

Nordstraße 116
40477 Düsseldorf
www.sbr-net.com

Spectrum Allocation in the German Mobile Market and the Outcomes of the Current Consolidation Process

An Analysis in Light of the Possible Merger of E-Plus and O2

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Martin Lundborg,
Ernst-Olav Ruhle,
Stephan Wirsing

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1 Introduction to the current situation

The possible “merger” (i.e. the intended acquisition of E-Plus by Telefónica O2) of the German mobile operators Telefónica O2 and E-Plus has been announced not long ago¹ and has been notified to the EU commission.² As for all mergers and acquisitions of such size, an assessment is carried out by the competition authorities with the aim to approve, disapprove or impose certain conditions (“remedies”) upon the parties. Due to the size of this merger, the assessment will be undertaken by the EU Commission (“EC”) led by commissioner Almunia.³ If the EC approves the merger with the parties’ commitments, the following provisions appear to be possible, e.g.:

- Reallocation of spectrum which has previously been assigned to the merging enterprises
- Access obligations to „non-network operators“ (MVNOs)

Such a move is not unique in European markets. Referring to the Austrian merger of Hutchison and Orange in 2012⁴, the Austrian market represents a showcase for both types of conditions imposed to such a merger. As this merger is still fresh, lessons can be learnt which may be useful for the decision to be taken in Germany.

The planned merger of E-Plus and O2 in Germany constitutes a new major test case for consolidation in the European telecom industry, which is gaining importance due to the current trends in regulatory policies: Following a decade of sector specific regulation with the intention to open up telecommunication markets and increase competition, including the opening up of markets to new players and increasing competition in the mobile sector by awarding new licensees and auctioning of spectrum, the EC has now announced a new “single market”⁵ policy favoring in principle consolidation in the industry in order to strengthen pan-European players. Such policy objectives may, however, be detrimental to the aim to promote competition on the national level.

In several countries, which have started out with five or six mobile network operators (especially after the allocation of UMTS spectrum in the early 2000s), competition has under-

¹ See e.g. <http://www.welt.de/wirtschaft/webwelt/article120593583/O2-und-E-Plus-machen-Megafusion-perfekt.html> where reference is made to the decision of KPN (the major shareholder of E-Plus) to approve the acquisition.

² See <http://derstandard.at/1381370822493/Bruessel-will-bis-Dezember-ueber-deutsche-O2-Uebnahme-entscheiden>

³ <http://www.heise.de/newsticker/meldung/EU-Kommission-will-ueber-Fusion-von-E-Plus-und-O2-entscheiden-1950954.html>

⁴ See EU decision from December 2012, http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=2_M_6497

⁵ See e.g. <http://ec.europa.eu/dgs/connect/en/content/digital-single-market>

cut profitability in such a way that after only a few years, market exit / consolidation remained the only viable option for some operators. In many countries, the markets have undergone a consolidation process ending up with only three operators. With regard to the merger of O2 and E-plus, it now seems as if Germany is going the same way.

The focus of this white paper is to briefly explore the competitive situation and the options for the involved competition authorities. In the past, commitments related to mergers of mobile operators have included a reallocation of spectrum and the granting of access. Therefore, we analyze the current (pre-merger) distribution of spectrum and customers and draw conclusions on which measures should be taken in Germany when deciding about the merger of O2 and E-Plus. This paper argues that the technical and commercial conditions in the German market clearly insist in favor of approving the merger with commitments in both areas. Learning from the recent consolidation case in Austria it can be concluded that, given the German market conditions, the merged operator should divest from some spectrum and should be obliged to offer MVNO access.

In the next section, we look at the German situation prior to the merger and discuss possible changes on the spectrum allocation due to the merger. This is followed by a brief outline of the Austrian situation, where a spectrum reallocation took place and access obligations were imposed. In section 4, we compare the situation in both countries by analyzing the spectrum allocation in conjunction with the market shares. Conclusions are presented in section 5.

