

February 7, 2023

# Google response to BEREC report on NI-ICS interoperability

## Introduction

1. Messaging services provide enormous value to users, transforming the way they communicate with rich features and improved security. However, consumers are harmed by the lack of contestability and interoperability in this market. This is why the Article 7 DMA requirement for gatekeepers' core platform services to facilitate messaging interoperability with competing service providers is both timely and necessary.<sup>1</sup>
2. In recent years, Google has sought to improve the default SMS messaging experience for users for all mobile devices, regardless of operating system, through the implementation of Rich Communications Services (**RCS**). However, attempts by mobile operators, GSMA, and Google to secure interoperability between Android and Apple devices have so far been unsuccessful.<sup>2</sup>
3. In its draft report on interoperability of Number-Independent Interpersonal Communication Services (the **Report**), BEREC rightly observes that the market for messaging services is concentrated,<sup>3</sup> and that even where users multi-home, there is a tendency to rely on a small number of messaging platforms.<sup>4</sup> This is due to the presence of "*strong proprietary network effects*" and the limitation of messaging services to platform-specific ecosystems.<sup>5</sup> These features lead to entry barriers for alternative providers of such services and increase the costs for users to switch.
4. Google welcomes the opportunity to provide comments regarding the appropriate technical approach to the implementation of Article 7, with the focus on improving contestability for messaging services.<sup>6</sup> In particular, the relevant technical solution should:
  - Build upon common, accessible, industry-wide standards that enable all

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<sup>1</sup> See [Digital Markets Act](#), Recital 64; and [BEREC Report](#), Section 3, p. 10.

<sup>2</sup> See [Apple can fix the messaging between Androids & iPhones | Android](#).

<sup>3</sup> See BEREC Report, Section 4.1, pp. 12-13.

<sup>4</sup> See BEREC Report, Section 4.3, pp. 14-15.

<sup>5</sup> See BEREC Report, Section 3, pp. 10-11; and DMA, Recital 64.

<sup>6</sup> While the Report also discusses Article 61(2) EECC, Google's comments at this stage are limited to the implementation of Article 7 DMA.

providers of messaging services to obtain *effective* interoperability with gatekeepers' services, while providing the necessary levels of encryption and security ([Section I](#)). [REDACTED]

- Provide for interoperability with the *full range of functions* needed to make non-gatekeeper messaging services attractive to consumers, and overcome barriers that entrench established network effects ([Section II](#)).
5. Google is ready and willing to work with other industry participants to develop common standards to achieve effective interoperability under Article 7 DMA ([Section III](#)).
  6. Finally, we provide our comments on the proposed content of gatekeepers' reference offers as set out in Section 6.3 of the Report ([Section IV](#)).

**I. Effective interoperability under Article 7 can only be achieved through the use of common standards**

7. To overcome the dynamics present in the market for messaging services, willing implementers must be able to obtain *effective* interoperability with gatekeepers' services, while maintaining the necessary levels of encryption and security. This objective will not be met if gatekeepers subject to Article 7 each develop distinct API-based solutions for interoperability, or through the use of bridges, which will both result in prohibitive costs for implementers and diminished user security.
8. The most simple and cost-effective solution is a common standard for messaging interoperability. Such a solution would also enable security features such as E2EE.<sup>7</sup> This approach is consistent with preserving space for messaging services to innovate and differentiate themselves with new features.

**A. Non-standard APIs would render interoperability too costly and complex**

9. Unless the Commission mandates the adoption of common standards for interoperability, Google agrees with BEREC's conclusion that "*there is no technical reason for different key providers or gatekeepers to use a common set of APIs*".<sup>8</sup> But if gatekeepers do each provide for interoperability based on distinct, proprietary APIs, these different technical solutions risk rendering "*the implementation effort greater than the benefit of interoperability*" for many willing implementers.<sup>9</sup>

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<sup>7</sup> While Google also recognises that APIs, bridges and standardization are not mutually exclusive (as bridges rely upon APIs, and a standard may refer to an API- or bridge-based technical solution), for convenience, we adopt these terms as used by BEREC. See BEREC Report, Section 5.2.1.2, pp. 19-20; and Section 5.2.2, p. 21.

