

This is a redacted version of the report. The European Commission included this redacted version in the file of the 4 to 3 mobile merger between T-Mobile and Tele2 in the Netherlands (merger case M.8792).

The European Commission, the United States Department of Justice, a number of United States Attorney General offices, the competition authorities of Netherlands, Germany, Canada, Australia, etc. and sector regulators have acquired a license of the full report.





T-Mobile and Tele2 4 to 3 mobile merger in the Netherlands – Competition concerns, network efficiencies and effective remedies


Are there any remedies that can remove the short and long term competition concerns entirely?

Rewheel research study

Key questions examined

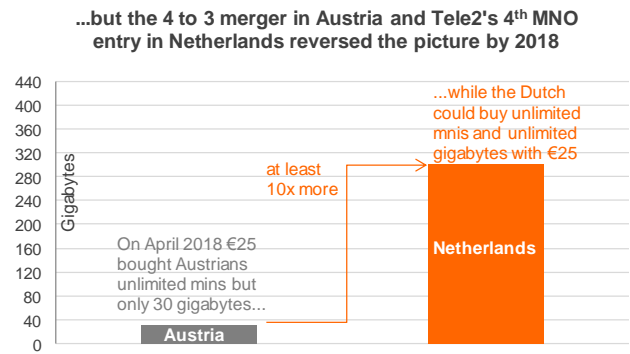
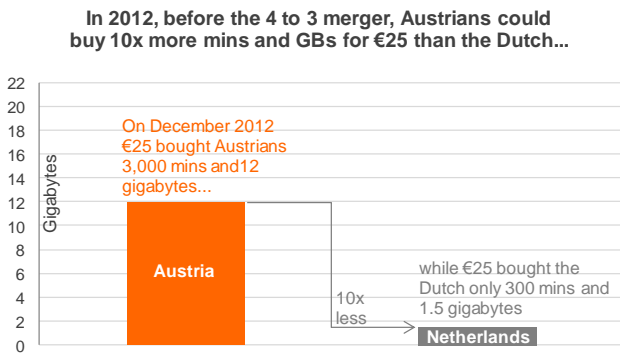
- Has Tele2's 4th MNO entry into the Dutch mobile market led to lower prices?
- Did the approval of the 4 to 3 mobile mergers in Austria, Ireland and Germany lead to higher prices?
- Will the proposed 4 to 3 merger of T-Mobile / Tele2 lead to higher prices and/or consumer harm?
- Will the upcoming 700/1400/2100 spectrum auction have a significant impact on effective competition?
- Could sizable 3400 – 3800 MHz spectrum assignments (and massive MIMO) reshape the Dutch broadband market?
- Absent of the merger is it likely that Tele2 and/or T-Mobile will face network capacity constraints that may significantly impede their ability to act as effective competitors in the Dutch mobile and/or broadband markets?
- How many of Tele2 sites can be reused by T-Mobile?
- Will the combination of T-Mobile's and Tele2's spectrum and radio network sites lead to network capacity efficiency?
- Can network capacity, coverage or speed efficiencies counteract the anticompetitive effects in 4 to 3 mobile mergers?
- Are Tele2's current spectrum holdings (and network) substantially worse than those held by other 4th MNOs present in EU's big countries?
- Are there any effective remedies that can remove the short and long term competition concerns entirely?
- What structural divestments and other commitments are required to create an effective 4th mobile network operator?
- What market structure is more likely to be conducive to effective competition, lower prices, faster 5G introduction and higher investments?
- According to a Stratix study Dutch mobile operators will need to spend several billion EUR each to rollout 5G in the Netherlands. Fact or fiction?

<p>2012 Orange / HUTCH-3 4-3 merger Austria</p> <p>MVNO remedy </p> <p>APPROVED</p>	<p>2014 TEF-O2 / E-Plus 4-3 merger Germany</p> <p>MVNO remedy </p> <p>APPROVED</p>	<p>2014 TEF-O2 / HUTCH-3 4-3 merger Ireland</p> <p>MVNO remedy </p> <p>APPROVED</p>	 <p>Joaquin Almunia approved 4 to 3 mobile merges without upfront structural remedies</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

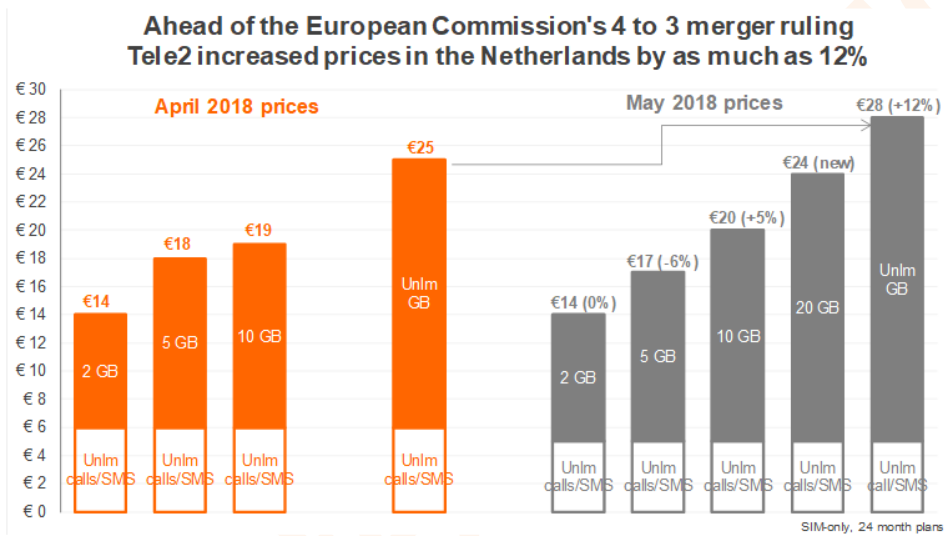
<p>2015 Telenor / Telia 4-3 merger Denmark</p> <p>4th MNO remedy NOT offered</p> <p>BLOCKED</p>	<p>2016 TEF-O2 / HUTCH-3 4-3 merger UK</p> <p>4th MNO remedy NOT offered</p> <p>BLOCKED</p>	<p>2016 WIND / HUTCH-3 4-3 merger Italy</p> <p>4th MNO remedy offered!</p> <p>APPROVED</p>	<p>2018 T-Mobile / Tele2 4-3 merger Netherlands</p> <p></p>	 <p>Margrethe Vestager made the approval of 4 to 3 mobile mergers subject to upfront structural remedies</p>
---------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Highlights