2 The German Situation

Germany has for a long time had four operators with unequally distributed market shares in terms of subscribers. While T-Mobile and Vodafone each has held close to one third of the market, O2 and E-Plus has shared (a bit more than) the last third. With the merger of the two smallest operators, the operators would divide the market more evenly with 39 % for O2/E-Plus, 33 % for T-Mobile and 28 % for Vodafone.⁶

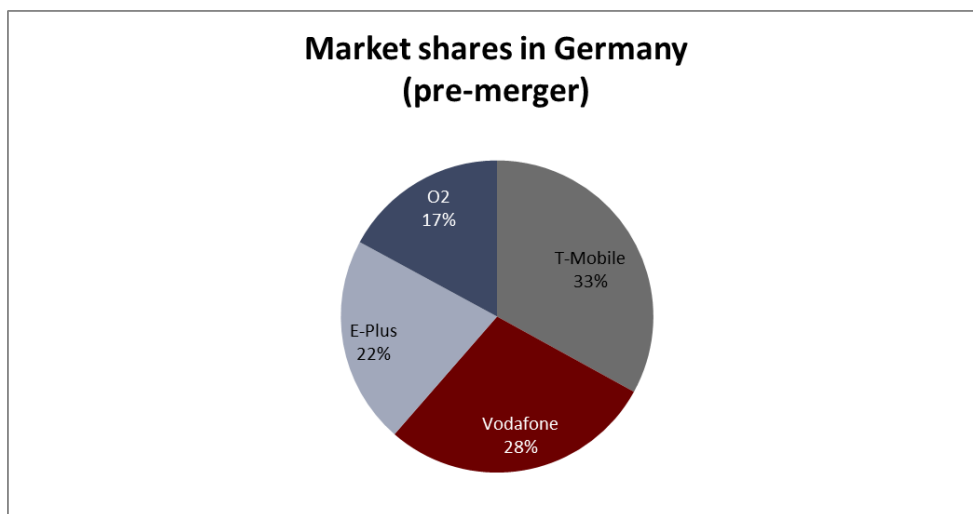


Figure 1: Market shares Q2/2013⁷

Market shares are, though, only one aspect of the decision to be taken in this case. Competition authorities will additionally have to assess the allocation of spectrum and consider applicable commitments which the merging parties should offer.

Currently, E-Plus and O2 together have 50 % of the spectrum allocated in the 450 MHz, 800 MHz, 900 MHz, 1800 MHz, 2000 MHz and 2600 MHz spectrum bands in Germany. After the consolidation, the new operator would hold one third of the valuable 800 MHz LTE spectrum, less than one third of the 900 MHz spectrum, but 64 % of the 1800 MHz spectrum.

⁶ This distribution of markets shares implies a HHI index of 3.385. This means that the market concentration is high, but for a market with only three operators, the concentration is only moderate.

⁷ Source: www.bnetza.de, retrieved 15.10.2013

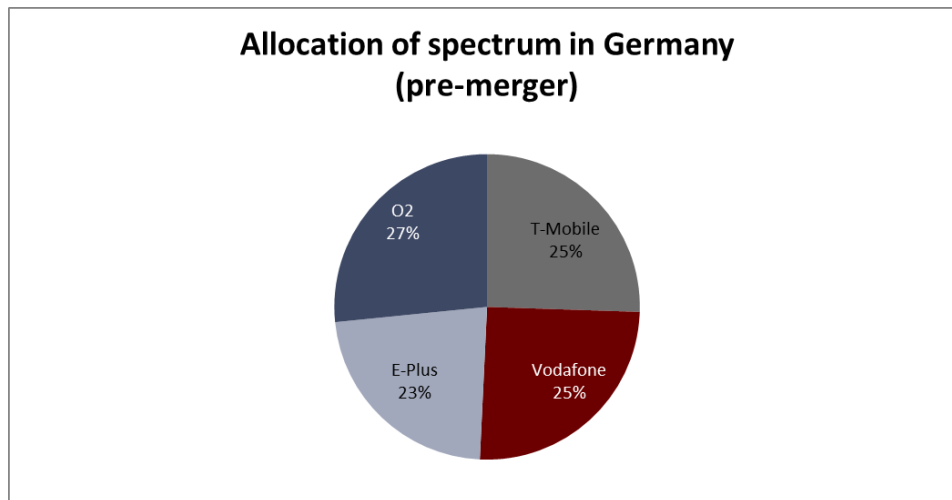


Figure 2: Spectrum allocation before the merger⁸

The distribution of the spectrum across the different spectrum bands prior to the potential merger is shown in the following table. As can be seen, O2/E-Plus would capture half the spectrum, but predominantly in the less attractive bands above 1 GHz.

	T-Mobile	Vodafone	E-Plus	O2
450 MHz paired	2 x 1.25	-	-	-
800 MHz paired	2 x 10	2 x 10	-	2 x 10
900 MHz paired	2 x 12.4	2 x 12.4	2 x 5	2 x 5
1800 MHz paired	2 x 20	2 x 5.4	2 x 27.4	2 x 17.4
2000 MHz paired	2 x 9.9	2 x 14.85	2 x 19.8	2 x 14.85
2600 MHz paired	2 x 20	2 x 20	2 x 10	2 x 20

Table 1: Distribution of spectrum in Germany (paired spectrum in MHz)

Based on this distribution, a reallocation seems to be the most viable option to deal with the allocation situation. Although O2/E-Plus have the less attractive spectrum, the new operator would be in the position to gain competitive advantages due to the higher bandwidth per subscriber in the access network at the same or even lower costs (see also section 4).

