



[FREE TRANSLATION]

**NOTICE N°2023-A-02 OF JULY 24, 2023
ON THE DETERMINATION OF DEPLOYMENT AND FINANCING CONDITIONS
TELECOMMUNICATIONS NETWORKS ON SPARSELY POPULATED ISLANDS
FRENCH POLYNESIA**

The Polynesian Competition Authority,

Having regard to the letter received on April 25, 2023, registered under number 23/0015 A, by which the President of French Polynesia referred the matter to the Polynesian Competition Authority (the "Authority") for an opinion on the determination of the conditions for the deployment and financing of telecommunications networks in the sparsely populated islands of French Polynesia;

Having regard to the Polynesian Competition Code and in particular article LP. 620-1 ;

Having regard to the other documents in the file;

The Deputy General Rapporteur and the General Rapporteur heard on the basis of the provisions of article LP. 630-5 of the French Competition Code at the meeting of July 24, 2023;

Is of the opinion to respond to the request presented in the sense of the following observations:

I. INTRODUCTION

1. By letter dated June 23, 2023, registered on June 27 (referral) and June 28, 2023 (attachments), under number 23/0015 A, the President of French Polynesia referred the matter to the Polynesian Competition Authority (hereinafter "the Authority") for an opinion on determining the conditions for deploying and financing telecommunications networks in the less densely populated islands of French Polynesia, and on the segmentation methodology between densely populated and less densely populated areas.
2. Consulted on the basis of the provisions of I and 3° of II of article LP. 620-1 of the French Competition Code, the Autorité can give its opinion on "*any question relating to competition*", but also, more specifically, "*in the context of regulating a sector where competition is lacking, with the aim of ensuring the opening up and smooth operation of the markets concerned, to the benefit of the end consumer*", which includes in particular the question of "*setting public tariffs for connection or interconnection to networks*".
3. In particular, it wishes to ensure that the proposed segmentation methodology between dense and sparsely populated areas respects the principle of effective and fair competition between the three operators in the mobile telephony and fixed Internet markets.

II. CONTEXT

A. THE LEGAL FRAMEWORK FOR THE TELECOMMUNICATIONS SECTOR

1. GENERAL FRAMEWORK

4. The telecommunications sector in French Polynesia is governed by the French Polynesia Post and Telecommunications Code (hereinafter the "CPT")¹. For a long time, the sector was organized around the incumbent, public and integrated operator, the Office des Postes et des Télécommunications (hereafter "OPT"). However, the sector was opened up to competition in 2003.
5. The new system is based on the following key elements:
 - opening up mobile telephony (voice, SMS and data) and Internet access to competition;
 - a public telecommunications service provided by the incumbent operator, OPT, through its subsidiary SAS Onati, which retains a de jure monopoly on external links (voice and data) and fixed networks (submarine cables, copper and fiber optic networks);
 - an authorization system for telecoms operators competing with the incumbent operator, both for mobile telephony and Internet access, accompanied by specifications covering their deployment obligations;
 - the coexistence of a regulatory framework for certain wholesale tariffs (such as interconnection between operators) and tariff freedom for others (such as roaming);
 - regulation under ordinary law by the Council of Ministers, after technical instruction by the Directorate General for the Digital Economy (hereafter "DGEN") and, in several cases, after consulting or informing a Telecommunications Consultative Committee (hereafter "CCT"). In

¹ <http://lexpol.cloud.pf/LexpolAfficheTexte.php?texte=181953>.

particular, the government is responsible for ensuring that the conditions for opening up the market to competition are met. Article D. 212-2 of the CPT stipulates that :

"The competent authorities of French Polynesia shall ensure : / (...) 2° The exercise of effective and fair competition between mobile telecommunication service operators (...) for the benefit of users; / 3° the definition of conditions of access to networks open to the public and of interconnection of networks, in particular for mobile telecommunication services, which guarantee the possibility for all users to communicate freely with each other, as well as equal conditions of competition in the field of mobile telecommunication services; (...) / 6° encouraging the shared use between operators of the facilities mentioned in chapter 1^{er} of title III. "

2. ROAMING

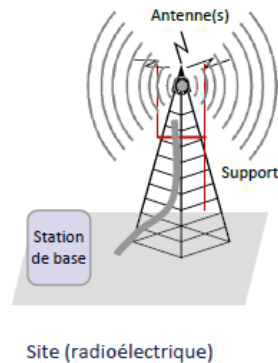
6. According to article D. 211 of the CPT, mobile roaming is the service "*provided by one mobile telecommunications service operator to another mobile telecommunications service operator to enable the latter's customers to roam on the former's network*".
7. Article D. 212-26 of the CPT stipulates that "*(...) In the following cases, the mobile telecommunications service operator may be required to comply with a reasonable request for roaming services made by another mobile telecommunications service operator: / a) When roaming is provided between two mobile telecommunications service operators authorized in French Polynesia, they may be required, in the general interest, to enter into a roaming agreement; / b) A mobile telecommunications service operator wishing to offer its subscribers roaming services in French Polynesia is entitled to enter into such an agreement. / If the parties reach an agreement within two months of the date of the request, the roaming agreement entered into by the operators is communicated to the administration. In the event of disagreement, the latter will ask the parties for their positions, with the aim of reaching an amicable agreement; failing this, the Council of Ministers will set the roaming terms.*
8. Roaming for local operators is therefore a service whose terms are initially freely negotiated between operators, but which, in the event of disagreement, can be mediated and ultimately determined by the government.

3. CELL PHONE ACCESS TECHNOLOGIES

9. When it comes to mobile telephony, different technologies offer different levels of performance:
 - GSM (which requires the deployment of a 2G network): this does not allow Internet access or downloading of large files (over 700 Mbits), but essentially voice calls, SMS, MMS and possibly limited access to e-mail.
 - UMTS (3G): in addition to voice calls, SMS and MMS, it provides Internet access.
 - LTE (4G): in addition to voice calls, SMS and MMS, this enables high-speed Internet access.
 - 5G is not available in French Polynesia.
10. Deploying a² local loop on an island first requires interconnection with the backhaul network (transporting data to and from the island in question), then the deployment of sites for transmitting and receiving data to mobile terminals. These sites comprise passive infrastructures established on the ground or on a surface

² In this case, the local access network, i.e. the part of the telecommunications network between the interconnection point with the backbone network and the end subscriber terminal.

above ground, on which active elements are installed to generate the radio waves, most often in the form of towers and antennas.³



11. Since it is not always economically justified to have a separate local network for each operator, there are various ways of sharing physical networks, where one operator makes its frequencies or certain facilities available to another. Roaming is one of these methods.⁴
12. From the least to the most integrated:
 - Passive infrastructure sharing: joint use of all or part of passive infrastructure elements such as masts or coaxial cables linking antennas to base stations. At each shared site, each operator deploys its own active equipment and antennas, and uses its own frequencies.
 - Antenna sharing: pooling of radiating elements or antennas in addition to passive infrastructure. However, it still allows each operator involved in sharing to use its own frequencies.
 - Sharing of active installations: pooling of active elements such as electronic or optical signal processing devices, with different arrangements depending on whether or not frequencies are shared.
 - Roaming: a mobile network operator welcomes the customers of another mobile network operator onto its own network.
13. Roaming is therefore the most integrated form of infrastructure sharing, in which the customer makes full use of the provider's equipment and frequencies. The host operator's investments in the territories concerned may be limited to its core network and interconnection equipment.

4. FIXED-LINE INTERNET

14. OPT has a monopoly on the deployment and operation of fixed Internet access networks, whether copper (ADSL) or fiber optic. It has delegated this activity to its subsidiary Onati, which is also an Internet service provider.
15. Internet access provision is open to competition. In addition to Onati, the other two operators use the fiber optic network to offer their services. At the same time, they have also developed a business providing home Internet access via their 4G network.

³ ARCEP, Lignes directrices, Partage de réseaux mobiles, May 2016, pages 6 et seq.

⁴ Ibid.

