

Mobile radio network for the police and emergency services

Final report and decision on a market
investigation reference

25 October 2021

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The Competition and Markets Authority has excluded from this published version of the final report and decision on a market investigation reference information which it considers should be excluded having regard to the three considerations set out in section 244 of the Enterprise Act 2002 (specified information: considerations relevant to disclosure). The omissions are indicated by [X]. [Some numbers have been replaced by a range. These are shown in square brackets.] [Non-sensitive wording is also indicated in square brackets.]

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Summary

1. The Airwave network is a secure private mobile radio communications network for organisations involved in public safety in Great Britain. Currently, there is no alternative method for the police, fire and emergency services staff to communicate securely with each other when in the field.
2. The Airwave network uses land mobile radio (LMR) technology and was commissioned by the Home Office in 2000 under a private finance initiative framework arrangement (the PFI Agreement) that was due to end in December 2019. The network was expected to be shut down at this point and a different secure communications solution using EE Limited (EE)'s commercial 4G mobile network was to become operational (referred to as the Emergency Services Network or ESN).
3. Motorola Solutions, Inc. (Motorola) won one of the key contracts for the delivery of ESN in 2015 and purchased Airwave Solutions Limited (Airwave Solutions, the owner and operator of the Airwave network) in 2016. The merger was cleared by the CMA, in part because of the expectation (and assurances of both Motorola and the Home Office) that the Airwave network would be shut down by 2019.
4. In the last two years, there have been increasing concerns about the delays to the roll-out of ESN and costs to the British taxpayer of the continuing operation of the Airwave network. Government officials and other stakeholders (in particular the National Audit Office and the Public Accounts Committee) have expressed concerns regarding Motorola's position and incentives to deliver ESN, given the on-going high profitability of the Airwave network. It is now expected that the Airwave network will continue until the end of 2026, with the terms of the extension needing to be agreed by the end of 2021. Negotiations between Motorola and the Home Office are on-going.
5. Because of its highly differentiated and bespoke nature, the Airwave network by necessity needed to be designed, built and operated under a long-term exclusive contract. Under these circumstances, the main competitive constraint on the supplier of LMR network services for public safety in Great Britain (Airwave Solutions) occurred when the contract was awarded. Once the contract was in place, competitive constraints within the contract were minimal at best until the prospect of the network being replaced by ESN came into play. This development had the potential to materially change competitive dynamics: during the transition period users would be faced with the decision either to stay on the old network (for as long as possible) or move to the new one (as soon as possible), based on how attractive each option was. Thus, in principle, absent any other market development (such as the involvement of

Motorola in the delivery of ESN whilst also owning Airwave Solutions), any negotiations between Motorola and the Home Office regarding the extension of the PFI Agreement taking place after the award of the ESN contracts would have been impacted by the competitive constraints the impending arrival of ESN would place on Airwave Solutions.

6. Our current view, based on the available information, is that the market for the supply of LMR network services for public safety in Great Britain is not working well for the following reasons (operating alone or in any combination):
 - a. the extremely concentrated nature of the current market, in which the price is established through negotiation between a monopoly provider (Motorola) and a monopsony buyer (the Home Office).
 - b. the asymmetry of information between Motorola and the Home Office in relation to key drivers of pricing, for example the level of capital expenditure needed to keep the Airwave network operational;
 - c. Motorola's position as owner of Airwave Solutions and key supplier in the design and roll-out of ESN, which may be resulting in the preservation of weak competitive constraints on Motorola in the supply of LMR network services for public safety, because of:
 - i. the ability of Motorola to shape or otherwise delay the design and roll-out of ESN, and thus hamper the emergence of the significantly different competitive dynamics envisaged by the Home Office when it procured the design and roll-out of ESN; and
 - ii. the incentive on Motorola to do so, arising from the significant profits it derives from operating the Airwave network.
 - d. the delays in the roll-out of ESN (which may or may not have resulted from Motorola's conduct in relation to the design and roll-out of ESN since 2016), that are preserving weak competitive constraints on Motorola in the supply of LMR network services for public safety; and
 - e. the absence of competitive tension in the award of the original contract, with only one supplier taking part in the bidding process.
7. This may result in significant detriment for customers, as evidenced by the high returns Motorola achieved from its operation of the Airwave network in 2020 and is expecting to achieve, under the scenarios we have considered, over the next 6 years. Any harm in this market and the burden of any excess profits made by Motorola ultimately falls to the British taxpayer.

