Economic review of the ACM's finding of joint SMP in retail and wholesale fixed access

Prepared for
VodafoneZiggo

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Executive summary

In the ACM's draft decision on wholesale fixed access of February 2018, the finding of a risk of joint significant market power (SMP) forms the basis for the ACM's conclusion that wholesale access regulation is necessary. This represents a significant change in approach to access regulation, as the ACM no longer considers KPN to have single-firm SMP (except in the retail business market for fixed broadband access), and the wholesale access obligations are intended to apply to the network of both KPN and VodafoneZiggo (VZ), for the first time in VZ's case.

The empirical evidence discussed in section 2 indicates that KPN and VZ have strong incentives to compete with each other, and to continue to invest, innovate, and introduce new products and services. The existing price and quality competition in the retail market is driven primarily by the competitive dynamics between KPN and VZ. This competitive dynamic between KPN and VZ will continue with or without the presence of alternative operators, such as Tele2, that currently use wholesale access provided by KPN to provide retail services.

Such effective competition will continue in light of the current market positions of KPN and VZ, and a number of pro-competitive market developments not controlled by either KPN or VZ. This strong degree of competition sufficiently rules out the risk of joint SMP (contrary to the ACM's finding).

In section 3 we review the established criteria for joint SMP against the available evidence on market dynamics, which confirms that there is no risk of joint SMP in the retail market, and nor would there be this risk in the wholesale market. KPN and VZ do not have the ability to reach terms of coordination around a focal product, nor to monitor each other for deviation from a coordinated outcome. In addition, there is no credible punishment mechanism to apply if a deviation is detected, and there are several external factors undermining the stability of any coordination.

Prices are unlikely focal points given the highly differentiated offerings and common use of promotions and discounts in the market. Asymmetry in investment and technology cycles means that investment is not a credible focal point for KPN and VZ either. Many different factors play a role in customers' decision making (as shown by customer survey evidence). This makes coordination on market shares difficult. The ability to monitor any deviations from a coordinated outcome is further undermined by technical and external market forces driving rapid change, with products and services frequently added (including quality innovations), reconfigured, and taken away. The disruptive presence of external parties (OTTs and mobile operators) also means that any collusive agreement between KPN and VZ would be difficult to sustain.

Neither of the punishment mechanisms considered by the ACM—short-term price war in retail, and providing wholesale access—is plausible in practice. A short-term price war is not credible. Punishment in the form of wholesale access provision is unlikely to be effective as a result of lengthy negotiation periods between access providers and potential access seekers. This means that the deviating network will have gained a first-mover advantage, and punishment in the form of further wholesale access provision or a short-term price war is likely to have a limited impact. Longer-term price cuts are costly for all firms, including the punishing firm, and the decision to provide wholesale

access will at this point be sunk, with the deviating firm locked into wholesale contracts, so that it cannot easily be persuaded to reconsider its decision to deviate.

Section 4 covers the wholesale fixed access market and shows that neither the ACM's game-theoretical framework nor the available evidence on market dynamics and incentives support a finding of a risk of joint SMP.

The ACM begins its assessment of joint SMP in the wholesale access market by setting out a game-theoretical framework. While this framework gives the appearance of economic rigour, the way the ACM has applied and interpreted the framework has substantial shortcomings.

The relative pay-offs in the ACM's version of the framework are an artificial construct, and market evidence indicates that the relativities are wrong. In particular, VZ does not have unilateral incentives to provide wholesale access (as stated by the ACM itself in its retail market analysis), while KPN does (in line with the ACM's assumptions and KPN's own position). This fundamentally alters the pay-off matrix, and means that there is no prisoners' dilemma, and therefore there can be no joint SMP.

Instead, in the correct equilibrium situation in the ACM's game-theoretical framework KPN provides access to third parties and VZ does not, consistent with how the market has actually been operating to date. Given that VZ has no unilateral incentive to provide wholesale access, KPN does not have to collude to induce this outcome. Instead, it can follow its own unilateral incentives and be the sole provider of wholesale access. There is therefore no joint SMP.

1 Introduction

1.1 Overall objective

VodafoneZiggo ('VZ') has asked Oxera to provide an economic assessment of the ACM's recent draft decision on wholesale broadband access, and in particular the ACM's finding of a risk of joint significant market power (SMP) between KPN and VZ on both the retail and wholesale residential broadband access markets.[1]

Separately, the ACM finds that KPN has single-firm SMP in the business fixed broadband access market since VZ's operations in this market are relatively small. This Oxera report does not cover the ACM's analysis of the fixed business broadband access market; although we note that the finding that KPN has single SMP in the fixed business broadband access market may be sufficient to regulate KPN's provision of fixed wholesale access. This is indeed the basis of the current regulation of the wholesale local access market (market 3a).[2]

We understand that, in the ACM's current draft decision, the finding of a risk of joint SMP in the residential broadband access market forms an important basis for the regulator's conclusion that wholesale access regulation is necessary. This represents a significant change in approach to access regulation as the ACM no longer considers KPN to have single-firm SMP (except in the retail market for business fixed broadband access market, as noted above). The ACM's rationale for imposing access obligations is instead based on joint SMP in the residential fixed access market, and the proposed access obligation now also cover cable for the first time. The imposition of access obligation on VZ's cable network is made possible by the ACM defining a single wholesale access market, which includes both wholesale local access (market 3a) and wholesale central access (market 3b).

This report does not consider the appropriateness of defining a single wholesale access market, as this question is covered in detail in a separate report commissioned by VZ.[3] .Rather, this report reviews the economic underpinning of the ACM's joint SMP finding in the residential broadband access market, in terms of both economic theory and the available empirical evidence on market dynamics.

Oxera has been involved in the wider debate at the EU level on how to assess SMP, and joint SMP, in telecommunications markets that are increasingly oligopolistic rather than monopolistic in nature. In February 2018 the European Commission published draft guidelines on determining SMP, following policy documents by BEREC and other organisations.[4] Oxera published two discussion papers on joint SMP on behalf of Liberty Global (holding 50% of shares in VZ).[5]

The Netherlands is one example of a market with two competing network providers (KPN and VZ). Assessing, on a sound economic basis, whether

[1] ACM (2018), 'Ontwerpbesluit Marktanalyse Wholesale Fixed Access', 27 February, paras 1106 and 1129.
[2] ACM (2015), 'Marktanalysebesluit ontbundelde toegang 2016 – 2019', 17 December.
[3] Ecorys (2018), 'Wholesale access markets in the Netherlands', 10 April.
[4] [4] European Commission (2018), 'Guidelines on the market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services', February.
[5] Oxera (2017), 'Regulating oligopolies in electronic communications markets', discussion paper prepared for Liberty Global, September. Oxera (2018), 'Regulating oligopolies in electronic communications markets: supplementary discussion paper', prepared for Liberty Global, 4 January.

there is joint SMP between the two is therefore also of relevance to the wider EU debate.

1.2 Structure of the ACM's analysis and this Oxera report

The ACM draft decision follows the usual steps in market analyses. It first defines the relevant retail market as a national market, and including fixed broadband access sold as stand-alone or in a bundle with other services. The ACM then analyses competition in the retail market under the assumption that there is no regulation in the upstream wholesale broadband access markets—i.e. markets 3a and 3b (the Modified Greenfield Approach). This retail analysis is presented in Annex E of the draft decision.

After defining the market, the ACM first assesses whether either KPN or Ziggo holds single-firm SMP in the retail fixed broadband access market. It considers various market factors, such as market shares, and competitive advantages of KPN or VZ in terms of bundles, technology, economies of scale and scope, sales and distribution network, reputation and content. While the ACM finds some differences between the two providers in terms of reputation, content and technology, it concludes that none of these advantages is substantial enough for one party to gain an overall competitive advantage over the other. The ACM concludes from this that neither KPN nor VZ has single-firm SMP in the residential fixed broadband access market.

The ACM then argues that KPN and VZ are symmetric to such an extent that there is a risk of joint SMP in the retail residential broadband access market. The ACM considers that KPN and VZ have the incentives and the ability to reduce competition between themselves.

In coming to this conclusion, the ACM refers to established competition law criteria for joint dominance, in particular the Airtours and Impala case law.[6] Annex E of the draft decision concludes that, in the absence of wholesale regulation there is a risk of joint SMP in the retail residential broadband access market.

The ACM then turns to the analysis of the wholesale fixed access market, which it presents in section 3 (market definition) and section 4 (SMP) of the draft decision. It concludes that there is no single-firm SMP in the wholesale access market, again because it considers the positions of KPN and VZ to be relatively similar, with neither being able to behave independently of the other.

Nevertheless, the ACM concludes that KPN and VZ have the incentive and ability to reduce competition between themselves—in particular, by coordinating on the decision not to provide any broadband fixed access to potential access seekers. The ACM presents a game-theoretical economic framework for coordinated behaviour intended to underpin its finding of joint SMP. This finding, and the definition of a single wholesale access market, then form the basis for the ACM's position that wholesale access regulation is necessary for both networks.

In this report Oxera reviews the ACM's analysis and conclusions on joint SMP, both from a theoretical perspective and considering the available empirical evidence taking the fixed broadband access market definition as given.

- Section 2 considers the available evidence on the competitive dynamics between KPN and VZ in the retail fixed broadband market. In the absence

[6] Case T-342/99 *Airtours v Commission*, para. 62; and Case T-464/04 *Impala v Commission*.

of wholesale access regulation, the incentives of KPN and VZ to compete, and the actual degree of competition between the two, are sufficiently strong to rule out the risk of joint SMP (contrary to the ACM's finding).

- Section 3 examines how the ACM has applied the established competition law criteria for SMP to the retail market, again in the absence of wholesale fixed access regulation. It also considers the punishment mechanisms identified by the ACM for joint SMP in the wholesale market. A correct application of the criteria in light of the available evidence confirms that there is insufficient scope for coordination between KPN and VZ, either in retail or wholesale.
- Section 4 reviews the ACM's finding of a risk of joint SMP in wholesale fixed access, and in particular whether refusal to supply wholesale access can act as a focal point for coordination between KPN and VZ. Oxera shows that neither the ACM's game-theoretical framework nor the available evidence on current market behaviour supports a finding of a risk of joint SMP.

2 Effective competition between KPN and VZ in retail broadband: no joint SMP

This section considers the competitive dynamics and various market developments in the Dutch retail broadband market to date, which are likely to continue over the next three years corresponding to the current market review period (and probably longer).

Following this framework, we find that KPN and VZ have strong incentives to compete with each other, and to continue to invest, innovate, and introduce new products and services. This would also be the case in the hypothetical counterfactual of no regulated access as the actual degree of competition between KPN and VZ, is sufficiently strong to rule out the risk of joint SMP (contrary to the ACM's finding).

The Netherlands is in a unique position with two nationwide networks—KPN's national copper and fibre networks and VZ's coax network that is available in [redacted]% of the Netherlands—resulting in strong infrastructure competition. Oxera acknowledges that access seekers may add to the competitive dynamics of the retail broadband access market. However, their presence or absence is not decisive for whether there is joint SMP: the economic analysis shows that the main driver of competition in this market is the rivalry between KPN and VZ, and therefore that, even in the absence of third-party operators, there is no joint SMP.

We show in section 2.1 that the existing price and quality competition between KPN and VZ is driven primarily by the competitive dynamics between KPN and VZ. This competitive dynamic between KPN and VZ will continue with or without the presence of alternative operators, such as Tele2, that currently use wholesale access provided by KPN to provide retail services.

Section 2.2 describes how this effective competition will continue in light of the current market positions of KPN and VZ, and a number of pro-competitive market developments not controlled by either KPN or VZ.

We note that the discussion below is based on the hypothetical scenario that KPN stops providing wholesale access in the absence of a regulatory obligation to do so. As we discuss in section 4, this scenario is unlikely, as there are strong commercial incentives for KPN to supply wholesale access. We note that this is the case currently, as illustrated by KPN's voluntary wholesale access offer valid for seven years (independent of regulatory obligations) in the wholesale local access market (market 3a),[7] and its existing commercial offers in the wholesale central access market (market 3b).

2.1 Existing price and quality competition driven by competition between KPN and VZ

The ACM suggests that, absent regulation, KPN and VZ have strong incentives to coordinate on prices. Without alternative providers active in the market, KPN and VZ can either engage in strong price competition, leading to low prices and low profits, or they can coordinate and share the higher profits resulting from coordination.[8] The ACM considers that the second scenario is likely given the nature of the market and the symmetry between KPN and VZ. The ACM however presents no concrete evidence or market mechanism to show this.

[7] KPN letter to ACM February 2018, Onderwep (ULL besluit 2018-2021), Ons kenmerk (2018-U-00013-RvB).
[8] ACM (2018), Ontwerpbesluit Marktanalyse Wholesale Fixed Access, 27 February, paras 1219 and 1220.

In this section we review evidence of the strong competition between KPN and VZ on price (section 2.1.1), quality (section 2.1.2, using broadband speed as a proxy), and service innovations (section 2.1.3).

An examination of pricing by KPN and VZ demonstrates that KPN applies pricing pressure on VZ by adopting different price points with each of its sub-brands (Telfort and XS4ALL) and its flagship brand. Furthermore, there is no indication that the price movements of KPN, its sub-brands and VZ are coordinated or clustered at the low, medium or high ends of the triple-play (3P) segment.

In this dynamic market, quality competition is often as important as price competition. Indeed, there is evidence that VZ and KPN have been engaging in a 'quality war' to offer the highest-quality user experience through faster broadband speeds, a greater variety of TV content, and one-stop shopping for multiple-product bundles, while also competing on price.

2.1.1 Evidence of price competition between KPN and VZ

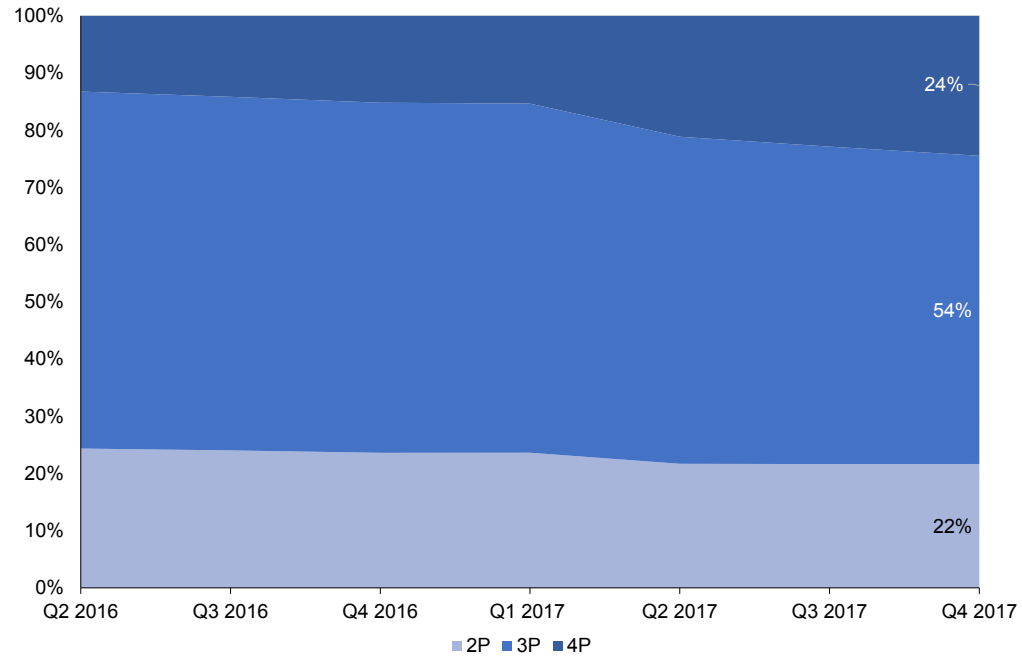
According to the ACM, KPN and VZ are likely to coordinate on prices if no access is provided to other market participants.[9] This statement is not substantiated with evidence by the ACM, and is contradicted by the current headline price offers, discounts and promotions offered by KPN and VZ to compete with each other in the market.

Headline price variation

We compare the evolution of VZ's pricing of broadband products with different KPN offers. As VZ does not offer broadband as a stand-alone offer, we look at bundles including broadband. We focus on 3P bundles because they represent the majority of the broadband access services sold in the Netherlands, as shown in Figure 2.1 below. 3P bundles typically include broadband access, fixed telephony and TV services.