<sup>8</sup> See BEREC Report, Section 5.2.1.1, p. 18.

<sup>9</sup> See BEREC Report, Section 5.2.1.1, p. 19.

10. The cost, particularly for smaller providers, of implementing different technical specifications for interoperability with each gatekeeper's designated service is likely to be prohibitively high, which would undermine the goal of enhanced contestability:
- While gatekeepers cannot charge implementers for interoperability with their services,<sup>10</sup> implementers will be required to invest significant time and engineering resources to build the necessary connectivity. This will necessarily entail considerable up-front costs, and require many months of engineering effort if each gatekeeper provides a different technical solution. There will also be non-negligible recurring costs associated with maintaining interoperability over time, particularly if gatekeepers regularly update their solutions as the Report notes is likely to occur.<sup>11</sup>
  - Smaller providers may therefore be forced to interoperate with only a limited number of gatekeeper services. Implementers are likely to choose the gatekeeper services with the largest number of users (to benefit from their established network effects), or those for which interoperability is least costly. This may in turn further entrench the market power of these gatekeepers by strengthening the network effects they currently enjoy.
11. The complexity inherent in reconciling different gatekeeper implementations of interoperability may also frustrate the effectiveness of Article 7, particularly with respect to the group messaging and E2EE that gatekeepers are required to facilitate under Article 7(2)(b) and (3):
- Implementers will struggle to reconcile potentially contradictory requirements. In the best-case scenario, this will be time-consuming and expensive, with the attendant risks described above. Additionally, including multiple different technical solutions in implementers' apps will also increase the apps' size, limiting installs to mobile devices with sufficient memory and computing power. It will also make implementers' apps brittle and more liable to experience performance issues. Finally, maintaining a number of different technical solutions for interoperability with gatekeepers' services will require detailed, specialized knowledge, which again will be especially difficult for smaller providers.

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<sup>10</sup> Art. 7(1) DMA states that "a gatekeeper [...] shall make the basic functionalities of its number-independent interpersonal communications services interoperable [...] upon request, and free of charge."

<sup>11</sup> The Report in fact recommends, for this reason, that a "process for changing or updating the relevant protocols [...] is necessary [...] to allow third parties stable interactions." See BEREC Report, Section 5.2.1.1, p. 19. See also, for example, BEREC Report, Executive Summary, p. 2: "BEREC believes that it is crucial to include an appropriate updating mechanism, allowing for adding new functions, quickly closing security gaps and at the same time enabling all market participants to be informed in due time about future changes."

- In some instances, including for E2EE, in particular, it will be impossible to reconcile different technical specifications. As BEREC notes, “*encryption could in theory be interoperable and allow different services to communicate securely*” but “*to achieve this, a common standard must be set first*” including “*in the case of an API approach to interoperability.*”<sup>12</sup> Contradictory protocols will render E2EE inoperable, leading to security and privacy risks. Absent industry agreement or public intervention, gatekeepers will seek to rely on different encryption protocols.<sup>13</sup> These concerns are also particularly acute for group messaging, which may contain users of several different services.<sup>14</sup>
- Gatekeepers are also likely to offer interoperability with non-equivalent feature sets, making it difficult for implementers to provide a consistent UX and leading to a confused and frustrating experience for end users. While it is necessary to ensure that messaging services remain able to innovate and differentiate themselves with new features, the implementation of interoperability should not be at odds with a smooth and user-friendly messaging experience. Gatekeepers should therefore provide the minimum set of features for effective interoperability, discussed in more detail in [Section II](#) below. (Examples include the ability to add or remove users from group chats, or to directly react to particular messages. Again, such issues are likely to be notable for group messaging, where users from different services, each with different interoperable features may be present.)

## **B. Bridges will not provide the required levels of user security and privacy**

12. BEREC discusses bridges as another way to enable interoperability between messaging services. In essence, a bridge acts as a separate “translation service”, implementing the protocols of the interoperating messaging services and translating their respective messaging feeds, enabling communication between two or more providers.<sup>15</sup>
13. Bridges do not effectively resolve the concerns raised above regarding distinct, proprietary APIs by gatekeepers:
  - While bridges may appear more efficient, simplifying “*communication among several different messaging services*”,<sup>16</sup> implementers will in reality still be

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<sup>12</sup> See BEREC Report, Section 5.2.1.2, p. 20.

