# Summary of CRA ICT Classification Public Consultation Response
# [full version incl. confidential responses]

July 23, 2023

*Note: The below summary has been prepared based on responses of the public consultation conducted by CRA for the Information and Communications Technology (ICT) Sector Classification Document that happened in Q2/Q3 2022. This summary of responses received by various stakeholders has been structured to follow the key themes and issues discussed by the stakeholders in their responses. This has been found appropriate, considering the length, various format and number of responses received.*

| KEY COMMENTS ON THE CONSULTATION DOCUMENT | RESPONDENT | CRA RESPONSE |
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| **Consultation process** | | |
| 1. We would appreciate the CRA conducting industry meeting(s) to further clarify the classification and collect further input before publishing the classification | Ooredoo | Besides the public consultation, the CRA engaged in 40+ interviews with ICT sector stakeholders, which included industry insights gathering and stress-testing the proposed classification. Furthermore, the classification has been verified in a standard survey that has been conducted in the past months by the CRA, where 370+ companies responded (the ICT Sector Survey). |
| 2. To better understand the classification, it would be useful if the CRA could share the CRA Strategy 2020-2024 | Ooredoo<br>Vodafone | The full background for the classification has been detailed in the document itself. The scope and background of the Classification are related but go wider than the CRA Strategy 2020-2024. CRA has also published the ICT Sector Landscape report based on the findings of the comprehensive sector survey, which will give a further perspective and wider overview on the strategic initiatives and their status of implementation. CRA has published also other reports, such as the CRA Annual Report that give an overview of the CRA Strategy implementation. |

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| 3. It would be helpful to know how the process will be defined for regular review and potential update of ICT descriptions, especially concerning emerging technologies and new possible activities | QDB<br><br>Ooredoo | The classification with be reassessed at every cycle of the ICT Sector Survey and updated if required, in line with technology trends, Qatar market development and as based on the input received from the industry. |

## ICT Classification

## General

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| 4. The principle of comprehensiveness should be balanced with the level of maturity of the sector in Qatar, and initially data should be collected at a more aggregate level | Vodafone | The classification as well as the use cases foreseen for it are developed based on a balanced approach along several dimensions. For example, we want to balance the need to measure the existing ICT activity with the need of understanding what activities we can do to support further development of the ecosystem. We are aware of the nascent nature of some segments of the industry; thus, we expect that the quality and granularity of data collected as well as the holistic usability of the classification along all use cases will improve as the ecosystem matures. |

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| 5. It would be useful to understand how the classification is future proof, especially when it comes to the definition of Emerging Technologies that will evolve over time | AWS [confidential] | The term Emerging Technology (ET} is widely adapted and understood as a reference to technology that has a development and/or application that is figuratively emerging into prominence. Although the classification indicates some categories that can be currently considered as ETs, it also leaves room for other types of ETs as they emerge (under the category Others). Furthermore, the classification will be reassessed and refreshed as needed at each cycle of the ICT Sector Survey. |
| 6. To enable comparability with other countries it would be useful for the CRA classification not to deviate extremely from other well-established classifications. For example, it would be useful to have an indication on how the proposed classification differs from the IDC Worldwide Black Book Taxonomy | Vodafone | The classification developed by the CRA takes some key international classifications as main references, including ISIC rev. 4, KSA's Information Technology/Emerging Technology Sector Classification and the IDC Worldwide Black Book Taxonomy. The resulting CRA classification builds on these references to incorporate best practices and tailor them to the context and needs of the local market, ensures that emerging technologies are reflected to future-proof the classification and adds a value chain dimension. The result is a classification that remains comparable with references, at least at the higher level (for example it has been |

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| | | mapped to the ISIC rev. 4 codes), while best capturing the Qatari market's specificities. Details on the IDC Black Book Taxonomy and a high-level comparison are provided in chapter "7.3 Classification Development Approach". There are further aspects on how the proposed classification differs from the IDC taxonomy, e.g., the proposed classification introduces the dimension of a clear-cut value chain, while IDC uses specific value chain steps, e.g., "buyer segment", on the same level as their other categories, e.g., "infrastructure" and "devices". |
| 7. The equivalence between the words telecommunications and communications used in the classification might not be appropriate as the communications sector does not correspond to the telecommunications sector or the IT sector | Ooredoo | We have accepted the comment and wording has been precised - substituted "communications" with "communications technology" across the document. |