[9] ACM decision, para. 257

Figure 2.1 Number of subscribers of bundles in the Netherlands



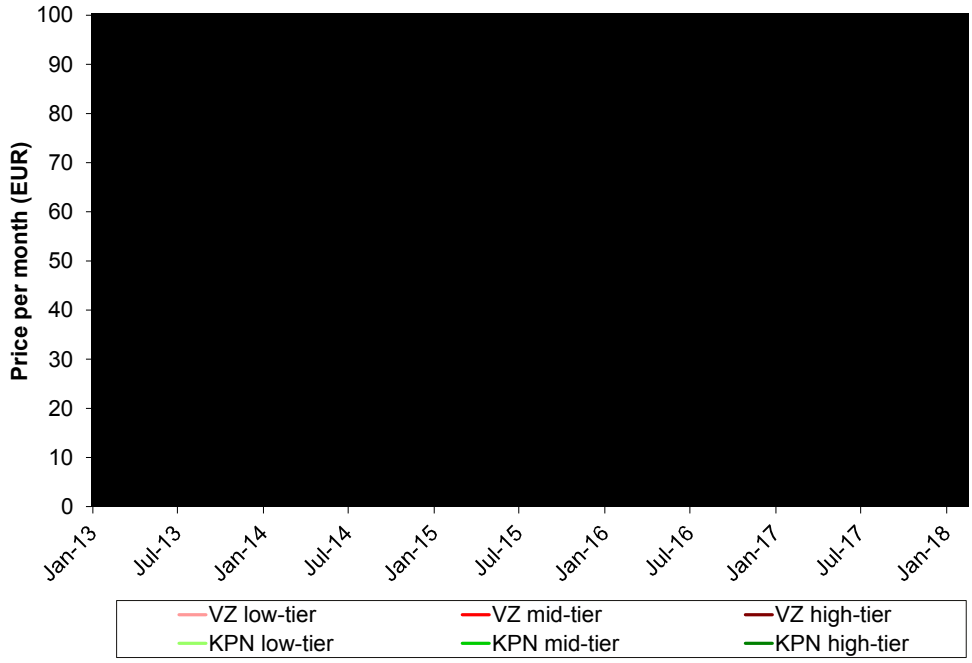
Source: Telecompaper, Dutch Consumer Multiplay Market 2017 Q4.

As both VZ and KPN offer many options within the bundles, and these options have changed over time, we group similar offerings into three 'main' bundles: a low-priced bundle, a mid-priced bundle, and a high-priced bundle. Appendix A1 lists the products included in each tier used to compare prices and broadband speeds in this section.

Based on the classification above we compare below the evolution of VZ's low-, mid-, and high-priced tiers to:

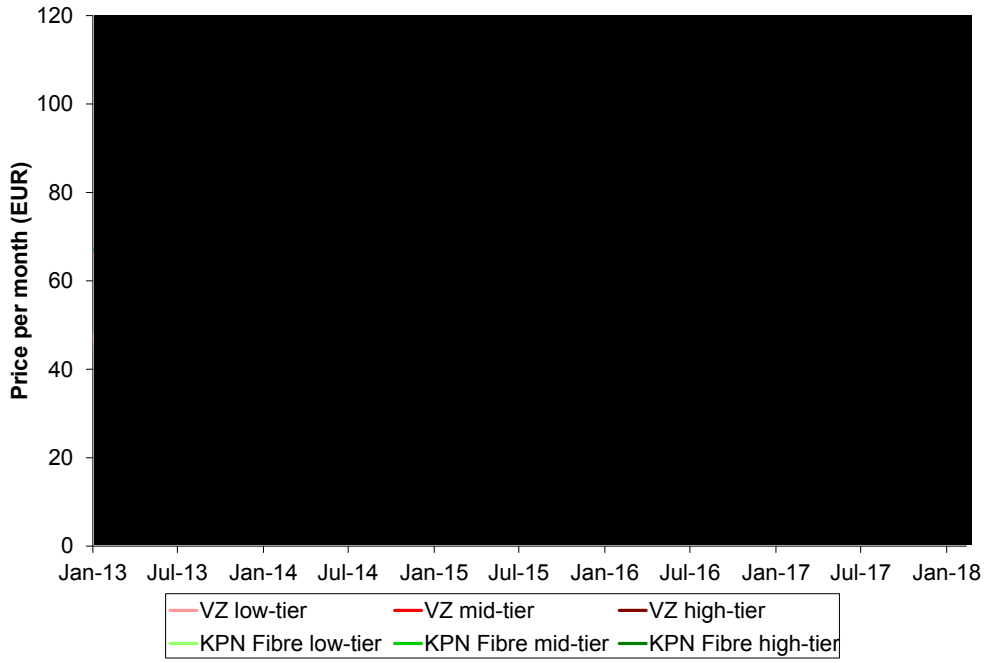
- KPN's copper 3P bundles (Figure 2.2);
- KPN's fibre 3P bundles (Figure 2.3);
- XS4ALL (a KPN sub-brand) 3P bundles (Figure 2.4); and
- Telfort (a KPN sub-brand) 3P bundles (Figure 2.5).

Figure 2.2 Evolution of headline prices of VZ and KPN (copper) 3P bundles



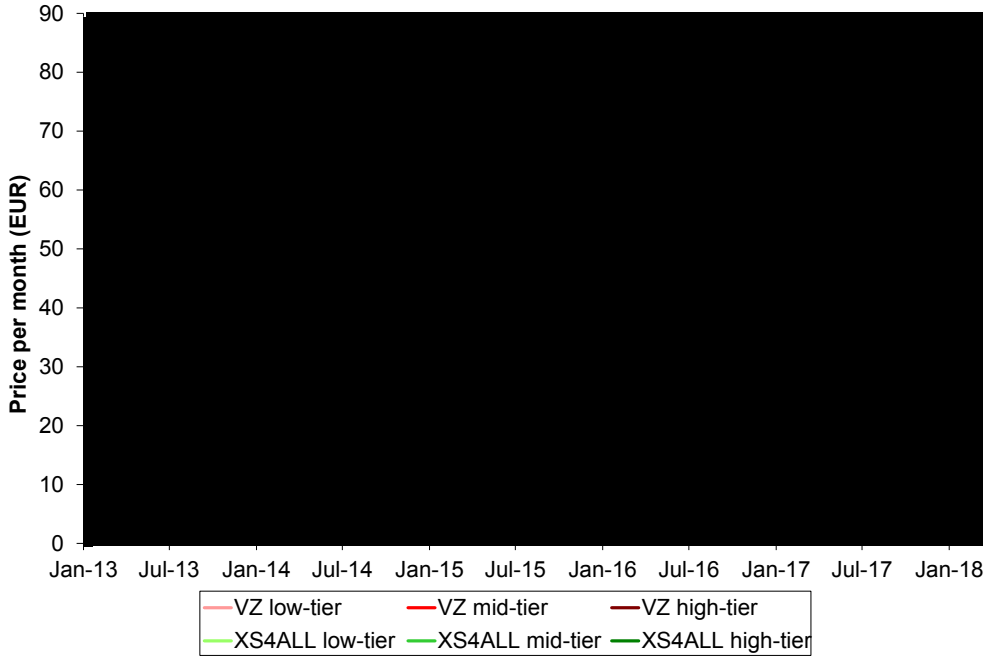
Source: Oxera analysis based on VZ data.

Figure 2.3 Evolution of headline prices of VZ and KPN (fibre) 3P bundles



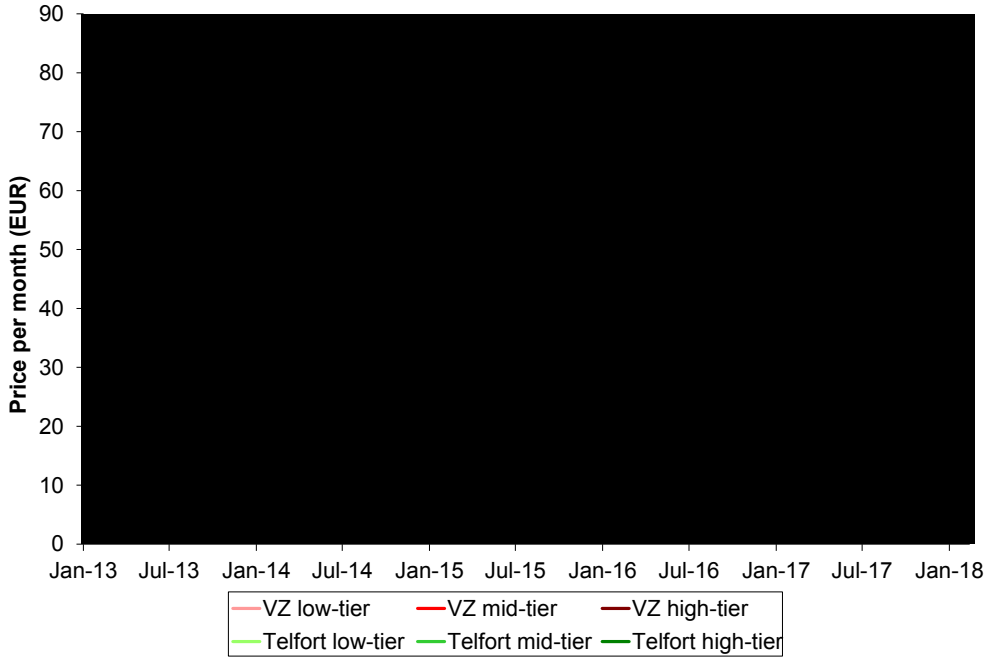
Source: Oxera analysis based on VZ data.

Figure 2.4 Evolution of headline prices of VZ and XS4ALL 3P bundles



Source: Oxera analysis based on VZ data.

Figure 2.5 Evolution of headline prices of VZ and Telfort 3P bundles



Source: Oxera analysis based on VZ data.

This pricing evidence indicates that [redacted].

[redacted].

Similarly, [redacted].

The changes [redacted].

KPN clearly adopts a dual-pricing strategy, allowing it to apply pricing pressure on VZ by addressing different price points at each tier of market with its flagship KPN brand and its Telfort/XS4ALL sub-brands. This allows it to simultaneously offer a higher (perceived) quality and price offer while still competing on price through its sub-brands. The pricing data suggests that XS4ALL is positioned by KPN as a premium brand, while Telfort is positioned as a low-cost brand. This is reflected in the fact that Telfort features only in the low- and mid-tier markets, while XS4ALL features only in the mid- and high-tier markets. The flagship KPN brand represents the 'mainstream' option and is available in all price tiers.

Promotions and discounts

Importantly, the headline price comparisons in Figures 2.2 to 2.5 do not capture all the market complexities, as they are based on leading 'shop-front' offers presented at each 'tier' of the market. This means that not all possible offers are covered. The comparisons do not take into account promotions targeted at new customers, people upgrading their bundles, or those at the end of their contracts with the intention of switching broadband access providers.

Based on information provided by VZ, we understand that [redacted].

[10] [redacted] (Source: VodafoneZiggo).

KPN is also likely to offer similar promotions and discounts, although VZ will not have direct knowledge of the extent and level of all the promotions and discounts offered by KPN.

2.1.2 Evidence of competition on broadband speed between KPN and VZ

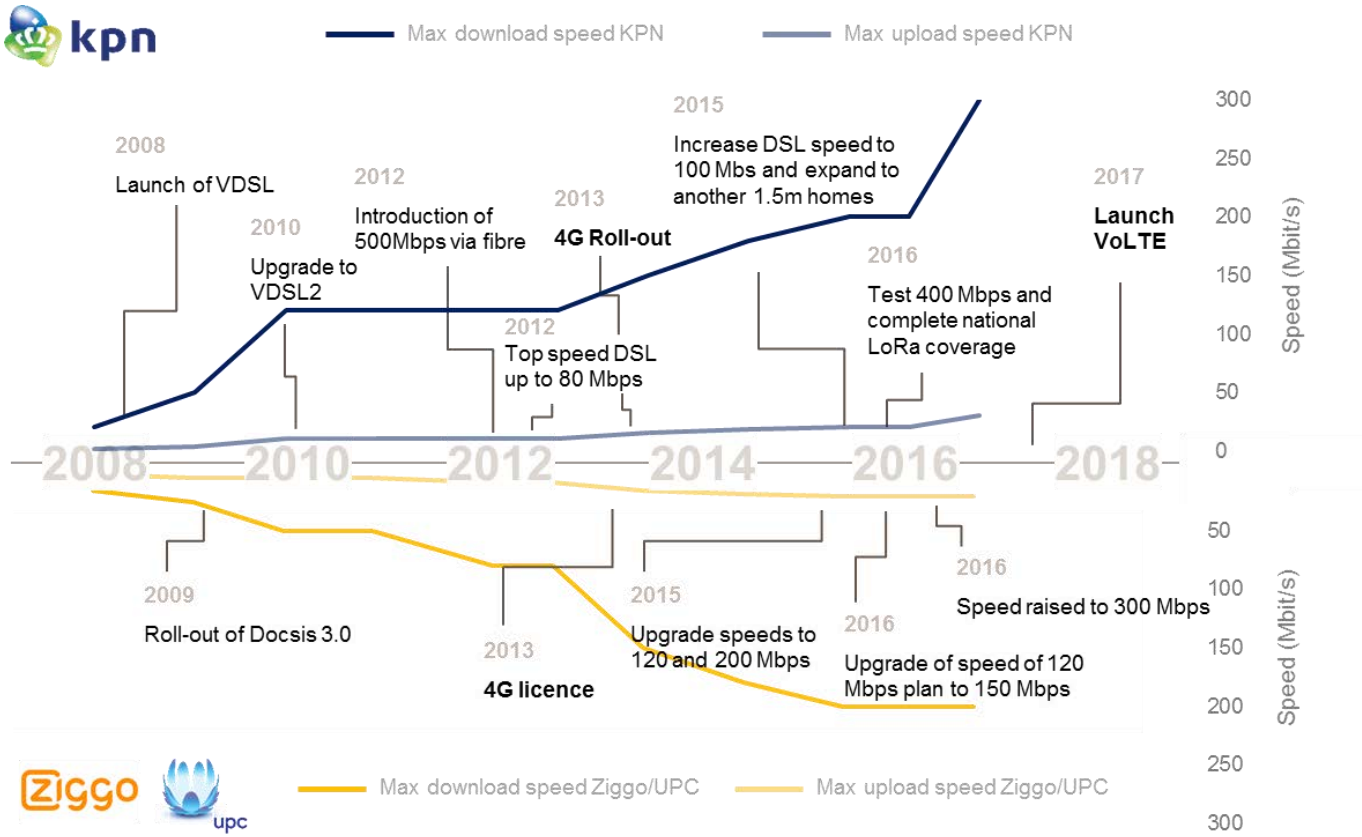
Another important dimension of competition in the retail broadband market is broadband access speed to meet ever-increasing consumer demand for data and service quality. As the basic broadband product becomes commoditised, providers seek to differentiate themselves with higher headline Internet speeds (discussed below) and/or more attractive multi-play bundles and the introduction of innovative services (discussed in section 2.1.3).

KPN's copper-fibre network and VZ's coax-cable network have different limitations. Intense dynamic competition between KPN and VZ has led to the parties undertaking a series of infrastructure updates in order to remain competitive in the broadband market and meet the evolving consumer demand for faster speeds and more data. This technology competition will mainly be driven by competition between fixed infrastructure operators in Netherlands—i.e. KPN and VZ, which have the ability (in addition to the incentives) to make these investments because they run and own the underlying network infrastructure. Figure 2.6 below shows this technology leapfrogging between KPN and VZ in fixed network technologies, as well as the parallel rollout of LTE (4G) mobile networks. For instance:

- VZ's upgraded to Docsis 3.0, KPN upgraded to VDSL2;
- VZ upgraded speeds to 120Mbps and 200Mbps in 2015, KPN increased its DSL speed to 100Mbps and starting to test technologies enabling 400Mbps speeds. VZ increased speeds, from 120Mbps to 150Mbps and 200Mbps to 300Mbps;
- with all cable networks in the Netherlands fully upgraded to DOCSIS 3.0, VZ is looking into the implementation of DOCSIS 3.1 standards, which will enable it to provide speeds of 1Gbps to consumers within the next few years;
- KPN has been focusing on expanding its high-speed broadband networks through a continued VDSL rollout. KPN also became the sole owner of the wholesale fibre operator, Reggefiber, at the end of 2014, and has since been extending Reggerfiber's FTTP network. This fibre network is currently rolled out to 2.65m households[11] and has, in theory, unlimited speed. It is regarded as the superior and most future-proof network of the two KPN and VZ networks.[12]

[11] Telecom paper. https://tweakers.net/nieuws/126359/aantal-nederlandse-glasvezelaansluitingen-neemt-tot-2021-met-15-procent-toe.html;
[12] ACM (2018), Ontwerpbesluit Marktanalyse Wholesale Fixed Access, 27 February, paras 1182 and 1183.