As a conclusion, the merger would bring about one operator with almost 40 % of the market shares and 50 % of the spectrum. This indeed calls for commitments to be fulfilled as a result of the investigation by the competition authorities.

⁸ Source: BNetzA

3 The Austrian Benchmark

The head of the German regulator, Jochen Homann, has stated that it makes sense to reflect previous assessments made by competition authorities in the EU.⁹ A similar case is to be found in Austria. Here, the number of operators has dropped from six to three within the last decade. Similar to Germany, in the most recent acquisition (Orange was acquired by Drei/Hutchison), the market experienced a consolidation of the two smallest operators.

As opposed to Germany, the merged operator Drei has now only a market share of 24.1 % (Q1/2013) and not almost 40 % as E-Plus/O2 in Germany would have.¹⁰ Another difference is that Drei went from possessing 15 % of the spectrum to 39 %, implying a much more symmetrical allocation of spectrum amongst the operators compared to Germany.

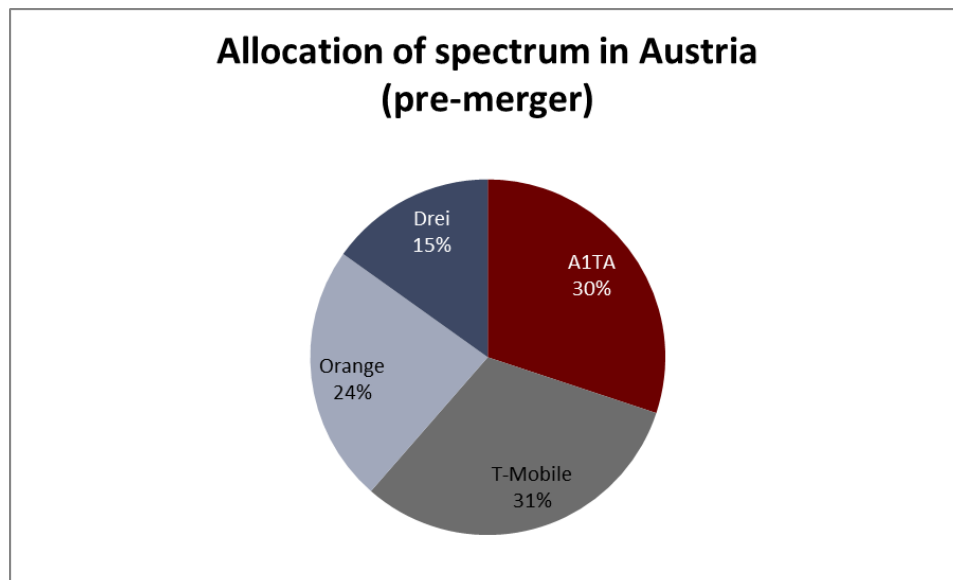


Figure 3: Allocation of spectrum in Austria before the take-over of Orange

In the Austrian case, the competition authorities concluded, that the acquisition of Orange could be approved with certain commitments from the merged entity. The approval was given under the commitment to reallocate a portion of the spectrum to other operators (i.e. to divest 2x10 MHz in the 2.6GHz frequency band and some spectrum in the 900 MHz band) and to grant access to MVNOs. These “remedies” in merger cases are always formulated as “commitments” by the merging parties (“Drei” / “Hutchison” is also referred to as “H3G”).

⁹ Source www.heise.de, „Regulierer: Fusion von E-Plus und O2 als Chance für neuen Anbieter“, published 22.10.2013