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| 8. | Unclear which category should include submarine telecommunication cable connectivity. It would be beneficial to specifically mention sea cables in one of the categories to avoid ambiguity | GBI | As per the Classification, submarine telecommunications cable connectivity fall under C1: Telecommunication services, C2: Wired telecommunications services, C3 Data. This is now explicitly mentioned in the classification document. |
| 9. | Suggest Cloud Computing to have its own category or stack. It cuts across all four Category 2 dimensions. From experience grouping Cloud under Managed Services is not an accurate or scalable approach.<br><br>Alternatively, cloud computing should be added as a complementary emerging technology to edge computing. Similarly, we recommend adding data centers, cloud service providers, cloud service reseller, and cloud services aggregator. | Microsoft<br><br>QFZA | We have accepted the comments and cloud computing is added under Emerging Technologies Category 2 items (services, platforms and software, and hardware) together with edge computing and covers the associated activities mentioned.<br><br>We have updated references to cloud computing consistently across the document. |
| 10. | It is unclear why Emerging Technology is grouped under IT, while potentially there can be emerging technologies in CT (i.e., telecommunications) as well. | NCSA | The Emerging Technology category is utilized for specific innovative technologies – namely technologies that have been recently developed, are under development, or will be developed within the next few years, and that are creating, or are expected to |

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| | | create, significant social or economic effects. Whilst emerging technology linked to telecommunications has been identified, e.g., next-gen telecommunications networks, these would be included under IT, as they are not a telecommunication service itself. CT refers to telecommunication networks and services, i.e., aims to outline the segment of licensed telco service providers, only, and ET that fall specifically into this category have not been identified. That said, CT and IT are complementary categories rather than exclusive. This approach is subject to further assessments and updates in further regular cycles of classification reviews. |
| 11. Cybersecurity shouldn't be considered as Emerging Technology as it has been existing for a while. Potentially it should have its own Category 2 item, given that is a specialist domain. | NCSA Hamad International Airport | ET do not only identify new technologies, but also areas that have a potential strong future impact on the sector and have a current substantial growth of perceived relevance (i.e., areas that topic-wise have been existing for a while, but for which technological evolution and innovation is still predominant). While Cybersecurity for instance is not a specific technology itself, the term refers to the underlying technologies, i.e., technologies linked to the protection of computer systems and networks. These technologies continue to see strong innovation and substantial |

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| | | growth, as well as an unusually high level of importance for policy makers. Therefore, it receives its own Category 3 as part of ET. However, Category 2 descriptions are at a higher, more abstract level ("Traditional IT devices"), which is why something as specific as cybersecurity is not Category 2. |
| 12. It would be useful to understand if Operational Technology is out of CRA's strategy or also mandate, as we believe that if it is not covered by the CRA there is gap in the market | NCSA | As of now, Operational Technology (OT) is not one of the priorities considered by the CRA in its strategy and mandate, and as per current response by the industry stakeholders. However, we are further analyzing the sector and considering the need to include OT under the classification through the next revision cycle. |
| 13. Alignments to ISIC are needed with the ICT classification | MOCI | Each item at Category levels 1-3 in the ICT classification is mapped to relevant ISIC rev.4 codes 8 (see Table 8 in the Classification document). |

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| 14. There seems to be some overlap between "Application Development" under "Services" (Category 1) and "Application Development Software" & "Application Platforms" under "Software" (Category 2). Can you please explain the differences between the two? More generally, there seems to be some ambiguity about the difference between Category 1, "Services", and Category 2, "Software". The exclusiveness between these two categories is not very clear. | QFZA | We are happy to summarize the difference.<br><br>Services refer to any value chain activity in ICT-specific services. It contains a category 2 "Traditional IT, project-oriented services", which is defined as: Project-based IT services to 1) develop customized code sets to meet a client's business needs, 2) improve organizational IT performance, 3) deliver technical solution that addresses an organization's specific technical or business needs. The development of applications ("Application Development") falls under this category.<br><br>Software includes software for "Traditional IT application development and deployment" (Category 2), which are tools and platforms used primarily by developers to build, test, and deploy software as well as process, govern, and analyze data. |