Has Tele2's 4th MNO entry into the Dutch mobile market led to lower prices?

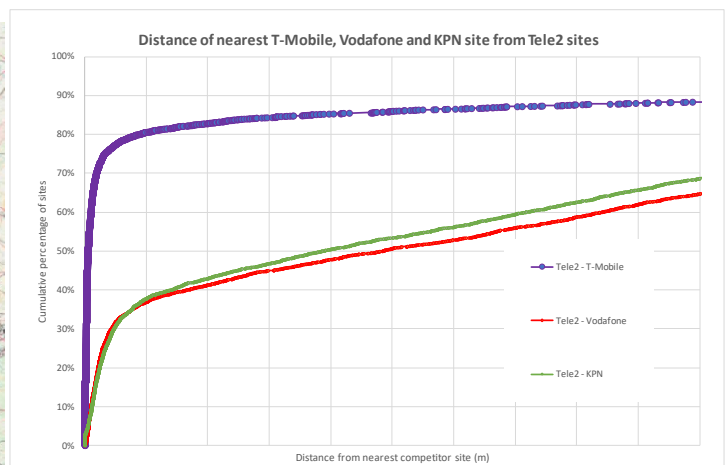
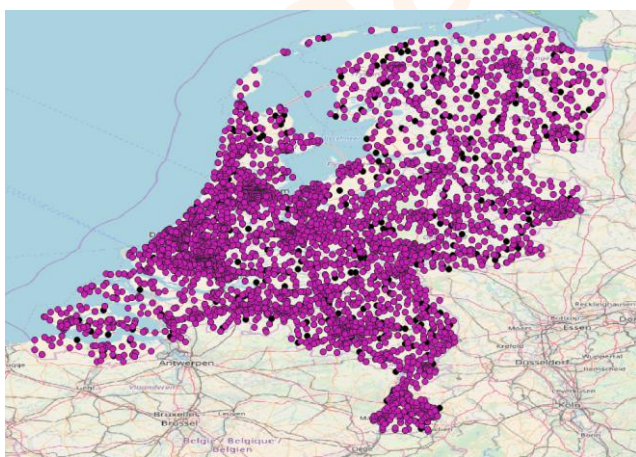


Will the proposed 4 to 3 merger of T-Mobile / Tele2 lead to higher prices and/or consumer harm?

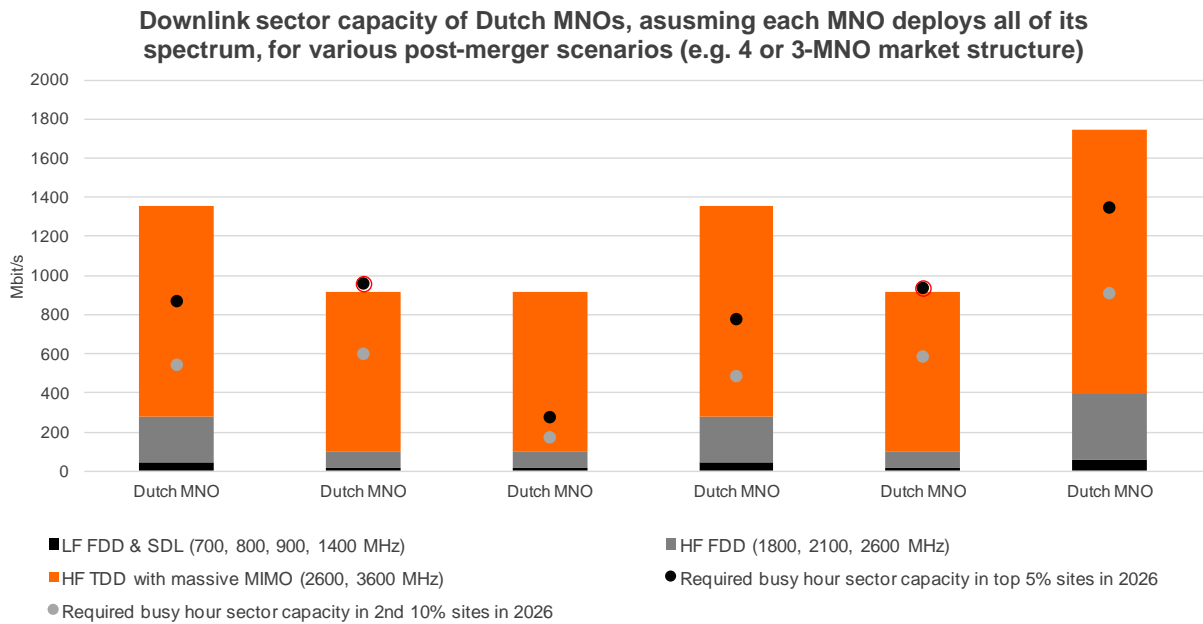


How many of Tele2 sites can be reused by T-Mobile?

