Of spectrum and Radio Access Networks: the T-Mobile/Orange joint venture in the UK

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1. Introduction

On 8 September 2009, France Télécom and Deutsche Telekom, the French and German incumbent telecommunication operators, announced a 50/50 joint venture between their UK subsidiaries, Orange and T-Mobile, with the purpose of combining their mobile telecommunications businesses.

The operation brought together the third (Orange) and fourth (T-Mobile) players in the UK retail mobile telephony market, behind the market leader O2, and the number two, Vodafone. Pre-merger, 3UK (2) was the number five player, with a significantly smaller market share.

In addition to these five Mobile Network Operators (MNOs), i.e. operators which own their mobile network, there are around 25 other Mobile Virtual Network Operators (MVNOs) in the UK, representing around 5% of the mobile retail market in total. In the UK wholesale mobile market, T-Mobile was the leading player by number of subscribers and by revenues, mainly because of its wholesale agreement with the MVNO Virgin. Orange had a minor market share, below 10% by subscribers and by revenues.

The merger investigation of the transaction took place against the background of quickly-evolving regulatory and market circumstances. On the one hand, the United Kingdom was implementing the European Directive (Directive 2009/114/EC (3)) for liberalisation and refarming of the 900 MHz, in order to free it also for 3G traffic. On the other hand, the UK Government, together with the UK telecoms regulator OFCOM, was planning a spectrum auction, in which mobile operators could bid for the 800 MHz band (the so-called Digital Dividend, to be freed by moving from analogue to digital television) and the 2.6 GHz band (the ‘Combined Auction’) (4).

The preliminary design of the Combined Auction was agreed in the course of 2009 after long negotiations between all UK mobile operators and OFCOM. The result included the introduction of spectrum caps to ensure that mergers between MNOs would not lead to an undue concentration of one spectrum band in the hands of a single mobile operator. Nevertheless, in its consultation document, the ‘Digital Britain Report’, the UK Government also stated that, in case of market consolidation, the Competition authorities would remain free to impose remedies other than spectrum caps and that any Direction to OFCOM would be conditional on further remedies imposed by the Competition Authorities that would need to be implemented.

Given the complex regulatory issues involved and the UK focus of the transaction’s impact, close cooperation between the Commission and both the Office of Fair Trading (OFT) and OFCOM proved to be very useful.

The transaction attracted broad public attention and a number of complaints from competitors and consumer organisations, which pleaded inter alia for the case to be referred to the UK authorities.

The Commission’s investigation focussed on four issues, namely (i) direct effects of the transaction on the retail market, (ii) direct effects of the transaction on the wholesale market, (iii) effects on T-Mobile’s existing Radio Access Network (RAN) sharing agreement with 3UK and (iv) effects on the distribution on radio frequency spectrum holdings.

2. Retail market

In its investigation, the Commission confirmed the parties’ claim that the UK market for retail mobile services was highly competitive and was likely to remain competitive following the proposed transaction (5).

(1) The content of this article does not necessarily reflect the official position of the European Commission. Responsibility for the information and views expressed lies entirely with the authors.

(2) 3UK is the UK subsidiary of the multinational group Hutchinson Whampoa Limited.


(4) The design of this auction, which was subject to public consultation, was expected to be finalised on the basis of a Direction to OFCOM, which was supposed to be approved by the Houses of Parliament before the May 2010 general elections were called. However, the previous Parliament did not manage to approve the Direction in time, and the new Government has not yet provided clear indications as to its intentions as regards the Direction (situation as of July 2010).
tion, taking into consideration the market’s structure and characteristics.

The penetration rate of the UK mobile communication market was more than 125%. While the parties would have had a combined [30-40]% market share, the merged entity would face competition from two comparably strong players, O2 and Vodafone, as well as of the smallest MNO, 3UK. The UK mobile communication market was further characterised by the presence of a large number of ‘general’ MVNOs, such as Virgin and Tesco, and a series of other MVNOs, such as Lebara or Lycamobile, offering low-cost international calls to customers from ethnic and immigrant groups. MVNOs not only competed on price and consumer service with their host networks, but also stimulated competition by introducing innovative business models. The Commission also found that, according to independent surveys and studies, prices of a basket of mobile services had been falling year-on-year. Furthermore, the market was characterised by consumers with significant switching rates among competitors, and by efficient distribution channels. In addition, the parties provided comprehensive switching data showing that they were not particularly close competitors, and that neither of them was a particularly important competitor. Both parties had lost market share over time. Overall, based on numbers of subscriptions, their market share had been decreasing between 2004 and 2008.