¹⁰ Source: RTR, Telekom Monitor 3/2013

The commitments in Austria regarding access for MVNOs¹¹

- Drei has to make available wholesale MVNO access to the Drei network to up to 30% of its capacity subject to a maximum of 16 MVNOs which are independent and unconnected to any MNO active in Austria.
- Interested MVNOs must apply and enter into an MVNO agreement with Drei before the MVNO Wholesale Access Commitment expires.
- Drei offers wholesale access to the Drei network for the origination and termination of circuit switched, SMS and packed switched data (including MMS) services to MVNO customers.
- Drei offers: (i) wholesale access to the Drei network for the provision of value added services to MVNO customers; (ii) location data for emergency call delivery services and location data and real time CDRs for legal interception services with respect to the MVNO customers; and (iii) a copy of its MNP database as at the date of the MVNO agreement.
- Drei will consider reasonable requests to provide additional services, subject to negotiation and agreement on the terms and conditions (including charges).
- The wholesale access services will be provided using the mobile network technologies which Drei uses to provide services to its customers, including future evolutions in mobile technologies within a reasonable period of the commercial launch of the technology by Drei.
- Drei offers differentiated pricing at attractive rates, which will facilitate MVNO business models.
- The initial term of an MVNO Agreement will be of 3 years, with a right for the MVNO to extend, in principle, until 2022.

The following figure shows the allocation after the consolidation. Due to the remedies imposed Drei gave up approximately 4 % of the entire spectrum in Austria to A1TA.

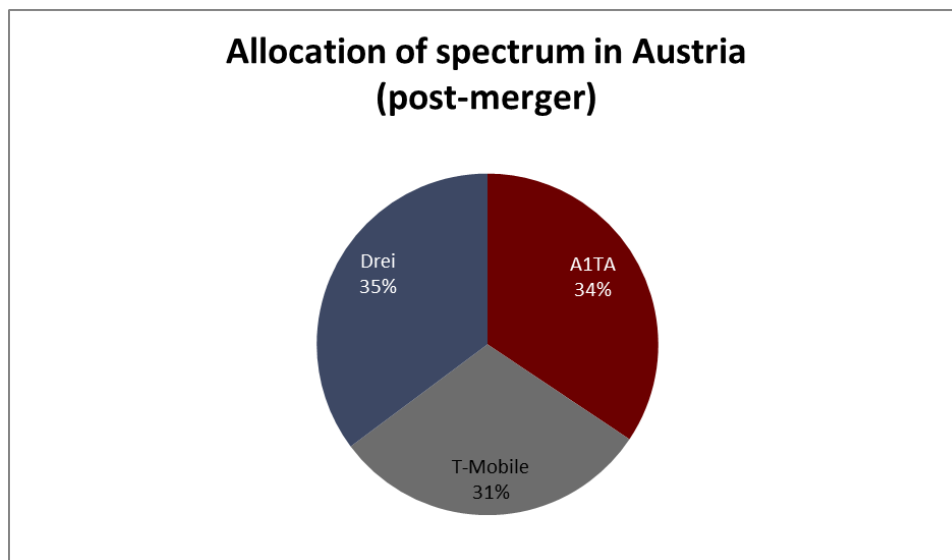


Figure 4: Allocation of spectrum after the merger

¹¹ See <http://www.competitionrx.com/Hutchison3GAustria.php>

The comparison shows that at least an adjustment of spectrum allocation to match the market shares should be considered in Germany as well.

The fact that the market shares are determining the amount of spectrum needed can be seen in the spectrum auction ending in October 2013 in Austria.¹² This auction led to a significant shift by the allocation of spectrum, as illustrated by the subsequent figure. Drei reduced its overall spectrum share from 35 % to 29 % while the biggest operator A1TA increased from 34 % to 42 %. In the next section, we are looking at the link between market shares and spectrum resources. These changes were brought about by the allocation of 800, 900 and 1800 MHz spectrum only, but the shares in the subsequent chart reflect the allocation of 2100 and 2600 MHz spectrum as well.