In the map below the magenta coloured circles denote the location of T-Mobile's sites. The black circles denote the location of Tele2's sites. The magenta T-Mobile circles are in front of the black Tele2 circles, so the black circles show Tele2 sites which are not co-located with a T-Mobile site – Tele2 sites that are co-located with T-Mobile's sites are covered by the magenta circles.



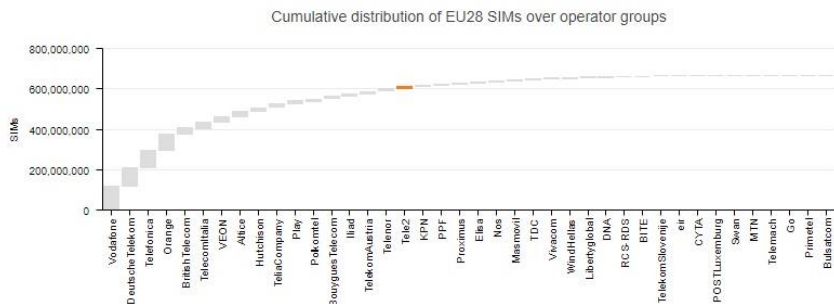
Will the combination of T-Mobile’s and Tele2’s spectrum and radio network sites lead to network capacity efficiency?



Tele2 group brief¹

Telco brief: Tele2

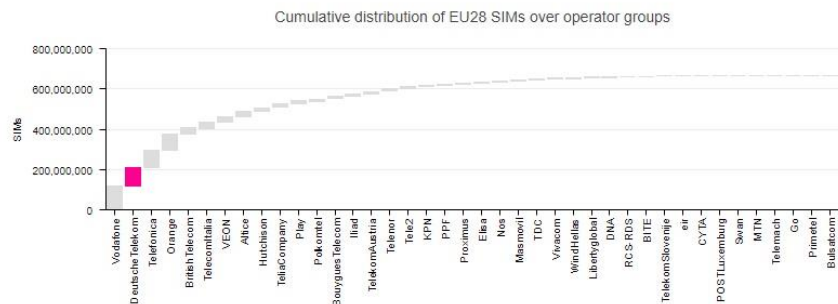
SIMs in EU28 member states: **8,948,000**
 Share of EU28 SIMs: **1.34%**
 Link to group reports: (link)
 Main brands, sub-brands, MVNOs: ⓘ
 Competitors in EU28: BITE DeutscheTelekom Elisa Hutchison KPN TelekomAustria Telenor TeliaCompany Vodafone



Deutsche Telekom telco brief²

Telco brief: Deutsche Telekom

SIMs in EU28 member states: **90,110,000**
 Share of EU28 SIMs: **13.49%**
 Link to group reports: (link)
 Main brands, sub-brands, MVNOs: ⓘ
 Competitors in EU28: Hutchison KPN Orange Play Polkomtel PPF RCS-RDS Swan Tele2 Telefonica Telekom Austria Telenor Vodafone Wind Hellas



¹<http://research.rewheel.fi/Tele2/>

²<http://research.rewheel.fi/DeutscheTelekom/>

Context

The planned 4 to 3 mobile merger between T-Mobile and Tele2 in the Netherlands is the seventh such merger attempted in EU28 since 2012. The European Commission, under the helm of Joaquin Almunia, controversially³ approved 4 to 3 mobile mergers in Austria (2012⁴), Germany (2014⁵) and Ireland (2014⁶) on the basis of behavioural MVNO wholesale access commitments and without any upfront structural remedies.

The change of guards in the European Commission's portfolio for competition in November 2014 brought an abrupt end to the controversial approvals of 4 to 3 mobile mergers with ineffective MVNO based remedies. Margrethe Vestager took over from Joaquin Almunia and suddenly normality and the rule of law (i.e. merger remedies must remove the competition concerns entirely⁷) returned to merger control in Europe.

In September 2015, after failing to satisfy the Commission's demands⁸ to create upfront a new 4th mobile network operator, Telenor and Telia announced⁹ the withdrawal of their proposed¹⁰ merger in Denmark. Right after Telenor and TeliaSonera had withdrawn from their proposed 4 to 3 mobile merger¹¹ we asserted¹² that the Commission would no longer approve 4 to 3 mobile mergers on the sole basis of behavioural MVNO remedies. Commissioner Vestager stressed that the significant competition concerns of the proposed 4 to 3 mobile mergers in Denmark¹³ and the UK¹⁴ required an equally significant structural remedy: the creation of a 4th mobile network operator. Nine months later, in May 2016 the Commission blocked¹⁵ Hutchison's acquisition¹⁶ of Telefonica-O2 in the UK on the same grounds i.e. Hutchison did not agree to the upfront creation of a new 4th mobile network operator.

In a key study we released in January 2016 titled "*Effectiveness of MVNO wholesale access remedies*" and which we had earlier submitted to Commissioner Vestager and DG Competition we showed¹⁷ that under no circumstances MVNO wholesale access remedies can remove the competition concerns entirely – as EU merger regulation requires¹⁸ – in 4 to 3 mobile mergers. All MVNO wholesale access remedies, irrespective of the specific market conditions (e.g. Germany or UK) or contractual/implementation terms (e.g. so called '*capacity*' or fractional shared network ownership), have material limitations and are intrinsically ineffective. The merger mandated so called '*capacity*' MVNOs that Mr. Almunia engineered in Austria, Germany and Ireland, as we asserted back in 2015, did not become effective competitors i.e. they did not substitute in full the competitive pressure that the eliminated 4th mobile network operator would have continued to exert in the market. In 2018 we validated our assertion in a study¹⁹ titled "*Gigabyte price development in 4 to 3 consolidated versus 4-MNO European markets – September 2013 to March 2018*". One of the key findings of our study was that by March 2018 gigabyte prices in 4 to 3 consolidated German, Austrian and Irish markets have fallen considerably behind the Netherlands and all other 4-MNO European markets.