The Commission therefore concluded that the transaction would not have a direct negative impact on competition for mobile telephony in the UK retail market.

However, the investigation also addressed the possible effects of the merger on the role of 3UK in this market. 3UK was found to be an important driving force for competition on the UK mobile market. It was the first to introduce a low-cost, flat-rate mobile broadband package and was continuing to maintain its price leadership position in mobile broadband services: it offered the cheapest mobile broadband data package on the market. 3UK was also the first UK operator to introduce new products such as mobile broadband dongles aimed at a mass-market audience.

For reasons further explained below, the Commission came to the conclusion that the transaction might have indirectly affected 3UK’s role on the retail market. However, as this aspect also affected the assessment of the wholesale level of the UK mobile communication market, the question as to whether 3UK would have remained a viable competitor after the proposed transaction will be dealt with separately below.

3. Wholesale market

The Commission investigated whether the proposed merger would alter the opportunities for MVNOs to have access to the networks of the MNOs, thereby limiting the competitive pressure that they were able to exert on the largest players (namely, O2, Vodafone, T-Mobile, Orange and 3UK). In particular, the Commission verified whether the transaction could have direct anti-competitive effects as a result of the ensuing reduction in the number of MNOs and/or of a possible capacity reduction that combination of the networks could entail.

3.1. Reduction in the number of MNOs

At the wholesale level, the transaction reduced the number of players from five to four. The merger created the number one player both by subscribers [40-50%] and by revenues [40-50%], ahead of O2 [(20-30)% by subscribers, (20-30)% by revenues] and Vodafone [(20-30)% by subscribers, (20-30)% by revenues), while 3UK had only a negligible market share. However, the parties provided switching and bidding data showing strong competition between MNOs at wholesale level. Moreover, the Commission did not receive substantiated complaints on excessive concentration at the wholesale level.

3.2. Reduction in capacity available to MVNOs

The Commission raised the possible effect on capacity at wholesale level at an early stage of the investigation. Sufficient unused network capacity is a key prerequisite for supplying wholesale communications to MVNOs and an incentive to attract new wholesale customers. Network capacity is determined on the basis of the radio frequency spectrum available to the network, the number of sites/cells, and the number of carriers within a cell (1) that transmit the radio signal between the mobile terminal equipment and the antenna. MNOs usually have spare capacity on their network to address increases in demand within the medium term. Consequently, particularly in a situation such as that in the UK, where there are already a significant number of MVNOs present in the market, they do not have the incentive to foreclose MVNOs, as the losses that they would incur in doing so exceed any retail revenues they would pick up should these MVNOs exit the market.

Although the main synergies expected from the merger would stem from the combination of their respective networks, the parties claimed that the

(1) Those factors have a direct incidence on the number of calls that can be handled through a single cell.
combined entity’s network rationalisation would eventually lead to a more efficient network, with more capacity. The parties notably explained that there is no direct relation between the number of sites and the capacity of a network, since a single site can host several carriers operating on different spectrum bands.

While the Commission received some complaints from MVNOs indicating that the merger might reduce capacity or bargaining power, none of these complainants suggested that the operation could increase the parties’ incentives to foreclose MVNOs. The market investigation revealed, on the contrary, that all MNOs would continue to own unutilised spectrum capacity (though possibly reduced compared to the current situation) and that they would continue to have an incentive to host existing and additional MVNOs, and even possibly have more incentives to compete aggressively to acquire MVNO customers.

Finally, the Commission also found that foreseeable rising needs in capacity necessary to address the exponentially-growing bandwidth demand for data transmission and mobile internet access would limit the parties’ incentives to reduce their network capacity, either within the course of network rationalisation, or in view of future investments.