5. NETWORK MAPPING

16. Since 2010, the main islands of the Society archipelago have been served by the Honotua submarine cable (in its domestic part, the same cable is also the access point to the international network from Hawaii). It has enabled the rollout of broadband in French Polynesia. The islands of Tahiti, Moorea, Huahine, Raiatea and Bora Bora are directly served by the cable. The islands of Maiao, Tetiaroa, Tahaa and Maupiti are served by microwave links from the main islands.
17. The other archipelagos, on the other hand, were until December 2018 only served by satellite links, not allowing broadband access.
18. Since December 18, 2018, the Natitua cable has been deployed from Tahiti to ten islands in the Tuamotu and Marquesas archipelagos. Between May and October 2019, ten additional islands were connected to Natitua via microwave links from the islands connected by Natitua, enabling faster data access than by satellite.
19. Two islands in the Australes archipelago, Tubuai and Rurutu, have also been linked to Tahiti by a high-speed submarine cable (Natitua Sud). Deployment of the local loop and marketing of offers will take place in the coming months.
20. The other islands, and in particular the southern part of the Tuamotu-Gambier archipelago, are still served by satellite, but have no broadband access to date (2G network).



B. TELECOMMUNICATIONS OPERATORS

1. THE OPT GROUP AND SAS ONATI

21. The Office des Postes et des Télécommunications (OPT) is a French Polynesian public establishment of an industrial and commercial nature (EPIC). OPT's Board of Directors comprises nine members with

voting rights⁵, including i) OPT's Managing Director, who chairs the Board, ii) the following seven representatives of French Polynesia: the Minister in charge of posts and telecommunications, the Minister in charge of communications⁶, the Minister in charge of tourism, the Minister in charge of the economy, the Minister in charge of planning, the Chairman of the legislative commission in charge of the economy and the Chairman of the legislative commission in charge of the digital economy, and iii) the employee representative or his/her alternate. The Director General of the OPT is appointed by decree of the Council of Ministers.

22. Prior to 2011, the only operators in both mobile telephony and Internet access were OPT subsidiaries, notably Tikiphone, which received its first license in 1994, and Mana, taken over in 2013 by SAS Vini, since absorbed by Onati. Since then, the market has opened up. However, OPT still has a legal monopoly on wireline infrastructure and outside telecommunications.
23. Since 2019, telephone telecommunications and internet access services, both wireline and mobile, as well as network deployment and management activities for other operators and end consumers, have been the responsibility of a single subsidiary, SAS Onati, created on November 5, 2018, whose sole shareholder is OPT.
24. Onati now handles all wholesale and retail activities in fixed and mobile telephony, as well as Internet access.
25. While the deployment of the backbone network is therefore a monopoly of Onati, the deployment of the local loop (towers and antennas) is free, subject to recognition as a telecommunications operator and allocation of frequencies by the Council of Ministers. However, thanks to its long history, Onati is the only company to have deployed its network on all the inhabited islands of French Polynesia, at least in part using public funds. It is therefore in a position to offer local loop access (stations, antennas and frequencies) on islands where other operators have not deployed their own networks. In most cases, this access involves the use of roaming services to initiate or route calls to the end user.

2. PACIFIC MOBILE TELECOM (PMT)

26. PMT obtained an authorization to establish and operate a telecommunications network and provide a mobile telecommunications service open to the public in November 2010, and authorizations to use radio frequencies for GSM and UMTS in 2013. PMT began operations on June 17, 2013, marketing 2G, 3G and later 4G mobile service offerings under the Vodafone Polynesia brand name.
27. Authorizations to transmit were conditional on the presentation of a deployment schedule, which does not represent the operator's actual deployment status. To date, PMT has only deployed its own network on the Society Islands of Tahiti, Moorea and Bora Bora, as well as on Huahine and Raiatea. On the other islands, PMT either uses the roaming services offered by Onati (this is the case for voice and SMS on all islands not covered by its own network), or does not offer its services (this is the case for mobile data).
28. PMT also provides internet access (4G and optical fiber).

3. VITI

29. SAS Viti, registered in 2009, initially operated as a fixed-line internet service provider, after obtaining a license in 2010 and marketing its offers from July 2011 (in 4G and fiber optics).

⁵ Order no. 1244 CM of September 2, 2015 amending the rules of governance of the Office des postes et télécommunications.

⁶ Arrêté n° 215 CM du 2 mars 2017 portant modification de la composition du conseil d'administration de l'Office des postes et télécommunications.

30. Viti was granted authorization on July 5, 2018⁷ to establish and operate a network open to the public enabling the provision of a mobile communications service. Since early 2020, it has been offering mobile voice, SMS and data services under the Ora brand, based on 4G LTE technology (so-called "Volte" calls), operating in two ways, firstly by providing mobile services (voice, SMS and data) from its network in a limited area of the territory (Tahiti and Moorea), and secondly by providing mobile services (voice and SMS only) using Onati's mobile network under a roaming agreement.

4. OPERATOR MARKET SHARES

31. According to the information provided to the Authority as part of the precautionary measures file 2023-PAC-01 of March 31, 2023, Onati had a market share of between 55% and 60% at the end of 2022, PMT a market share of between 40% and 45% and Viti a market share of less than 1%.

III. COMPETITIVE ANALYSIS

A. THE COMPETITIVE CHALLENGES OF DETERMINING DENSE AND SPARSELY POPULATED AREAS

32. The issue of high-speed network coverage (mobile and fixed internet) for the territory of the various archipelagos that make up French Polynesia, some of which are both remote and sparsely populated, is crucial and was considered a priority by the 2017 digital development master plan (SDAN).
33. However, it is probably illusory for several mobile operators to achieve economic equilibrium by rolling out their own networks throughout the country, unless at the cost of very high tariffs for consumers. This raises the question of pooling coverage infrastructures.
34. However, Polynesia's regulatory framework still requires the deployment of all operators on all archipelagos. This situation seems unrelated to any economic logic.
35. In various opinions, the Autorité has already had occasion to rule on the question of determining dense areas, in which competition between operators through infrastructure would be possible, and sparsely populated areas, where competition limited to services would be favored. In particular, it dealt with this issue at length in a 2017 opinion⁸, which was partly taken up in opinions issued in 2020⁹ and 2022¹⁰.
36. In addition, a number of contentious cases have highlighted the difficulties encountered by the most recent operators, PMT-Vodafone and Viti-Ora, in accessing the network deployed by Onati in remote archipelagos, raising the question of the need to duplicate the networks of the various operators throughout the Polynesian territory, and the need to control the tariffs proposed by Onati for access to

⁷ Order no. 1185 CM of July 5, 2018 granting the company Viti the status of telecommunications operator.

⁸ Opinion No. 2017-A-02 of September 22, 2017 on the granting by the government of authorizations to provide telecommunications services to the companies Viti and Pacific Mobile Telecom.

⁹ Opinion no. 2020-A-02 of June 17, 2020 on a draft law of the country amending the Post and Telecommunications Code (determination of the reference interconnection tariff for mobile telecommunications operators and abolition of the approval system for telecommunications approved installers).

¹⁰ Notice n°2022-A-03 of October 17, 2022 on the setting of reference interconnection tariffs for mobile call termination for mobile operators PMT/Vodafone and Ora/Viti for 2022 and 2023

its network. This was the case in two decisions concerning requests for protective measures, in which the Autorité considered that Onati's practices were likely to be qualified as anti-competitive¹¹.

1. ADAPTING THE COMPETITIVE OFFERING TO THE SPECIFIC CHARACTERISTICS OF FRENCH POLYNESIA

37. French Polynesia has specific geographical and population distribution features that must be taken into account in order to offer all Polynesians high-quality, diversified and innovative telecommunications services at competitive prices.
38. These specific features are essentially based on the fact that the territory of French Polynesia covers an area the size of Europe in the middle of the Pacific Ocean, and is spread over 118 islands, 66 of which are covered by a cell phone network, belonging to five archipelagos, while three-quarters of its population is concentrated in two of the Windward Islands (Tahiti and Moorea).
39. The initial deployment of both fixed and mobile telecoms networks during the OPT Group's monopoly period enabled telecoms services to cover the whole of the Polynesian territory, thanks to a system of equalization across the entire population. Traditionally, the equalisation balance was guaranteed by the principle of subsidizing, within the monopoly and schematically, unprofitable areas by profitable areas (Tahiti in particular) or unprofitable activities by profitable activities.
40. However, the opening up of the sector to competition in 2003, effective since 2013, has led to a reassessment of this balance.
41. Indeed, operating in the least populated islands requires heavy investment (for example, the deployment of a 4G network in the Marquesas and Tuamotu archipelagos following the commissioning of the Natitua submarine cable), whereas over 80% of customers are located in the most populated islands. The presence of competitors on these islands therefore reduces the margins of the incumbent operator and calls into question the financing of the public operator's investments through equalization payments.
42. In such a case, in telecommunications, it's customary to distinguish between a "dense zone", which corresponds to areas where all the players (in this case, the three mobile operators) are physically present, and a "non-dense zone" where only one operator (in this case, Onati) is present.
43. In non-dense areas, there may be zones where a rational economic player would not invest alone or without public support. These areas are referred to as "zones where private initiative is lacking". At this stage, however, no such zones have been defined, even though there are several in French Polynesia (see below).

a) A gap between the deployment obligations set out in the operators' specifications and their actual deployment.

