraphs 1 - 61, pp. 19 – 31 (https://crtc.gc.ca/eng/archive/2024/2024-180.htm).
For ComReg's market definition methodology, see ComReg, "Physical Infrastructure Access (PIA) Market Review", January 2023, pp. 37 – 40 (https://www.comreg.ie/media/dlm_uploads/2024/01/ComReg2405.pdf).
For CST's market definition methodology see CST, "Regulations for Designation of Markets & Dominance in the Telecom Sector", August 2024, pp. 5 – 8 (https://istitlaa.ncc.gov.sa/en/transportation/citc/mddd/Documents/Regulations%20for%20Designation%20of%20Markets%20&%20Dominance%20in%20the%20Telecom%20Sector.pdf).
For DBA's market definition methodology see DBA, "BILAG 1: Markedsanalyse af engross markedet for netadgang til lavkapacitetsinfrastruktur på et fast sted (M3LC)", December 2021, p. 26 and pp. 51 – 57 (https://erhvervsstyrelsen.dk/sites/default/files/2021-12/TDC%20M3LC%20Markedsafg%C3%B8relse.zip).
For EC's market definition methodology see EC, "Commission Notice on the definition of the relevant market for the purposes of Union competition law", February 2024, (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C_202401645).
For IMDA's market definition methodology see IMDA, "Advisory Guidelines on Market Definition & Assessment of Market Power", pp. 1 – 11 (https://www.imda.gov.sg/-/media/imda/files/regulation-licensing-and-consultations/consultations/completed-consultations/consultation-papers/6/market-definition-guidelines-17-jul-13.pdf).
For KFTC's market definition see KFTC, "기업결합신고 가이드북 2025", pp. 28 – 29 (https://mna.ftc.go.kr/resources/mna/file/pdfGuide2025.pdf?).

For Ofcom's market definition methodology see Ofcom, "Annex 1-22", Annex 5, paragraphs A5.9 – A5.10, A5.21 – A5.27, pp. 14 – 19 (https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/consultation-telecoms-access-review-2026-31/main-documents/annexes-1-22.pdf?v=392943).
For TDRA's market definition methodology see TDRA, "Market Definition and Competition Assessment Guidelines", September 2010, pp. 11 – 20 (https://www.bing.com/ck/a?!&&p=89b0922e778d75ab6a1614b3fca3398833949fa0fe407c4bf82f5e3434fc184fJmltdHM9MTc1NDI2NTYwMA&ptn=3&ver=2&hsh=4&fclid=24332ea0-bb38-66d4-1e13-38bcbad86714&psq=Guidelines+Market+Definition+and+Competition+Assessment+Guidelines+Version+1.0+Issue+Date%3a+30+September+2010&u=a1aHR0cHM6Ly90ZHJhLmdvdi5hZS8tL21lZGlhL0Fib3V0L3JlZ3VsYXRpb25zLWFuZC1ydWxpbmcvRU4vTWFya2V0LVJldmlldy1HdWlkZWxpbmVzLS0tRkIOQUwtLS1QUkMtQXBwcm92ZWQtLS1WMS0wLS0zMDA5MjAxMC1kb2N4LmFzaHg&ntb=1).
For TRA Bahrain's market definition methodology see TRA, "Determination of Dominance in Wholesale Fixed Broadband and Domestic Connectivity Markets Final Determination", April 2021, paragraphs 64 – 65, pp. 28 – 29 (https://tra-website-prod-01.s3-me-south-1.amazonaws.com/Media/Documents/Determinations_&_Decisions/20210427131208650_mvnqd1vc_fkh.pdf).
For TRA Oman's market definition methodology see TRA, "Market Definition and Dominance Guidelines", June 2012, pp. 9 – 13 (https://www.tra.gov.om/En/pdf/550mddguidelines.pdf).