Figure 2.6 Leapfrog effect between cable, copper and mobile networks in the Netherlands

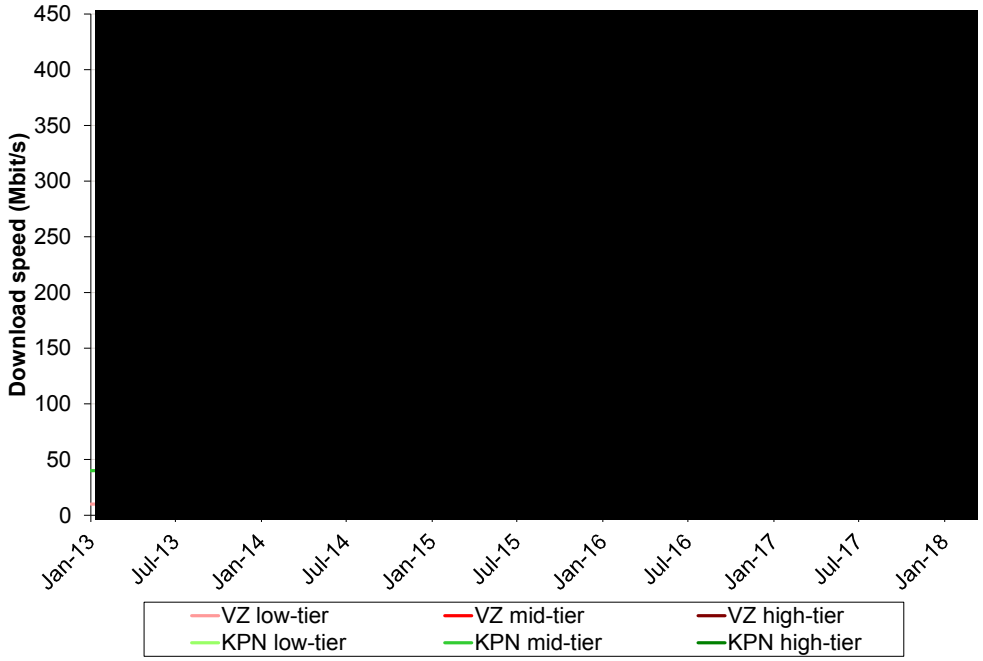


Note: Download and upload speed data includes ■ data points from December 2008 to April 2016, and might therefore not capture all speed upgrades over the period.

Source: Liberty Global.

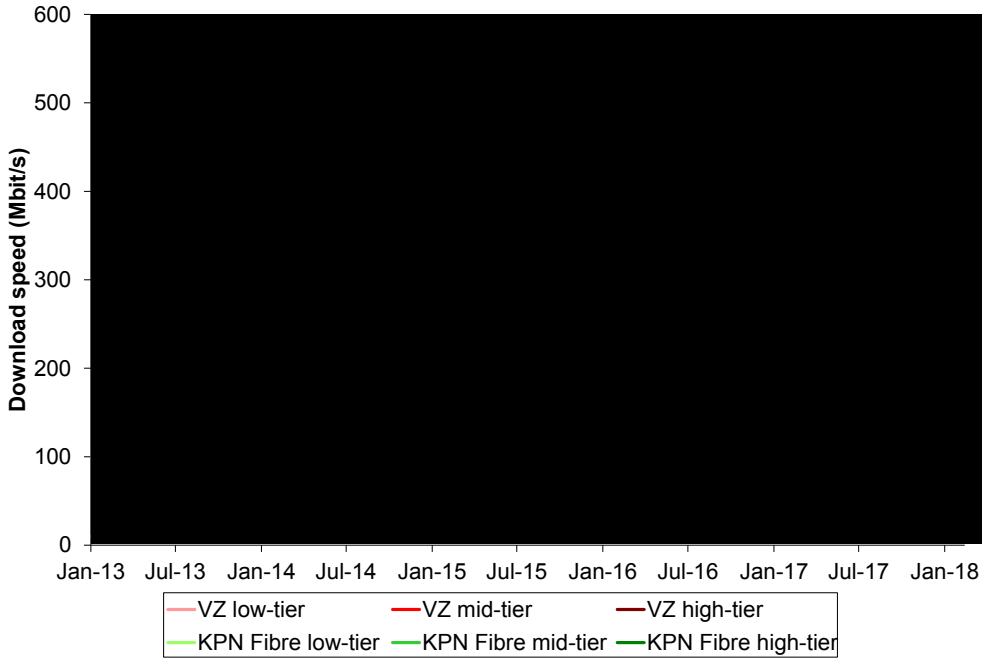
These competitive upgrades are reflected in the evolution of download speeds for various 3P fixed broadband retail access offers by VZ and KPN (as shown in Figure 2.7 to Figure 2.10), and are key to be able to meet customers' demand for high broadband speeds.

Figure 2.7 Evolution of download speeds of VZ and KPN (copper) 3P bundles



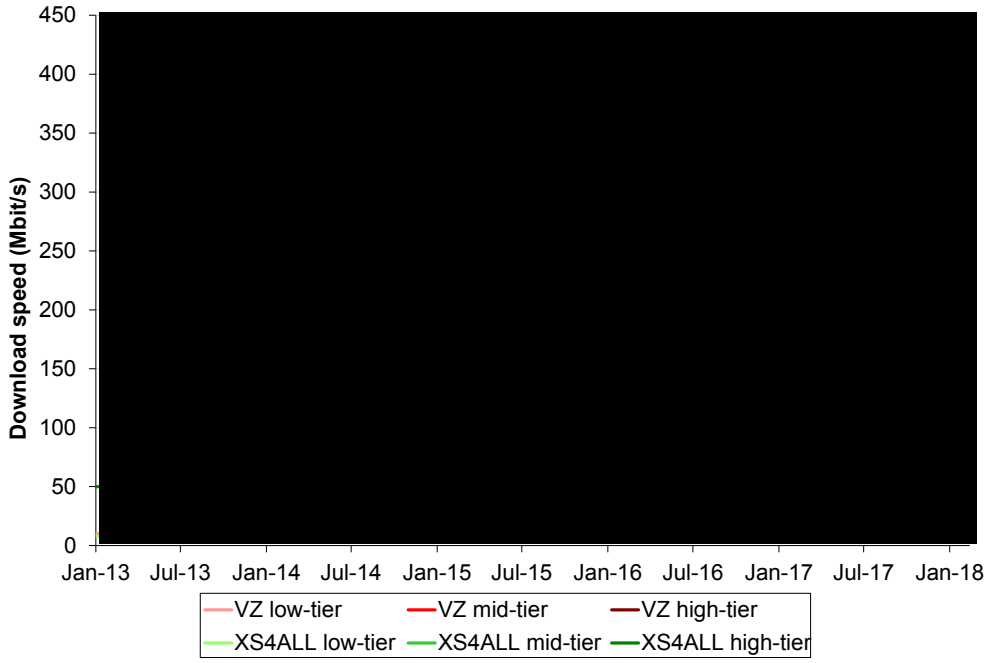
Source: Oxera analysis based on VZ data.

Figure 2.8 Evolution of download speeds of VZ and KPN (fibre) 3P bundles



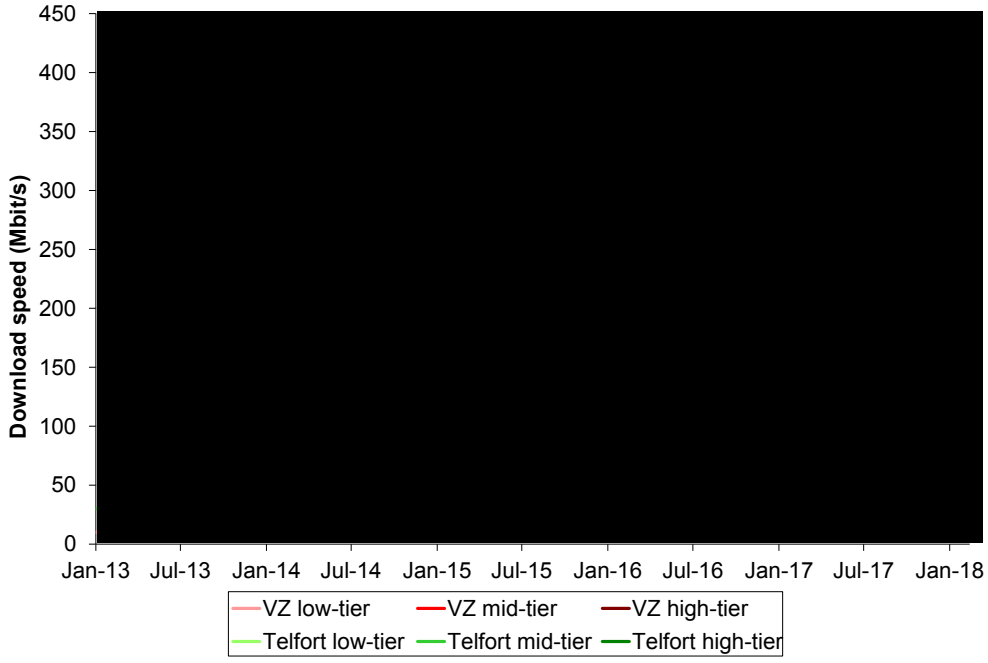
Source: Oxera analysis based on VZ data.

Figure 2.9 Evolution of download speeds of VZ and XS4ALL 3P bundles



Source: Oxera analysis based on VZ data.

Figure 2.10 Evolution of download speeds of VZ and Telfort 3P bundles



Source: Oxera analysis based on VZ data.

2.1.3 Competition to introduce new services between KPN and VZ

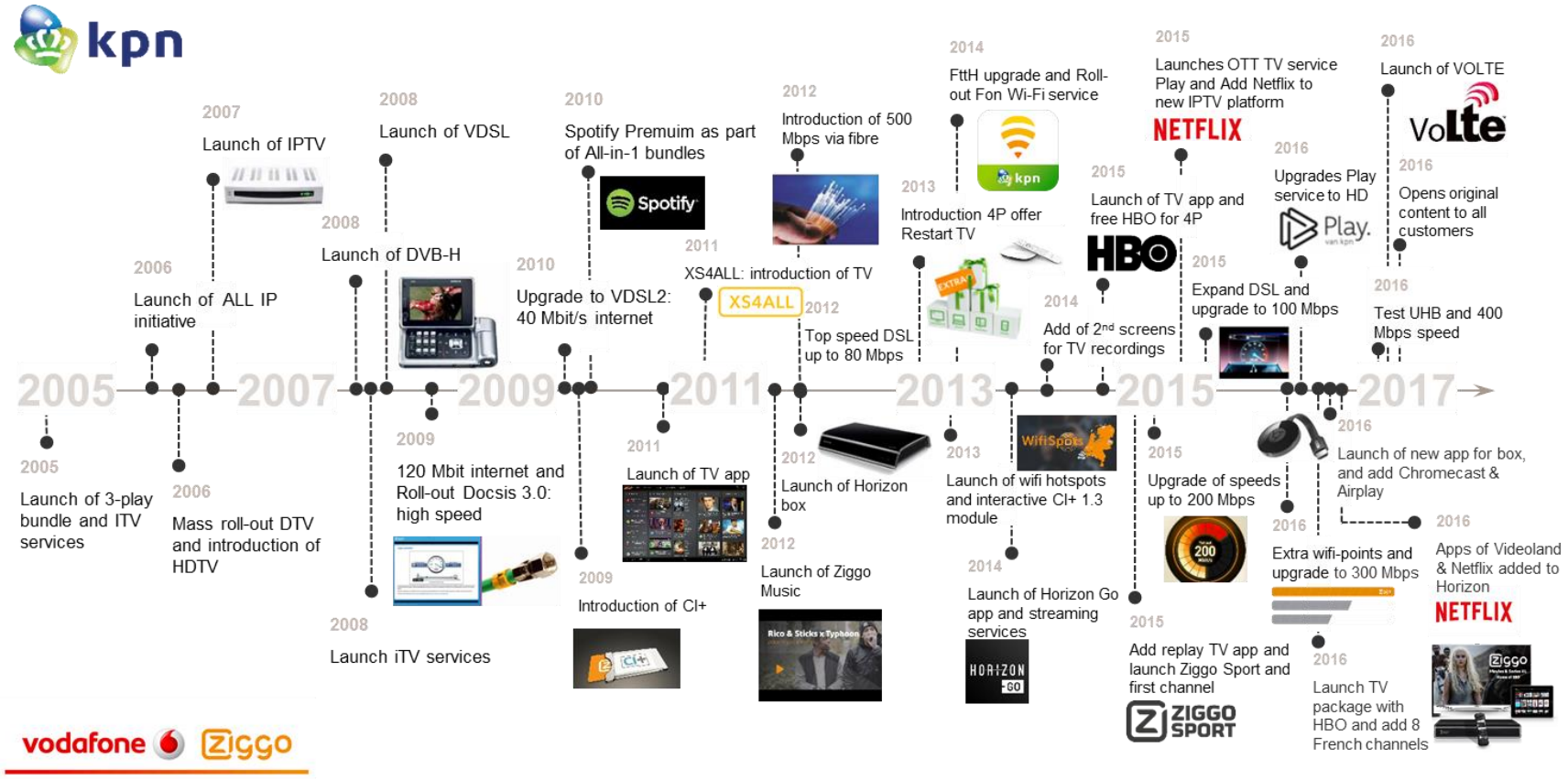
Besides competing on network technology and broadband speed, KPN and VZ compete on the services they offer, such as content and service innovation. Both have continuously provided new services such as bundled products, content, new ways to provide television access (on demand, online, etc.). KPN,

for example, is now the first provider to offer 4K (Ultra HD) TV;[13] while VZ has the exclusive rights to HBO.[14]

Figure 2.11 below shows the competitive launches of different services by KPN and VZ. For example, the mass rollout of DTV and the introduction of HDTV by Ziggo; the launch of IPTV by KPN; the launch of OTT TV services and the addition of Netflix to the IPTV platform by KPN; the addition of the Videoland and Netflix apps to the Horizon set-top-box by Ziggo; and the addition of the 'Ziggo Go' app.[15] These service innovations can be seen as KPN and VZ continuing a 'quality war', not only to compete with one other, but also with external market developments, such as competition from over the top providers (OTTs) as discussed in section 2.2.3.

[13] https://www.kpn.com/internet-tv/internet-tv-4k
[14] https://www.televizier.nl/categorie/actualiteiten/hbo-series-in-nederland-alleen-nog-via-ziggo-te.2382414.lynkx
[15] https://www.ziggo.nl/televisie/zenders/xite/, accessed 19 July 2017.

Figure 2.11 Overview of product innovation in the Netherlands



Source: Liberty Global data and Oxera analysis.

2.2 Competition between KPN and VZ to continue given their current market positions and evolving market dynamics

We note that there is no evidence to suggest that the current price and quality competition between KPN and VZ is a result of access regulation; and the ACM does not provide any evidence to that effect. The evidence on price, broadband speed and service innovation competition reviewed in section 2.1 suggests that the presence or absence of access seekers is not decisive for whether there is joint SMP—the economic analysis shows that the main driver of competition in this market is the rivalry between KPN and VZ, and that therefore, even in the absence of third-party operators, there is no joint SMP.

In this section we look at why the price and quality competition described in section 2.1 will continue even in the ACM's assumed hypothetical counterfactual of no access regulation (which, as we discuss in section 4, is an unlikely counterfactual). The reasons include current differences in KPN and VZ market positions (section 2.2.1) which, combined with customer awareness of differences in services provided by KPN and VZ (section 2.2.2), provide a strong incentive for both operators to continue improving services and competing to grow in customer segments where they are weaker.

In addition, independent market developments (not controlled by KPN or VZ) will provide the impetus for both operators to continue improving their services, and include:

- evolving customer demand—for higher bandwidths and service bundles, and the entry of OTT services (section 2.2.3);
- mobile network competition (section 2.2.4).

2.2.1 Current differences in KPN and VZ market positions

The ACM paints a picture of two highly symmetrical operators providing near-identical products which, owing to these similarities, are incentivised to reach a tacit agreement and 'share' the market.[16] This assessment is lacking in several dimensions. The current market positions of VZ and KPN (measured by market shares) are not the same across different products or customer segments, and there are clear differences in KPN and VZ's product offerings.

Because of these differences, VZ and KPN are incentivised to compete for subscribers and grow their market shares in customer segments and/or products where they are weaker. For example, both operators would like to gain customers subscribing to higher-speed broadband services and triple- (or quad-) play (4P) bundles, as the revenue and profits generated by these customers will be higher than from customers taking lower-speed broadband services or subscribing to a dual-play service. These strategies to grow more profitable customer segments are reflected in each company's annual plans. For example one of KPN's main priorities is 'Accelerate up – and cross-sell in bundles',[17] and VZ strives to: [18]

> …achieve organic revenue and customer growth in our operations by developing and marketing bundled entertainment and information and communications services, and extending and upgrading the quality of our networks where appropriate. While we seek to obtain new customers, we also

[16] ACM (2018), 'Ontwerpbesluit Marktanalyse Wholesale Fixed Access', 27 February, paras 1212, 1219 and 1220.
[17] KPN investor presentation February 2018.
[18] VodafoneZiggo annual report 2017, page II-3.