4. T-Mobile’s RAN sharing agreement with 3UK

4.1. The existing agreements

3UK is the only MNO in the UK exclusively holding a 3G network. In order to limit operational costs and to enhance the coverage it offers to its customers, in 2007, 3UK entered into two network agreements: a 3G RAN sharing agreement with T-Mobile and a 2G national roaming agreement with Orange (6).

3UK and other complainants expressed concerns to the Commission with regard to the future of the RAN sharing agreement, and the negative consequences that termination of it would entail both for 3UK and the UK mobile market in general. The Commission carefully analysed these complaints in view of the fact that 3UK has been a particularly important driver of innovation and competition in the UK in recent years. The Commission investigated whether the merger could potentially change the merged entity’s behaviour in relation to 3UK and, in particular, whether the consolidation of Orange’s and T-Mobile’s networks could have a direct negative impact on current agreements with 3UK, leading ultimately to its marginalisation or, in the worst case scenario, to its elimination as an important competitive force.

4.2. Ability of the parties to terminate or severely compromise the RAN sharing agreement

The parties claimed that they would have no real ability to terminate the RAN sharing agreement in the short term, since it had been agreed on a long-term basis, and a unilateral early termination would entail payment of significant penalties. Besides, any breach of the agreement by any of the parties would be sanctioned by significant deterrence payments.

3UK claimed that the parties would de facto be able to damage the agreement in the short term without incurring any significant penalty cost.

The Commission found that, although the agreement had a number of safety clauses that could to some extent guarantee 3UK’s position, the creation of the JV with Orange might have an effect on T-Mobile’s commitment to the agreement. T-Mobile might be able to use certain provisions related to the decision-making process within the joint venture with 3UK as a tool to slow down and hinder 3G RAN’s development to the detriment of 3UK.

Furthermore, the Commission noted that it had still not been agreed how completion of the integration of T-Mobile’s and 3UK’s RANs on the other hand, and T-Mobile’s and Orange’s networks on the other, would be carried out. This aspect could potentially cause serious damage to the development and maintenance of the RAN shared network and, as a consequence, seriously compromise 3UK’s ability to compete effectively.

Therefore, the Commission concluded that, in the absence of appropriate remedies, the parties post-merger might have the ability to terminate early, or, at least, to compromise the functioning of the existing 3G RAN sharing agreement, to the detriment of 3UK.

6 3UK explained that the 2G roaming agreement is currently necessary to ensure the extensive coverage required by customers of mainly voice and text messaging services. Once the integration of T-Mobile’s and 3UK’s 3G networks is completed, the relevance of the 2G agreement with Orange will significantly decrease. Under the RAN share, the companies agreed to merge their existing RANs to create a single 13 000 site network and set up a joint venture to manage the integration (hereinafter ‘the RAN sharing JV’). Once completed, the network is supposed to increase 3UK’s sites footprint and guarantee to 3UK an extensive coverage of service, for both voice messaging and data transmission.
4.3. Incentives of the parties to terminate or severely compromise the RAN sharing agreement

The Commission observed that the calculation of incentives in this case, as presented by the parties and 3UK, was particularly complex, as it involved a comparison between cost savings (from maintaining the RAN agreement running) and possible profit gains from acquisition of the competitors’ customers (in the case of marginalisation of 3UK) and would probably deserve an in-depth investigation. This concern was shared by the OFT.

However, the Commission also noted that it could not be excluded that T-Mobile, instead of trying to terminate the agreement, might instead try to reduce the quality of the RAN with 3UK (for instance, as mentioned above, by using certain deadlock provisions) to weaken the quality of its services to customers. Ultimately, T-Mobile, without incurring the high liabilities provided for by the contract, might prefer to accelerate the integration of its network with Orange’s network, while slowing down the integration of the RAN with 3UK, or reducing the RAN’s quality. As a consequence of a lower quality service, 3UK’s competitive pressure on the JV might be significantly reduced and the JV might gain a large number of 3UK customers.

Therefore, the Commission concluded that the parties, post-merger, might have the incentive to terminate early, or to compromise the functioning of the existing 3G RAN sharing agreement to the detriment of 3UK.

The possible disappearance of 3UK or the degradation of its competitive position could consequently have a serious impact on the UK retail mobile communication market. That would mean the merger could, in a worst-case scenario, ultimately lead to concentration from five to three players. The OFT and OFCOM also expressed concerns on this issue.