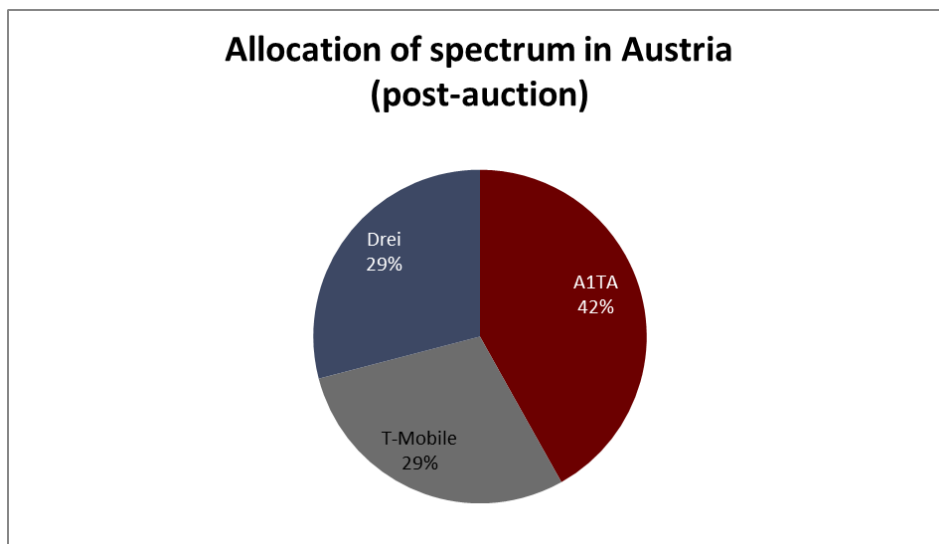


Figure 5: Result of the auction in Austria ending October 2013

¹² See https://www.rtr.at/de/pr/PI21102013_02TK/PK21102013TK_Praesentation.pdf

4 Spectrum Allocation and Market Shares

The indicator „number of subscribers per MHz” is often considered as a rough estimate for the operator’s network quality, as it is linked with the bandwidth that can be offered to the subscribers. A lower value implies more bandwidth per customer at more or less the same network costs per base station. Furthermore, it indicates that operators would have to roll-out fewer base stations in order to reach the same bandwidth per customer, leading to lower network costs. Hence, a lower number of subscribers per MHz indicates a competitive advantage.

After the merger of E-Plus and O2, the new operator would have to serve 40 % less customers per MHz than T-Mobile, although it has higher market shares (33 % for T-Mobile and 39 % for E-Plus/O2). Based on the lower number of subscribers, O2/E-Plus can realize a competitive advantage. This is especially true in urban areas, but only to a certain extent in rural areas, as O2/E-Plus predominantly holds spectrum in the bands above 1 GHz.

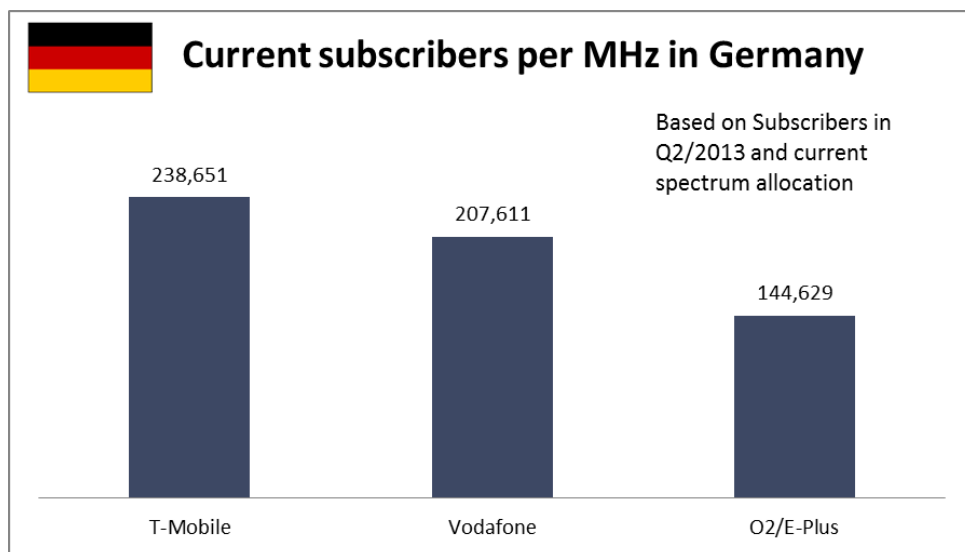


Figure 6: Number of subscribers per MHz in Germany

In Austria, such asymmetry existed too after the acquisition. In Austria though, the market share of Drei/Hutchison is significantly lower than those of O2/E-Plus. Drei has only 24 % of customers, while A1TA has 46 %.