<sup>13</sup> See BEREC Report, Section 5.3.3, p. 24: “*At the moment, different levels of encryption exist for different messaging services. [...] At the moment, there is no common standard for the exchange of cryptographic keys or encryption commonly supported by all providers of messaging services.*”

<sup>14</sup> See BEREC Report, Section 5.2.1.2, p. 20.

<sup>15</sup> See BEREC Report, Section 5.2.1.2, pp. 19–20.

<sup>16</sup> See BEREC Report, Section 5.2.1.2, p. 20.

required to perform end-to-end interoperability testing with gatekeepers' services. As such, the cost and complexity implications of interoperating with multiple different technical solutions will remain high.

- With regards to E2EE encryption, it may be possible for third-parties to pass encrypted messages between parties using the gatekeepers' chosen protocols, as, by definition, decryption is performed by the client app. But Google agrees that certain types of bridge may result in the provider being able to "access communication content", resulting in a "weakened security level." This may pose "challenges in terms of user transparency with regard to data protection and security" as users may not be aware that they are communicating via a bridge.<sup>17</sup>
- Moreover, if gatekeepers rely on different encryption protocols, decryption will remain technically complex, or even impossible, for the reasons described in the first bullet under paragraph 10 above.

14. It is also unclear what the commercial incentive would be for a third-party to provide effective bridges for the free personal messaging services provided by gatekeepers and implementers.

### **C. Common standards are required for effective messaging interoperability**

15. Adopting a common standard for messaging interoperability would provide a cost-effective, accessible, and secure way to meet the objectives of Article 7, while avoiding the disadvantages inherent to proprietary API or bridge-based solutions:

- By reducing the number of technical solutions willing implementers would be required to build to one, a standardization solution would significantly ease the cost and technical complexity of effective messaging interoperability with all gatekeeper messaging services.<sup>18</sup> Aside from the costs associated with implementing multiple different reference offers, a standard would also greatly facilitate "common understanding of the technical implementation", further reducing barriers to interoperability for gatekeepers and implementers alike.<sup>19</sup> As discussed above, this will be especially significant for small and nascent competitors in this space and is a requirement to ensure increased contestability for messaging services.
- Gatekeepers also stand to benefit from standardization, as a common model would reduce the resource cost of developing and supporting interoperability

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<sup>17</sup> See BEREC Report, Section 5.2.1.2, p. 20; Section 5.3.3, p. 25; and Section 6.3, p. 31.

<sup>18</sup> See BEREC Report, Section 5.3.1, p. 22.

<sup>19</sup> *Ibid.*

with implementer services.

- Standardization is also the only viable route to ensure that E2EE is maintained across interoperating services, as the Report recognises.<sup>20</sup> As discussed above, this is particularly so in the context of group messaging, where the users of multiple services may be involved in the same chat. Standardization is therefore also the only path to compliance with the letter and spirit of Article 7(3), which requires gatekeepers to extend to implementing services the “*same level of security, including end-to-end encryption, where applicable, that the gatekeeper provides to its own end users.*”
- Moreover, as the Report notes, “*the introduction of interoperability leads to the sharing of (communications and meta-) data among the different service providers.*”<sup>21</sup> In this sense, the coexistence of distinct APIs with different sets of requirements would increase the number of data points collected by service providers (including but not limited to data for unique identification and authentication). Only standardization allows the possibility of a “*privacy-by-design*” approach that reduces data collection to a minimum, as put forward by BEREC.<sup>22</sup>
- Standardization also provides for a clear and well-defined framework for the licensing of any intellectual property rights (IPR) required by implementers to build interoperable messaging. The solutions offered by gatekeepers may require the use of proprietary technologies. Article 7(1) explicitly requires gatekeepers to provide “*the necessary technical interfaces or similar solutions that facilitate interoperability [...] free of charge.*” While this presumably extends to necessary IPR owned by gatekeepers, it is less clear whether implementers would be required to license any IPR belonging to third parties. If so, this may result in complex and costly negotiations with such IPR holders. Moreover, the precise scope for which implementers will be permitted to use gatekeeper IPR may be unclear, raising the prospect of infringement claims. Standardization through one of the European Standardization Bodies would ensure that any IPRs required for interoperability are disclosed, known, and licensed in FRAND terms to all willing implementers.<sup>23</sup>
- Finally, the technical solution followed by gatekeepers “*also determines which functions are made available in an interoperable way.*”<sup>24</sup> Without a common

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<sup>20</sup> See BEREC Report, Section 5.3.1, p. 24; and Section 5.4, p. 28.