Appendix E: Amendments to the Notice of Methodology

In this Appendix, CRA sets out its amendments to Section 3 of the Notice of Methodology, which outlines the analytical framework for defining markets. Consistent with the discussion in Section 2 of this document, CRA draws on precedent from Europe and other jurisdictions, placing increased emphasis on non-price factors – such as quality and innovation – when defining markets in an ex-ante and an ex-post context. CRA invites stakeholders to comment on the revisions set out below to the Notice of Methodology.

Extract from CRA's Notice of Methodology (Section 3)

3. Market Definition – Analytical framework

This section describes the methodology underlying the Market Definition process. It first outlines the basic principle of the methodology in section 3.1 and then focuses on the main dimensions of market definition in sections 3.2 to 3.11.

3.1. Defining a Market

Once the Candidate Markets in terms of products and geographic scope are established, following a consultation process and discussions with market entities about the proposed Candidate Markets, the Authority defines the Relevant Markets. The underlying methodology of market delineation is based on the RF and economic principles in accordance with competition law principles as set out in Article 72 of the Executive By-Law.

A market is defined using the Hypothetical Monopolist Test (**HMT**). This is the accepted global standard, and also part of the telecommunications framework.[143] Although direct empirical implementation is often limited in practice, the methodological framework serves as an important conceptual guideline.

The test begins by describing a Hypothetical Monopolist (**HM**), which currently and in future only offers one product/service within a defined area. The HMT seeks to identify the narrowest possible market on a product layer. The HMT assumes the monopolist imposes a Small but Significant and Non-transitory increase in Price (**SSNIP**), which is usually approximated as 5-

[143] (Originally footnote 9 in Notice of Methodology) This approach to market definition was introduced by the US Department of Justice (1982 Merger Guidelines, revised in 1992, 1997 and recently in 2010) and is currently being used by regulatory and antitrust authorities worldwide.

10%.[144] Assuming that the prices of all other products remain constant, the question is whether customers can react adequately by switching to other products without having to accept huge efforts and costs; and whether other suppliers can profitably switch to supplying that product without having to accept huge efforts and costs (**SSNIP Test**). If so, then the HM does not have sufficient market power to raise price (as it is constrained by demand or supply side switching). As a consequence, the next closest substitute is added to the initial (set of) product(s) and the HMT is applied again until the point is reached where a HM could profitably impose a price increase. The temporal element for market definition should reflect the periodicity and the forward- looking nature of the overall market analyses process. Typically, the profitability of a SSNIP is considered over a time period of approximately one year. Competitive constraints which occur over a longer period (for example two to three years) are typically considered in the market power assessment.

The Candidate Market or relevant market includes all those potential substitute products which provide a significant competitive constraint on the initial products. When examining the competitive responses, it is not necessary that all consumers (or) producers are willing to switch, but only that enough of them would switch in response to the price increase in order to discipline the HM sufficiently.

Since direct empirical implementation of the HMT is mostly limited, the conceptual understanding of the factors influencing the outcome of the HMT receives a specific emphasis. In principle, the HMT should guide the analysis of market definition alongside all relevant dimensions, which are described below.

Relevant Markets are identified based on a range of factors aimed at determining the scope of products and services that are reasonable substitutes for one another and, therefore, constitute a discrete market for the purposes of market and competition analysis. This includes defining the Relevant product/service[145] markets and their geographic scope. The Authority defines product markets in particular in terms of supply and demand side substitutability.

References to geographical market delineation, relevant wholesale markets and on fixed-to-mobile substitution are described below.

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[144] (Originally footnote 10 in Notice of Methodology) The US Department of Justice refers to a 5% increase whereas the EU SMP-Guidelines (§ 40) refer to a 5-10% increase in price.
[145] (Originally footnote 11 in Notice of Methodology) Within the MDDD Process the terms "product" and "service" have the same meaning.

3.2. Demand side substitution

Demand side substitution takes place when consumers prefer to switch from one product to another in response to a change (usually 5 to 10%) in the price of the product. When the HM raises the price, some customers will reduce consumption or will choose not to purchase at all and drop out of the market.