44. The entry of alternative operators (PMT in 2011 on the mobile telephony market and Viti in 2013 as a fixed-position Internet access provider, then in 2020 for mobile telephony) has led them to deploy their own networks on part of the territory of French Polynesia, according to a deployment schedule set out in their specifications, and to which the operators are committed.
45. Each operator's provisional rollout plans have been modified on a number of occasions, but remain ambitious. In the medium term, they call for minimum population coverage by island group and by

¹¹ Decision no. 2021-PAC-01 of December 8, 2021 relating to a request for protective measures submitted by Pacific Mobile Telecom in the telecommunications sector, concerning roaming services for access to mobile data, and decision no. 2023-PAC-01 of March 31, 2023 relating to a request for protective measures submitted by Viti for practices implemented in the telecommunications sector, concerning roaming services in remote archipelagos.

island. This implies the deployment of infrastructure on each of these islands, varying according to 2G, 3G or 4G technologies.

46. To date, however, both operators have failed to meet their targets. PMT's physical network is limited to the islands of Tahiti, Moorea, Bora Bora, Raiatea and Huahine. Viti's is limited to the islands of Tahiti and Moorea.
47. This is how they justify the obstacles to the deployment of their network:
 - Firstly, potential customers are mainly concentrated in the Windward Islands, and the earnings prospects on the outlying islands are not sufficient to cover the investments required to set up a network of their own.
 - Secondly, Onati's tariffs for "leased lines" and roaming on its network are considered too high, weighing negatively on their deployment plans.

b) The failure to take into account areas where private initiative is lacking penalizes all operators.

48. The regulatory framework's failure to take account of an area where private initiative is lacking has serious consequences for the development of competition and severely undermines the expected benefits, to the detriment of existing operators and, *ultimately*, Polynesian consumers.
49. The first consequence is that the incumbent operator covering the area where private initiative is lacking will have to bear a burden disproportionate to that which would prevail under normal competitive conditions. In fact, coverage of the entire territory was imposed on the incumbent at the time of the monopoly, when internal subsidies between profitable and unprofitable zones and/or activities enabled the incumbent to charge service rates that were evenly distributed across the territory, and to achieve financial equilibrium. However, the development of competition and market share gains by alternative operators have mechanically reduced the incumbent's revenues in areas where competition exists ("cream-skimming"), calling into question the possibility of compensating between profitable and unprofitable areas and/or activities.
50. This is all the more true as investments in sparsely populated areas have been significant in recent years, particularly following the rollout of 4G in the islands of the remote archipelagos (Marquesas, Tuamotu and Australs) covered by the Natitua cable since 2019 (Marquesas and Tuamotu) and 2023 (Australs). For this reason, Onati was awarded a subsidy of 249,913,254 F CFP for the deployment of this network by order no. 1180 CM of July 6, 2022. This is a new element, because while OPT/Onati regularly receive public funds for their public service missions carried out as a monopoly or by delegation, such as the deployment of submarine cables, fiber optic networks or increasing satellite capacity, this was not the case until that date for activities in the competitive sphere, such as the local loop.
51. There is a risk that mobile service rates, which are equalized throughout the territory, will be called into question, with the result that rates in remote archipelagos will rise, to the detriment of Polynesian consumers.
52. The second consequence is to impose over-ambitious network rollout obligations on alternative operators that are divorced from any economic logic. Indeed, in areas where private initiative is lacking, it is unjustified to require all operators to invest massively in a costly physical network with no revenue prospects to cover them. Deployment costs are all the higher in French Polynesia because of its specific characteristics, and revenue prospects are all the lower because the population is concentrated in the Société archipelago. Constrained by their specifications, operators must reinvest their profits in these investments to the detriment of other investments, such as in service quality or innovation, or a significant reduction in the price of their offerings. Part of the expected benefits of competition for the end consumer are thus diverted to investments that are not intended to be profitable.

53. The third consequence, which results from the first and exacerbates the second, is that the costs and prices of wholesale services offered by the incumbent group to its competitors are higher than they should be.
54. On the mobile telephony markets, PMT and Viti use roaming services on Onati's network to meet customer demand and supply obligations. These roaming services, for which the CPT provides only that they will be granted in the event of a reasonable request, do not fall within the scope of the interconnection regime, and are not regulated (either technically or in terms of tariffs). As a result, the parties negotiate these technical and pricing terms between themselves. To be fair, such negotiations require relatively balanced flows or balances of power between the various operators. Otherwise, in the case of monopoly services, there is a risk that the operator with the greatest market power will take advantage of the situation to charge rates that exceed its costs, thereby significantly increasing the costs of its competitors, who are unable to respond effectively because of their minority position, or if one of them counters the excessive rates of another with its own excessive rates, leading to an inflationary spiral.
55. This could either weaken the position of these operators, or increase the cost of services to the detriment of Polynesians, with the introduction of less generous rate plans or the use of so-called *on-net* calls (within an operator's network) rather than *off-net* calls (between operators). The result would be to strengthen the position of the already dominant operator and limit mobility between operators.
56. In other words, it's the virtuous circle towards more competition, lower rates and more generous packages for consumers, which has been underway since 2013 and accelerated with the arrival of Viti on the market in 2020, that could be called into question.
57. Such a risk is not merely theoretical. Indeed, roaming services have given rise, and continue to give rise, to an abundance of litigation. In particular, the Autorité recently handed down two decisions denouncing Onati's roaming practices. In both cases, and for both operators (PMT in decision no. 2021-PAC-01 of December 8, 2021, and Viti in decision no. 2023-PAC-01 of March 31, 2023), the Autorité found that Onati was likely to have engaged in anti-competitive practices due to its dominant position. In the second case, it also considered that the infringement was sufficiently serious and immediate to justify the imposition of interim measures on Onati, in order to implement tariffs more in line with fair competition as quickly as possible.
58. What's more, neither of the two alternative operators subscribes to mobile data roaming services, as the cost is deemed too high. This has the effect of limiting supply for consumers, primarily those living on the islands, but also those wishing to travel to remote archipelagos and have access to mobile data there, in particular business customers, whose choice may therefore be restricted and who find themselves captive to the offers proposed by the incumbent operator.
59. Competition does not yet appear to be able to be based on merit alone, without active intervention by the regulator.

2. AVENUES FOR IMPROVEMENT

a) Take into account the existence of areas where private initiative is lacking to promote the development of competition in the rest of the territory.

60. The specific characteristics of French Polynesia, due to its size and geographical and demographic dispersion, mean that there are de facto areas where private initiative is lacking, the boundaries of which have yet to be defined.
61. Tahiti and Moorea are unquestionably in dense areas. Some of the territory's islands fall into this category *a priori*, such as those that are not connected to a domestic submarine cable (directly or via microwave links). The case of islands that are, or will be, connected (directly or via microwave links) to a domestic cable is less clear-cut. For the latter, it is necessary to assess whether the economic

conditions for the use of cable by all operators are/will be favorable, and whether the deployment of service infrastructures (local loop) can be carried out under reasonable conditions, taking into account costs and consumption prospects.

62. The perimeter of these areas where there is a lack of private initiative is also likely to change over time, as it depends on the operators' revenue prospects on the retail markets and the terms of their contracts on the wholesale markets (in particular roaming tariffs, but also leased line tariffs where Onati has a monopoly on wireline infrastructure).
63. The Autorité has already considered¹² that recognizing the existence of an area where private initiative is lacking is tantamount to acknowledging the fact that in certain cases, it is more rational for a single physical network to be deployed (which does not necessarily mean that it will always be by the same operator).

b) Deployment options in low-density areas

64. In the mobile telephony sector, duplication or, a fortiori, triplication of the physical network (in particular the radio local loop) is not economically efficient in areas where private initiative is lacking.

i. Implement a mandatory 2G roaming offer on islands not equipped with a high-speed network.