<sup>21</sup> See BEREC Report, Section 5.3.3, p. 23.

<sup>22</sup> See BEREC Report, Section 5.3.3, pp. 23-24.

<sup>23</sup> See, e.g., ETSI’s Rule of Procedure, [Annex 6: ETSI Intellectual Property Right Policy](#).

<sup>24</sup> See BEREC Report, Section 5.3.1, p. 21.

understanding as to the features that will be made interoperable, there is a risk that gatekeepers will provide interoperability with different aspects of their service, resulting in misalignment and a frustrating user experience with interoperability, as explained above. By its nature, standardization would allow the industry to precisely define the minimum requirements for an effective implementation.

#### **D. Innovation and dynamism can be preserved with common standards**

16. The Report also raises valid concerns regarding interoperability based on common standards, including that their adoption could limit the pace of innovation,<sup>25</sup> the time and effort required to develop standards,<sup>26</sup> and that updating standards can be difficult.<sup>27</sup> While Google recognises some of these challenges, standard-setting remains necessary as a common standard is the only viable path to effective interoperability that meets the requirements of Article 7 for the reasons described above:

- Standardization does not limit innovation. As the Report notes, a differentiated approach to standardization, where only certain functions are standardized, would still enable providers of messaging services to develop proprietary features distinguishing their offerings from competitors.<sup>28</sup> Google agrees that email services provide a concrete example of such an approach.<sup>29</sup> So too, do HTML and Javascript, which have provided a stable base for web browsing, while leaving room for innovation across browsers.

The same approach could be taken for messaging, standardizing the minimum features necessary for effective interoperability,<sup>30</sup> while leaving service providers room to innovate with features such as smart reminders, nudges, scheduled send, and integrations with other products.

- Regarding updates, Google agrees with BEREC that regardless of the chosen approach to interoperability, a mechanism for updating gatekeeper's implementations will be required.<sup>31</sup> Difficulties regarding updates to the relevant

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<sup>25</sup> See BEREC Report, Section 5.3.2, p. 22.

<sup>26</sup> See BEREC Report, Section 5.4, p. 27.

<sup>27</sup> See BEREC Report, Section 5.3.3, p. 25.

<sup>28</sup> See BEREC Report, Section 5.3.2, p. 23. See also [Section II](#) for further discussion of the scope of interoperability.

<sup>29</sup> See BEREC Report, Section 5.3.2, p. 22.

<sup>30</sup> See discussion in [Section II](#) below.

<sup>31</sup> See BEREC Report, Section 5.3.3, p. 26.

technical specification(s) are therefore inherent to all plausible approaches. Our view is that the burden for implementers of implementing and reconciling updates to distinct gatekeeper solutions would far outweigh disadvantages associated with a relatively more stable common standard.

## II. Gatekeepers should provide interoperability with the full range of functions needed to make alternative messaging services attractive to consumers

17. The Report rightly notes that the “*adoption of messaging services next to telephony and SMS*” is “*driven by the added features and functions these services offer*” rather than their cost or improved ability for user communication.<sup>32</sup> Google strongly agrees with the Report’s observation that unless the technical solutions provided by gatekeepers include interoperability with the “*full range of functions*” users expect from a modern messaging service, “*users are more likely to opt for the [gatekeeper] service that includes [these functions]*.”<sup>33</sup>
18. To meet the Commission’s stated objective of improving contestability for messaging services, it is therefore crucial that “*the range of functions provided is large enough to make the interoperable services attractive to users.*”<sup>34</sup>
19. Below we describe some of the technical features required to effectively break the self-reinforcing networks effects enjoyed by gatekeepers, which cause lock-in and result in “*lower competition between providers of messaging services as well as limited contestability.*”<sup>35</sup> These features are closely related to the *effectiveness* of the “*basic functionalities*” expressly defined in Article 7. As such, these features should be considered as required by the DMA to ensure the effective implementation of this provision. They have also reached a level of maturity such that their standardization would not unduly limit service providers’ ability to innovate and differentiate their product offerings.
  - **E2EE.** Article 7(3) requires gatekeepers to extend to interoperable third-party messaging services the “*level of security, including end-to-end encryption, where applicable, that the gatekeeper provides to its own end users*”. This is critical, as in Google’s experience, security is a significant parameter of competition for messaging services. As discussed in [Section I](#) above, effective E2EE can only realistically be achieved through the development of a common standard.