In September 2016 the Commission approved²⁰ the 4 to 3 Italian merger²¹ between Wind and Hutchison-3 subject to Iliad becoming the new 4th mobile network operator, through the upfront acquisition of divested spectrum and radio network sites. Few months earlier, in May 2016 we had submitted the findings of our Italian 4 to 3 mobile merger study²² titled "*Effective structural remedies for Hutchison-WIND 4 to 3 Italian mobile merger*" to Commissioner Vestager and DG Competition. In our Italian mobile merger study we framed, analyzed and quantified the critical parameters (radio network & spectrum divestments) of the significant structural

³http://research.rewheel.fi/insights/2015_jan_premium_austria/

⁴http://europa.eu/rapid/press-release_IP-12-1361_en.htm

⁵http://europa.eu/rapid/press-release_IP-14-771_en.htm

⁶http://europa.eu/rapid/press-release_IP-14-607_en.htm

⁷http://research.rewheel.fi/insights/2015_jan_premium_austria/

⁸http://europa.eu/rapid/press-release_STATEMENT-15-5627_en.htm

⁹<https://www.telenor.com/media/press-release/telenor-and-teliasonera-withdraw-from-merger-in-denmark/>

¹⁰<https://www.telenor.com/media/press-release/telenor-and-teliasonera-to-merge-danish-operations-to-create-robust-mobile-contender/>

¹¹<https://www.telenor.com/media/press-releases/2015/telenor-and-teliasonera-withdraw-from-merger-in-denmark/>

¹²<http://www.reuters.com/article/teliasonera-telenor-denmark-idUSL5N11H0IU20150911>

¹³http://europa.eu/rapid/press-release_STATEMENT-15-5627_en.htm

¹⁴http://europa.eu/rapid/press-release_IP-16-1704_en.htm

¹⁵http://europa.eu/rapid/press-release_IP-16-1704_en.htm

¹⁶<https://www.ft.com/content/9d43d52c-d250-11e4-9c25-00144feab7de>

¹⁷http://www.dfmonitor.eu/insights/2016_jan_premium_mvno_remedies/

¹⁸<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32004R0139&from=EN>

¹⁹http://research.rewheel.fi/insights/2018_apr_pro_4to3_consolidation_vs_4MNO/

²⁰http://research.rewheel.fi/insights/2016_sept_premium_italy_hutch_wind_merger/

²¹<https://veon.com/media-center/Press-releases/2015/CK-Hutchison-and-VimpelCom-to-form-joint-venture-of-their-telecoms-businesses-in-Italy/>

²²http://research.rewheel.fi/insights/2018_apr_pro_4to3_consolidation_vs_4MNO/

remedy - the upfront creation of an effective viable 4th mobile network operator - that had the potential to remove all the short and long term serious competition concerns from the proposed 4 to 3 mobile merger of Wind and Hutchison-3 in Italy.

On the 12th of June 2018 the European Commission opened²³ an in-depth (Phase II) investigation into the proposed acquisition of Tele2 by T-Mobile in the Netherlands. The Commission has preliminary competition concerns both from non-coordinated and coordinated effects. The Commission has concerns that the transaction would have a negative impact in two ways: through the reduction in the number of players and by limiting the merged entity's incentives to compete effectively with the remaining operators. This could lead to higher prices and less investment in mobile telecommunications networks.

Furthermore, the Commission stated that the reduction in the number of mobile network operators following the merger may weaken competitive pressure and increase the likelihood that operators would coordinate their competitive behaviour, and raise prices on the retail markets. In addition to the four mobile network operators, there are also a number of mobile virtual network operators active in the market which use the physical network of mobile network operators to offer mobile telecoms services to consumers. The Commission is concerned that prospective and existing mobile virtual network operators may face more difficulties in obtaining favourable wholesale access terms from mobile network operators. On the 12th of September 2018 the European Commission came to the preliminary view that the Dutch 4 to 3 merger would significantly impede effective competition and issued a formal "Statement of Objections"²⁴.

In this study we set out to answer a number of key questions pertaining to the proposed 4 to 3 T-Mobile/Tele2 Dutch mobile merger.

- Has Tele2's 4th MNO entry into the Dutch mobile market led to lower prices? Did the approval of the 4 to 3 mobile mergers in Austria, Ireland and Germany lead to higher prices? Is the proposed 4 to 3 merger between the no.3 'challenger' and no.4 'maverick' MNOs likely to lead to higher prices and/or consumer harm?
- Will the upcoming 700/1400/2100 spectrum auction have a significant impact on effective competition? Could sizable 3400 – 3800 MHz spectrum assignments (and massive MIMO) reshape the Dutch broadband market?
- Absent of the merger is it likely that T-Mobile and/or Tele2 will face network capacity constraints (i.e. spectrum holdings and/or radio network site access) that may significantly impede their ability to act as effective competitors in the Dutch mobile communication and/or broadband markets?
- Will the combination of T-Mobile's and Tele2's spectrum and radio network sites allow the merged operator to "...compete more effectively...due to enhanced scale...boosting network capacity for disruptive mobile data propositions while maintaining quality in terms of speed..." as Deutsche Telekom claimed in its merger communiqué²⁵? Can such efficiency claim be verified and is it merger specific?
- If the combination of the spectrum and network holdings of the merged operators could indeed lead to improved capacity – and such efficiency cannot be achieved by less anticompetitive alternatives (e.g. site sharing/co-location) – will such efficiency be substantial enough to counteract the merger's potential harm to consumers?
- Can network capacity, coverage or speed efficiencies counteract all the anticompetitive non-coordinated (increased concentration, loss of important competitive force, closeness of competitors, etc.) and coordinated (reduction in the number of firms required to coordinate, increased symmetries, removal of a 'maverick' firm that has a history of preventing or disrupting coordination) likely effects in 4 to 3 mergers?
- Are there any effective remedies that can remove the short and long term competitions concerns entirely?
- What structural divestments (spectrum holdings and number of sites divested or collocated) and other commitments are required to create an effective 4th mobile network operator competitor in the Dutch mobile and broadband markets?
- What market structure (current 4-MNOs versus 3-MNOs versus 3-MNOs plus new 4th MNO) is more likely to be conducive to effective competition, lower prices, faster 5G introduction and higher investments?