> seek to maximize the average revenue we receive from each household by increasing the penetration of our digital cable, broadband internet, fixed-line telephony and mobile services with existing customers through product bundling and upselling.

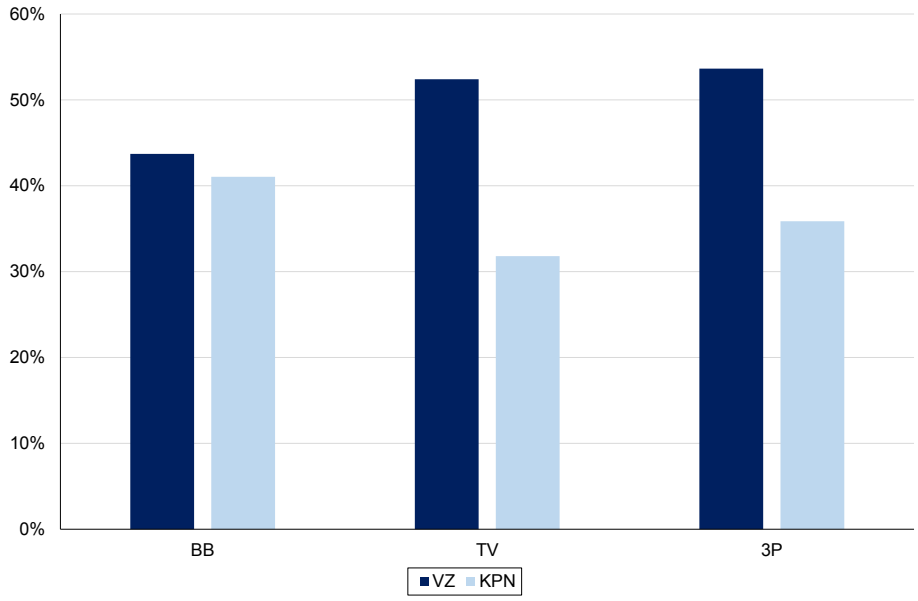
As discussed in section 2.2.2, customers are also aware of these differences and can react to service improvements or deteriorations by switching providers.

Differences in product market shares

While there are some symmetries between KPN and VZ (e.g. in average market shares across services and geographic reach), there remain differences in their individual market shares in different services. This competition between KPN and VZ in fixed networks originally developed from a market situation where KPN, the fixed-line incumbent, offering a full range of fixed services over national fibre-optic and copper (DSL) networks, was competing with several regional cable networks. These regional cable networks gradually merged to form one cable network, Ziggo, in 2015.[19]

Figure 2.12 shows this variation in product market shares for operators in the Netherlands. We note that there is variation in the market shares among the product segments (mobile, fixed, broadband, TV and business), reflecting differences in the competitive positions. For example, VZ continues to hold the highest market share in fixed TV, its traditional stronghold. KPN and VZ compete to defend their traditional areas of focus, as well as to gain market share in each other's historical areas of focus. The largest shift in market shares compared with those at the start of 2013 has been in TV, with KPN increasing its share of the market by 8 percentage points over the period (VZ lost 4 percentage points in its market share).[20]

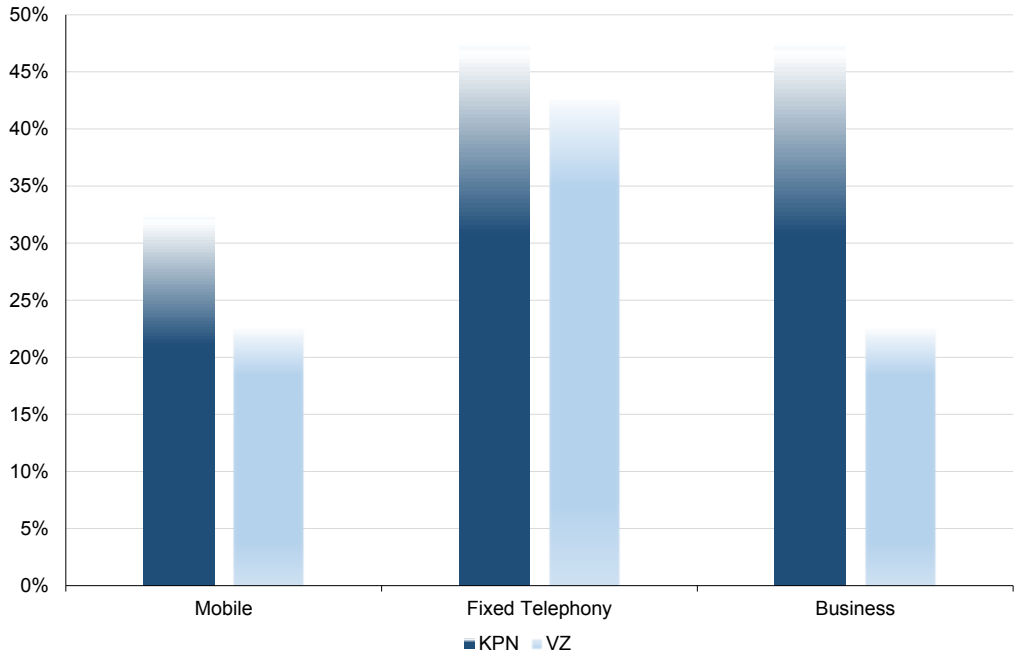
Figure 2.12 Market shares of broadband, TV and 3P (estimated %) for KPN and VZ, Q4 2017



[19] For example, the 2008 merger of Multikabel, @Home Network and Casema to form Ziggo, combining three regional cable networks; the 2015 merger of UPC and Ziggo, combining the two main regional networks to create one national cable network; and the 2016 creation of a joint venture between Vodafone and Ziggo, merging a mobile network operator and the national cable network.
[20] KPN's share of TV (DTV and ATV) increased from 23% in Q1 2013 to 31% in Q4 2016. VZ's share decreased from 57% in Q1 2013 to 54% in Q4 2016. Source: Telecompaper data.

Source: Telecompaper, Dutch Broadband Market 2017 Q4, and Telecompaper, Dutch Television Market 2017 Q4.

Figure 2.13 Market shares of mobile, fixed telephony and business (estimated %) for KPN and VZ, Q2 2017



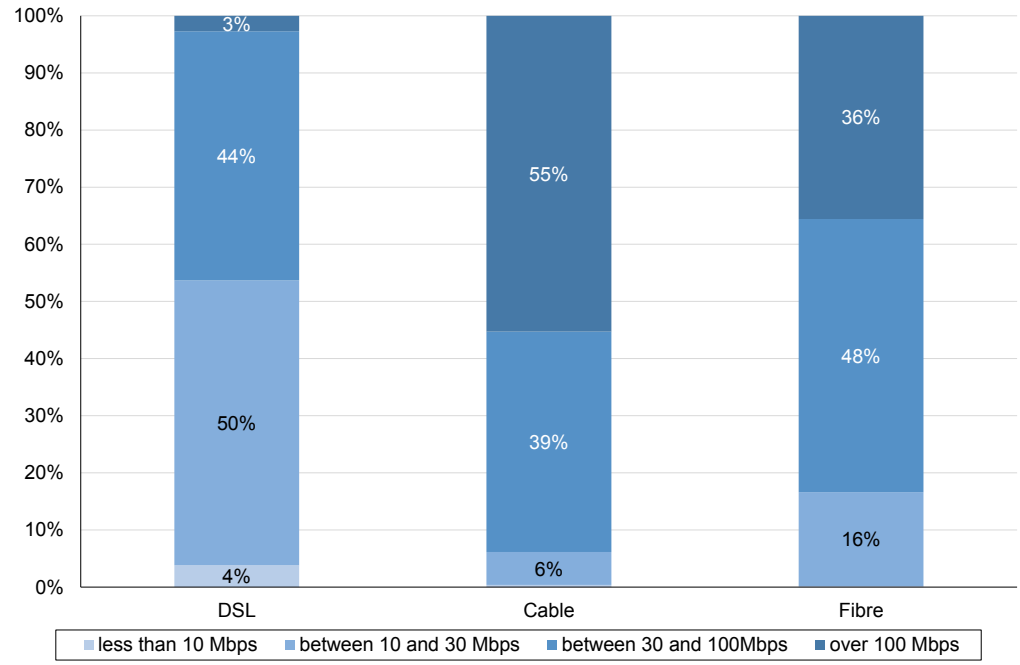
Note: The Dutch Authority publishes market shares data as ranges of value. For example, KPN's market share in the mobile market ranged between 30% and 35% in Q2 2017.

Source: Dutch Consumers and Market Authority (2017), 'Telecommonitor Q1 – Q2 2017' and Oxera analysis.

Differences in market shares in different customer segments

VZ has more customers subscribing to higher-speed broadband services (see cable subscribers on different speeds in Figure 2.14) than DSL customers (based on KPN's copper network) subscribing to higher-broadband speeds (see DSL subscribers on different speeds in Figure 2.14). KPN is partly responding to its relatively weaker position in high-speed broadband subscriptions by upgrading its copper network and rolling out its FTTH network which attracts customers looking to subscribe to higher speeds.

Figure 2.14 Broadband speed uptake by network, Q2 2017



Source: ACM Telecommonitor Q1 - Q2 2017.

VZ's higher share of customers on higher broadband speeds and its relatively stronger position in the TV market are also reflected in its higher market share in high-tier bundles. Figure 2.15 shows that, in terms of low- versus high-tier bundles, VZ's share is [redacted], whereas KPN (all brands) has [redacted]. These differences make coordination less likely and provide incentives to enter the other provider's segment.

Figure 2.15 3P market shares by monthly price of bundle

Source: VodafoneZiggo Dutch Monitor Consumer Total Comms Q4 2017 (22 March 2018).

Differences in product offerings

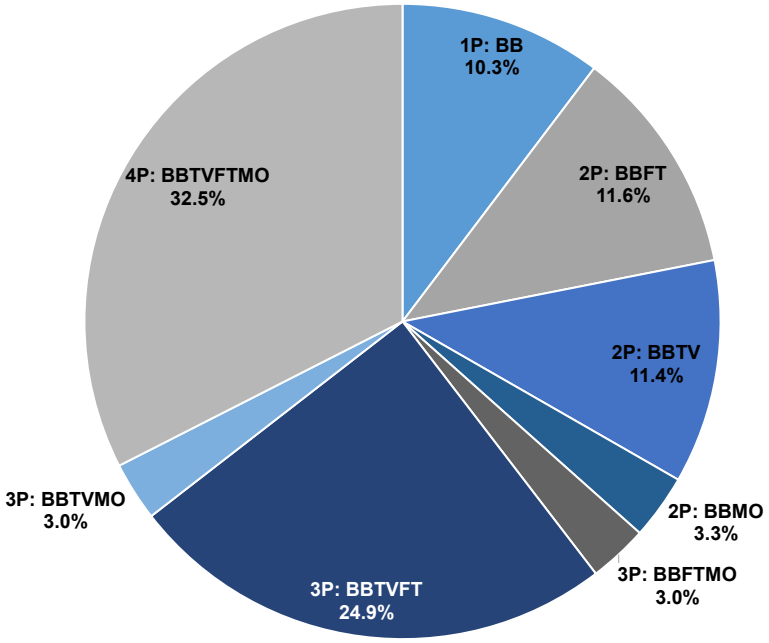
Because of network differences and the traditional use of the networks, VZ offers TV as a stand-alone service (approximately 192,000 subscribers or 6% of its subscriber base),[21] whereas broadband always has to be bought in a bundle with TV.

On the other hand, KPN does not offer stand-alone TV services, which always have to be bundled with broadband, but offers stand-alone broadband (not offered by VZ) in a market where broadband is an important competitive driver.

Following this, there continue to be clear differences in the product offerings of KPN and VZ, and the product mix for each of the operators (see Figure 2.16 and Figure 2.17). In particular we note that KPN offers numerous combinations of broadband (BB), fixed telephony (FT), television (TV), and mobile (MO) services that VZ does not.

The relative product mix is also different. The majority of VZ's subscribers are 3P (BBTVFT) whereas the majority of KPN's subscribers are 4P (BBTVFTMO). KPN also has a sizeable proportion of 1P BB-only subscribers, a product that VZ does not offer.

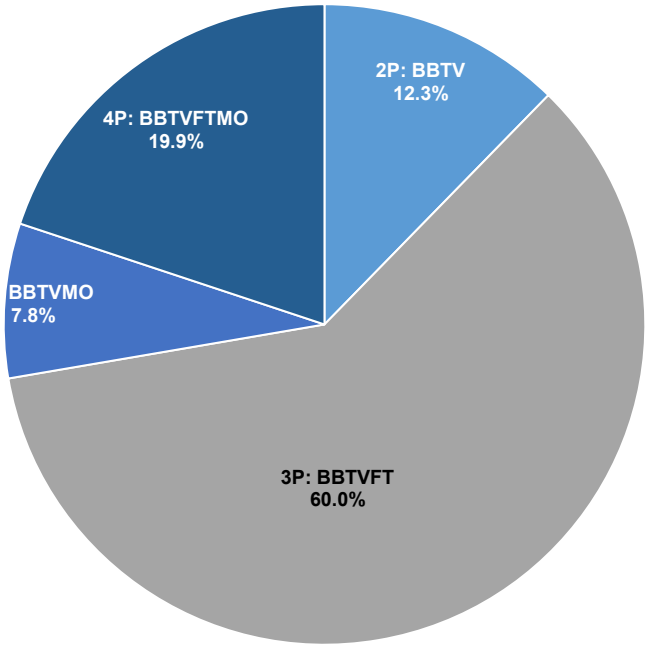
Figure 2.16 KPN product mix, Q4 2017



Source: Telecompaper– Dutch Consumer Multiplay Market – 2017 Q4.

[21] Source: Telecompaper– Dutch Consumer Multiplay Market – 2017 Q4 and Telecommonitor TV report – 2017 Q4.

Figure 2.17 VZ product mix, Q4 2017



Source: Telecompaper– Dutch Consumer Multiplay Market – 2017 Q4.

Another notable difference is KPN's strong position in the business market, which the ACM recognises.[22] VZ's coax network has not been rolled out to business areas, as it was initially used for TV services for households.[23]

These differences will affect customers' decision-making—hence KPN and VZ's competitive positions in different product offerings. For example, although bundles are popular, TV is still bought on a stand-alone basis (27% in Q2 2017), as is broadband (10% in Q2 2017).[24]

2.2.2 Customer awareness of differences between KPN and VZ

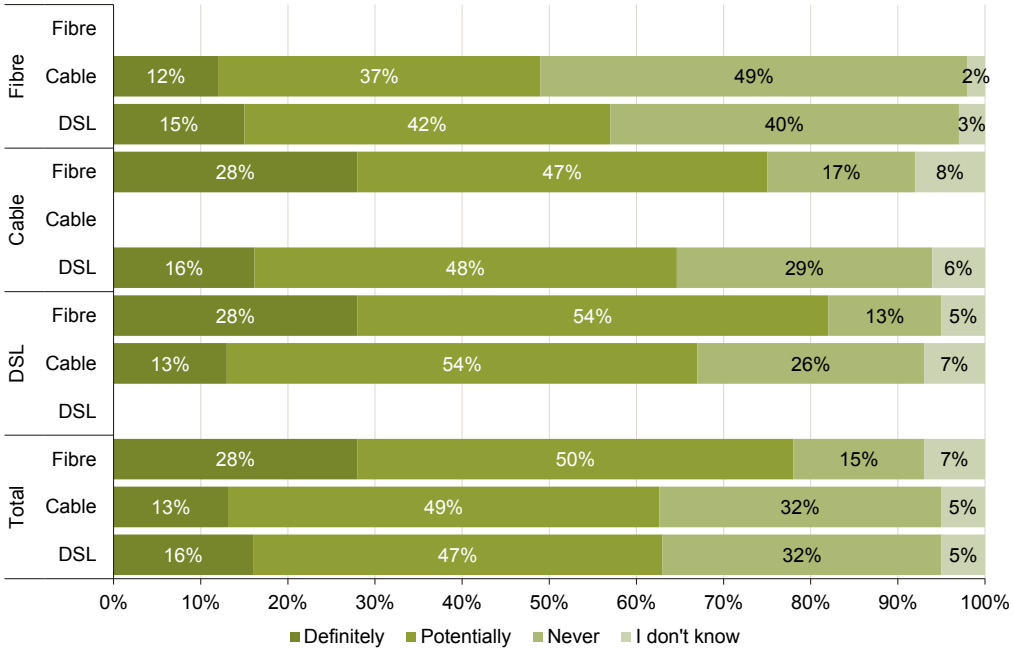
The differences between KPN and VZ matter to customers. Several surveys have shown that broadband customers are aware of these product differences, and that the price and quality differences of KPN and VZ can play an important role in customers' decision-making. This provides incentives for both KPN and VZ to keep improving their services. For example, a survey by Blauw for the ACM[25] found that customers of broadband using fibre networks are less likely to consider a cable network as a viable option than vice versa. Figure 2.18 below shows the results of the survey on the switching behaviour of fixed broadband customers based on provider and infrastructure.