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<sup>32</sup> See BEREC Report, Section 3, p. 10.

<sup>33</sup> *Ibid.*

<sup>34</sup> See BEREC Report, Section 5.3.1, p. 22.

<sup>35</sup> See BEREC Report, Section 3, p. 10.



- **Effective group messaging.** Article 7(2)(c) requires gatekeepers to provide interoperability for text messaging and the sharing of media files between groups of users. As BEREC’s Report notes, this is especially important as group features strongly reinforce network effects “as switching from an application to another could entail significant coordination costs” for users.<sup>36</sup> Google agrees that unless group messaging is effectively interoperable, “when one member of a group chat wants to switch to a different service, all participants in a group chat on a specific messaging service should switch, if users want to keep communicating to all the members of the group.”<sup>37</sup>

To undermine these lock-in effects it will be necessary for interoperability to extend to the full range of features expected by users of group messaging, including also the ability to add or remove members, and editing the group’s name, description and profile image.

- **High quality images and video.** Article 7(2) and (3) DMA provide for gatekeepers to facilitate interoperability for the “sharing of images, voice messages, videos and other attached files” between individuals and groups. It is necessary in our view, that users of interoperable services are able to send and receive such media files in the same way as users of the gatekeeper service, including with respect to media quality and delivery speed.
- **High quality display of messages.** Gatekeepers should display messages received from third-party services in a format that is as usable and accessible as the display of messages sent from the gatekeepers’ own service. Gatekeepers may understandably wish to visually distinguish messages sent from their own service. But the current market dynamics identified by the Report will not be remedied if such differentiation deliberately frustrates users’ engagement with messages from third-party services.

As an example, Apple currently displays messages from non-iOS devices in ‘green bubbles’ that are considerably harder to read than the ‘blue bubbles’ reserved for messages from other iOS users.<sup>38</sup> The green chosen by Apple scores as “very poor” under the Web Content Accessibility Guidelines (**WCAG**) set by the W3C (the main international standards organization for the Internet).<sup>39</sup> This also violates Apple’s own human interface guidelines, which are based on

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<sup>36</sup> See BEREC Report, Section 3, p. 10.

<sup>37</sup> *Ibid.*

<sup>38</sup> See [Apple can fix the messaging between Androids & iPhones | Android](#).

<sup>39</sup> See Medium, [One trick Apple uses to make you think green bubbles are gross](#).

the WCAG.<sup>40</sup> The poor readability of green bubbles is especially harmful for visually impaired users, but also when screen visibility is low due to bright sunlight or low screen brightness. The difference between green and blue bubbles has been found to have a highly stigmatizing effect on non-iOS users, and deters them from switching.<sup>41</sup>

- **Rich messaging features.** For users to view non-gatekeeper services as a true alternative to gatekeeper services, they must include the “*full range of functions*” users expect from a modern messaging service:
  - i. Delivery/Read receipts, *i.e.*, a message/symbol that appears when a message has been delivered to the recipient’s device and when it has been read by the recipient.
  - ii. Typing indicators, *i.e.*, a message/symbol that appears to indicate that a user is typing.
  - iii. Replies and reactions, *i.e.*, the ability to send a message referring to a previous message in the chat, and the ability to “react” to messages with an “emoji”.
- **Messaging over data.** Gatekeepers’ services should provide for interoperability with implementers’ services over all connections, including Wi-Fi and mobile data. This is crucial if users are to be able to communicate quickly and reliably. For users to view smaller messaging services as a true alternative to gatekeeper services, it is vital that messages to and from these services are delivered as effectively, and at the same speed as those between two users of a gatekeeper’s service.