Demand side substitutability is determined by the extent to which customers of the relevant product under consideration would consider other (similar) products as an acceptable substitute. The closer the similarities from the consumer's viewpoint, the more consumers will switch to the other products. If consumers can switch to available substitute products or use the same products from suppliers located in other areas, then it is unlikely that price increases will be profitable for the HM.

The following elements determine the extent of demand side substitutability:

- Substitutes available at similar prices,
- price-elasticity of consumers;
- Overall importance of good for consumers;
- Transactions-/switching costs for consumers (demand side barriers);
- Durability of the good; and
- Regulatory environment

3.3. Supply side substitution

Competitive forces stemming from supply side substitution are a vital element in market definition. Some firms, already producing a similar product, might alter their production facilities and supply sufficiently homogeneous substitute products to consumers remaining in or re-entering a market.

From the consumers' perspective, it does not make a difference if potential substitutes pre-existed (prior to the initial price increase) or if they were supplied by firms operating near to the initial market in response to the initial price increase. An economic market is therefore defined by consumer preferences and technology. Hence, supply side substitution might lead to broader market definitions including products that are at first not deemed to be interchangeable by consumers. In telecommunications markets this observation is an important one, since an isolated demand analysis could produce unreasonable and even

meaningless results in many circumstances. Furthermore, not considering supply side substitution at the market definition stage might create an irreversible distortion. For instance, a finding of a significantly high market share (e.g. above 50%) due to a 'too narrow' market definition would usually be associated with a presumption of dominance, which is unlikely to be broken at the stage of competition analysis.

Effective supply side substitution must be technologically feasible and economically viable, involving no additional investments with significant sunk cost within a relatively short period of time (typically up to two years). Supply side substitution is determined by both firms already in the market and potential new firms entering the market. Possession of assets allows redeploying these without incurring significant (sunk) costs. Obviously, this requirement is not restricted to the production (wholesale) level but applies likewise to the retail level, since supply side substitution would be ineffective if producers were not able to market their "substitute" products to consumers. Supply side substitution will only be an effective constraint if consumers also regard the "potential" supply side substitute as sufficiently equivalent in light of the initial (set of) products, i.e. supply and demand side substitution have to interact. If producers in adjacent markets are incentivised to offer products which are sufficiently similar to the focal products within a short period of time, then the market can be widened to include suppliers producing the similar products in the adjacent markets.

3.4. Relevant Geographic Markets

In terms of geographic demand and supply side substitution in telecommunications, supply side substitution possibilities are more relevant than demand substitution possibilities. In markets where services depend on a fixed connection, as in most telecommunications markets, it seems very unlikely that a customer in a certain area would substitute supplies from outside the area in reaction to a price increase by a hypothetical monopolist in the area, unless he changes the location of consumption to a place outside the area. As the choice of residence of a certain customer is driven (if at all) only marginally by the price of telecommunications services this scenario does not seem to provide an effective demand side constraint on the HM.

Contrary to this, it is possible that geographic supply side substitution will take place in response to a price increase by the HM. However, in the absence of access regulation, entry in a telecommunications market in a certain area is only possible through rolling out infrastructure to that area. Only if this investment is non-significant and can be realised within a short period this would it provide an effective supply side constraint on the hypothetical

monopolist. If, on the other hand, homes were already connected with alternative infrastructure, a price increase could well be constrained due to demand and supply side substitution. This would though be considered as product specific substitution (as opposed to geographical substitution).

With regard to the geographic market definition in Qatari telecommunication sector, the Authority analyses two main criteria:

the area covered by a network; and

the existence of legal and other regulatory instruments.

This approach is also in line with the SMP Guidelines of the EU framework on the assessment of substitution in different areas.

3.5. Wholesale markets

The Market Definition methodology outlined above applies equally to retail and wholesale markets. With respect to the latter, however, there are some specific methodological aspects that have to be considered in addition.