65. Outside areas with broadband access, coverage for 2G mobile services (voice and data) relies on satellite links¹³, provided by OPT, which holds a monopoly on these services as part of its public service mission for external telecommunications.
66. Recognition of an area where private initiative is lacking means first and foremost modifying the deployment plan for PMT and Viti infrastructures by excluding these areas.
67. Secondly, and by the same token, the terms of use of this 2G network by alternative mobile operators should be reconsidered, so that they can guarantee the continuity of the services they offer consumers in the area concerned. Indeed, if it is recognized that Onati's competitors do not have to deploy infrastructure in this area, the 2G roaming service offered by Onati becomes a necessary service for alternative operators in order to operate on the retail markets (which is currently the case in practice). This service would then be provided by a monopoly network operator.
68. In such circumstances, it would be necessary to modify the existing regulatory framework to qualify Onati's 2G roaming offer as a "mandatory" 2G roaming offer. A framework similar to that applicable to "mandatory access and interconnection offers" provided by Onati and covered by the interconnection regime should then be envisaged. In particular, this would require tariffs to be controlled or even set by the country.

ii. Implement mandatory 4G roaming on islands where Onati has already deployed a 4G network.

69. Following the commissioning of the Natitua cable, several options were available to ensure the financing and commissioning of a 4G local loop, enabling high-speed service to be provided to cell phone users: physical presence of a single operator, with the others paying roaming charges to it; pooling of sites or infrastructure financing (e.g. in the form of RAN-sharing¹⁴). In mainland France, for example, the RAN-sharing agreement signed in 2014 between two alternative operators has enabled wider coverage of the

¹² See opinion no. 2023-A-01 (§23) and opinion no. 2022-A-03 (§96).

¹³ "Satellites used in electronic communications can transmit in several frequency bands (S, Ku, Ka for civil communications). They are positioned in different orbits. Satellite solutions have the advantage of being able to serve all homes, even the most remote, but suffer from structural limitations (lower speeds, latency, limited usable data quota)", SDAN, page 58.

¹⁴ RAN sharing (Radio Access Network): operators share a single radio access network.

territory at lower cost, with zoning and territory sharing, while the most remote territories (white zones) are covered by a single operator, through roaming agreements.¹⁵

70. However, as soon as the cable went into service, Onati deployed its own 4G network on all the islands, without considering alternatives to such deployment, such as network sharing. In fact, Onati received a substantial subsidy from the French government for this deployment, amounting to almost 250 million francs.
71. While other choices would have been possible at an earlier stage, it is now difficult to envisage other deployment methods than roaming for alternative operators. In theory, it is always possible to share 4G infrastructures, but prior to deployment, negotiations must be held to determine the financial and technical terms and conditions (coverage areas, quality of service, sharing arrangements, and in particular whether or not frequencies are to be shared). Once the network has been deployed, sharing becomes more delicate, as the network has been deployed without taking competitors' needs into account.
72. Onati has presented its competitors with a *fait accompli*, and there is now no real choice but to regulate roaming services.

iii. Anticipate the technological upgrading of the mobile communications network on islands soon to be served by broadband.

73. With mobile technologies evolving in favor of more data, the provision of voice and broadband Internet services on a convergent fixed and mobile offering based on 4G technology appears to be the relevant solution for marking the digital shift in remote archipelagos.
74. While this network has already expanded considerably since 2019, the question now arises of upgrading the 2G mobile communications network to 4G technology, particularly in the Australes archipelago, recently connected to the Natitua Sud cable. This also applies in the event of future technological change, linked for example to the introduction of 5G, or an improvement in satellite capacities, or in the case of an increase in uses that would render current networks insufficient.
75. While roaming appears to be the most rational solution for networks already deployed unilaterally by Onati, other solutions can also be envisaged for the future, in the form of infrastructure sharing s.
76. In its opinion no. 13-A-08 of March 11, 2013 on the conditions for mutualization and roaming on mobile networks, the French competition authority scrutinized mutualization agreements in the mobile communications sector. From the point of view of competition rules, mutualization agreements are horizontal cooperation agreements, and in particular production agreements. Their competitive analysis is therefore based on decision-making practice and case law relating to the application of article LP 200-1 of the French Competition Code¹⁶, which prohibits concerted actions, agreements or coalitions when their purpose or effect is to prevent, restrict or distort competition, in particular when they aim to limit or control production.
77. On the other hand, they can benefit from the provisions of article LP 200-5 of the same code, which excludes from the scope of prohibitions, "*practices whose authors can justify that they have the effect of ensuring economic progress, including the creation or maintenance of jobs, and that they reserve for users a fair share of the resulting profit, without giving the undertakings concerned the possibility of eliminating competition for a substantial part of the products in question. Such practices must impose*

¹⁵ Such arrangements are compatible with competition law, and in particular antitrust law, if certain conditions are met. On this point, see Opinion 2017-A-02, § 214 to 222.

¹⁶ "*Are prohibited, even through the direct or indirect intermediary of a company located outside French Polynesia, when their purpose or effect is to prevent, restrict or distort competition in a market in French Polynesia, concerted actions, agreements, express or tacit understandings or coalitions, in particular when they tend to : 1° limit access to the market or the free exercise of competition by other companies; 2° hinder the setting of prices by the free play of the market by artificially favoring their rise or fall; 3° limit or control production, outlets, investments or technical progress; 4° share markets or sources of supply*".

restrictions on competition only to the extent that they are indispensable to the attainment of this objective of progress".

78. In the case in point, the characteristics of the mobile communications sector in French Polynesia call for extreme vigilance when considering any proposed mutualization agreement:
- wholesale and retail markets are highly concentrated and sustainable;
 - the retail market is transparent;
 - the mutualization agreement would concern only the three incumbent operators and would i) lead to a joint monopolistic market share on the upstream market, ii) concern the production of a common infrastructure necessary for the three operators to operate on the downstream market;
 - the scale of the investment required would *a priori* necessitate a high degree of pooling, and consequently a fairly high loss of financial, technical and commercial autonomy for each operator;
 - the high degree of *a priori* mutualization required would generate relatively extensive exchanges of information, enabling each of the parties to the agreement to accurately deduce the commercial policies of the other parties, thus strengthening their ability to coordinate.
79. While sharing arrangements could be envisaged in areas where private initiative is lacking, they should be accompanied by safeguards:
- that this approach be the subject of multilateral meetings involving all protagonists, operators and sector regulators, so that technological and economic choices can be discussed and decided jointly;
 - that the draft mutualization agreement(s) be submitted for assessment by the Authority, which would draw up the competitive balance sheets in accordance with the applicable grid and the specific features of the telecommunications sector in French Polynesia.
80. But in reality, in French Polynesia, given the low population density in sparsely populated areas and the uniformity of offers, competition and offer differentiation stem more - by capillary action - from the effectiveness of competition in dense areas, than from the specific conditions of network deployment in these sparsely populated areas.
81. The study commissioned by the DGEN highlighted the limitations of the infrastructure sharing model in French Polynesia. On the one hand, such sharing is hardly feasible for infrastructure that has already been built, as the respective needs of the different operators were not taken into account when the shared equipment was installed. And even for future infrastructures, even if it cannot be ruled out from the outset, *especially* if certain operators were to express their willingness to do so, it would be complex to implement, and the gains would be limited. Indeed, (i) it would generate additional costs due to its financial and technical complexity, (ii) it would require a high level of coordination between independent players, who are currently in a conflictual situation, and (iii) it would be more expensive than roaming, as the same number of antennas would be deployed, but these would require upgrades and be more complex.
82. From a technical and operational point of view, roaming is therefore the easiest sharing mode to implement, although this does not necessarily mean that it can only be offered by Onati. It is also conceivable that an operator other than Onati could deploy a local loop and offer roaming services to its competitors, including Onati.

c) The case of the dense zone

83. In areas considered densely populated, mobile operators PMT and Viti should be encouraged to roll out their own physical radio local loop networks, with a view to offering consumers mobile services including mobile Internet access. This is known as infrastructure-based competition (rather than service-based competition).
84. However, these investments can only be made if the competitive and economic environment is favorable.