In order to resolve the competition concerns raised by this element of the transaction, the parties submitted commitments (see below).

5. Concentration of spectrum

5.1. Spectrum holdings of UK MNOs

Following the operation as initially notified, T-Mobile and Orange would have held a combined amount of contiguous spectrum at the 1800 MHz frequency level significantly larger than their competitors:

<table>
<thead>
<tr>
<th></th>
<th>900MHz</th>
<th>1800 MHz</th>
<th>2100 MHz</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange</td>
<td>-</td>
<td>2x30MHz</td>
<td>2x10MHz</td>
<td>2x40MHz</td>
</tr>
<tr>
<td>T-Mobile</td>
<td>-</td>
<td>2x30MHz</td>
<td>2x10MHz</td>
<td>2x40MHz</td>
</tr>
<tr>
<td>Combined</td>
<td>-</td>
<td>2x60MHz</td>
<td>2x20MHz</td>
<td>2x80MHz</td>
</tr>
<tr>
<td>Vodafone</td>
<td>2x17.4MHz</td>
<td>2x5.8MHz</td>
<td>2x15MHz</td>
<td>2x38.2MHz</td>
</tr>
<tr>
<td>O2</td>
<td>2x17.4MHz</td>
<td>2x5.8MHz</td>
<td>2x10MHz</td>
<td>2x33.2MHz</td>
</tr>
<tr>
<td>3UK</td>
<td>-</td>
<td>-</td>
<td>2x15MHz</td>
<td>2x15MHz</td>
</tr>
<tr>
<td>Total</td>
<td>2x35MHz</td>
<td>2x72MHz</td>
<td>2x60MHz</td>
<td>2x167MHz</td>
</tr>
</tbody>
</table>

In the context of mobile broadband communication, three dimensions of an operator’s spectrum holdings are particularly relevant: (i) the aggregate amount of spectrum available, which is the main determinant for capacity; (ii) the frequency band used, since different frequency bands present different propagation characteristics: lower frequency spectrum (e.g. 900 MHz) is generally preferable to higher frequency spectrum — e.g. 1800 MHz or 2600 MHz — as lower frequency signals generally travel further and penetrate more deeply into buildings than do higher frequency signals; and (iii) the amount of contiguous spectrum available. Contiguous spectrum is generally preferable, as this can allow both the provision of higher speed end-user services and the provision of moderate speed end-user services more consistently over a larger area.

In addition to the spectrum described above, two further bands of spectrum are due to be made available within the next few years (2x30MHz of spectrum in the 800MHz band and 2x70MHz in the 2600 MHz band). At the time of the investigation, the UK Government was holding a consultation on proposals that would entail the auctioning of these two bands of spectrum together in the first half of 2011.
5.2. Next generation — Long Term Evolution

Long Term Evolution (LTE) technology, also referred to as fourth generation (4G) will be developed in UK within the coming years. Compared to previous generations (3G or HSPA), it is expected to provide higher bandwidths, especially suitable for faster data transmission.

The Commission investigation revealed that the distribution of spectrum among competitors for the provision of next generation mobile broadband services is likely to have a significant impact on the shape of future competition for the provision of mobile services. Notably, in order to deploy the most efficient and fastest download speed LTE technology, contiguous spectrum of 2x20 MHz is preferable, and necessary to achieve the maximum bandwidth possible (a speed of 100 Megabit per second – Mbps). While LTE can also be launched on 2x10 MHz or even smaller bands, on the basis of current technologies, the full speed will not be reached if this smaller amount of spectrum is used.

5.3. Adverse impact on competition

As a result of the combination of the 1800 MHz spectrum bands currently held by T-Mobile and Orange, the merged entity could have been the only MNO with a clear path to full coverage maximum-speed LTE technology in the UK. It seemed plausible that the 1800 MHz spectrum could have been used by the JV to launch a national 2x20 MHz LTE network in the near future, notably due to the fact that it could have used its significant amount of spectrum at the 1800 MHz level (2x60 MHz combined) to clear 2x20 MHz within a short time frame, while migrating customers from one of the merging parties’ networks to the other, offering up to 100Mbps speed. On the basis of current technology, a competitor with less than 2x20 MHz exclusively dedicated to LTE would not be able to offer this speed.