8. For the reasons set out in paragraphs 6 and 7 above, we have concluded that there are reasonable grounds to suspect that one or more features in the market for the supply of LMR network services in Great Britain are preventing, restricting or distorting competition. We have therefore decided to launch a market investigation reference (MIR) relating to the supply of LMR network services for public safety in Great Britain.
9. We have identified three potential remedies at this stage:
 - a. A form of rate of return regulation typically employed by regulators setting price caps for natural monopoly networks. The price control would fall away as soon as the Airwave network is turned off and/or its operator ceases to have market power. This could address adverse effects resulting from the exercise of market power by Airwave Solutions.
 - b. Open book accounting, including the mandatory reporting of capital expenditure. This could address adverse effects resulting from the feature identified in paragraph 6.b.
 - c. Divestiture of the Airwave network. This could address adverse effects resulting from the feature identified in paragraph 6.c.

1. Background and competitive assessment

The market and companies involved

- 1.1 In Great Britain, the police, fire and rescue and ambulance services personnel operating in the field communicate with each other securely, using a private mobile radio network called Airwave. The Airwave network was commissioned by the Home Office (through the Police Information Technology Organisation, PITO) in 2000 under a private finance initiative (PFI) framework arrangement (the PFI Agreement). The Airwave network is a land mobile radio (LMR) system that uses digital terrestrial trunked radio (TETRA)¹ technology.
- 1.2 The Airwave network is expected to be shut down when a different secure communications solution using EE's commercial 4G mobile network becomes operational (referred to as ESN). Although it was originally expected that this would coincide with the end of the PFI Agreement in 2019, it is currently expected that the Airwave network will continue to operate until the end of 2026,² because of delays in the delivery of ESN.
- 1.3 The Airwave network involves a dedicated infrastructure of radio masts and base stations that was built by British Telecommunications plc (BT). Airwave Solutions,³ the owner and operator of the Airwave network, was sold as a standalone business, first to Macquarie Communications Infrastructure Group (Macquarie) in 2007, and then to Motorola in 2016. In addition to owning Airwave Solutions, Motorola is also one of the main companies responsible for the delivery and roll-out of ESN, through the contract⁴ it won in late 2015. See Appendix B, paragraphs 21 to 33 for more detail on the ESN roll-out.
- 1.4 In 2019, Airwave Solutions served over 470 organisations (comprising 107 police, fire and ambulance services and 363 other organisations)⁵ and generated revenues of £424 million.⁶

¹ LMR systems typically consist of handheld portable radios, mobile radios, base stations, a network, and repeaters. The open standard for digital trunked radio technology was developed by public safety and two-way radio industry experts together with the European Telecommunications Standards Institute (ETSI) to provide secure, reliable and instant voice and data communications in mission critical, operations critical and business critical environments (Source: https://www.motorolasolutions.com/en_xu/solutions/what-is-tetra.html).

² Subject to negotiations about the terms of any further extension to the PFI Agreement. A three-year extension was agreed in 2018.

³ Airwave Solutions was incorporated in 2000 to design, build, finance and operate a public safety network under the contract won by BT.

⁴ This is the Lot 2 contract that covers customer and service support, developing new specialist public safety applications, providing some of core network functions and providing an app-store and device approval service (the Lot 2 Contract). EE won the Lot 3 contract and Kellogg Brown & Root Limited (KBR) won Lot 1.