The survey results show that 49% of fibre customers would never consider switching to cable and 40% would never consider switching to DSL. DSL and cable users, however, would generally consider switching to fibre: only 15% and 13% would never consider fibre, respectively. Interestingly, DSL and cable are perceived to be substitutable, as customers of these networks would consider switching to the other, although both would prefer fibre.

[22] ACM (2018), 'Ontwerpbesluit Marktanalyse Wholesale Fixed Access', 27 February, para.1192.
[23] Ibid, para.1185.
[24] See ACM Telecommonitor Q1 – Q2 2017.
[25] Blauw (2017), 'Overstapgedrag vast internet, consumentenonderzoek voor Autoriteit Consument & Markt'.

The results suggest that KPN's fibre network is regarded as superior by consumers, giving KPN an advantage over VZ. However, as rolling out the fibre network nationally is expensive, KPN is also investing to upgrade its DSL network. VZ is also in the process of rolling out DOCSIS 3.1, to increase network capacity and the download speeds, which should help it close the gap with KPN's fibre services. The technological leap-frogging discussed in section 2.1 can be seen as a direct response to customer preferences.

Figure 2.18 Would you consider switching to other networks?



Source: Blauw research on fixed internet, ACM (2018), Ontwerpbesluit Marktanalyse Wholesale Fixed Access, 27 Februar.]

The differences between KPN and VZ are also reflected in general customer perceptions of the KPN, Ziggo and Vodafone brands. [redacted].

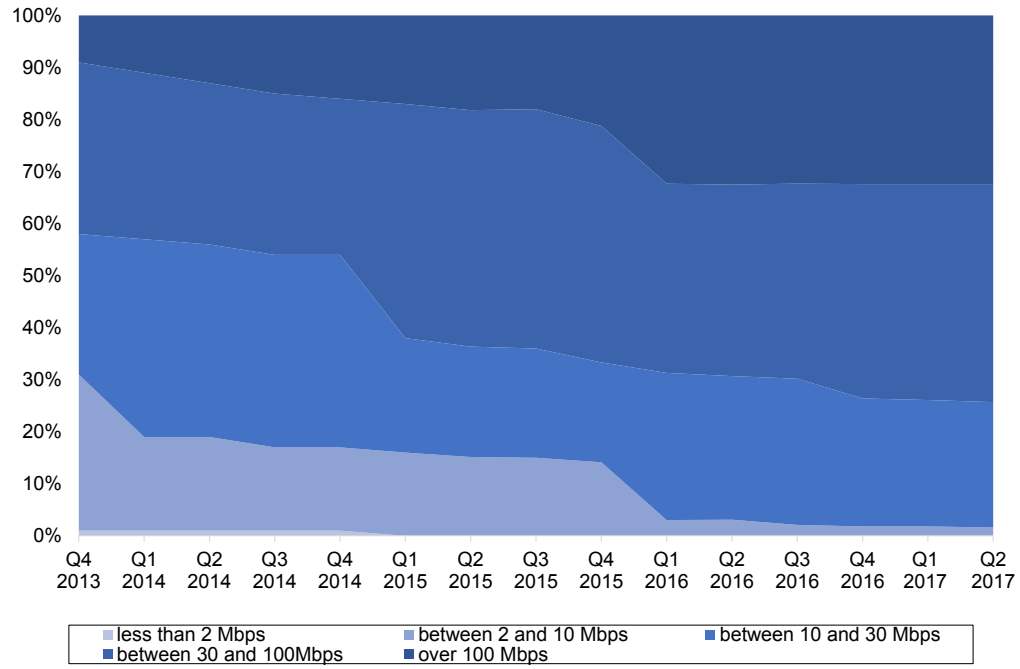
Appendix A2 which presents the results of the survey, shows that [redacted].

2.2.3 Evolving customer demand and competitive pressure from OTT services

The customer awareness of the differences in the services provided by KPN and VZ are linked with an increased demand for broadband access speeds (see Figure 2.19). This shows that, in Q4 2013, only 9% of customers subscribed to a broadband connection with a download speed of over 100 Mbps. This increased to 32% in Q2 2017. Correspondingly, the number of customers subscribing to lower download speeds has decreased.

Figure 2.7 to Figure 2.10 show that KPN and VZ have offered increasing speeds to meet customer demand. In 2017 VZ has increased the download speed of its high-tier offer from 180 Mbit/s in 2013 to 400 Mbit/s. KPN has also increase download speeds for some of its bundles to 400Mbit/s, and offers a download speed of 500Mbit/s in its high-tier fibre service.

Figure 2.19 Broadband market shares by download speed



Source: ACM Telecommonitor Q1 - Q2 2017, ACM Telecommonitor Q1 2016, ACM Telecommonitor Q1 2015.

This demand for ever-increasing Internet bandwidth is a derived demand stemming from wide-reaching changes in the communications and entertainment technologies that consumers use. For example, VOIP and video-conference technologies, OTT video and music streaming, and online gaming all require significant amounts of bandwidth. As consumers continue to adopt these services in multi-device households, network operators will come under increasing consumer pressure to deliver service upgrades in support of this usage.

These independent market developments (not controlled by KPN or VZ) provide further incentives for KPN and VZ to continue to invest in their networks and meet this demand. Both KPN and VZ continue to plan for how to deliver the increasing bandwidth requirements—VZ, through its forthcoming DOCSIS 3.1 upgrades, and KPN, through its hybrid network upgrade approach, using pair-bonding and vectoring as well as FTTH.

Both KPN and VZ also acknowledge, in their annual reports, the importance of technological upgrades. KPN, for example, mentions that its main investments and expenses are conducted to build and maintain its infrastructure,[26] while VZ notes:[27]

> Internet speed is of crucial important to our customers, as they spend more time streaming video and other bandwidth-heavy services on multiple devices. (…) To this end, we have started to deploy the next generation DOCSIS 3.1

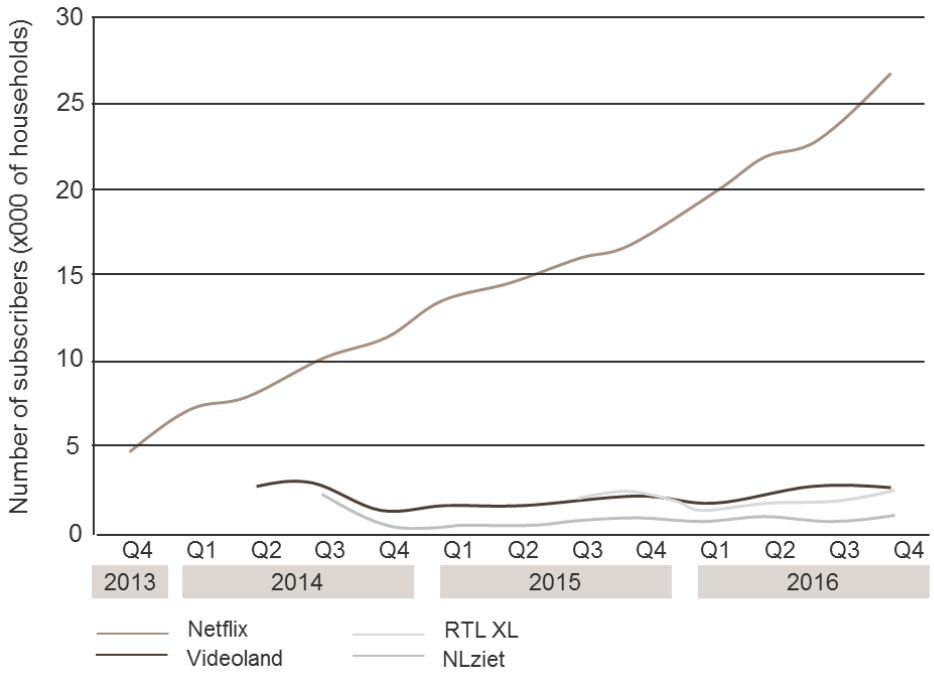
[26] KPN annual report 2017.
[27] VodafoneZiggo annual report 2017, page.I-7.

technology in the future. When fully developed, we will have the potential to extend our download speeds to at least 1Gpbs.

Separately, OTTs also compete with KPN, VZ and other network operators in the provision of services. For example, OTT providers such as Netflix are competing in content markets in the Netherlands. In January 2017 Netflix had about 2m subscribers in the Netherlands,[28] implying that one in four households subscribes to Netflix. There are also local OTT providers in the market, such as NLZiet and Videoland. The latter, owned by broadcaster RTL, has around 200,000 subscribers and transmits RTL series and shows. Cinetree, a similar OTT on-demand service for art house films, entered the market at the end of 2014.

Figure 2.20 shows the increase in the number of households that subscribed to video-on-demand services in the Netherlands between 2013 and 2016.

Figure 2.20 OTT subscribed video-on-demand services in the Netherlands, Q4 2013–Q4 2016



Source: De Bruyckere, S. (2017), 'Video Behaviour of Dutch Consumers 2016 Q4', tp research, telecompaper, 10 March.

The competitive pressure from OTT players is independent of the presence of wholesale access regulation. From an economic perspective, these new services contribute to enhanced and more uncertain dynamics in the market. These changes in the way in which communications services are consumed, together with the increasing demand for higher Internet speeds, are an important driver of both KPN and VZ's quality and service upgrades.

There are several instances of competition between OTT services and network operators, KPN and/or VZ, with KPN and VZ recognising the competitive pressure from OTTs.[29] For example:

[28] Source: Telecompaper.
[29] For example, in the 2017 annual report, KPN mentions 'fierce competition from international network providers and OTT players' as a new threat.

- Ziggo has introduced 'Movies & Series' and 'Movies & Series XL' (previously MyPrime), which are included in some higher-tier products, but can also be bought separately. (The service offers on-demand movies and series, including content from HBO in the 'XL' package.)
- In response to competitive pressure from Netflix and Videoland, VZ now allows its subscriber to access these services from its Horizon TV platform.
- KPN introduced the OTT TV application 'Play', which allows subscribers to watch linear TV on demand.
- NLziet is another important OTT platform started by three major Dutch broadcasters: public broadcaster, NPO, and commercial broadcasters, RTL and SBS.

2.2.4 The evolution of mobile networks

An additional external factor creating uncertainty in the retail market for fixed broadband access is mobile Internet access. The ACM concludes that mobile services are not within the same market,[30] but this overlooks the potential competitive constraints that mobile services currently impose on fixed broadband access providers, or will do so in the future.

In the Netherlands, Tele2 and T-Mobile compete on the basis of their own mobile infrastructure with KPN and VZ, and often play a disruptive role in the retail market. For example, Tele2 has adopted an aggressive pricing strategy since acquiring spectrum in 2012,[31] and both T-Mobile and Tele2 offer contracts with unlimited mobile data.[32] This competition from mobile operators and mobile technology is reflected in the increase in mobile data consumption in the Netherlands in recent years. For example, ACM reported a 96% increase in 4G consumption in Q2 2017 compared to Q2 2016.[33]

We note that developments in mobile network technologies in the next few years may lead to increasingly substitutability between fixed and mobile networks, at least for a segment of fixed broadband access subscribers in some areas. In the Netherlands, further fixed–mobile convergence is anticipated, with the initial rollout of commercial 5G services expected as early as 2019.[34]

In any case, prospective developments in mobile technology mean that it is not an option for fixed operators such KPN and VZ to stop investing in their fixed networks; if they were to do so, fixed networks risk losing the current (higher) speed and capacity advantages over mobile networks (as seen in Figure 2.6).

2.3 Conclusion on effective competition between KPN and VZ

The analysis in this section indicates that the ACM is correct in concluding that that neither KPN nor VZ can build an unassailable lead in the market. However, the ACM's reasoning that this is mainly due to the symmetry

[30] Ibid., para. 1105.
[31] For a two-year contract with 10GB of data and unlimited texts and calls, Tele2 is currently offering a price of €21/month. KPN's price for the same bundle is €31/month and T-Mobile's €22.50/month. VZ's price for 12GB of data and unlimited texts and calls is €34/month. Information taken from provider websites checked on 27 June 2017.
[32] T-Mobile is currently offering a two-year contract with unlimited data in the Netherlands for €35/month, or €30/month if bought by two or more persons, and Tele2 for €25/month. Information taken from provider websites checked on 27 June 2017. Tele2 has also recently introduced an unlimited data offer in its home market of Sweden.
[33] ACM Telecommonitor Q1 – Q2 2017.
[34] European Commission (2017), 'Europe's Digital Progress Report (EDPR) 2017, Country profile the Netherlands'.

between the parties misses the complex competitive dynamics in the market, as described in section 2.1.

Moreover, current price and quality competition will continue for a number of reasons, even in the ACM's assumed hypothetical counterfactual of no wholesale access (which, as we discuss in section 4, is an unlikely counterfactual). These reasons include current differences in KPN and VZ market positions, which, combined with customer awareness of differences in services provided by KPN and VZ, provide a strong incentive for both operators to continue improving services and competing to grow in customer segments where they are weaker. In addition, independent market developments (not controlled by KPN or VZ) provide impetus for both operators to continue improving their services. These developments include evolving customer demand for higher bandwidths and service bundles; the entry of OTT services; and potential mobile network competition as mobile technology evolves.

3 No scope for coordination between KPN and VZ: criteria for joint SMP are not met

The ACM finds that in both retail and wholesale broadband access markets neither KPN nor VZ has single-firm SMP, but that they have the incentives and ability to coordinate to decrease competition between them. In reaching this conclusion, the ACM seeks to follow the established EU competition law framework for joint dominance, in particular from cases such as Airtours and Impala.[35] This framework is broadly in line with accepted economic principles of tacit collusion.

In this framework, in order to show that two or more undertakings hold a joint dominant position, it is necessary to consider whether the undertakings concerned together constitute a collective entity relative to their competitors, their trading partners and their consumers in a particular market. This will be the case when:

- there is no effective competition among the undertakings in question; and
- the said undertakings adopt a uniform conduct or common policy in the relevant market.

The evidence presented in section 2 demonstrates that there is effective competition between KPN and VZ in the residential retail broadband market, and that this is likely to continue even in the absence of wholesale fixed access regulation. That in itself indicates that the risk of joint SMP is non-existent.

This section considers the criteria for joint dominance set out in competition law. These *cumulative* criteria determine whether the market conditions give rise to all of the requirements for effective tacit collusion:

- the ability to reach terms of coordination around a focal product, and the ability to monitor partners for deviation from the coordinated outcome (section 3.1);
- the stability of the coordination in the face of external factors (section 3.2); and
- a credible punishment mechanism to apply if a deviation is detected (section 3.3).

We assess whether each of these criteria is indeed met for the residential retail and wholesale broadband market, as the ACM concludes, and whether it is likely that KPN and VZ could agree to a common policy in the absence of regulation.

3.1 Joint SMP criterion 1: identifying focal points for coordination, and ability to monitor potential deviations

3.1.1 Identifying focal points for coordination

In its assessment of product differentiation in terms of the ability to find a focal point for collusion, the ACM highlights that there are differences in the product offerings of KPN and VZ, mainly based on reputation and content.[36] However, it concludes that these differences are not substantial and do not lead to one of

[35] Case T-342/99 *Airtours v Commission*, para. 62; and Case T-464/04 *Impala v Commission*.
[36] ACM (2018), 'Ontwerpbesluit Marktanalyse Wholesale Fixed Access', 27 February, paras 1201, 1209, 1230 and 1231.

the parties having a superior status over the other.[37] Even though it may be the case that neither KPN nor VZ, as companies, has a superior position over the other, the differences in products will make it harder to find a focal point. The ACM seems not to investigate this matter in its analysis.

Tacit coordination requires a clear focal point on which to collude. A focal product may be easy to identify for operators providing services using a similar network technology, with little scope to differentiate products, or for operators offering limited service options targeting the same customer segments.

However, the ability to identify a focal product will be highly unlikely for infrastructure operators such as KPN and VZ competing using different technologies, coming from different core-product backgrounds and enjoying different comparative advantages.

As shown in the price and broadband speed comparisons in section 2.1, bundling means that a range of services are offered by KPN and VZ leading to a wide range of differentiated retail offers. These differentiated retail offers in combination with the different market positions of KPN and VZ (section 2.2.1), and customer awareness of these differences (section 2.2.2) will make the identification of a focal point on which to coordinate difficult, if not impossible, for KPN and VZ.