The merger could thus possibly have led the parties to have the only full-speed national LTE network in the short to medium term, since the amount and type of spectrum held by an MNO dictates its ability to launch a LTE network as well as the speed of that LTE network.

5.4. The situation in the absence of the merger

In the absence of the merger, several scenarios could have been envisaged. The allocation of spectrum pre-merger would have allowed for up to five networks to be built in the medium/long term. A key point is that the additional spectrum to be auctioned could have enabled the different MNOs, including the parties on a stand-alone basis, to launch a mixed frequency LTE network, by combining (a) rural LTE networks using either 800 MHz or 900 MHz spectrum and; (b) an urban LTE network using 1800 MHz or 2600 MHz spectrum. Another option available to MNOs, which would have allowed the earlier launch of full coverage 2x20 MHz LTE networks, would have been to pool spectrum in the 1800 MHz band. Therefore, in the absence of the merger, it seems likely that more than one LTE network would have emerged in the UK market.

The concentration of spectrum in the 1800 MHz band could therefore have an anti-competitive impact on the future of the UK mobile telephony market, both at wholesale and at retail level. The OFT and OFCOM also expressed concerns on this issue. In order to resolve the competition concerns raised by this element of the transaction, the parties submitted commitments (see immediately below).

6. Remedies

The parties submitted formal commitments to address competition concerns identified in relation to (i) 3UK’s position on the market and (ii) the concentration of spectrum in the 1800 MHz band. Following comments received after the Commission market test and contacts with the OFT and OFCOM, the parties submitted a final revised set of commitments on 11 February 2010.

6.1. T-Mobile’s RAN sharing agreement with 3UK

The parties initially offered a unilateral commitment to modify and amend the 3G RAN sharing agreement and the 2G national roaming agreement according to terms set out in a draft agreement attached to the commitments. The Commission’s main concern regarding the binding unconditional offer proposed by the parties is that the offer did not meet the criteria the Commission had established in relation to remedies offered in first phase (7). A unilateral commitment which depends on the agreement of a third party not bound by the commitments themselves does not resolve the problem identified in a clear-cut manner.

(7) ‘The remedies [should be] so clear-cut that it is not necessary to enter into an in-depth investigation and that the commitments are sufficient to clearly rule out serious doubts’ within the meaning of Article 6(1)(c) of the Merger Regulation’, Commission notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004, paragraph 81, OJ 2008/C 267/01.
The parties subsequently managed to reach an agreement with 3UK on 19 February 2010. The object of that agreement was:

(i) the timing of the consolidation of the 3G RANs of T-Mobile and 3UK;

(ii) the cancellation of certain early termination rights;

(iii) the extension of the 2G agreement and the reduction of charges thereof;

(iv) a mutual commitment to negotiate and conclude a network integration plan between the parties and 3UK; and

(v) a fast-track dispute resolution mechanism to guarantee the speedy resolution of any related dispute.

The Commission considered that the agreement reached with 3UK clearly met the competition concerns raised during the market investigation. In particular, the parties and 3UK reached certainty on the terms of the plan to integrate the respective networks, one of the most serious concerns in the Commission’s prima facie assessment. Given that a clear sequence of events had been established and that a fast-track dispute resolution mechanism had been introduced, the possibility of the parties reducing the quality of the shared RAN with 3UK had been severely limited.

6.2. Spectrum

In order to remove possible concern as regards the JV’s spectrum holding following the proposed transaction in the UK market, France Télécom and Deutsche Telekom made a commitment to divest, either by way of a private sale or in the OFCOM auction (see above), 2x15 MHz of the JV’s 1 800 MHz spectrum band (the ‘Divestment Spectrum’).

The Divestment Spectrum consists of:

(i) 2x10 MHz of the JV’s 1 800 MHz spectrum (‘Divestment Spectrum I’); and

(ii) further 2x5 MHz of the JV’s 1 800 MHz spectrum (‘Divestment Spectrum II’).