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| 15. | The list is very wide and covers all ICT activities, however, most of them are not mapped as economic activities (e.g., consulting / advisory, trading (import, export, buying and selling), manufacturing, etc.)). For QFZ purposes, we may need to break them as economic activities to report them in the companies' licenses. | QFZA | The value chain (which does include both sales/distribution and manufacturing) and its intersection with ICT activities (one of which is IT consulting) is designed to provide insight into the economic activities in which ICT businesses are engaged. This should help support QFZ in identifying and reporting companies' economic activities. |
| 16. | We recommend mapping activities to the following ISIC codes, which are not represented:<br>4741 - Retail sale of computers, computer peripheral units, software and communications equipment in specialized stores<br>4321 – Electrical installations<br>6209 - Other IT and computer services activities<br>8545 – Computer training institutes<br>8020 – Security systems services activities | PSA | 4741: In the classification it was found more suitable to include 4651, wholesale of computers, computer peripheral equipment and software, to prevent inclusion of any business that might offer some form of consumer electronics<br><br>4321: This service is ancillary to the ICT sector and out of scope for this exercise<br><br>6209: Incorporated into Category 2, Other traditional IT services as well as Emerging Technology (ET) specific services<br><br>8545: Incorporated into Category 3, IT education and training |

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| | | 8020 – These activities typically refer to management of electronic security alarm systems and as such is not of direct pertinence to the ICT sector. |

## IT Services

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| 17. | Relating to the definition of Traditional IT managed services, what is the definition of "Long-term contractual arrangements", i.e., what is the time frame for long-term | Ooredoo | Managed services are defined as "long-term contractual agreements" in the sense that the service provided is provided in a recurrent manner, not ad-hoc/una tantum. |
| 18. | Concerning the Category 2, Other traditional IT services, it would be useful to provide an example to avoid classification errors | Ooredoo | The definition is left open-ended with the intent of being inclusive, exploring the sector and gathering a further detailed understanding of it, where relevant. This can be further refined during next revision cycles, with sector data at hand. |
| 19. | Concerning Category 3 items Technology Outsourcing and Systems and Network implementations: "Pro-active monitoring of System/Services" should be included in these categories | Hamad International Airport | We have accepted the comment and we will add the example. |

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| 20. | Concerning Category 3 item IT consulting, "Assessment of IT Infrastructure" and "Architecture and design of IT Infrastructure" should be included in this category | Hamad International Airport | We have accepted the comment and add these as per the suggestion. |
| 21. | Suggest adding a new Category 2 for Standards and Compliance with its own Category 3 classifications:<br><br>• Datacenter standards<br>• Tier Standards<br>• High availability and DR<br>• Industry standards such as ISO20k, 27k<br>• Cyber Security compliance | Hamad International Airport | Whilst standards and compliance-related topics are relevant for policymakers, these are not considered for a stand-alone category in which to structure further categories of technologies. |
| 22. | It would be useful to clarify if training and awareness activities are included under After Sales & Services or elsewhere | NCSA | From a category perspective, training and awareness is included under Category 1 Services, Category 2 Traditional IT Support Services, Category 3 IT Education and Training. |

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| 23. Concerning IT Consulting, it would be useful to understand if this also includes cybersecurity and privacy | NCSA | Yes, IT Consulting includes consulting services on these topics. |

## Hardware

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| 24. Concerning Category 2 item Traditional IT Devices, suggest rewording the Category 3 from "Mobile Phones" to "Phones" and include in the definition IP, Analogue and mobile phones. | Hamad International Airport | We have accepted the comment and implemented the change. |
| 25. Concerning Category 3 item Other Emerging Technologies (ET) hardware and infrastructure, include LTE communication with dedicated frequencies for organization | Hamad International Airport | We have accepted the comment and included the example. |

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| **Telecommunications Services** | | |
| 26. Concerning Category 2 Mobile and Category 3 Voice, this should include radars to detect commercial drones, frequency jammers, TETRA radio, VHF and UHF radio services | Hamad International Airport | The hardware technology highlighted would fall into the IT hardware categories – including radar, frequency jammer hardware, radio hardware, etc. |
| **Value Chain** | | |
| 27. Concerning the R&D step of the Telecommunications value chain, the example provided (i.e., identify network requirements and design and develop network structure) are not necessarily appropriate | Vodafone | We have accepted the comment and applied the required changes. |
| 28. The distinction between "Services" and "Value Chain" is not clear | Ooredoo | "Services" can be seen both from a category perspective and a value chain perspective. For the sake of clarity, the category "Services" is defined as activities of ICT-specific services (i.e., services that assist in the implementation, management, and operation of computer systems, network equipment, software, etc.). |