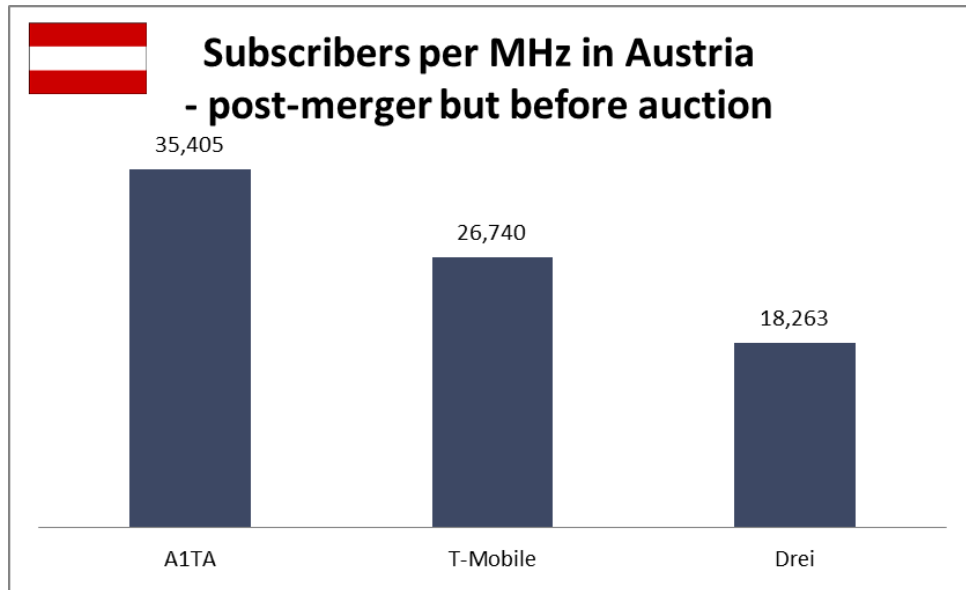


Figure 7: Subscribers per MHz in Austria after the acquisition

This was enough for the competition authorities to decide that Drei must give up some spectrum. As can be seen in the next figure, the asymmetry has been significantly reduced in the auction which took place later on, ending in October 2013:

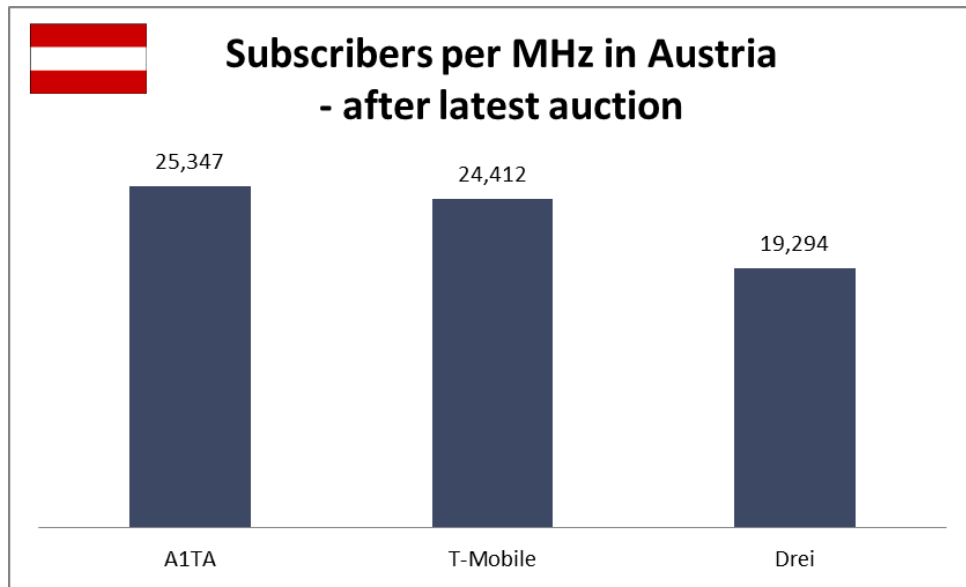


Figure 8: Subscribers per MHz in Austria after the auction of spectrum

Figure 9 compares the situation in Germany for O2/E-Plus without commitments (i.e. before any decision of the competition authorities has been made) and the situation in Austria according to the outcome of the conditions under which the merger was accepted. Before any decision is taken in Germany, O2/E-Plus has 22 % less subscribers per MHz

compared to the total average in Germany. In Austria, the commitments of the approved merger led to a situation where Drei had 32 % less subscribers per MHz than the market average in Austria. This implies that a spectrum reallocation in Germany will most likely be of a smaller size, seen in relation. Still though, as one operator in Germany will have half of the spectrum, some sort of spectrum reallocation is to be expected.