The scope of a wholesale market is, in addition to demand and supply side substitution at the wholesale level, also determined by demand and supply side substitution at the retail level, whenever different wholesale providers are linked to one another through retail markets.

The main difference between wholesale and retail markets is that wholesale products can belong to the same market, even in the absence of direct supply and demand side substitution on this wholesale level, as the downstream (retail) level sees the wholesale inputs as sufficient substitutes. The impact of the restrictions via the retail level on the wholesale market definition will in general be stronger the larger the demand elasticity at the retail level is, the more of a wholesale price change is passed on to the retail level and the larger the ratio of wholesale and retail price. This concept has then to be applied to the question of under which circumstances internal sales should be included into the Relevant wholesale Market.

3.6. Fixed-mobile substitution (FMS)

In many countries the mobile sector is increasingly exerting competitive pressure on fixed voice telephony markets as well as on broadband services. Fixed-mobile substitution (**FMS**) is mainly characterised by an opposing development of volumes in both sectors. In the mobile

sector we can observe persistent growth in penetration levels and call minutes whereas fixed access lines and usage have been decreasing steadily for some years in OECD countries.[146] As market data and empirical evidence indicate that FMS differs in regard to different market segments, specific focus needs to be put on the various market segments. Therefore, the extent of FMS will constitute a relevant dimension in future market delineation processes.

However, according to prevailing experience in Qatari markets as well as with international experience, FMS has not yet materialised to an extent, which would generally allow the definition of common fixed and mobile markets.[147,148]

3.7. Assessing markets with bundles

Products sold as bundles can be relevant in a number of ways when defining markets. For example in assessing the competitive constraints imposed by different products or services, it may be necessary to consider whether a product sold as a bundle constrains how consumers would respond to a price rise (for example if they are more resistant to switching if they bought bundled products).

Furthermore, if the competitive conditions of each of the elements of a bundle are similar then it may be practical and proportionate to define the market around the bundle rather than each element of the bundle.

3.8. Defining markets on the basis of non-price factors

The general principles of assessing market definition based on demand and supply-side substitution using the SSNIP test is generally accepted as the main standard through which markets may be defined in an ex-ante and ex-post context. However, evolving regulatory precedent acknowledges that, in specific circumstances or high innovative industries, the application of these conventional tools may be difficult and therefore special considerations may need to be applied to the process of defining markets, both from an ex-ante and ex-post perspective.

For example, in markets which include multi-sided platforms, a product may be offered to one

[146] (Originally footnote 12 in Notice of Methodology) OECD – (2009), "Communications Outlook 2009", available at: http://www.oecd.org/- document/44/0,3343,en_2649_34225_43435308_1_1_1_1,00.html, figures 1.1, 3.2 and 3.6.

[147] (Originally footnote 13 in Notice of Methodology) Vogelsang, I. (2010), "The relationship between mobile and fixed-line communications: A survey", in: Information Economics and Policy, Vol. 22, 4-17.

[148] (Originally footnote 14 in Notice of Methodology) The Economist, January 1st 2011, "Hanging up".

user group at discounted prices (even for free in some cases) to attract these users to the other side of the platform, where prices are set to generate revenues. In such cases, the conventional SSNIP test may not capture substitution across all user groups, because platforms set different prices on each side, often with one side at a zero price. It is therefore unclear which price the HM should raise as part of the SSNIP test. Moreover, profit maximization requires coordinated pricing: prices may be set below marginal cost on one side and above marginal cost on the other. This added complexity makes the SSNIP test difficult to apply and sometimes unsuitable for markets which include multi-sided platforms. Accordingly and more broadly, the Authority considers it appropriate to assess substitution in telecommunications, ICT and digital markets using both price and non-price parameters, to the extent supported by the available data and where it is conceptually appropriate to do so. This assessment will take into account factors such as (but not limited to):

- Product functionalities;
- Intended use;
- Evidence of past or hypothetical substitution; and
- Barriers to or costs of switching.