²³http://europa.eu/rapid/press-release_IP-18-4141_en.htm

²⁴https://ec.europa.eu/competition/mergers/cases/decisions/m8792_3403_11.pdf

²⁵<https://www.telekom.com/en/media/media-information/archive/t-mobile-nl-and-tele2-netherlands-to-join-forces-510808>

Table of Contents

1	Key findings and conclusions	8
1.1	Executive summary	8
1.2	Has Tele2's 4 th MNO entry into the Dutch mobile market led to lower prices?	12
1.3	Did the approval of the 4 to 3 mobile mergers in Austria, Ireland and Germany lead to higher prices?	13
1.4	Is the proposed 4 to 3 merger of T-Mobile / Tele2 likely to lead to higher prices and/or consumer harm?	17
1.5	Will the upcoming 700/1400/2100 spectrum auction have a significant impact on effective competition?	23
1.6	Could sizable 3400 – 3800 MHz spectrum assignments (and massive MIMO) reshape the Dutch broadband market?	24
1.7	Absent of the merger is it likely that Tele2 and/or T-Mobile will face significant network capacity constraints?	26
1.8	Will the combination of T-Mobile's and Tele2's spectrum and radio network sites lead to network capacity efficiency?	28
1.9	Can network capacity, coverage or speed efficiencies counteract the anticompetitive effects in 4 to 3 mobile mergers?	33
1.10	Are there any effective remedies that can remove the short and long term competitions concerns entirely?	42
1.11	What structural divestments and other commitments are required to create an effective 4 th MNO?	43
1.12	What market structure is more likely to be conducive to effective competition and to lower prices?	46
2	The Dutch market 2012 to 2018 – from 3 to 4 MNOs	50
2.1	The Dutch market went from 5 down to 3 MNOs between 2005 and 2007	50
2.2	The Dutch market before Tele2's 4 th MNO entry: a non-competitive 3-MNO mobile tight oligopoly	51
2.3	The Dutch market after Tele2's 4 th MNO entry: a vibrant 4-MNO mobile market with effective competition	54
3	The Dutch market 2019 to 2026 – a 4-MNO competitive market or 3-player tight oligopoly?	64
3.1	Current structure of the Dutch mobile and broadband markets	64
3.2	Impact of the proposed T-Mobile / Tele2 merger on the mobile and broadband market structures	66
3.3	Future market structure scenarios under investigation	67
3.4	Market model projections with 4 MNOs – T-Mobile / Tele2 merger is blocked	69
3.4.1	Mobile subscribers	69
3.4.2	Mobile service revenue	74
3.4.3	Annual mobile data volume	77
3.5	Market model projections with 4 MNOs – T-Mobile / Tele2 merger is approved with new 4 th MNO	85
3.6	Market model projections with 3 MNOs – T-Mobile / Tele2 merger is approved without new 4 th MNO	88
4	Upcoming spectrum auctions and network capacity model projections	91
4.1	Current spectrum holdings	91
4.2	Upcoming 700/1400/2100 spectrum auction	93
4.3	The 3400 – 3800 MHz band – game changer for broadband competition in the Netherlands	95
4.4	Assumed operator spectrum holdings 2019 - 2026	100
4.5	Dutch operator radio cell site grid analysis	102
4.6	Network capacity model	111
4.6.1	T-Mobile capacity model Merger blocked 4-MNO market scenario	112
4.6.2	Tele2 capacity model Merger blocked 4-MNO market scenario	114
4.6.3	Tele2 capacity model Merger blocked 4-MNO market scenario (sub-scenario with no mobile broadband substitution)	115
4.6.4	T-Mobile / Tele2 New 4th entrant 4-MNO market scenario	116
4.6.5	4th entrant New 4th entrant 4-MNO market scenario	117
4.6.6	T-Mobile / Tele2 No new 4th entrant 3-MNO market scenario	118
4.7	Network capacity model projections	119
4.7.1	The entire 390 MHz in the 3400 – 3800 bands is made available	120
4.7.2	Limited amount of spectrum in the 3400 – 3800 bands is made available	122
4.7.3	Very limited amount of spectrum in the 3400 – 3800 bands is made available	123
4.8	Stratix study: 5G rollout in the Netherlands will cost several billion EUR per operator, fact or fiction?	124

Get the full report

The full 128-pages report is available to our research subscribers. If you wish to receive a quote please contact us at research@rewheel.fi or +358442032339.

About Rewheel

*New radio spectrum bands, 4.5G and 5G technology, unlimited mobile data plans and the Internet of Things radically change mobile network operators' cost, revenue and profitability dynamics. **Rewheel's mission is to help operators prepare for the paradigm shift in network and spectrum strategy, spectrum valuation, network sharing, M&A, MVNO economics and mobile data pricing.***

Founded in 2009, Rewheel is a Finland based boutique management consultancy. Our clients are mainly European mobile network operators, telco groups, MVNO groups, sector regulators, governments, global internet firms, mobile data-centric start ups, PE and VC investors.