Prices are an unlikely focal points given differentiated offerings

As the ACM found in its previous assessment of the wholesale access market,[38] and which still holds, retail broadband access is a highly differentiated product. As well as being offered at different speeds, using different technologies (which themselves offer different characteristics and service levels), at different price points; retail broadband is also frequently supplied as one part of numerous different bundle offers.

Assessing 'the price' of the broadband offered in a dual-, triple-, or even quad-play bundle is not straightforward; more so, given the large number of variations possible with respect to the other bundle elements. This complicated retail structure obfuscates the market, making any form of tacit collusion unstable and thus unlikely.

In the case of the Netherlands, we observe a significant number of product bundles available across two-, three- and four-play bundles, with each provider offering multiple bundles. This means it will be difficult for KPN and VZ to identify a focal product.

Table 3.1 Number of available product bundles in the Netherlands

	Ziggo	KPN	Telfort	XSS4ALL
2P offers	[redacted]			
3P offers				
4P offers				

Source: VZ.

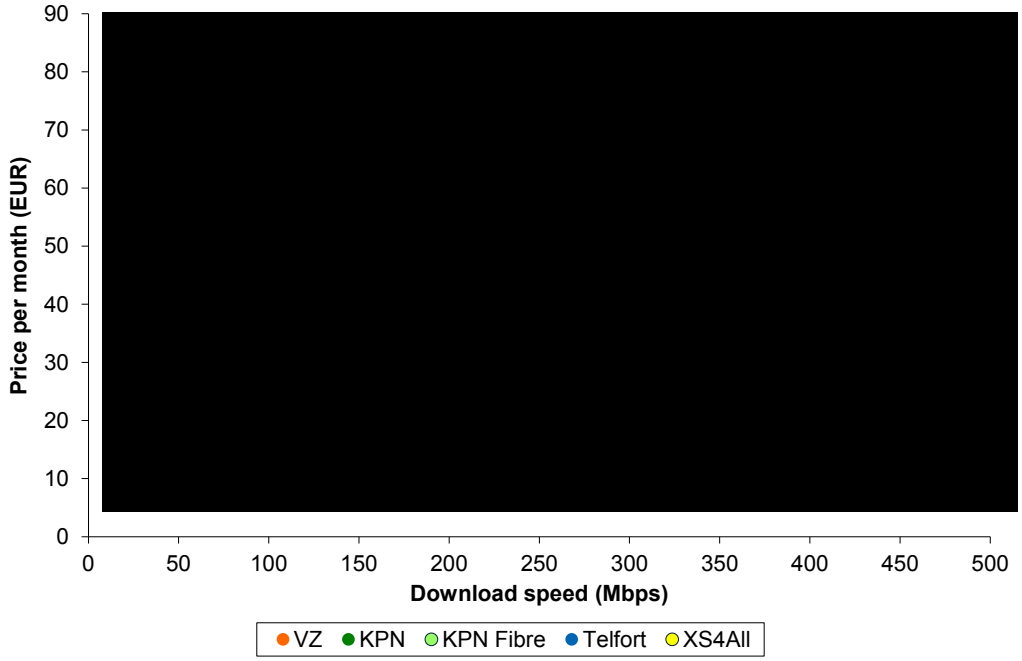
There will also be variation in the design of bundles (e.g. due to different TV channel packs, set-top boxes, and other inclusive services, such as hotspot access and unlimited calls packs), with differences across both pricing

[37] Ibid., para 1232.
[38] ACM (2014), 'Marktanalyse ontbundelde toegang; Ontwerpbesluit voor nationale consultatie', 31 October, para 555–567 and 623–628.

dimensions and multiple quality dimensions. The existence of many permutations would make arriving at a suitable focal product on which to base tacit coordination on price or quality difficult.

Figure 3.1 compares 3P products available in the Netherlands across two dimensions: price and download speed. There is no overlap in the price and download speed combinations that the two operators offer—the offerings are all different.. This indicates a high level of product differentiation, which makes comparisons (and hence tacit collusion) difficult, if not impossible.

Figure 3.1 Prices and download speeds in 3P products in the Netherlands



Source: VZ data (March 2018) and Oxera analysis.

Asymmetry in investment and technology cycles means that investment is not a credible focal point

An alternative focal point for coordination could exist around investment in technologies. The ACM suggest that KPN and VZ have the possibility to take into account the potential upgrades of each other when investing in their own networks, such that the network upgrades do not destabilise coordination.[39]

Even though headline information on infrastructure deployed tends to be readily available to undertakings, and therefore KPN and VZ can monitor each other's investments, for infrastructure operators using technologies with different technology cycles—as is the case for KPN and VZ—a coordination strategy that reduces technology innovation is not credible.

First, for technologies with different technology cycles, technological innovations are generally not driven directly by infrastructure operators. Standard-setting bodies (e.g. the International Telecommunication Union, for mobile technologies, and different industry associations for fibre and coax technologies) and network equipment manufacturers usually drive this process

[39] Ibid., para.1243.

of technological innovation. Individual infrastructure operators decide when to introduce these technologies as part of their competitive strategy.

A second factor providing an insurmountable obstacle for KPN and VZ to coordinate on networks or decrease network investments to stabilise the market is the marked difference in these firms' investment costs and technological development cycles.

The two network operators (KPN and VZ) work with technically dissimilar systems and, as a result, face substantially different cost profiles. (This an important point lost by the ACM's simplistic assessment of the operators as similarly 'high fixed cost, low marginal cost' firms.[40])

For example, [redacted].

KPN has a dual strategy, upgrading its copper network and rolling out its FTTH network. To reach speeds of the magnitude of DOCSIS 3.1 with existing technologies, KPN would need to continue with the roll-out of its FTTH network. This is both time consuming and costly for KPN. In order to remain competitive with the more rapidly advancing cable network, KPN is also investing heavily in upgrades to its copper network, such as the roll-out of VDSL2 bonding and vectoring technologies.

The dynamic nature of these technical dissimilarities means that the opportunity to gain a technical advantage through network upgrades will come at different times for each of VZ and KPN. This results in a leap-frogging of technical superiority in the market, between KPN and VZ at any given time.

Knowing this—combined with the low marginal cost of operation, compared to the high cost of network investment—when a window of opportunity to enjoy a technical advantage presents itself, both KPN and VZ are strongly incentivised to take that opportunity, creating instability for any hypothetical coordination. This is because, having invested to gain a technical advantage, each party is then incentivised to compete vigorously with the other to attract new subscribers to its superior platform. In contrast, if one of the parties does not take the opportunity to invest, it leaves itself exposed to a much larger competitive threat in the future. Assume (as would seem reasonable) that the available technologies continue to develop; and that the competing party is presented with a new technical upgrade option—outstripping the upgrade forgone by the first party—which it chooses to make. This competing party now has a far superior network and the first party has missed the window of opportunity to take a technical leadership position to attract subscribers. Given the long lead times to realise the implementation of new/updated technologies, the first party will be exposed to this competitive disadvantage for quite some time. Other than competing on price alone, the first party has no recourse in the face of the superior competitive offer.

Considering the available evidence from the market, Oxera finds that KPN and VZ have been competing on quality, and will continue to do so, investing in

[40] ACM (2018), 'Ontwerpbesluit Marktanalyse Wholesale Fixed Access', 27 February, para. 1190.
[41] Source: VodafoneZiggo.

network upgrades and expanding their services to continue to attract subscribers.

Moreover, while the full competitive cycle between KPN and VZ might extend beyond the three-year forward-looking window examined by ACM, many of the steps necessary for this competition to unfold will occur during this assessment timeframe and should not be discounted.

For example, the development of the DOCSIS 3.1 standard; the continued expansion of KPN into new services and bundle offerings such as those including TV; the phasing of fibre roll-out together with KPN's roll-out of VDSL2 bonding and vectoring technologies to allow it to compete sooner with the increased broadband speeds offered over cable, all offer short-term examples of the competitive interaction between KPN and VZ. With these upgrade steps under way, not only is coordination likely to be a sub-optimal strategy for the parties, but, for the reasons discussed above any attempt at coordination could be expected to be unstable and collapse quickly.

Oxera also disagrees with the ACM's comments about incentives to collude because of long-term horizons.[42] The ACM's point here is a purely theoretical one: if parties have a long-term horizon and give great weight to future income streams (in technical terms, they have a low discount rate; in non-technical terms, they are patient), they are more likely to collude, as the short-term benefit from 'cheating' is outweighed by the long-term benefits of maintaining coordination. However, the ACM's theoretical point carries no weight here. As discussed in this section, the effect of the parties' longer-term outlook is rather the other way around: it makes them less likely to collude in the next three years due to diverging technology upgrade paths even in the short term.

Market shares as a focal point

Market shares could be another focal point of coordination between two companies. In this case, however, the introduction of new technologies and innovations is likely to affect the market shares held by each player. During periods of innovation and technological disruption, it would be difficult for operators to distinguish deviations from a common policy from general market share movements due to technology cycles. This will make it difficult to use market shares as a focal point.

Moreover as discussed in section 2.2 the ACM picture of two highly symmetrical operators providing near-identical products and, as a result of these similarities, these operators being incentivised to reach a tacit agreement and 'share' the market is incorrect. The current market positions of VZ and KPN (measured by market shares) are not the same across different products (Figure 2.12 and Figure 2.13) or customer segments (Figure 2.14 and Figure 2.15) and there are fundamental differences in KPN and VZ's product offerings (Figure 2.16 and Figure 2.17).

These differences make coordination on market shares unlikely, and because of these differences VZ and KPN are incentivised to compete for subscribers and grow their market shares in customer segments and/or products where they are weaker. As discussed in section 2.2.2, customers are also aware of these differences and will react to service improvements or deteriorations by switching providers.

[42] Ibid. paras 1251 to 1254

For example, [redacted].[43]

The Dutch Monitor Consumer Total Comms (Q4 2017) sets out differences between types of customers and identifies the customer groups (see Table 3.2).

Table 3.2 Customer groups identified by VZ

[redacted]

Source: VodafoneZiggo Dutch Monitor Consumer Total Comms Q4 2017 (22 March 2018)

Figure 3.2 shows that VZ [redacted]
The figures indicate strong competition between VZ and KPN for several customer segments.

Figure 3.2 Broadband market share in different customer segments

[redacted]

Source: VodafoneZiggo Dutch Monitor Consumer Total Comms Q4 2017 (22 March 2018).

Customers consider many different factors when choosing a provider

Customers consider many different factors when deciding on a telecoms provider and deciding whether to switch. Price is one factor, but factors like reliability, customer service, quality of the network and content also matter.

VZ has asked its new customers and customers who left VZ about their reasons for doing so—approximately [redacted]% of new TV subscribers mentioned [redacted] as a reason for switching.[44] Other reasons given were [redacted] and [redacted]. On the other hand, most people who leave [redacted] mention that [redacted]

[43] VZ,
[44] VZ [redacted]

[redacted], and [redacted].

These findings are in line with other consumer surveys. For example, a report by SAMR, used by the ACM in its decision, shows that speed and reliability are the reason why customers stay with their current provider, and that price is an important reason for switching.[45] Blauw research finds that reliability is the reason most often cited for customers' choice of current network (56%), followed by price (47%).[46]

These customer surveys clearly indicate that many different factors play a role in customers' decision-making, and that there is no one factor that is more important in determining an operator's ability to gain or maintain a given level of market share in a particular customer segment. This will make coordination on market shares more difficult since it will require coordination on the multiple factors considered by consumers when choosing a broadband access service provider.

3.1.2 Ability to monitor potential deviations

It is recognised in economics literature that price transparency is a crucial aspect of coordination. Headline price and quality information on current product offerings tends to be readily available to undertakings since these are advertised on provider websites.[47] In principle, operators could monitor this information. However, as is the case in the Dutch market, if technical and external market forces drive rapid evolution, with products and services frequently added (including quality innovations), reconfigured and taken away, this will make it difficult to monitor products.

Operators will not have information on the number of customers who use each package offered by their competitors, even if the terms of such packages are transparent. Moreover as discussed in section 2.1.1, the headline price comparisons do not capture all of the market complexities as they are based on leading 'shop-front' offers presented at each 'tier' of the market. This means that not all possible offers are covered. The comparisons do not take into account promotions targeted at new customers, people upgrading their bundles, or those at the end of their contracts with the intention of switching broadband access providers.

Based on information provided by VZ, we understand that in total around [redacted] of the VZ subscriber base in 2017 received some form of promotion or discount.[48] Moreover many of these promotions and discounts are not published. The decision on what promotion to offer is made on a case by-case basis by a VZ customer representative. KPN is also likely to offer similar promotions and discounts although VZ will not have direct knowledge of the extent or level of all the promotions and discounts offered by KPN.

The widespread use of promotions and discounts (not often visible to competitors) and differentiated product pricing mean that prices are unlikely focal points. Monitoring deviation is also difficult given different customer segments and technical and external market forces driving rapid evolution, with

[45] SAMR (2017), 'Switch binnen de telecommarkt blijft glijk: een op de vijf stapt over. Consumentenonderzoek naar de telecommarkt', 21 June.
[46] Blauw (2017), 'Overstapgedrag vast internet, Consumenteonderzoek voor Autoriteit Consument & Markt', June
[47] In addition, a number of third parties collect this data for sale to operators. This includes Telecompaper in the Netherlands, which collects monthly product information.
[48] These promotions include [redacted]. (Source: VodafoneZiggo).

products and services frequently added (including quality innovations), reconfigured and taken away.

3.2 Joint SMP criterion 2: external destabilising factors

Fixed broadband services are often sold in bundles with other services. This means that developments in other services bundled with fixed broadband can act as an external destabilising factor. This is because these services may be supplied by other service providers (i.e. not the infrastructure operators themselves). Examples include OTT media services such as Netflix and mobile services. The presence of these external parties means that any collusive agreement may be destabilised by the introduction of new services and/or quality/price changes by these service providers.

We discussed in section 2.2 the disruptive competition by OTTs which leads to a dynamic market with both KPN and VZ competing fiercely in the market. The competitive pressure from OTT players is independent of the presence of wholesale access regulation. From an economic perspective, these new services contribute to enhanced and more uncertain dynamics in the market. These changes in the way that communications services are consumed, and together with the increasing demand for higher Internet speeds, are an important driver of both KPN and VZ's quality and service upgrades.

Developments in mobile technology add further uncertainty to the market. As discussed in section 2.2.4, although the ACM considers mobile to lie outside the relevant market (retail fixed broadband access), mobile Internet access can still pose a constraint on the fixed Internet operators. In the Netherlands, Tele2 and T-Mobile compete on the basis of their own mobile infrastructure with KPN and VZ, and often play a disruptive role in the retail market.

Mobile Internet offers the obvious advantage over fixed Internet of easy portability. At present, this is counterbalanced by the fixed broadband operators' competitive advantage in terms of speed and bandwidth. However, this advantage must be maintained through ongoing investment as mobile operators continue to extend their technologies. Fixed-line operators must maintain their network quality and continually increase network speeds in order to retain a competitive advantage.

The presence of these external parties means that any collusive agreement between KPN and VZ will be sustainable only with the implicit or explicit agreement of these external parties. There is no evidence to show that this is or will be the case.

3.3 Joint SMP criterion 3: effective punishment mechanisms (retail and wholesale)

To maintain effective coordination, it is necessary for coordinating parties to be able to enforce the agreement in the case of deviations. This implies the need for a credible punishment strategy that will negate any gains that the other party enjoys from reneging on the tacit agreement. The ACM identifies two punishment mechanisms: pricing in the retail market and entry in the wholesale market.[49] We discuss each of these below.

[49] ACM (2018), 'Ontwerpbesluit Marktanalyse Wholesale Fixed Access', 27 February, paras 261 (1.264–1.267) and para 262.

3.3.1 Retail market prices as a punishment mechanism

ACM puts forward the theory that KPN and VZ would have a deterrent mechanism to enforce coordination on wholesale access, in the form of 'price wars'. [50] However, it is questionable how credible the threat of a price war in response to deviations on wholesale access would be. For a threat to be perceived as credible, it must be understood to be the self-interested response of the punishing firm *given* the deviation has occurred. In this case, it is hard to conclude that a (possibly irreversible) price war would be in the best interest of either KPN or VZ if the other had deviated from the coordinated outcome on wholesale access as discussed in section 3.3.2. This casts doubt on whether the threat of a price war would ever actually be enacted.

The nature of the market is also such that consumers are typically locked-in to a contract with their existing provider if they receive a promotion or discount for a certain length of time. The increased take-up of bundles also increases customer stickiness and may affect the efficacy of a short-term price war as a punishment strategy. These factors will limit the degree of churn that the punishment can stimulate from the deviating party.

Overall, while a short-term price war might be a theoretical punishment mechanism, it does not appear to be a *credible* one. Knowing this, the parties are less inclined to adhere to any coordinated outcome that might be envisaged, making a position of joint SMP unlikely.