### III. Google is ready and willing to work with other industry participants to develop a common messaging standard

20. Google has long worked towards greater interoperability for messaging services by promoting the adoption and availability of the RCS specification developed by the GSMA (an industry organization representing the interests of mobile network operators)<sup>42</sup> and global Mobile Network Operators (**MNOs**), and continues to engage with the ecosystem to define actionable routes to effective messaging interoperability. **[REDACTED]**
21. Google is open to further exploring these ideas with BEREC and contributing its experience and insight to the ongoing discussions around the implementation of

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<sup>40</sup> See [Apple Developer | Human Interface Guidelines | Foundations | Color](#).

<sup>41</sup> **[REDACTED]**

<sup>42</sup> See <https://www.gsma.com/>.

messaging interoperability under the DMA. Developing the standards needed to enable interoperability will only be possible through a collaborative effort of the entire ecosystem, including not only gatekeepers but also other relevant stakeholders in the telecommunications and technology industry, including other providers of messaging services and MNOs. We are keen to begin such collaboration as soon as possible in light of Article 7 DMA's fast-approaching entry into force.

22. In our view, it would be possible to expedite the standardization process by working with established industry bodies such as the GSMA and its membership. Google has recent experience in doing so with the RCS Universal Profile where, in partnership with industry stakeholders within the GSMA, we successfully converged a number of disparate versions of the specification to define a single 'profile' to enable global interoperability.
23. A number of potential routes exist to adopt an effective common standard to facilitate Article 7 DMA:
  - Google would be willing to work with other industry participants on the voluntary adoption of a common technical implementation for interoperability for *de facto* standardization.
  - Google would strongly support the Commission's exercise of its competence under Article 46 DMA to adopt implementing measures proscribing the "*operational and technical arrangements*" and the "*form, content and other details of the technical measures that gatekeepers shall implement.*"
    - i. In theory, the Commission could oblige gatekeepers to adopt an existing standard. In our view, there is currently no well-established industry standard that meets the requirements of Article 7 DMA, though one could be developed by industry participants as described above. This is likely to be the quickest and most effective route to the adoption of common standards.
    - ii. The Commission could also mandate a European standardization body (such as ETSI) develop a Harmonized Standard to support the implementation of Article 7 under Article 48 DMA.<sup>43</sup>

#### **IV. Comments on gatekeeper reference offers**

24. Google welcomes BEREC's clear recommendations regarding the contents of gatekeeper reference offers.<sup>44</sup> In addition to the requirements outlined in the Report, gatekeepers should also be required to include the following to ensure the effective implementation of Article 7 DMA:

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<sup>43</sup> See Recital 96 DMA.

<sup>44</sup> See BEREC Report, Section 6.3, pp. 31-32.

- **Disclosure of the necessary IPRs for interoperability.** The “*technical definition and documentation*” of the relevant technical solution should also disclose any IPR implementers would be required to rely upon. As discussed above, standardization would both simplify the disclosure of essential patents and provide for a clear licensing framework.
  - **Spam and abuse protections.** “*Access controls,*” “*data security rules*” and/or “*rules on dynamic adjustments*” should also clearly cover gatekeeper’s planned spam and abuse protections. This will be important for implementers to effectively ensure that messages from their services are not wrongly caught by such controls, frustrating interoperability.
  - **Support for implementers.** The Report cites “*details on necessary interoperability tests*”, which should also enable implementers to seek technical support from gatekeepers. In Google’s own experience with the implementation of RCS, it has often been necessary to work closely with partners to resolve technical issues. Gatekeepers should provide a similar level of support, with a help desk or other point of contact to assist implementers’ initial integration with gatekeeper services as well as day-to-day troubleshooting.
25. More generally, the adoption of a common standard would greatly simplify a “*common understanding of the technical implementation*” for interoperability,<sup>45</sup> harmonizing many of the requirements for reference offers, including: the description of the service and specification of the relevant basic functionalities, the technical definition and documentation of relevant interfaces and standards, and data protection and security rules.

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<sup>45</sup> See BEREC Report, Section 5.3.1, p. 22.