We delivered management consultancy work for clients in the United Kingdom, United States, Ireland, Switzerland, Finland, Sweden, Belgium, Greece, Poland, Slovenia, Hungary, Russia, Romania. Buyers of our research reports and related strategic workshops include many companies and authorities across Europe and worldwide.

Since 2010 we have been supporting a number of European challenger mobile operators in multiband (700, 700 SDL, 800, 900, 1400 SDL, 1800, 2600, 3400 – 3800 MHz) auctions with spectrum valuation and strategic advisory services.

Network economics metrics

For comprehensive data usage, spectrum usage and capacity utilisation metrics in EU28 and OECD markets visit

⇒ <http://research.rewheel.fi/networkeconomics/>

Recent research reports

The 4 to 3 consolidation effect – Ahead of the Commission's merger ruling Tele2 increased prices in the Netherlands

⇒ http://research.rewheel.fi/insights/2018_july_pro_T-mobile-Tele2_Netherlands/

The state of 4G pricing – 1H2018 – Digital Fuel Monitor 9th release

⇒ http://research.rewheel.fi/insights/2018_may_pro_1h2018_release/

Gigabyte price development in 4 to 3 consolidated versus 4-MNO European markets – September 2013 to March 2018

⇒ http://research.rewheel.fi/insights/2018_apr_pro_4to3_consolidation_vs_4MNO/

The state of 4G pricing – 2H2017 – Digital Fuel Monitor 8th release

⇒ http://research.rewheel.fi/insights/2017_nov_pro_2h2017_release/

Unlimited mobile data and near zero marginal cost – a paradigm shift in telco business models

⇒ http://research.rewheel.fi/insights/2017_sep_pro_near_zero_marginal_cost/

O2 – Ready to disrupt the German tight oligopoly market

⇒ http://research.rewheel.fi/insights/2017_apr_pro_o2_germany_turnaround/

Capacity utilization and fixed-to-mobile broadband substitution potential – A study of 64 European operators

⇒ http://research.rewheel.fi/insights/2017_mar_pro_network_utilisation_mimo/

Effective structural remedies for Hutchison-WIND 4 to 3 Italian mobile merger

⇒ http://research.rewheel.fi/insights/2016_sept_premium_italy_hutch_wind_merger/

Telenor Denmark – Turnaround strategy

⇒ http://research.rewheel.fi/insights/2016_apr_premium_telenor_denmark_turnaround/

The approval of the 4 to 3 Telefonica E-Plus merger with Mickey Mouse MVNO remedies made Germany the least competitive market in EU28

⇒ http://research.rewheel.fi/insights/2016_feb_premium_denmark_germany/

For further research reports visit research.rewheel.fi To learn more about our consultancy's profile visit rewheel.fi

1 Key findings and conclusions

1.1 Executive summary (redacted version)

The planned 4 to 3 mobile merger between T-Mobile and Tele2 in the Netherlands is the seventh such merger attempted in EU28 since 2012. Between 2012 and 2014, under the helm of Joaquin Almunia, the European Commission controversially approved 4 to 3 mobile mergers in Austria (2012), Germany (2014) and Ireland (2014) on the basis of behavioural MVNO wholesale access commitments and without any upfront structural remedies i.e. upfront creation of new 4th MNO. The change of guards in the European Commission's portfolio for competition in November 2014 brought an abrupt end to the controversial approvals of 4 to 3 mobile mergers with ineffective MVNO based remedies. In 2015 the European Commission de facto blocked the 4 to 3 mobile merger in Denmark (Telenor and Telia withdraw the merger). A year later the Commission prohibited the UK 4 to 3 mobile merger and approved the Italian 4 to 3 mobile merger only after Hutchison and Wind agreed to create upfront a 4th mobile network operator (Iliad).

In this study we set out to examine the facts concerning the post-merger price developments in consolidated vs. 4-MNO European markets, establish the key competition concerns that the proposed 4 to 3 merger in the Netherlands is likely to raise, assess the counteracting potential of the communicated claimed benefits and/or efficiencies and conclude by proposing a set of effective remedies that can – under strict conditions – remove the competition concerns entirely.

The mobile market in the Netherlands has a history of consolidation and market entries. In early 2000s there were five mobile network operators present in the Netherlands. Those were consolidated back to three by 2007. Tele2's 4th MNO entry into the Dutch mobile market – it acquired spectrum in late 2012 and launched in November 2015 – brought the number back to four. Based on tariff data analysed by the Dutch competition authority and as well based on our own pricing data that date back to 2012 we conclude that Tele2's entry into the Dutch mobile market as a 4th MNO led to lower end-user monthly prices for telephony services and as well to substantially lower mobile data unit (gigabyte) prices.

The opposite was true in markets where 4 to 3 consolidation was allowed. According to BEREC and as well our research findings, the 4 to 3 mobile mergers in Austria, Ireland and Germany led to higher end-user monthly prices for new customers in a number of segments. More importantly our pricing data showed that the 4 to 3 mobile mergers in Austria, Ireland and Germany led to substantially lower rates of decrease of mobile data unit (gigabyte) prices than the rate of decrease (i.e. observed in 4-MNO markets) that would, most likely, have been observed absent of the merger. Not surprisingly our data also shows that the prohibition of the Danish and UK 4 to 3 mergers and as well the approval of the Italian 4 to 3 merger with the entry of Iliad as a 4th MNO has led to lower end-user monthly and mobile data unit (gigabyte) prices.

So will the proposed 4 to 3 merger between T-Mobile and Tele2 lead to higher prices and/or consumer harm? The proposed merger is likely to lead to a significant impediment of effective competition both on the basis of non-coordinated and coordinated effects. The proposed merger has already led to significantly higher end-user monthly prices (+12%) and as well to higher mobile data unit (gigabyte) prices (+21%). Tele2 increased prices for new customers during spring 2018. If the proposed 4 to 3 merger is approved with MVNO based remedies and without the upfront creation of a new 4th credible MNO it is very likely that prices will increase further and unlimited mobile data plans will be removed from the market leading to significant and irreparable consumer harm.