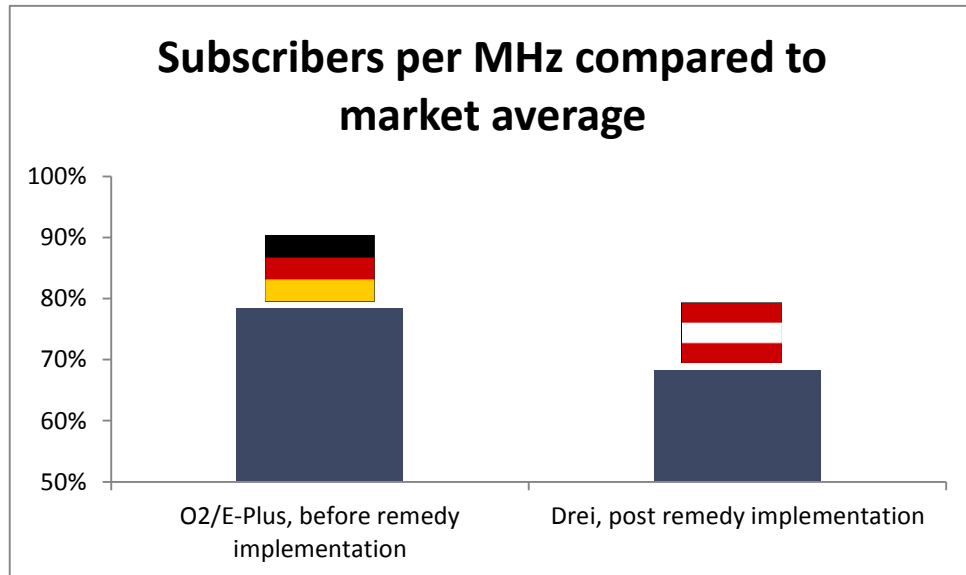


Figure 9: Comparison of current German situation with outcome in Austria

When comparing absolute values, some adjustment has to be made, which reflects the different size of the two countries. As frequencies are reused over the covered territory, the division by the respective surface area serves as a rough estimate for scaling the values. The comparison between Austria and Germany is thus made on the basis of subscribers per 1MHz per 1000 km², as shown in the subsequent figure.

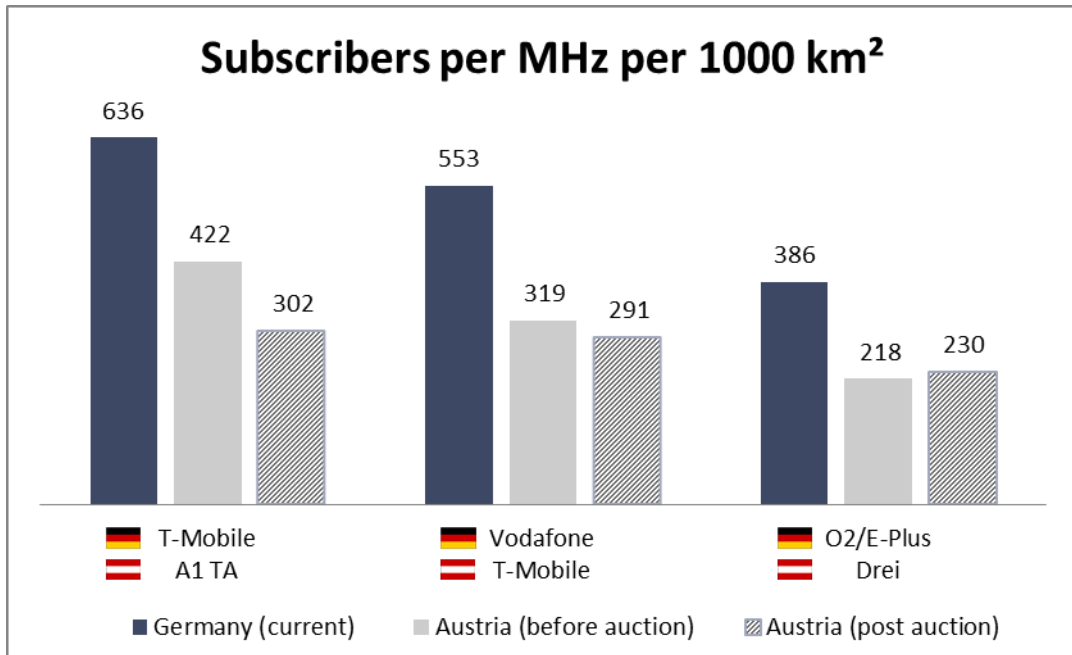


Figure 10: Comparison on the basis of subscribers per bandwidth and area

It can be observed that the values in Austria tend to be in the range of around 60% of the values for Germany, which indicates a higher concentration of users within its entire state territory. It is worth noting that in both countries the distribution of the number of subscribers per MHz had been similar prior to the Austrian reallocation. The following figure compares the value of each operator to the average among all national operators.