The Authority may also consider the switching behavior of customers using zero monetary priced products on the basis of a small but significant non-transitory decrease of quality (**SSNDQ**), which has recently been formalized in the European Commission's (**EC**) methodology notice, published in February 2024.[149] While the application of the SSNDQ may be difficult to apply in practice, it is necessary, and indeed relevant for the Authority to incorporate price and non-price factors jointly in future market definition assessments.

3.9. Role of innovation in defining markets

The Authority recognizes that, particularly in highly innovative industries, innovation may influence the future evolution of competition in specific markets. Where these factors have a direct and material impact on competitive conditions, the Authority will take them into account in its market definition assessments.

Specifically, the Authority will assess whether and how investment incentives, innovation

[149] In its most recent methodology update, the EC noted that the SSNDQ "is applied as a conceptual framework for a qualitative assessment of demand substitution. The [EC] does not usually assess whether such an SSNDQ would be profitable for a hypothetical monopolist. Moreover, a quantitative application of the SSNDQ test is subject to several difficulties, including in relation to the quantification of quality." EC – (2024), "Commission Notice on the definition of the relevant market for the purposes of Union competition law", available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AC_202401645, footnote 54.

dynamics and broader strategic aims affect:

- Demand and supply-side substitutability;
- The likelihood and timelines of future entry and expansion, and
- The forward-looking nature of competition over an appropriate time horizon.

Consideration of these factors will be primarily evidence-based but will only be given credence where robust, transparent evidence has been provided to the Authority (e.g. credible future investment commitments and product roadmaps for 'pipeline' products or planned technological upgrades of existing networks).

3.10. Allowing for wider range of evidence types when assessing markets

In undertaking a market definition assessment for a particular case, the Authority may use a wide variety of information and sources to define the relevant product and geographic markets, and this information can be either qualitative or quantitative in nature. In particular, the Authority will take a flexible approach to empirical evidence, meaning that, rather than focusing on one specific evidence 'type', it will use all the relevant data and information at its disposal to make a determination in the case at hand. The evidence the Authority uses should be reliable, requiring cooperation from industry participants, including suppliers and their customers.

Additionally, the Authority will strive to use the latest data that is available to it, to the extent that this is possible. This is particularly the case for markets that are characterized by a high degree of innovation, and which experience ongoing developments and changes. Therefore, when defining markets, the Authority should use the latest data to reflect the likely evolution of competition over a defined forward-looking period. In these cases, some types of information may be more reliable than others.[150]

3.11. Considering wider strategic objectives in market definition

Many jurisdictions increasingly take broader strategic objectives into account when defining relevant markets. For instance, in the United Kingdom (UK), Ofcom's 2021 Wholesale Fixed Telecoms Market Review placed significant emphasis on the government's strategic objective of

[150] For example, in its most recent methodology update, the EC argued that "internal documents of market participants produced in the ordinary course of business or independent industry reports including robust projections may be particularly relevant for the purposes of conducting a forward-looking assessment." EC – (2024), "Commission Notice on the definition of the relevant market for the purposes of Union competition law", available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AC_202401645, paragraph 77.

achieving nationwide gigabit broadband. [151]

In a similar manner, the State of Qatar's wider strategic objectives may inform the Authority's market definition analysis. For example, as part of its regular MDDD review, the Authority may define markets in a manner that facilitates targeted remedies to address specific bottlenecks, while concurrently supporting Qatar's ambitions to become a regional and global digital hub and to attract inward investment into the ICT sector. Such an approach ensures that the outcomes of the market definition exercise are consistent with and contribute to the country's broader strategic and national ambitions.

[151] Ofcom – (2021), "Promoting investment and competition in fibre networks – Wholesale Fixed Telecoms Market Review 2021-26 – Volume 1: Overview, summary and structure", available at https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/185028-promoting-investment-and-competition-in-fibre-networks--wholesale-fixed-telecoms-market-review-2021-26/associated-documents/wftmr-statement-volume-1-overview.pdf?v=326138, p. 1.