3.3.2 Wholesale access as a punishment mechanism

Punishment in the form of wholesale access provision is unlikely to be effective as a result of lengthy negotiation periods between wholesale access providers and potential access seekers. By the time the deviating network becomes aware of the deviation, the deviating party will have had the opportunity to approach and negotiate a wholesale contract with the most important candidates for wholesale access. The deviating network will thus have gained a first-mover advantage and punishment in the form of further wholesale access provision is likely to have a limited impact since the most relevant access seekers will no longer be available. The non-deviating network then needs to wait until the deviating network's wholesale contracts are up for renewal in order to retaliate.

Given the long-term nature of the first-mover advantage gained by deviating, short-term retail price cuts are unlikely to be a sufficient punishment to deter deviation at the wholesale level.[51] On the other hand, longer-term price cuts may not be a credible threat. The reason is that they are costly for all firms, including the punishing firm, and the decision to provide wholesale access will at this point be sunk, with the deviating firm locked into wholesale contracts, such that it cannot be induced to reconsider its decision to deviate.

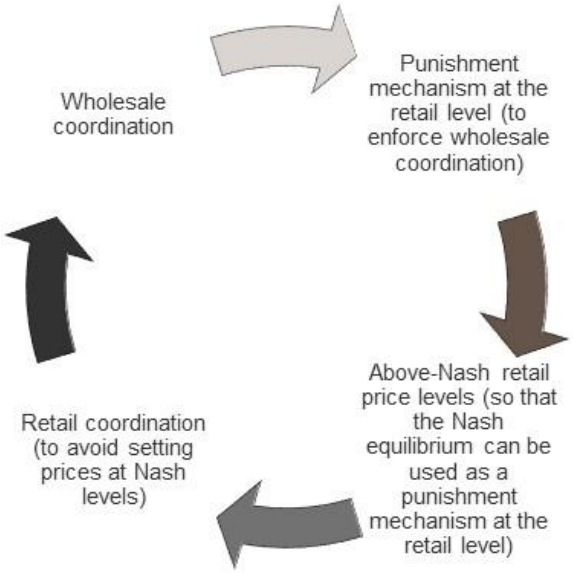
A possibility for long-term price cuts to be a credible threat could arise if there is collusion at the retail level— i.e. retail prices that are above competitive (static Nash equilibrium) levels, so that a reversion to competitive retail price levels can be used as a credible punishment mechanism.[52] However, the

[50] Ibid., para 257.
[51] Moreover, short-term price cuts are also unlikely to be sufficient to induce wholesale access seekers to exit the market, both because retail product differentiation limits the effect of price cuts on rivals and because rivals can also cut their prices.
[52] Setting prices at Nash levels is a dynamic equilibrium and therefore a credible threat even over long periods. If prices are merely high, but not above Nash levels, then it is not possible to revert to Nash levels by setting lower prices.

evidence presented in section 2 demonstrates that there is effective competition between KPN and VZ in the residential retail broadband market, and that this is likely to continue even in the absence of wholesale fixed access regulation.

As such, we would expect wholesale access collusion to be merely a potential add-on to collusion at the retail level rather than a stand-alone issue. This means that sustaining collusion at the wholesale level via retaliation at the retail level would require coordination at both the wholesale and retail levels simultaneously—wholesale coordination depends on retail coordination for a punishment mechanism, as described above, and retail coordination depends on wholesale coordination. This 'coordination of coordination' at both levels of the supply chain, depicted in Figure 4.3, would seem difficult to achieve in practice.

Figure 3.3 'Coordination of coordination': retail coordination depends on wholesale coordination and wholesale coordination depends on retail coordination



Source: Oxera.

3.4 Conclusions on the criteria for joint SMP

Based on a review of the established criteria for joint SMP against the available evidence on market dynamics. KPN and VZ do not have the ability to reach terms of coordination around a focal product, nor to monitor each other for deviation from a coordinated outcome. In addition, there is no credible punishment mechanism to apply if a deviation is detected in either retail or wholesale, and there are several external factors undermining the stability of any coordination.

Prices are unlikely focal points given the highly differentiated offerings and common use of promotions and discounts in the market. Asymmetry in investment and technology cycles means that investment is not a credible focal point for KPN and VZ either. Many different factors play a role in customers' decision making (as shown by customer survey evidence). This makes coordination on market shares difficult. The ability to monitor any deviations from a coordinated outcome is further undermined by technical and external market forces driving rapid change, with products and services frequently added (including quality innovations), reconfigured, and taken away. The

disruptive presence of external parties (OTTs and mobile operators) also means that any collusive agreement between KPN and VZ would be difficult to sustain.

Finally, short term price wars do not appear to be a credible punishment mechanism, and punishment in the form of wholesale access provision is unlikely to be effective as a result of lengthy negotiation periods between wholesale access providers and potential access seekers. This means that the deviating network will have gained a first-mover advantage and punishment in the form of further wholesale access provision or a short term price war is likely to have a limited impact. On the other hand, longer-term price cuts may not be a credible threat. The reason is that they are costly for all firms, including the punishing firm, and the decision to provide wholesale access will at this point be sunk, with the deviating firm locked into wholesale contracts, so that it cannot be induced to reconsider its decision to deviate.

4 No scope for joint SMP in the market for wholesale fixed access

The ACM assesses SMP in the wholesale fixed access market in section 4 of its draft decision. As for retail, the ACM concludes that there is no risk of single-firm SMP for either KPN or VZ in the market for wholesale fixed access. This is significant, as previously the ACM has always justified wholesale fixed access regulation on the basis of single-firm SMP for KPN. The ACM now concludes that VZ is in a similar position to KPN in terms of market share and competitive strength. Thus, the ACM effectively accepts that there is now competition between two infrastructure providers, where traditionally the market had been dominated by one infrastructure provider.

However, the ACM now seeks to impose wholesale fixed access regulation on *both* infrastructure providers on the basis of a risk of *joint* SMP and by defining a single wholesale access market, which includes both wholesale local access (market 3a) and wholesale central access (market 3b).

In particular, the ACM's basic premise is that KPN and VZ each have unilateral incentives to provide wholesale access due to the competitive pressure they face, but that they can achieve a coordinated outcome where neither of them provides wholesale access. This section reviews the ACM's analysis in reaching this conclusion.

The ACM begins its assessment of joint SMP in the wholesale broadband access market by setting out a game-theoretical framework (section 4.4 of the draft decision, with more detail in its Annex D). While this overall theoretical framework is correct, and gives the appearance of economic rigour, the way the ACM applies and interprets the framework has substantial shortcomings. Indeed, the same framework can be used to demonstrate that there will be *no* joint SMP, based on the available evidence on market dynamics.

Section 4.1 reviews the ACM's game-theoretical framework, and sections 4.2 and 4.3 consider VZ's and KPN's unilateral incentives to provide wholesale access.

4.1 Review of the ACM's game-theoretical framework

The framework underlying the ACM's analysis of joint SMP in the provision of wholesale access is set out in section 4.4 and Annex D of the draft decision. The ACM acknowledges that the framework represents the competitive interaction between KPN and VZ in a highly stylised manner, but states that it is nonetheless useful to analyse the incentives for coordination and draw conclusions on the risk of joint SMP.[53]

In Annex D the ACM describes the framework in more detail, including the differentiated Bertrand model from an academic paper by Höffler and Schmidt (2008).[54] In this model there are two network operators who compete in two stages—first in the wholesale market and then in the retail market. In the wholesale market, the strategic choice for the two operators is whether to provide access to third-party service providers or not. In the retail market, the strategic choice is which retail price to set (in essence, 'high or low').

[53] ACM draft decision, para. 213.
[54] Höffler, F., & Schmidt, K. M. (2008), 'Two tales on resale', *International Journal of Industrial Organization*, *26*(6), 1448-1460.

As the ACM discusses, when the two network operators in this model are competing to provide wholesale access, they compete their wholesale access charges down to cost (Proposition 1). This assumes that the wholesale access provided by the two operators is perfectly substitutable.[55] It is also the case in this model that the operators each have unilateral incentives to provide wholesale access. This then results in a classic prisoner's dilemma situation, where both operators have unilateral incentives to provide access, but harm each other if they do so because wholesale prices are competed down to cost. The two operators would be jointly better off if they can coordinate not to provide wholesale access.

As in the standard prisoner's dilemma models of oligopolistic competition, if this competitive game is played only once, the operators cannot avoid a competitive outcome where they are both worse off (with both providing wholesale access)—hence the term 'dilemma'. However, played over multiple periods, there are possible model outcomes where coordination becomes feasible through signalling and reputation effects over time.[56] This is the essence of joint SMP (without a prisoner's dilemma, there is no need or incentive for coordination, and hence no joint SMP).

In section 4.4.2 of the draft decision the ACM simplifies the outcome of the two-stage game into a standard two-by-two pay-off matrix (see Figure 4.1 below). If both KPN and VZ provide wholesale access, they each get a pay-off of '2' (scenario 4). If they both refuse access, they each get a pay-off of '3' (scenario 4)—i.e. they are jointly better off not providing access.

Figure 4.1 Pay-off matrix in ACM's game-theoretical framework

		VodafoneZiggo	
		Refuse access	Provide access
KPN	Refuse access	3, 3 (scenario 1)	1, 4 (scenario 3)
	Provide access	4, 1 (scenario 2)	**2, 2** **(scenario 4)**

The prisoner's dilemma arises because in a one-shot game, the prisoner always end up providing access—for each of them unilaterally, providing access is the dominant strategy. This can be seen from the pay-off matrix. From KPN's perspective, providing access is always preferable over refusing access, regardless of what VZ does.

If VZ refuses access, then KPN can earn '3' by refusing access (scenario 1) or '4' by providing access (scenario 4). So KPN will prefer to provide access. If, on the other hand, VZ provides access, KPN would earn '1' by refusing access

[55] As we note below, there are in fact quality differences between KPN and VZ at the wholesale level.
[56] This is not a general result, as it depends on the ability of firms to collude in the specific market circumstances, which we consider below. Moreover, even in circumstances where firms can collude, this is not the only equilibrium, as providing access is an equilibrium as well.

(scenario 3) or '2' by providing access (scenario 4). Again, KPN prefers providing access. Because in this game KPN and VZ are symmetric, the same logic applies to VZ, which will also always prefer to provide access. So the only equilibrium is scenario 4 in which both KPN and VZ provide access. The only way to reach an outcome where both refuse access (scenario 1) is by coordination if the game is played over multiple periods.

There are three fundamental problems with the ACM's framework.

1. The relative pay-offs in the matrix are an artificial construct, and market reality indicates that the relativities are wrong. In particular, as we show further below, VZ does not have unilateral incentives to provide wholesale access, while KPN does. This fundamentally alters the pay-off matrix, and means that there is no prisoner's dilemma, and therefore there can be no joint SMP.

2. The available evidence on the way the market works indicates that there is no scope for coordination, even in a dynamic version of the game with multiple periods (see section 3.3 above where we discuss the potential punishment mechanisms identified by the ACM).

3. Given the dynamic nature of the sector with external providers such as OTTs entering the market and rapid technological progress (see discussions in sections 2 and 3), the market and hence the repeated game will not be stable. The changing market dynamics will affect the players (KPN and VZ) in different ways and affect their relative payoffs differently.

As to the first point, the finding that the access game is a prisoners' dilemma is not a general result but a consequence of the particular choice of the underlying model employed by the ACM.

For example, the demand function in the model considered by the ACM is linear and constructed such that market shares are symmetric whenever all firms charge the same prices. Ordover and Shaffer (2007) use a more generalised version of the same linear demand function that allows for asymmetric 'baseline' retail market shares as evidenced in section 2.2.1.[57] Using this more generalised approach, the authors show that firms may or may not have unilateral incentives to provide wholesale access, depending on the assumptions and parameters used when employing the model.[58]

The ACM has made no attempt to show that its model accurately captures the industry. As such, its analysis in section 4.4.2 and Annex D at best shows that a prisoners' dilemma is a theoretical possibility.

As we discuss further below in sections 4.2 and 4.3, while KPN does indeed have a unilateral incentive to provide access, the same does not hold for VZ, which would face significant costs as well as other barriers, and thus would not enter the wholesale market.[59] This fundamentally contradicts the structure of the ACM's game-theoretical framework. Unlike the situation considered in section 4.4.2 and Annex D of the draft decision, the Dutch wholesale access market is therefore not characterised by a prisoners' dilemma. This has

[57] Baseline market shares refer to those that result if all firms were to charge equal prices. See Ordover, J., & Shaffer, G. (2007), 'Wholesale access in multi-firm markets: When is it profitable to supply a competitor', *International Journal of Industrial Organization*, *25*(5), 1026-1045.
[58] For example, it is assumed that entry costs are sufficiently small and that access seekers do not steal too much business from their access providers ('own-supplier cannibalisation').
[59] The ACM itself mentions that VZ does not have intentions to provide wholesale access. See para. 1150 of the ACM's report.

important consequences for the analysis of joint SMP in the provision of wholesale access.

Consider the adjusted pay-off matrix in Figure 4.2. The only adjustment to the ACM's framework is that VZ now prefers to refuse access over providing access when KPN provides access—reflecting the fact that it has no unilateral incentive to provide wholesale access.[60] For KPN, providing access remains the dominant strategy. Hence the new equilibrium in this game is scenario 2, where KPN provides wholesale access and VZ does not.

Figure 4.2 Pay-off matrix adjusted for correct unilateral incentives

		VodafoneZiggo	
		Refuse access	Provide access
KPN	Refuse access	3, 3 (scenario 1)	1, 4 (scenario 3)
	Provide access	**4, 1** **(scenario 2)**	2, 0 (scenario 4)

Note: This is a stylised illustration of unilateral incentives and does not distinguish between one-off and ongoing costs.

The equilibrium where KPN provides access and VZ does not is fully consistent with how the market has been operating to date. For KPN this outcome is optimal (from both a static and dynamic perspective), as it corresponds to the highest possible payoff.[61] This is not surprising given that KPN simply does not have to 'pay' anything (by coordinating) to prevent VZ from providing wholesale access. Instead, KPN gets this outcome 'free of charge', as VZ is also better off. Again this matches the reality in the market—if the ACM's pay-off matrix were correct, VZ would have already provided wholesale access.

In summary, the analysis in Annex D paints the picture of a theoretical possibility that is at odds with the circumstances of the Dutch broadband market (in particular regarding VZ's unilateral incentive to provide wholesale access). Given that VZ has no intention to provide wholesale access, KPN does not have to collude to induce this outcome. Instead, it can follow its unilateral incentives and be the sole provider of wholesale access. There is therefore no joint SMP.

[60] In particular, using the ACM's numbers, providing access increases VZ's payoffs by 1 regardless of what KPN does (i.e. from 3 to 4 and from 1 to 2), whereas we now consider the case where providing access instead reduces VZ's payoffs by 1 (i.e. from 1 to 0) when KPN provides access. Although we have not analysed in detail VZ's incentives to provide access when KPN does not, we consider it plausible that VZ would be more likely to overcome the barriers to entry when it is the only provider of wholesale access. We have therefore left the payoff for this scenario (scenario 3) at 4.

[61] This is also consistent with KPN's willingness to offer commercial access.

4.2 VZ does not have a unilateral incentive to provide wholesale access

The fact that VZ is currently not providing access in a context where KPN is regulated to do so demonstrates that VZ does not have unilateral incentives to provide access. This is inconsistent with the model presented in Annex D of the ACM's market analysis, which assumes that VZ does have unilateral incentives to provide access. There are a number of reasons for this.[62]

Upon entering the supply of wholesale access, VZ would face competition from KPN.[63] As illustrated by the model presented in the ACM's Annex D, wholesale competition can in principle drive wholesale prices down to cost. We note that this may not hold to the extent that wholesale products are differentiated.[64] However, differentiation would tend to increase the competitive constraint faced by VZ in the sense that VZ would need to undercut KPN (or provide higher broadband access speeds) in order to remain competitive.

This advantage for KPN is exacerbated by the fact that its existing wholesale customers would face significant switching costs were they to move to VZ as a result of the different technologies used by KPN and VZ.[65] Wholesale competition between KPN and VZ is thus most likely to take place over new access seekers entering the market.

Ecorys (2018) conducts an analysis of the break-even wholesale prices that VZ would have to charge to recover the incremental costs of providing wholesale access to a new access seeker that grows its market share to 2% within five years (representing around 162,000 customers in year 5).[66] We have used this analysis to calculate the impact on VZ's profits if VZ were to provide wholesale access at a price equal to that charged by KPN.

Table 4.1 Effect of wholesale access on VZ's profits

[redacted]

Note: Own network and equipment costs are assumed not to be avoidable.

Source: Oxera using data from Ecorys (2018), 'Wholesale access markets in the Netherlands', 10 April, Table 5-5 and page 63.