85. Firstly, this favorable environment depends on the terms and conditions of access to wholesale capacity made available by OPT/Onati on its infrastructures (domestic Honotua and Natitua). Since PMT and Viti are not able to participate in the financing and operation of these submarine cables, we need to ensure that the conditions of access to these infrastructures, where OPT has a monopoly, effectively enable these operators to deploy on islands served directly by a cable, or indirectly via microwave links. As the CPT stands, these infrastructures come under the interconnection regime, and as such, access to them must be priced in accordance with the principles of objectivity, transparency and non-discrimination, and their rates must not lead to the imposition of excessive charges on the operators who use them.
86. Secondly, the favorable environment necessary for mobile operators to continue deploying their networks is based on the conditions of roaming on networks already deployed, which they obtain from their competitors. It is also possible that, in this favorable economic environment, certain residual portions of the dense urban zone cannot be covered by the infrastructures of all three operators simultaneously. Today, for example, PMT and Viti must roam on Onati's network. What's more, in the event that certain islands in the area are only covered by the networks of two operators (Onati and one of the alternative operators) under normal competitive conditions, it may be necessary to enter into cross-roaming contracts.
87. It should be noted, however, that an overhaul of mobile service coverage in areas where private initiative is lacking would enable PMT and Viti operators to save on deployment costs. This would enable these operators to concentrate on their deployment in the dense zone. In this respect, it may be useful to point out that, with a view to saving fixed costs, operators can also resort to the passive mutualization of their infrastructures, which is not limited to the sharing of masts and is encouraged by the CPT¹⁷.
- ⇒ Ultimately, while the Authority is delighted that the Polynesian government has decided to take up this issue, the success of such a project depends on the details, which are examined in the following sections.

B. THE PROJECT TO SEGMENT THE POLYNESIAN TERRITORY INTO DENSE AND SPARSELY POPULATED AREAS

88. The Authority's referral specifies that the purpose of the segmentation is to ensure quality coverage of the entire Polynesian territory, at affordable prices for consumers, and to ensure healthy infrastructure-based competition in dense areas and a fair cost-sharing mechanism in non-dense areas.
89. It is with these objectives in mind that the proposed method should be examined.
90. More specifically, before amending the regulations that will enable this segmentation to be integrated into the CPT, the government wishes to obtain the Autorité's opinion on the segmentation methodology and criteria used, in light of the principle of effective and fair competition.
91. To this end, after a presentation of the proposed method (1) and its results (2), the following questions will be examined:
- (3) What criteria should be used to segment dense and sparsely populated areas?
 - (4) for operators who have not deployed a local loop, how should roaming charges be determined?
 - (5) for operators who have deployed a local loop, how can they ensure that the cost of deployment is taken into account, given the end of the profit-sharing model in dense areas?

¹⁷ "The competent authorities of French Polynesia shall: [...] 6° Encourage the shared use of facilities between operators [...]" (article D. 212-2 CPT).

1. THE METHODOLOGY PROPOSED BY THE DGEN

92. Once the need to identify areas where private initiative is lacking, or where density is low, has been established, the first question is to determine the areas concerned.
93. The approach proposed by the government is financial: the areas in which all operators must deploy their own 4G mobile infrastructure are those in which such investment is profitable.
94. Such an approach would appear to be relevant, as it is precisely in line with the notion of areas where private initiative is lacking, which concerns areas where market forces would not allow the spontaneous emergence of several operators, or even allow a single operator to make a return on its investment without financial support in the form of public aid or internal equalization.
95. It should be noted, however, that this economic approach excludes certain dimensions, notably that of the technical and environmental rationality of network duplication. In some cases, duplication can be economically profitable for operators, even though a single network would suffice in terms of capacity to cover the needs of the population living there, at least in the foreseeable future and with constant technology. Such duplication may also appear unfounded from an environmental point of view, in that it makes unnecessary use of scarce resources. However, such questions fall outside the Authority's remit, and are more a matter of political choice.
96. Once the choice of an economic approach has been made, the methods used to develop the model vary widely.

a) Mobile telephony

97. The DGEN commissioned a consultancy firm to develop a methodology for determining dense and sparsely populated areas. The firm developed a model based on the following assumptions:
 - the division of the market between three operators, each with 1/3 of the market ;
 - modeling of a theoretical network equivalent to the existing one;
 - the integration of costs and revenues linked to the deployment of an efficient 2G and 4G network, based on the replacement of the existing 2G network;
 - accounting depreciation of the investment over 7 years (and 15 years for civil engineering);
 - Exclusion of overheads, including sales costs, insofar as they are considered to be independent of the size of the network to be deployed;
 - specific treatment of islands where model profitability is close to 0%, by integrating qualitative criteria (tourism, economic activity and traffic per inhabitant);
 - forecast traffic estimated on the basis of average traffic in French Polynesia (5 GB per month per user), rather than current traffic on each island, to take account of ongoing developments, including the rollout of 4G in the AEs, which should increase usage there.
98. However, the investigation has shown that some of these hypotheses are contested by operators, and that the government has not managed to reach a consensus on them. This is one of the reasons why it wishes to obtain the Autorité's opinion on the competitive impact of the choices it may have to make.

b) Fixed-line Internet

99. The Pays recommends drawing inspiration from metropolitan France's practice of unbundling the local loop (i.e. the copper or fiber optic network), which makes it compulsory for the operator in charge of the network to make its infrastructure available to alternative operators.

100. In full unbundling, an alternative operator deploys its telephony and Internet transmission equipment on the incumbent's infrastructure. Partial unbundling involves deploying only Internet transmission equipment (routers), while the subscriber retains a fixed telephone line provided by the incumbent operator. This second option is currently being implemented in French Polynesia, and only on optical fiber.
101. In mainland France, ARCEP regulates multi-year access tariffs by combining different pricing methods (line operation, commissioning, termination, after-sales service) and cost accounting (regulatory accounting; cost accounting based on a modeled reference network), in order to strike a balance between the following objectives:
 - allow all operators to provide a service (which implies a rather low tariff);
 - encourage investment in the latest technologies (transition to fiber) and less dense areas;
 - enable the incumbent operator to recover the costs of its shared network (which implies a pricing structure that is not too low).
102. The referral specifies that these objectives can be reconciled by adjusting the various tariffs for this service, with cost orientation being assessed globally. For example, ARCEP may decide to lower termination fees for copper lines below cost, to encourage the transition to fiber, while compensating the incumbent operator for this loss by increasing the monthly subscription.
103. It is important to note that today, alternative operators are contesting Onati's pricing for access to its network.

2. THE RESULTS

a) Results of the mobile telephony approach

104. The economic approach adopted yields three types of results:
 - a return on investment whatever the assumptions used;
 - a lack of profitability whatever the assumptions used;
 - profitability dependent on the assumptions made.

i. The Tahiti, Moorea and Bora Bora areas are profitable whatever the assumptions used.
105. Whatever the methodology adopted, certain islands are undoubtedly in a "competitive" zone: Tahiti, Moorea and Bora Bora. The profitable deployment of a local radio loop by all three operators is possible in these areas.
106. Consequently, the deployment of all three operators can be recommended, and infrastructure-based competition - a source of differentiation in operators' offerings (particularly in terms of bandwidth and coverage) and technical innovation (e.g. the use of Volte phone calls on the 4G network) - must be fully exercised.
107. It should be noted, however, that in their first years of operation, operators - given the weight of investment in a network industry - have no profitability, even on these islands. Even today, given the gap between their respective market shares, it is not a given that all operators will be profitable there, even if Viti has been able to benefit from the fact that it had already deployed a 4G network in Tahiti for its Internet service provider activities, before launching into mobile telephony, and that it relies on this network to carry out this new activity (through the use of 4G calls, known as Volte). For this reason, deployment can be gradual, as stipulated in the specifications.

ii. Non-profitable islands, whatever the assumptions adopted: all the islands of the remote archipelagos and a few islands in the Society archipelago.

108. A distinction must be made between two cases:

- Islands with only satellite links and 2G networks are not concerned by broadband deployment, and are undoubtedly part of the sparsely populated zone. This is the case even on the most densely populated of these islands, such as Tubuai and Mangareva. Model deficits range from 40% to 80%. What's more, as long as Onati has a monopoly on links to the outside world (in this case, satellite links), it makes sense that it should also be the only operator to deploy a local loop. It should be noted, however, that some satellite operators (Kacific, for example) offer broadband access that no longer requires submarine cables. Some alternative operators have expressed an interest in using their services, but are prevented from doing so by legislation. The country could usefully reflect on these access methods. The number of islands in this situation has fallen sharply and will continue to do so with the deployment of the Natitua submarine cable in 2019 (Tuamotu and Marquesas) and 2023 (Australes).
- Islands with 4G but low population density. These include the islands served by the new Natitua submarine cable. Deploying a 4G local loop on these islands is not profitable either, whatever the assumptions made in terms of revenue per user, respective market shares or number of operators. At least as long as we maintain the principle of uniform package rates across the different archipelagos, since economic profitability on these islands would require a very significant increase in the selling price of services. This is the case even on the most densely populated islands, such as Nuku Hiva, Hiva Oa, Rangiroa and Hao. The model's deficits are between 60% and 80%. That's why the French government has granted Onati a subsidy of FF250 million in 2022, to support this deployment.

iii. Areas whose profitability depends on assumptions: Raiatea, Tahaa and Huahine

109. The cost-effectiveness of a deployment depends closely on the assumptions made for some of the Leeward Islands, such as Huahine, Tahaa and Raiatea.