But can a 4 to 3 merger lead to consumer harm even though both monthly prices (e.g. ARPU) and unit prices fell after the merger? Yes it can. Consumers could be harmed from a 4 to 3 mobile merger even though both monthly (e.g. ARPU) and unit (e.g. gigabyte) prices fell after the merger because absent of the merger, in a 4-MNO market, it is very likely that both monthly and unit prices would have fallen even more; see Iliad's recent mobile launch in the Italian market.

The government in the Netherlands was planning to hold a spectrum auction in the 700, 1400 and 2100 MHz bands during 2018. The proposed 4 to 3 mobile merger derailed the government's plan and now the auction will be held after the Commission has concluded its investigation and ruled on the merger, probably sometime in 2019. Based on the qualitative and as well quantitative (capacity analysis) assessment we carried herein we conclude that the upcoming 700/1400/2100 spectrum auction will most likely not have a significant impact on effective competition if the Ministry adopts the 700/1400/2100 spectrum caps proposed by ACM and assuming that T-Mobile and in particular Tele2 secure a minimum of [redacted] MHz in the 3400 – 3800 bands not later than

2020. We recommend to the Dutch Ministry of Economic Affairs to hold a combined 700/1400/2100/3400-3800 auction as soon as possible after the Commission has ruled on the merger. It is imperative that the Ministry of Economic Affairs ensures that Tele2 or the new 4th entrant is guaranteed access to a minimum of [redacted] MHz in the 3400 -3800 bands through set-asides or adequate spectrum caps.

The statistical analysis we carried out revealed that [redacted]% of Tele2 sites are less than [redacted] metres away from T-Mobile's nearest site. Based on this fact we conclude that [redacted]% of Tele2's sites are co-located with T-Mobile sites. Even if some of these sites are in fact not co-locations but represent independent T-Mobile and Tele2 sites, they are still too close to each other to become effective cell-splits and hence, they cannot be used for site densification (capacity enhancements) purposes. Moreover, in the most capacity-constrained areas, i.e. urban and dense urban areas, such as downtown Amsterdam and Rotterdam our analysis showed that the co-location is basically [redacted]%, therefore we cannot expect meaningful site densification synergies where network capacity enhancements will be needed the most. Nevertheless, in the network capacity analysis we undertook herein we took an optimistic approach and assumed that [redacted]% of Tele2's [redacted] sites could be effectively reused by T-Mobile. This will bring the total T-Mobile sites from [redacted] to [redacted]. KPN has [redacted] sites while VodafoneZiggo [redacted] sites.

The analysis that we carried out herein showed that the network capacity potential of the challenger mobile network operators (T-Mobile, Tele2, the combined T-Mobile / Tele2 and the new 4th entrant MNO) – and hence their ability to become effective competitors in the broadband market by utilizing their own infrastructure (4G/5G mobile networks) rather than relying on KPN's and/or VodafoneZiggo's fixed-line networks – will not be determined by the combination of existing spectrum holdings and/or cell sites but rather by the total amount of spectrum and the spectrum floors/caps that the Dutch government will set in the upcoming 3400 – 3800 MHz 5G auction.

If the Dutch government makes available [redacted] MHz in the 3400 – 3800 range and assuming that T-Mobile acquires [redacted] MHz and Tele2 acquires [redacted] MHz (KPN and VodafoneZiggo each acquire [redacted] MHz) T-Mobile's downlink sector capacity will grow by roughly [redacted] times while Tele2's by over [redacted] times. Adding Tele2's existing spectrum to T-Mobile's existing spectrum pales in comparison when the additional capacity from the 3400 - 3800 bands is taken into account.

Our network capacity calculations show that if T-Mobile and Tele2 (or the new 4th entrant) gain access to as little as [redacted] MHz of spectrum in the 3400 - 3800 bands they could carry the very substantial data traffic generated by their enlarge subscriber bases – [redacted]% and [redacted]% subscriber shares by 2026 including [redacted] million unlimited mobile broadband connections each yielding a [redacted]% mobile broadband only household penetration – on their independent networks by only having to build a moderate amount of new capacity sites i.e. [redacted] and [redacted] new macro sites by 2026 respectively. Such development will reshape the Dutch broadband market and substantially weaken the KPN / Vodafone-Ziggo broadband duopoly.

Moreover, assuming Tele2 does not pursue a fixed-to-mobile broadband substitution strategy but rather it uses regulated access to offer fixed broadband/TV services – so it does not acquire [redacted] million of unlimited mobile broadband household connections – it will most likely not face any material or significant capacity constraints even under the worst case scenario of not acquiring any new spectrum, assuming it builds or gains access to [redacted] new capacity sites. This is also true for T-Mobile considering it only needs to build [redacted] new sites without any new spectrum to accommodate the more than [redacted] times higher mobile data traffic it will carry by 2026 if it acquires [redacted] million of unlimited mobile broadband household connections. If T-Mobile does not acquire [redacted] million of unlimited mobile broadband household connections it can accommodate the projected mobile data traffic without any new spectrum and without having to build any new sites.

So will the combination of T-Mobile's and Tele2's spectrum and radio network sites lead to network capacity efficiency? The 4 to 3 merger between T-Mobile and Tele2 could lead to both network capacity efficiencies and inefficiencies if no new spectrum is made available the next 8 years. However, all capacity efficiencies/inefficiencies will cease to exist – can be neutralized by building or gaining access to a reasonably small amount of new sites (up to [redacted] for T-Mobile and [redacted] for Tele2) by 2026 – if T-Mobile and in particular Tele2 (or the new 4th entrant) gain access to a minimum of [redacted] MHz in the 3400 – 3800 bands.