Table 4.1 shows that KPN's wholesale price is significantly below VZ's break-even wholesale price level. Thus, if VZ offers wholesale access to a new access seeker at a price that matches that of KPN, this results in profit losses for VZ with a net present value of [redacted].[67] If we were to account for the fact

[62] Moreover, as noted above, more generalised versions of the model considered by the ACM show that firms may or may not have unilateral incentives to provide wholesale access.
[63] A theoretical exception is the possibility of collusion. However, as discussed above, collusion is unlikely to be practically feasible in the present context. Moreover, even if collusion were feasible, this would give VZ and KPN joint SMP and hence expose VZ to the risk of price regulation, which would again prevent it from setting collusive prices.
[64] The ACM's model assumes that there is product differentiation only at the retail level, whereas perfect product substitutability at the wholesale level induces perfect wholesale competition.
[65] This is because switching from KPN to VZ would require an access seeker to replace its customer premises equipment and potentially the location of its network aggregation nodes.
[66] See Ecorys (2018), 'Wholesale access markets in the Netherlands', 10 April, page 63.
[67] [redacted]

that KPN might lower its wholesale price in response to VZ's entry,[68] the profit loss to VZ would be even higher.

This demonstrates the above claim that VZ does not have a unilateral incentive to provide access given that KPN is already active in the wholesale market.

4.3 KPN has strong commercial incentives to supply wholesale access

KPN's decision whether to supply wholesale access depends on how the wholesale profits from providing access compare with the impact on retail profits from providing such access. If KPN provides wholesale access it can earn wholesale profits but will face additional competitors downstream that can steal retail customers from it. The impact on retail profits will depend on the proportion of customers won by access seekers that is diverted from KPN as opposed to being diverted from elsewhere (i.e. from VZ or from 'outside the market' as a result of market expansion by the access seeker).

KPN is likely to have an incentive to continue to provide wholesale access for a number of reasons. Indeed, this is also consistent with the ACM's own game-theoretical framework, which is based on the premise that KPN has strong unilateral incentives to provide access.[69]

- KPN is already in the market. As such it has built up a profitable wholesale business over the years, and has already incurred the sunk costs of setting up various wholesale access products and supporting services such as wholesale billing and support functions.[70] By continuing to provide wholesale access on a commercial basis, KPN protects its existing wholesale access revenue stream and investments. On the other hand, by stopping the provision of these wholesale access services KPN would run the risk of inducing market entry by VZ. As such, KPN would lose its first-mover advantage in the wholesale market.[71]

- As long as KPN stays in the market, market entry from VZ is unlikely for the reasons given above (i.e. it would not be willing to incur sunk entry costs only to face competition from KPN, which has a cost advantage for existing access seekers).

- KPN faces competition from VZ in the retail market, so that a sizable proportion of business stolen by access seekers will come from VZ rather than KPN. As such, the business-stealing effect on KPN is muted, and the corresponding sales won by access seekers are a pure wholesale profit to KPN.

- As discussed in section 2, the retail market is competitive as there is strong infrastructure competition between KPN and VZ which would continue to be the case in the absence of wholesale access. This means that retail losses as a result of granting access are limited.

- Access seekers tend to offer a differentiated product offering, so that there is likely to be a degree of market expansion. As with sales won by access seekers from VZ, sales won by access seekers as a result of market

[68] This would be the case if the competitive wholesale price is lower than KPN's current price level.
[69] Whereas the ACM's framework assumes unilateral incentives to provide access for both VZ and KPN, we argue that this not the case for KPN only.
[70] Moreover, KPN will have to provide wholesale access for business services as a result of single SMP, so that it only faces the incremental costs of providing broadband wholesale access for the residential market.
[71] In that case, the alternative equilibrium might in theory be one in which VZ provides access but KPN does not.

expansion (i.e. from households not currently subscribing to fixed broadband access) are a pure wholesale profit to KPN.

We now conduct a 'vertical arithmetic' analysis to show that KPN does indeed have an incentive to provide wholesale access.[72] To do so, we compare KPN's wholesale profits with and without wholesale access.

With access, KPN earns profits given by:

$$vertically\ integrated\ margin \times number\ of\ KPN's\ customers + wholesale\ margin \times number\ of\ access\ seekers' customers$$

On the other hand, if KPN does not provide access, its profits are given by

$$vertically\ integrated\ margin \times (number\ of\ KPN's\ customers + number\ of\ access\ seekers' customers \times diversion\ ratio\ from\ access\ seekers\ to\ KPN)$$

The condition for KPN to provide access is thus that:

$$\frac{wholesale\ margin}{vertically\ integrated\ margin} > diversion\ ratio\ from\ access\ seekers\ to\ KPN$$

That is, the wholesale margin earned from providing access relative to the vertically integrated margin earned from direct customers must exceed the rate at which customers are recaptured in the event that access is foreclosed.

To implement this test, we have used the following estimates of the inputs:

- KPN's wholesale margin: €16.96—based on a wholesale access charge of €20.94[73] and a variable wholesale access cost of €[redacted];[74]
- KPN's vertically integrated margin: €28.76—based on an average retail price of €46.20[75] and a variable total cost of €17.44;[76]
- a diversion ratio from access seekers to KPN of 48%—based on the assumption of proportionality to customer shares;[77]

[72] This analysis is undertaken at current price levels. In theory, wholesale prices might be higher absent regulation (reducing the likelihood of foreclosure) and retail prices might be higher absent wholesale access (increasing the likelihood of foreclosure). In principle, there is thus a degree of ambiguity around the precise relationship of this analysis to KPN's actual incentives to provide wholesale access. Nevertheless, as discussed in section 2, the main competitive constraint in the market comes from the competition between KPN and VZ. As such, we would expect the retail price effect of access foreclosure to be limited, in which case the test conducted here is conservative.

[73] See Ecorys (2018) 'Wholesale access markets in the Netherlands', 10 April 2018, Table 5-8.

[74] [redacted].

[75] This was calculated as the simple average of the four product prices that were on offer by KPN as of 15/03/2018, after taking into account any one-off costs or discounts. The four products were: KPN Internet 40/4 (€40.46); KPN Internet 100/10 (€45.46); KPN Internet 100/100 (€45.45); and KPN Internet 500/500 (€53.45). Product details for KPN were taken from the 'Ziggo Concurrenten Overzicht' spreadsheets as collected for Ziggo by Telecompaper.

[76] This was calculated as the sum of KPN's estimated variable wholesale access cost ([redacted]) plus the additional non-wholesale variable costs to KPN (€13.46). See Ecorys, 2018, Table 5-8—the figure was calculated by taking the value for KPN's 'Total non-wholesale costs' and subtracting the value for 'Total voice termination costs' as only a pure broadband product is being considered here.

[77] Customer numbers for KPN (including Telfort and XS4ALL) and Ziggo were taken from Telecompaper data for 2017: Telecompaper (2018), 'Dutch broadband 2017 Q4', 16 March 2018. Averaging over the four quarters of 2017, this indicates that KPN had an average of 3 m customers and Ziggo 3.2m customers, suggesting a diversion ratio of 3,0/(3,2+3,0) = 48%.

Plugging this into the above expression gives a margin ratio (left-hand side) of 59%, which exceeds the diversion ratio of 48%. This suggests that KPN does indeed have unilateral incentives to provide access, as discussed above and consistent with both the ACM's own analysis and KPN's voluntary wholesale access offer in the absence of regulation.[78]

We understand that KPN has conducted a similar test using its own data, which also shows that KPN has unilateral incentives to provide access. In particular, KPN used a wholesale margin of €17.60, a retail margin of €27.10 and a diversion ratio of 52%. Again the margin ratio (this time equal to 65%) exceeds the diversion ratio.

Importantly, if KPN were to stop providing access, this might induce entry from VZ.[79] In that case the wholesale loss to KPN might be as above, but with significantly lower offsetting retail benefits, as access seekers would not be foreclosed from the market. This risk further tilts the balance in favour of KPN having unilateral incentives to provide wholesale access.

4.4 Conclusion on joint SMP in wholesale fixed access

For its assessment of joint SMP, the ACM uses a theoretical model in which two firms have unilateral incentives to provide wholesale access. The resulting wholesale competition in the model then drives wholesale prices down to such an extent that the two firms are better off if they both refuse to provide wholesale access. As the (static) equilibrium is for the firms to provide access, the situation considered by the ACM is a standard prisoner's dilemma. Taken as a repeated game, a second (dynamic) equilibrium emerges, in which the firms use punishment strategies to induce each other not to provide access.

The ACM's model thus shows that coordinating not to supply access is a theoretical possibility. However, the economic literature shows that other outcomes are also possible. Whether the wholesale access market in this case can be characterised as a prisoner's dilemma is thus an empirical question. As the ACM has made no attempt to show that its model accurately captures the industry, we have conducted our own analysis of the unilateral incentives of VZ and KPN to provide wholesale access.

We find that, in line with the ACM's assumptions and KPN's own position, KPN has a unilateral incentive to continue to provide wholesale access. However, we find that VZ does not have unilateral incentives to provide wholesale access. This conclusion corresponds with the current market situation. It follows that the access game cannot be a prisoners' dilemma. Instead, in equilibrium KPN provides access and VZ does not, consistent with how the market has been operating to date. Given that VZ has no incentive to provide wholesale access, KPN does not have to collude to induce this outcome. Instead, it can follow its unilateral incentives and be the sole provider of wholesale access. There is therefore no joint SMP.

Finally, even if KPN and VZ both had unilateral incentives to provide access, whether there is scope for successful collusion in the particular market setting still needs to be determined. We find that neither of the punishment mechanisms considered by the ACM is plausible in practice, as discussed in

[78] KPN letter to ACM February 2018, Onderwep (ULL besluit 2018-2021), Ons kenmerk (2018-U-00013-RvB).
[79] As noted above, although we have not analysed in detail VZ's incentives to provide access when KPN does not, we consider it likely that VZ would be more able to recoup the fixed costs of entry when it is the only provider of wholesale access.

3.3. This leaves the provision of wholesale access by KPN, not joint SMP, as the most plausible market outcome.

A1 VZ and KPN product groupings included in low, mid and high tiers for purposes of price and broadband speed comparisons

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

A2 Customer brand perceptions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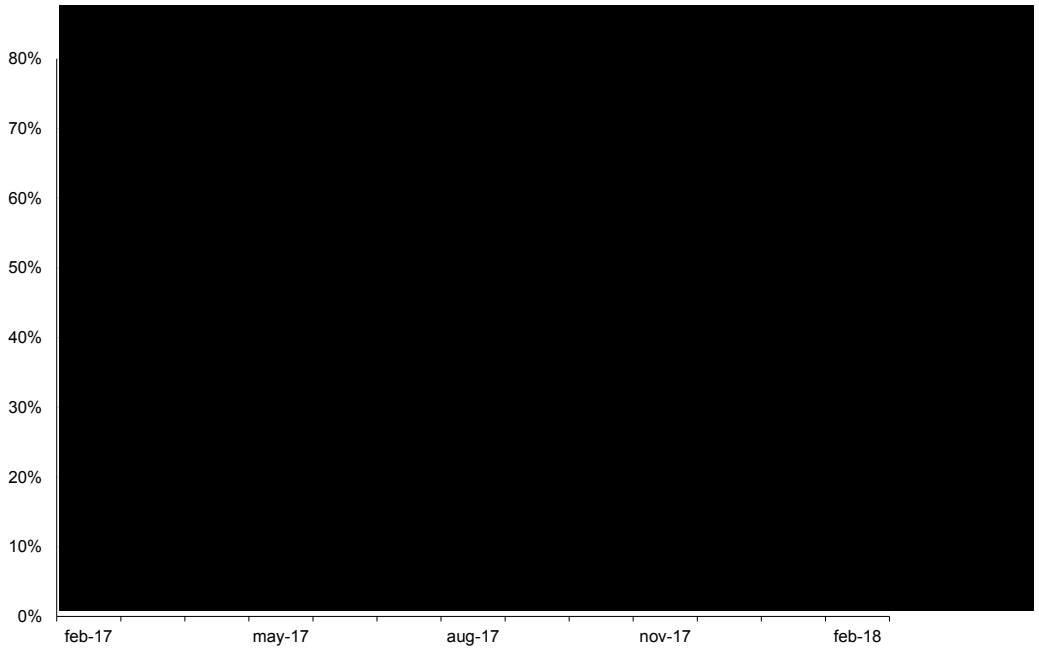
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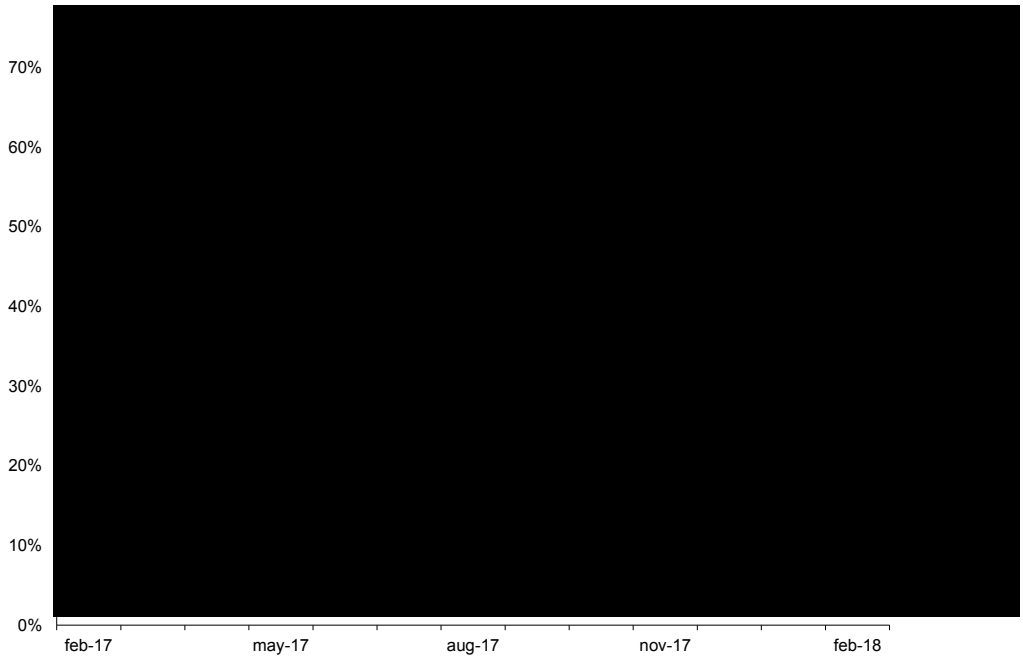
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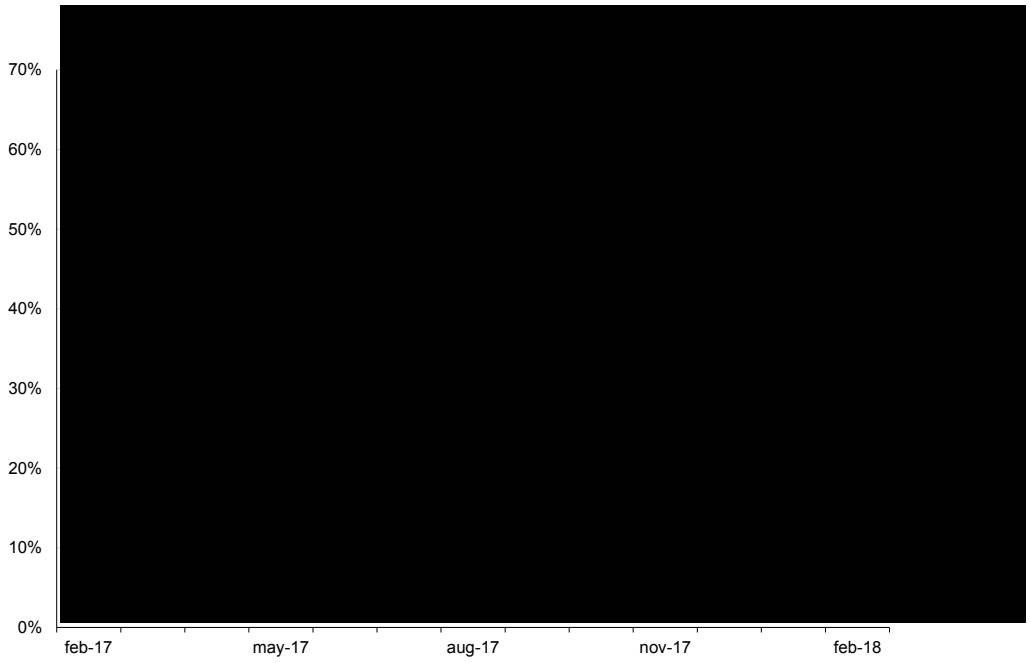
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