Raiatea

110. With the costs and revenues derived from the model described above, a rollout on Raiatea would enable all three operators to break even, in any case assuming equivalent market shares for all three (1/3 each).
111. On the other hand, this balance is relatively sensitive to the values adopted. A 10% rise in costs or fall in revenues is enough to generate a deficit.
112. It is also necessary to assume that the three operators have equivalent market shares. This is far from being the case for Viti, which would have to finance the deployment of its own local loop at a loss for several years. Once real market shares are taken into account, Viti is no longer profitable.
113. This raises the question of whether the current situation, with the effective deployment of just two operators, is not the most rational one.

Tahaa and Huahine

114. According to the model, each of these two islands has a deficit of around 10%. This is relatively moderate, and the result could be reversed if revenue per user were to increase or were higher on these islands than the Polynesian average. According to the Pays study, Tahaa and Huahine would have to increase revenues or reduce costs by 20% and 30% to 40% respectively, to make them profitable.
115. In addition, deployment becomes profitable for operators whose market shares are more significant than one-third, which is the case today for two of the three operators (PMT and Onati), as they are able to amortize the fixed costs of network deployment through a greater number of users than those listed in

the model. Deploying a 4G network on these islands would therefore be profitable if only two operators were present, with the third making use of the roaming services offered by the other two.

b) Results of the fixed Internet approach

116. Applying the financial approach means that, in reality, deploying a broadband-compatible fixed-line network on all the islands where this is technically possible is not profitable, even with a single operator, and certainly not with the cost of the packages currently available, which are the same throughout Polynesia. This is also true for the islands that fall within the dense mobile telephony zone.
117. The consequence of this result is that the fixed network, in particular fiber optics (the copper network is largely amortized, even if it requires maintenance costs), must not be replicated if it provides sufficient capacity for uses¹⁸. What's more, it cannot be financed by consumer tariffs alone, without increasing tariffs and thereby discouraging use and penalizing economic activity.
118. As in the case of local loops on islands in low-density areas, public funding is needed to maintain affordable pricing. Alternative operators would then be charged connection and network usage fees equivalent to the costs not covered by public subsidies.

3. THE QUESTION OF MARKET SHARE AND NUMBER OF OPERATORS

119. The consulting firm commissioned by the DGEN made two relatively strong assumptions. On the one hand, it only examined the profitability of a three-operator rollout, and considered that if such a rollout were not profitable, the area would become non-dense, and that only one operator was destined to develop there. On the other hand, to estimate profitability, it assumed that the three operators shared the market equally, whereas Viti currently has less than 1% market share.
120. While for most islands these assumptions have no impact on the result (profitable islands remain profitable and remote archipelagos remain unprofitable), they do have consequences for the inclusion or otherwise of three islands in the sparsely populated zone: Raiatea, Tahaa and Huahine.
121. These islands represented a sticking point when the model was presented to the operators, and no consensus emerged between them on the geography of dense and sparsely populated areas. In particular, Viti would like to limit the dense areas by taking the current market shares of the three operators as a starting point, while PMT would like Viti to roll out *at least* on the islands where it has already done so. For its part, Onati would like to see a two-out-of-three-operator rollout on certain islands.
122. The choice made by the Pays - whatever it may be - is therefore likely to be contested, and it is important to clarify the competitive stakes involved.
123. The consultancy firm says it has used a fictitious market with three equal operators, on the grounds that it would be best to avoid determining dense and non-dense zones that differ from one operator to another, and that would evolve as the market develops.
124. However, this does not appear to be a scenario to be avoided at all costs. It's quite logical that, initially, an operator should have rollout obligations limited to certain islands, and that only once it has acquired sufficient market share should it be obliged to provide wider coverage. The current model, in which rollout obligations are set out in the specifications at regular intervals, irrespective of actual market share, has shown its shortcomings, as operators are unable to meet them. Moreover, zoning according to market share would not create inefficiencies, since it is always in an operator's interest to increase its market share, even if this implies other constraints.

¹⁸ In economic terms, this is a natural monopoly.

125. While we wait for market shares to even out, we could find ourselves in an intermediate situation, with islands such as Raiatea where only two operators are present. In any case, this hypothesis is extremely close to the current situation, where two operators account for almost the entire market.
126. Another issue to be resolved concerns fledgling operators. By their very nature, with a market share-based model, they will not be profitable at launch, even on the most populous islands. Even today, with a market share of around 1%, Viti would probably not be profitable if it developed its own network in Bora Bora, for example, even though it is located in a densely populated area. The country therefore has a choice to make. Up until now, it has always imposed a minimum rollout in Tahiti and Moorea as soon as their operations were launched, without recourse to roaming. However, other modalities are possible, with the authorization of virtual operators (MVNOs). These operators do not have their own network, and only roam on the network of their "physical" competitors. Moreover, Viti had initially applied on June 1^{er} 2017 for authorization as an MVNO outside Tahiti and Moorea, where it could rely on its 4G network¹⁹, before the government decided to require it to deploy its own physical network over the greater part of the territory. This latter choice could be reconsidered to return to the original model, allowing Viti to roam with the other two operators where it is not deployed.
127. Taking actual market shares into account would thus enable us to smooth out the rollout schedule in line with changes in operators' positions. A priori, this would have no disincentive effect on investment, since by nature operators have an interest in growing, which will have the effect of increasing their roaming tariffs, thus reinforcing their interest in rolling out their network. We could even imagine a roaming tariff that is not strictly proportional but progressive according to market share, with, for example, only the marginal cost taken into account for a new operator (a purely incremental tariff, or CILT), in order to encourage their entry and development, then a gradual shift towards an average cost (CMILT) as they approach the operators' average market share (33% today), in order to encourage them to roll out their network if several operators can be profitable in the area.

4. THE QUESTION OF DETERMINING ROAMING CHARGES

128. In densely populated areas, freedom is the rule. Operators in particular can compete on the basis of infrastructure, in order to offer better coverage of the territory (in terms of density or speed) or technological developments. There may be residual roaming services, for example, when an operator wishes to boost its capacity in a particular sector, or to cover a neglected area, but these must be the result of commercial freedom alone, with no control by the public authorities.
129. In sparsely populated areas, on the other hand, competition will be based solely on the services offered, since the network must not be duplicated. The challenge here is to establish a mechanism that enables infrastructure costs to be shared equitably between operators, with public support where necessary for areas where even a single operator cannot be profitable. The aim is to strike a balance between covering the costs incurred by the operator deploying the coverage network, and enabling alternative operators to develop without incurring excessive roaming charges.
130. To determine a fair tariff in this area where private initiative is lacking, it will be necessary to regulate the roaming tariffs charged by the operator who deployed the network, i.e. Onati for the existing network. The latter will be in a monopoly position. And the beneficiaries of roaming have no control over the costs charged to them, which depend both on the service provider's investment choices, which they have no control over, and on their customers' usage patterns, which are not known in advance.
131. The regulator's objective would be to set tariffs that enable the operator deploying the network to cover its costs (after deduction of any public subsidies), without penalizing the emergence of alternative operators, who would be the customers of the service. Indeed, it is vital for alternative operators to be

¹⁹ V. APC Opinion n°2017-A-02 of September 22, 2017.

able to offer services throughout the Polynesian territory, which is not the case today, particularly for mobile data.