The parties made a commitment to divest or procure the divestment of the Divestment Spectrum I and II by a defined deadline. In addition, the parties made an undertaking that the Divestment Spectrum I would be cleared and all related licences would be surrendered to OFCOM by no later than 30 months after the end of the OFCOM auction, and no later than 30 September 2013, whichever is earlier.

The parties undertook that the Divestment Spectrum II would be cleared and all related licences would be surrendered to OFCOM by no later than 30 September 2015. After the market test, and on the basis of observations raised by both OFCOM and OFT, the parties submitted further specifications to address a number of uncertainties connected to the sequence of the private sale and of the auction options for divestiture. This concern was related to the fact that, in making spectrum purchasing decisions, operators need to have a clear idea of the spectrum holdings of the various competitors. In addition, the revised set of commitments took into account a number of concerns that had been raised either by the respondents to the market test or by the UK Authorities.

The amendments to the text of the commitments ensure greater clarity as to the time-line for the different alternative divestment processes for the Divestment Spectrum. Regarding the possibility of making a private sale of the Divestment Spectrum under national law, OFCOM has confirmed to the Commission that it intends to legislate in order to enable lawful trading of the 1 800 MHz spectrum licenses. The text expressly indicates that the purchaser of the 2x10 MHz should also be the purchaser of the 2x5 MHz. This will ensure that the purchaser holds a sufficient amount of spectrum to allow independent deployment of a competitive LTE network. The divestiture mechanism of the commitments provides that, if the spectrum were to be offered unconditionally in an OFCOM auction, the Commission would have to approve the successful bidder on the basis of the same criteria established for the potential purchaser. The Commission will therefore retain control over the possible successful bidder in the auction.

The Commission concluded that the above commitments clearly solved the prima facie serious doubts expressed with respect to T-Mobile’s radio access network-sharing agreement with 3UK and to the excessive concentration of spectrum in the hands of the merged entity.

7. Cooperation with the UK authorities

The transaction provides an excellent example of close and productive cooperation between competition and regulatory authorities (OFCOM) and between the Commission and a national competition authority (OFT). Given that the transaction had a Union dimension, the parties opted for a notification to the Commission from the start. However, given the UK focus of the transaction and the regulatory issues at stake, a referral request to the UK from the OFT was considered likely. As of pre-notification, the Commission therefore engaged in close cooperation with OFCOM and the OFT.

On 3 February 2010, following a public consultation, the OFT submitted a request to the Commission to accept a referral to examine the proposed
transaction pursuant to Article 9 (2) (a) of the EU Merger Regulation. The OFT based its request on the concerns that the Commission had already identified.

Subsequently, the parties proposed a package of remedies, which was market-tested and fine-tuned in the course of the investigation. Both UK authorities were also very cooperative during the remedies negotiations. The Commission benefited in particular from OFCOM's regulatory knowledge of the British mobile telephony market.

In the light of the commitments offered by the parties, the OFT withdrew its referral request on 1 March 2010.

8. Conclusion

This case presented a number of challenges not only for the Commission, but also for its two UK counterparts, OFT and OFCOM.

(1) The analysis of the UK regulatory framework proved to be a demanding exercise. In particular, there was uncertainty connected with the future of the Government’s direction regarding the spectrum auction.

(2) At a very early stage of the investigation, the Commission became aware of the importance of the outcome of the merger with respect to the future allocation of the spectrum and the future dynamics of the UK mobile telecommunications market.

(3) As the parties decided not to request a pre-notification referral of the case to the UK authorities, the Commission had to cooperate closely quite early in the process with both the Office of Fair Trading, which expressed its interest in requesting a referral pursuant to Article 9 of the Merger Regulation, and OFCOM, whose concern about the concentration was dictated by the importance of the outcome of the merger with respect to the allocation of the spectrum and the future dynamics of the UK mobile telecommunications market.

(4) Finally, a small number of active complainants were particularly vigilant regarding the transaction, and submitted technically detailed complaints that had to be taken into account in the Commission’s assessment.

In conclusion, close cooperation between the Commission and the two UK authorities, as well as the positive attitude the parties showed in dealing with a complex process, were particularly crucial in allowing the authorities to achieve their shared goal, namely to maintain competition in the UK mobile telephony market for the benefit of consumers.