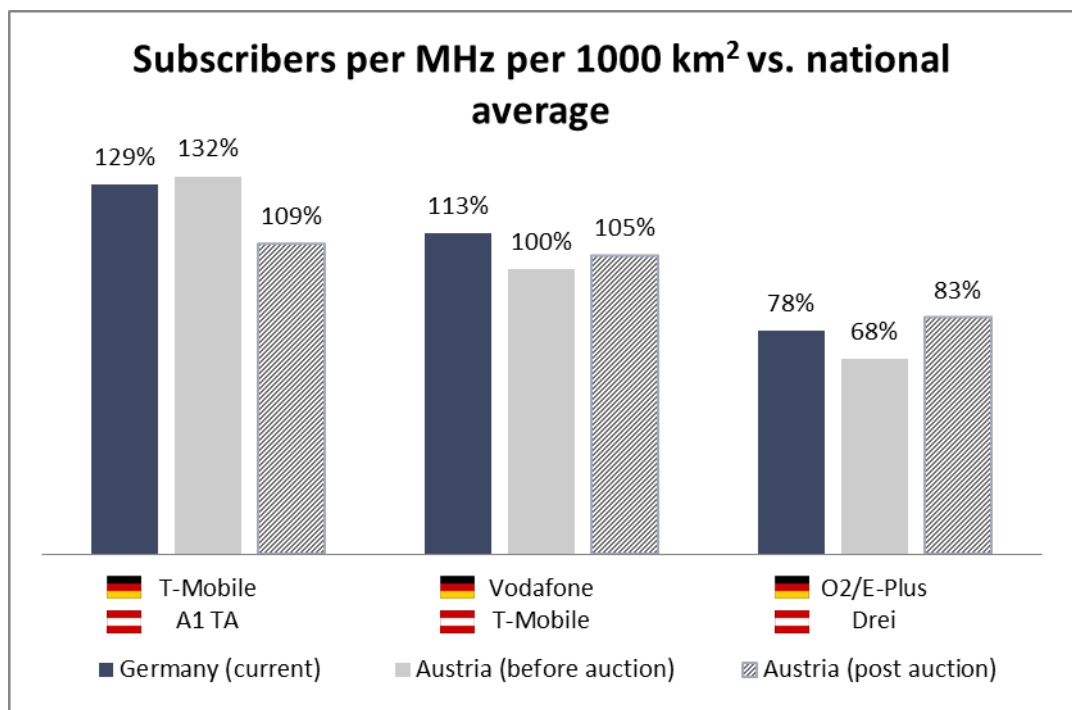


Figure 11: Comparison with national averages

The average number of subscribers per MHz for Germany is 184,500 and for Austria 26,700 (before auction).¹³ In both countries, the deviations from the national averages of the formerly largest operator were almost equal (around +30 %), whereas in Germany the remaining operators are still closer to the values of T-Mobile. As described before, this supports the view that the adjustment may not be as large as in Austria.

¹³ The averages for both countries have been calculated as the total number of subscribers divided by the total amount of spectrum allocated to the operators.

5 Conclusion

Based on our assessments, we arrive at the conclusion that the competition authorities are likely to approve the merger in Germany only if the parties make significant commitments. This is based on the fact that the operator O2/E-Plus will capture half of the spectrum in Germany. Further, the operator will have almost 40 % market shares, implying that the operator will have at least a strong position in the market.

Based on experience from other mergers and acquisitions in the sector, applicable remedies are especially the reallocation of spectrum and access for MVNOs:

- In Austria, the merging operators had to give up spectrum and grant access to MVNOs. Granting of access to MVNOs has to be closely followed and regulated in order to enable MVNOs to compete on a level with network operators that put them on equal footing, pricewise and from a technological perspective.
- E-Plus/O2 will probably have to give up parts of the spectrum above 2 GHz, but this will not be enough to provide a level playing field. When this decision is taken by the competition authorities, the amount paid for spectrum will be relevant as well, but won't serve as an excuse for not imposing this remedy.

As E-Plus is host to a large number of MVNOs in Germany (which mostly were brands of the E-Plus group), obligations to provide access to MVNOs are crucial to the competition in the retail markets. The reduction of the number of network operators from 4 to 3 is crucial with respect to the intensity of competition. Therefore, irrespective of spectrum as a resource for competition between different operators, MVNO access is necessary to ensure competition from other market players than the network operators. Regulated MVNO access is therefore key to maintain the level of competition in the German market in case of a merger of E-Plus/O2.

Contact SBR Juconomy Consulting AG

Austrian Office

Parkring 10/1/10

1010 Vienna

Austria

T: +43 1 513 51 40 80

F: +43 1 513 51 40 95

E: ruhe@sbr-net.com

German Office

Nordstraße 116

40477 Düsseldorf

Germany

T: +49 211 68 78 88-0

F: +49 211 68 78 88-68

E: lundborg@sbr-net.com