132. To date, however, roaming tariffs are not part of the interconnection regime, and neither their technical nor their pricing terms are regulated. Onati sets its roaming tariffs on the basis of a network cost estimated using the CMILT + *bottom-up scorched node* method, which determines the full cost of the service concerned, plus a commercial margin. From the total cost obtained by this model, an allocation is made for each island and each service (voice, SMS, mobile data). The tariff usually consists of a fixed cost (cost of network coverage) and a variable cost (a function of consumption).
133. In theory, while roaming is initially freely negotiated between operators, in the event of disagreement between them, the texts provide for mediation and, ultimately, determination of the tariff by the Council of Ministers²⁰ However, in practice, this power is not exercised by the regulator, notably due to a lack of resources in the DGEN departments, which explains why operators turn to the Autorité to resolve these disputes. On several occasions, and most recently in its opinion no. 2022-A-03 of October 17, 2022, the Autorité has relayed the DGEN's wish to be equipped with a system for transferring and processing market information, in order to better carry out its mission of monitoring and supervising the market and its operators.
134. Until recently, however, the fixed cost was split into three equal parts, irrespective of the operators' market shares. For this reason, Viti discontinued its roaming service in remote archipelagos in November 2022. However, in decision no. 2023-PAC-01 of March 31, 2023, the French telecoms regulator ordered Onati to take into account the size of the operators in determining the tariff. This decision was confirmed by the Paris Court of Appeal on July 6, 2023, and should lead to an extremely significant reduction in the fixed tariff charged to Viti (which has less than 1% market share).
135. For example, the question of how roaming charges are set is a contentious issue among operators, and there is a discrepancy between the text, which allows the country to take the place of operators in determining roaming conditions and charges, and the reality, The incumbent operator takes advantage of its monopoly on networks, whether legal (cables and fixed networks) or de facto (local 4G loop). The Autorité has already expressed its views on a number of occasions, notably when expressing reservations about the maximalist nature of the cost model used.²¹
136. There is therefore a lack of regulation in this area, which is partly linked to the existing links between the incumbent operator and the regulator (the Council of Ministers), and partly to the lack of resources at the DGEN (the investigating department).
137. Today, regulation under ordinary law is assigned to the Council of Ministers, after technical instruction by the DGEN. The Council of Ministers therefore plays both a regulatory role (draft country laws and decrees) and a role as sector regulator, while at the same time being a stakeholder in the OPT, of which Onati is a subsidiary (members of the government have a majority on its Board of Directors). The DGEN, for its part, suffers from a lack of resources, and most of its decisions, particularly on tariffs, are subject to appeal.²²

²⁰ Article D. 212-26 of the CPT stipulates that "(...) *In the following cases, the mobile telecommunications service operator may be required to comply with a reasonable request for roaming services made by another mobile telecommunications service operator: / a) When roaming is provided between two mobile telecommunications service operators authorized in French Polynesia, they may be required, in the general interest, to enter into a roaming agreement;/ b) A mobile telecommunications service operator wishing to offer its subscribers roaming services in French Polynesia is entitled to enter into such an agreement. / If the parties reach an agreement within two months of the date of the request, the roaming agreement entered into by the operators is communicated to the administration. In the event of disagreement, the latter will ask the parties for their positions, with the aim of reaching an amicable agreement; failing this, the Council of Ministers will set the roaming terms.*

²¹ See in particular notice no. 2020-A-02 of June 17, 2020

²² In this respect, see notice no. 2023-A-01 of May 17, 2023 on the setting of reference interconnection tariffs for mobile SMS call termination for mobile operators Onati, PMT and Viti for 2022 and 2023 .

138. The Autorité, for its part, is confined to purely advisory opinions, or to contentious proceedings (cartels and abuse of dominant position). Although the latter can lead to the sanctioning of companies responsible for anti-competitive practices, it is an *ex-post* procedure, which can therefore intervene too late to re-establish competition on the merits in a market that is in the process of being structured, and cannot replace independent *ex-ante* regulation in the field of network economies in the process of being opened up, which would make it possible to overcome these various pitfalls.
139. A first solution would be to provide the DGEN with substantial resources, enabling it to exercise its functions to the full, and not be dependent on information provided by the dominant operator and the consultancy firms it often uses. But this solution would not resolve the conflict of interest between the regulator, the Council of Ministers, and OPT/Onati.
140. A second solution, which would also resolve this second issue, would be to set up a truly independent regulator in the form of an independent administrative authority, which, for reasons of cost and skills optimization, could be the Authority (as is the case in many countries: Australia, New Zealand, the Netherlands, Spain, where the missions of network industry regulator and competition authority are carried out by the same body).

5. THE QUESTION OF HOW TO FINANCE UNPROFITABLE INFRASTRUCTURE

141. With the development of competition in the mobile telephony sector, which is particularly strong in the competitive zone, the traditional model of internal equalization by the incumbent operator between profitable and unprofitable zones and/or activities is no longer possible. With competitors gaining market share and average revenue per user falling, the profits generated by the operator's activities in Tahiti no longer allow it to roll out its networks in remote archipelagos without public support. On the other hand, this liberalization has been extremely effective, leading to an unprecedented drop in package rates and an explosion in usage, particularly for mobile data (but also for SMS, for example).
142. Determining dense and sparsely populated areas must therefore go hand in hand with the country's consideration of how to finance 4G and fixed-line networks in remote archipelagos. This is especially the case on islands where profitability is unattainable, even with a single operator. However, if simulations don't seem to have been carried out, it's likely that all or almost all the islands in the remote archipelagos are in this situation. Indeed, if Onati, which has deployed its network, wants to recover its deployment costs, even independently of any anti-competitive behavior (which remains very plausible when Onati is in a monopoly position on an unregulated service), this situation leads it to charge its competitors too high a cost, which leads them to give up offering some of their services on the islands altogether.
143. In theory, there are a number of possible solutions to this situation.
144. A first, purely market-based solution would be to differentiate rates between islands according to the costs incurred, and to put an end to uniform package prices. However, the main effect of such a system would be to lead to very significant rate increases in remote archipelagos, to the detriment of digital equality and the development of uses. It is clear from the government's orientations, particularly in the context of referral 23-006A, that this is not a hypothesis envisaged, since this request for an opinion concerns precisely the means of avoiding differentiated fixed Internet tariffs in Polynesia according to archipelago. This hypothesis has therefore not been examined further. In any case, a large proportion of consumers could get round this price differentiation by taking out their subscriptions in Tahiti.
145. In order to avoid such price differentiation, it is necessary to recognize the public service nature of the deployment of high-speed links in the archipelagos. In this case, the intervention of the country becomes necessary, including, if necessary, in a financial form.
146. There are several ways to achieve this:

- The simplest approach is to directly fund network deployment projects up to the amount of the losses incurred by the operator in charge of deployment, as in the case of the subsidy paid in 2022 to Onati for the deployment of a 4G loop in the Marquesas and Tuamotu archipelagos. In France, it is quite common for local authorities, for example, to finance all or part of the coverage of white zones. This can take the form of public service delegation, management by the local authority or subsidies to operators. The disadvantage of such a solution is, of course, that it places a direct burden on the country's finances, and ensures that the sums paid out are kept to a minimum.
- Another possibility would be to implement an administered equalization mechanism between dense and sparsely populated areas, with a tax charged to users in dense areas and Tahiti in particular. This is what has been done in the field of electricity distribution. While historically, EDT - like Onati or Air Tahiti - carried out internal equalization, to ensure uniform kWh rates across the islands, a controlled mechanism was implemented. This was the subject of the Authority's opinion no. 2020-AO-03²³. This mechanism was discussed in the following sections:

The new mechanism is therefore designed to ensure that the country pays a lump-sum compensation for additional costs to each concessionaire, through a solidarity fund financed by a tax, with no pooling between different concessions. Its stated aim is to create a level playing field for all bidders for the management of a distribution network, a sine qua non for effective competition. / The Autorité has no objection in principle to this new system. However, it will have to examine in greater detail any effects on the conditions under which competition operates (...)

It should be noted, however, that this tax could have a socially regressive effect, by weighing equally on all households, including the most modest (unlike, for example, a system based on a progressive tax, accompanied by a subsidy scheme) and *ultimately* leading to an increase in subscription costs, thereby reinforcing the cost of living.

147. To preserve greater competition and limit the subsidies incurred, the Pays could also consider, upstream, invitations to tender on network deployment (competition for the market), calling on candidates to put forward their proposals on the most suitable deployment methods and the associated cost. However, these calls for tender should take into account the various existing technologies and not be limited to the use of ultra-marine cables. For example, 4G can be deployed via satellite, which would significantly reduce deployment costs. What's more, these calls for tender should be accompanied by effective regulation, so as not to freeze the various markets for an excessive period. New operators could also enter the market.
148. The introduction of any of these systems could usefully be the subject of an opinion from the Autorité.
149. In any case, whatever solution is chosen, it is essential to ensure greater transparency in this area where private initiative is lacking, for both financiers and telecoms operators. To this end, the solution usually advocated in the network industries is to separate the entities in charge of network deployment and management from the retail operators. This is what has been done in part in the energy sector, with the strengthening of the role of TEP. It is also the model in force in metropolitan France for electricity (with ERDF now Enedis) and rail transport (RFF and SNCF).
150. In this respect, the Autorité has already stated on several occasions that the creation of Onati and the takeover of all telecoms activities by a single entity is counter-productive. It prevents competition in retail offerings from taking place on a level playing field and with complete transparency. This

²³ Opinion n°2020-AO-03 of September 24, 2020 on a draft law of the country instituting a solidarity mechanism in the field of electricity.

separation should not only be accounting and financial, but functional, or even preferably legal, with two separate entities.