⁵ NAO 2019: [Progress delivering the Emergency Services Network](#): paragraph 1.

⁶ [Airwave Solutions Limited 2019 accounts](#).

- 1.5 In the last two years, there have been increasing concerns about the delays to the roll-out of ESN⁷ and costs to the British taxpayer of the continuing operation of the Airwave network. In particular, in its 2019 report, the Public Accounts Committee commented: “Given its previous negotiation to extend Airwave achieved only a 5% discount, and given Motorola, which is a key supplier to ESN, has a monopoly position as Airwave’s owner, we are concerned that the Department [Home Office] has limited leverage to secure value for money in any future extension of Airwave contract”.⁸
- 1.6 On 14 April 2021, the Home Office, at the request of the Cabinet Office, wrote to the CMA, expressing concerns about Airwave Solutions’ profitability and the extent to which this might impact Motorola’s incentives in the roll-out of the replacement solution, ESN. A similar point had been made publicly by the National Audit Office (NAO) in 2019.⁹
- 1.7 In considering these issues, the CMA has focused on the potential for the current market realities to give rise to adverse effects on competition (and the potential harms resulting from such competition issues). While constituting relevant context for the CMA’s assessment, the assessment has not been concerned with the effectiveness or otherwise of the historical policy and procurement decisions that resulted in the creation of the Airwave network.
- 1.8 In the following paragraphs, we first consider:
- (a) The nature of competition in relation to the supply of LMR network services for public safety, and
 - (b) Profits made by Airwave Solutions.
- 1.9 We then set out the CMA’s rationale for making a market investigation reference relating to the provision of LMR network services for public safety in Great Britain.

⁷ NAO 2019 – [Progress delivering the Emergency Services Network](#); paragraph 21; PAC (2019) - [Emergency Services Network: progress review](#).

⁸ PAC (2019) - [Emergency Services Network: progress review](#), paragraph 5.

⁹ NAO 2019 – [Progress delivering the Emergency Services Network](#); paragraph 3.20.

Competitive assessment

Introduction

- 1.10 The Airwave network is the only LMR network for public safety¹⁰ covering Great Britain. Such a network includes two layers:
- (a) the infrastructure (e.g. masts, transmitters/antennas and associated technology, such as control centres), and
 - (b) air-time capacity (spectrum).
- 1.11 Its owner, Airwave Solutions,¹¹ operates under licences¹² issued by the Office of Communications (Ofcom) that restrict it to offer services on the Airwave network to the British emergency services (referred to as blue light customers). It can also offer network services to designated sharer organisations, ie other organisations that are involved in public safety related activities and have a need to communicate with the blue light customers in emergency situations. Sharer organisations can only have access to the network if they have been approved by Ofcom and obtained security clearance from the Home Office for a sub-licence. Ofcom may also seek advice and guidance in relation to granting approval to potential sharer organisations from the Emergency Services Sharer Advisory Group which is comprised of representatives from the police, fire and ambulance services. The list of sharer organisations is controlled and managed by Ofcom¹³ and includes organisations such as the Coastguard Services, Environment Agency Enforcement Officers, HM Prison Service, London Underground, etc.
- 1.12 The services provided to blue light customers and associated charges are driven by the PFI Agreement and associated contractual arrangements that were entered into following the PFI procurement process that was completed

¹⁰ Services provided alongside the network may include the provision of related maintenance and integration services. However, there is no link between the provision of network access and managed services (for example Airwave Solutions is a relatively small player in managed services, but a significant player in the provision of network access). There are numerous alternative providers, including systems integrators, specialist managed service providers and other IT or communication providers who can by themselves or, more usually, as part of a consortium provide the varied set of managed services each customer may require. Source: [Macquarie/Airwave merger report](#).

¹¹ Airwave Solutions carries out other activities that account for a very small proportion of its turnover. We refer to these other activities where relevant in this document.