We were told that although the parties have not formally claimed a '*failing firm*' defence Tele2 has been arguing that its future in the Dutch mobile market is uncertain because its site-collocation agreement with T-Mobile will expire by 2020 and T-Mobile may

choose to no longer extend it. Furthermore, we heard arguments that Tele2 may not be in the position to make further investments in acquiring spectrum and building new sites. Side stepping the issue concerning the absence of a 'failing firm' defence under which such claims can be formally assessed we have assessed the merits of such claims and found them not to be verifiable. Through spectrum caps or set-asides the Dutch Ministry could ensure that Tele2 can gain access to new spectrum at reasonable prices. The Dutch Telecommunication (June 2012) act stipulates that mobile operators in the Netherlands are obliged to share antenna sites, if technically feasible, when requested by another operator. Tele2 is already co-locating its radio equipment and antennas in thousands of T-Mobile sites hence it has been technically feasible. Moreover, Tele2 can gain access to KPN and/or VodafoneZiggo sites or build more sites of its own in case T-Mobile refuses to extend the collocation agreement and ACM fails to intervene and force T-Mobile to the negotiation table. In the end T-Mobile and Tele2 could choose to fully integrate their spectrum and RAN infra in the Netherlands into one common JV network without having to merge their retail operations (i.e. full merger) as Telenor and Telia have done in Denmark through a joint venture company called TT-Netvaerket and as the Commission prescribed to Hutchison and O2 during the UK 4 to 3 mobile merger assessment.

To help the reader to put into perspective Tele2's claim concerning its uncertain future in the Dutch market due to its weak spectrum holdings and limited access to sites, we carried out a benchmark of relevant metrics and compared Tele2 to its 4th MNO peers that are present in EU's big countries (France, UK, Poland, Spain, Italy). Tele2 has the fewest subscribers per macro site (e.g. [redacted]x less than Iliad-FR), holds the most spectrum per subscriber (e.g. [redacted]x more than Iliad-FR), has the lowest subscriber per MHz per site ratio (e.g. [redacted]x lower than Iliad-FR) and has the second lowest spectrum usage (e.g. [redacted]x lower than Iliad-FR) among the 4th MNOs present in EU's big countries.

Our qualitative assessment showed that in general network capacity efficiencies that might arise in 4 to 3 mobile mergers are likely to be marginal and hence will not have significant countervailing effect in determining post merger market prices. Network coverage improvements and/or faster 5G deployments are also likely to be marginal given that operators have already built most of the macro sites required for providing national coverage. Site-densification could lead to significant average network speed improvements. However, given that the current and projected (in case of no merger) average speeds are sufficient to provide an excellent user experience and quality in the foreseeable future, the additional value of higher average speeds will most likely not create any material benefit to consumers and hence cannot counteract the anticompetitive effects in 4 to 3 mobile mergers.

Given that Tele2 will not face material site access, spectrum (subject to acquiring [redacted] MHz in the 3400 – 3800 bands), capacity or investment constraints and factoring in that most of the network efficiency claims that might arise from the combination of T-Mobile's and Tele2's assets cannot be verified and/or are not merger specific and/or are not substantial enough to counteract the anticompetitive effects, we conclude that the 4 to 3 mobile merger in the Netherlands will require a very substantial remedy which, as the EU's Remedies Notice prescribes, must be timely (upfront) and structural in nature.

The only remedy that has the potential to remove entirely both the short and long term competition concerns from the 4 to 3 mobile merger of T-Mobile with Tele2 in the Netherlands is the upfront creation of a credible effective 4th mobile network operator.

Based on the findings of the competition assessment and network capacity analysis we carried out herein we conclude that the following package of divestments, commitments and other conditions are cumulatively required for the creation of an effective 4th mobile network operator in the Dutch market:

- T-Mobile and Tele2 must commit to divest upfront to the new 4th MNO a minimum of [redacted] spectrum
- T-Mobile and Tele2 must commit to divest [redacted] Tele2's [redacted] sites to the new 4th MNO and enter into a site collocation agreement with the new 4th MNO for [redacted]
- In addition to the upfront divested spectrum [redacted] it is imperative that the new 4th MNO is guaranteed timely access (not later than 2020), at a reasonable price [redacted], to a minimum of [redacted] MHz of TDD spectrum in the 3400 – 3800 bands. This condition can be realized if the Dutch government undertakes a binding commitment to set-aside [redacted] MHz in the upcoming the 3400 – 3800 auction for the new 4th entrant

- T-Mobile and Tele2 must commit to enter into a national 2G/3G roaming agreement for the provision of voice (SMS, etc,) services (but not data) with the new 4th MNO for a minimum period of 5 years. The commercial terms and rates of such wholesale agreement must be the subject to the upfront approval by the European Commission and/or ACM.

The package of divestments, commitments and other conditions we specified above – if taken by a maverick operator group such as Iliad, Reliance Jio, Hutchison or Play that currently have no presence, conflicting interests (e.g. fixed broadband) or other business links with the existing players in the Dutch market – has the potential to remove the competition concerns entirely from the proposed 4 to 3 mobile merger between T-Mobile and Tele2.

Finally, we conclude by asserting based on our analysis and empirical market data we have collected the last five years, that a market structure with 4-MNOs whereby T-Mobile and Tele2 are allowed to merge and a maverick operator becomes the new 4th entrant is most likely the market structure that will be conducive to the most intense level of effective competition, the lowest prices, the fastest 5G introduction and the highest market total investments (if the new 4th MNO launches 5G the remaining three operators will bring forward and expand their 5G plans).

[The remaining report sections are redacted in their entirety].