151. Indeed, as the French regulator Autorité n° 2017-A-02 has already indicated: "*[t]he knowledge of the costs incurred by a vertically integrated operator with a monopoly on its network infrastructures requires, at the very least, the introduction of an accounting and financial separation between activities covered by the monopoly and activities open to competition. / The accounting and financial separation makes it possible to counter the distortions to the development of competition linked to the vertical structure of the operator by creating several distinct accounting entities, for each type of activity. In accounting terms, it therefore simulates the existence of several operators within the same operator: those operating in monopoly markets and those operating in competitive markets. It therefore makes it possible to verify that the incumbent operator's costs are fairly distributed and recovered between monopoly and competitive activities, and thus facilitates the determination of access tariffs and uncovers cross-subsidies. / However, in network industries, and particularly where essential infrastructure is involved, the accounting and financial separation of the vertically integrated operator's activities is not sufficient to counteract its incentives to implement predatory or abusive exploitation strategies on downstream or related markets open to competition. / This is why, in this particular context, competition authorities recommend further separation, ranging, depending on the case, from functional separation to ownership separation⁸⁰. The metropolitan competition authority considers that "the implementation of such separation aims to facilitate access to the network by new entrants and to specify and verify the principles of non-discriminatory pricing for access to infrastructures, while ensuring that public service obligations are respected in a competitive environment "⁸¹(...) These delimitations are justified in particular by the need to identify the costs incurred by the incumbent operator and to allocate them to all its activities, since the evaluation of these costs has several purposes: i) for the operator, to establish wholesale access and interconnection tariffs and retail tariffs, ii) for the public authorities, to enable and organize the financing of universal service (where this is provided for in the framework), to trace the use of public subsidies and iii) for the regulatory authorities, to verify the absence of cross-subsidies between monopoly and competitive activities, to verify the implementation of tariff obligations".*

6. CONCLUSION: A MORE FLEXIBLE MODEL IS POSSIBLE

152. The profitability simulations carried out by the DGEN could be refined to take better account of the state of the market, and in fact distinguish not two distinct zones, but at least three, by carrying out profitability simulations for one, two and three operators, according to their current market shares.
153. The delimitation would then be as follows:
- i) Less densely populated areas requiring public support (less populated islands for telephony; the whole country for fixed Internet networks): if no operator is profitable, it is necessary either to differentiate tariffs between areas, or to equalize tariffs from densely populated areas, or to set up public support for rollout; as the assisted operator rolling out its network is in a monopoly situation, it is then necessary to control or even set tariffs and roaming conditions;
 - ii) Low-density areas requiring shared infrastructure :
 - Single-operator configuration: if only one operator is profitable, roaming is unilateral, which also requires control or setting of roaming rates and conditions, given the natural monopoly situation;
 - Two-operator configuration (e.g. Raiatea): if two operators are profitable, only the third will use roaming services. A priori, it will be able to put two service providers in

competition and obtain a market price. The principle of commercial negotiation could therefore be maintained. However, the two operators physically deployed could have an incentive to limit the new entrant's scope for competition, or even to drive it out of business. The Autorité could ensure *ex post* that they do not engage in collusive behavior. However, recourse to mediation, or even an *ex ante* capacity for the regulator to be seized of pricing disputes and settle them, as is currently provided for by the CPT but not exercised, is also conceivable.

In these areas, however, the challenge will be to maintain incentives for operators to roll out and invest, since each operator may have an individual interest in having its competitor roll out its network before it does, in order to benefit from the roaming service without incurring too high an entry cost. Deployment obligations may therefore be maintained in these areas.

- iii) Competitive zone, with three operators (e.g. Tahiti): if three operators are profitable, even taking into account their current or foreseeable market shares, their specifications can provide for mandatory roll-out after a reasonable time. Roaming services would then be residual (to increase local capacity or cover gaps) and freely negotiated, with no intervention from the regulator other than as a mediator.
154. The advantage of such a choice would be to objectify the competitive situation, and to acknowledge the impossibility of making broadband deployment profitable in the majority of Polynesian islands without active public intervention (unless different tariffs were applied according to costs, thereby undermining digital equality). The aim would be to shed light on what were in fact hidden costs in the old equalization model, internal to the public operator.
155. These zone definition procedures could then be re-examined at regular intervals, e.g. every two years, to review operators' deployment possibilities and take account of changes in usage and technologies. The difficulty, however, is that to do this, the DGEN currently relies on consultancy firms, which is costly and cumbersome, and whose expertise is not always adapted to the specificities of Polynesian geography. Here again, the internalization of zoning review competencies within a regulatory authority would remove this pitfall.

RECOMMENDATIONS

Given that the government has stated its desire to maintain equivalent prices in different parts of the country, the approach used to determine dense and sparsely populated areas could be as follows:

1- Carry out profitability simulations by distinguishing - according to operators' market shares - three zones:

- Sparsely populated areas requiring public support: these are areas where no operator is profitable without a substantial increase in rates (the least populated islands for telephony; the whole country for fixed Internet networks). A single operator would then be appointed to roll out and operate the local network, in the form of a public service delegation. Roaming charges could be set by the local authorities.
- Low-density areas, profitable for one or two operators, but not all three, and requiring shared infrastructure:
 - With a single operator, roaming would remain unilateral, requiring strict control and even tariff setting by the country;
 - With two operators (e.g. Raiatea), the principle of commercial negotiation of roaming could be maintained, but with increased vigilance on the part of the Authority with

regard to the behavior of operators providing roaming and a capacity for *ex ante* arbitration on roaming tariffs and conditions by the Country;

- Competitive areas, with three operators (e.g. Tahiti): any residual roaming services would be freely negotiated, with simple information to the regulator and under the *ex-post* control of the Autorité with regard to competition rules.

2- This delimitation could be accompanied by a number of regulatory measures, including :

- Graduated control of roaming charges by zone:
 - tariffs set by decree for zones (i) and zones (ii) with a single operator,
 - controlled tariffs with the possibility of arbitration by the government in zones (ii) with two operators,
 - free tariffs, but with an obligation to provide information, or with the regulator's ability to mediate in three-operator zones.
- Review clauses, with a revision of the mapping, would be possible at regular intervals (2 years), notably with the aim of calibrating operators' deployment obligations, according to changes in their market share or technological developments (e.g. 5G...).
- Finally, to stimulate competition through services, the government could consider the implementation of virtual operators (MVNOs) rather than forcing all operators to deploy physical networks, including in Tahiti and Moorea where capacity is sufficient (environmental and economic advantage).

3- The government will also have to work out how to finance low-density areas, so as to ensure access at reasonable prices throughout the country.

The aim is to ensure the transparency of coverage costs, in order to put an end to the opacity of the internal equalization system and put retail operators on an equal footing.

A range of options is available:

- Purely public financing of the network, which would then be leased to operators
- Prefer public aid to compensate for structural deficits, in order to guarantee fair and reasonable tariffs for all retail operators.
- Implement an administered equalization mechanism between dense and sparsely populated areas (for example, in the form of a flat-rate tax on Tahitian residents, as is the case for electricity distribution).
- Use a bidding mechanism for coverage in areas not yet covered by a broadband network (competition for the market).

It could also look into the possibilities offered by satellite broadband links, and open them up to alternative operators, including on islands where a 4G network is available.

4- Beyond the strict question of zone delimitation, the effectiveness of the reform necessarily implies regulatory changes in the following areas:

- The separation of Onati's network and retail activities, not just in accounting and financial terms, but at least in functional terms, leading to the creation of two completely separate and autonomous entities (as in the case of RFF and SCNF in rail transport, for example).

- The implementation of independent telecoms regulation and a strengthening of the regulator's resources, possibly within a single independent administrative authority responsible for competition and network industry regulation.

Deliberated on the oral report of Mr Antoine Callot, Deputy General Rapporteur, with the intervention of Mrs Sophie Bresny, General Rapporteur, by Mr Henri Piffaut, Chairman of the meeting, Mrs Aline Baldassari and Mrs Marie-Christine Lubrano, members of the Board.

The Chairman

Henri Piffaut