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| | | The value chain step "After sales support & services" applies to all categories, including the category "Services". For example, for IT this value chain step refers to support provided to a customer after the product or service has already been purchased; for CT it includes installations and claim handling, etc.. |
| 29. Concerning the IT//ET Value Chain activity Sales and Marketing, "Software licensing & pricing" should be added as an example activity that should be monitored by CRA | Hamad International Airport | We have accepted the comment and added the example. |
| 30. Concerning the IT/ET value chain, "Installation and implementation services" should be included in the value chain | Hamad International Airport | We have accepted the comment and added under After sales support & services in the value chain. |

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| 31. It may be worth considering an "Assembly" activity separately from the production & manufacturing. In the ISIC classification, assembly & manufacturing are referred to interchangeably because they both have the same economic impact; however, for the CRA's regulatory goals this may not be the case. | QFZA | At this point CRA's does not require differentiation between manufacturing and assembly, however, assembly has been highlighted as a component of manufacturing for clarity in the description of Manufacturing (hardware) / Development (software) in the value chain. |

## Use cases and data collection

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| 32. It is important to ensure that the new ICT classification is somewhat aligned with/can leverage the information collected through MDDD and RAS processes – to ensure different sources of information provide a consistent picture of the sector and to avoid duplication of effort from companies that have to provide data | Ooredoo | Comment is noted. The Classification for the ICT sector, building on top of existing regulatory instruments and data available, inclusive MDDD/RAS. Use cases of the Classification document are specified and with different focus and scope compared to the MDDD/RAS processes. Principles of data and information efficiency/non-duplication of efforts are observed – as much as CRA is owner of the classification and rest of the above-mentioned regulatory tools and processes, ultimately, duplication for data provision for service providers is not foreseen. |

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| 33. It would be useful to understand which type of information the CRA plans to collect to carry out the analyses/use cases enabled by the classification (i.e., which indicators will be tracked) and how the data will be collected (e.g., only through the annual survey?) | Ooredoo<br><br>Vodafone | The current scope of information collected by CRA based on the Classification is the range of ICT activities, products and services as provided by an ICT business in Qatar across all the three categories. Such information has been received by the ICT businesses through the first cycle of the CRA ICT survey already and is planned to be further collected regularly through the next cycles (every one-two years). |
| 34. Unclear whether the classification will be used for a comparison between Qatar and benchmarks | Ooredoo | The classification can be used for benchmark comparison, which was one of the key factors when developing it. However, comparisons at the most granular level are not found appropriate. For example, the classification can be mappable with ISIC codes which provides a certain level of comparability, depending on the data granularity available in selected benchmarks. However, before any conclusion is made through a benchmark analysis, the comparability between the CRA classification and the classification used/reported by the benchmark should be tested. |

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| 35. | The classification should not be used mechanically for market analysis and regulation, but the nuances of the sector should also be understood and taken into consideration (e.g., products under different categories can in fact be substitutes) | Vodafone<br><br>Ooredoo | The CRA fully agrees and understands the importance of capturing the nuances. Any quantitative and survey-based sector data collected leveraging the classification has been and will be complemented with a broader set of information deriving, for example, from interviews and workshops with industry stakeholders as well as secondary research and further analysis. |
| 36. | It would be useful to know if the classification categories and value chain activities will be mapped at MOCI registration level or will affect MOCI registration level (e.g., licenses and company registration) | QDB | The CRA is currently undertaking an alignment effort with MOCI with the objective of leveraging synergies between the CRA ICT classification and MOCI registration guidelines. The CRA does not intend to increase bureaucracy or limit players and at this point does not foresee an extra administrative burden for other entities. |
| 37. | Tenders are a possible use case for the classification and should be considered carefully upon finalizing the classification | MOCI | We are carefully assessing this point. One important note: the classification is not intended to limit industry players in participating in tenders, but rather provide to provide detailed information on the existing supply in Qatar for ICT products and services and to facilitate industry collaboration and development. |