¹² The use of radiocommunications equipment in the UK requires a licence from Ofcom issued under the Wireless Telegraphy Act 2006 (unless the use of such equipment is exempt from the requirement to hold a licence). Airwave holds various licences which authorise Airwave to provide electronic communications services over its network using radio frequencies that have been allocated for emergency services applications and assigned to Airwave by Ofcom.

¹³ https://www.ofcom.org.uk/__data/assets/pdf_file/0024/88242/Airwave-Sharers-List-Process.pdf.

in 2000.¹⁴ As such, they were predetermined for the duration of the original PFI Agreement (19 years). Services and expenditure (over the 19 years) were broken down into two parts:¹⁵

- (a) Estimated £1,180 million for the "Core Service": all police forces receive, and the Home Office pays for, a guaranteed level of radio coverage and other key services.
- (b) Estimated £290 million for "Menu Exclusive" Services: police forces need to purchase services over and above those provided under the Core Service to maintain or enhance their existing capabilities. As a number of these services, such as extra radio coverage and capacity, are integral to the network to be built under the Core Service, Airwave Solutions offers them to police forces at national prices negotiated with PITO/the Home Office.¹⁶

1.13 Pricing under the PFI Agreement consists of three elements: a Core Service Charge (CSC), a Menu Service Charge (MSC) and TUPE adjustment charge.¹⁷ The CSC is the largest proportion and is paid centrally by the Home Office; whereas, the MSC is paid for locally by each customer (or police force) for the menu services provided to that customer. The CSC is set by reference to a baseline figure which is then multiplied by an indexation multiplier to derive the Indexed Relevant Baseline Figure (IRBF) for that contract year. The indexation multiplier applies a weighting to various contractor costs (labour, assets, etc.) and multiplies these by the change in retail price index (RPI) and average earning index.

1.14 In the sections below, we first examine the nature of the Airwave network and the level of competition during the process that led to the award of the PFI Agreement.

1.15 We then examine the events that led to the procurement of the design and delivery of ESN by the Home Office and the negotiations relating to the pricing

¹⁴ The services were initially only for the police forces, with the scope widened later on as other blue light customers joined the Airwave network.

¹⁵ In addition, BT and other potential suppliers would be invited to tender for the provision of "Menu Competitive" Services, including items such as handheld terminals and control room equipment. Each police force would determine the quantity of equipment and the prices paid would depend on the outcome of locally organised competitions. Expenditure was estimated to be £280 million overall over the course of the PFI Agreement. This is not included in our analysis, as these services are subject to different competitive constraints (and may therefore fall in different economic markets).

¹⁶ Source: NAO [Public Private Partnerships: Airwave](#) report, 2002, paragraph 3.

¹⁷ The PFI Agreement notes that, in certain years, there will be a need to take account of additional, unplanned payroll and other employment-related costs incurred by the contractor as a result of the operation of the Transfer of Undertakings (Protection of Employment) regulations (TUPE Regulations). A "Relevant TUPE Transfer" means the transfer of employees under the TUPE Regulations from a Relevant Police Authority (or a third-party contractor of a Relevant Police Authority) to the contractor on the commencement of any Services Contract.

of services in the period following the end of the original PFI Agreement, to inform our view on how competitive outcomes may have evolved since 2000. In this latter context, we examine the incentives that the ownership of the Airwave network and the Lot 2 Contract may together give Motorola in relation to the roll-out of ESN.

Competitive process from 1995 to 2015

Characteristics of the Airwave network

- 1.16 The Airwave network is currently the only secure communications network for emergency services and blue light organisations (and sharer organisations who want to work closely with these organisations) in Great Britain. There is no alternative method for the police, fire and emergency services staff to communicate securely with each other when in the field.¹⁸ The Home Office told us that the extremely high geographical coverage, high level of security and capability to provide priority over other customers are the main factors differentiating it from other networks.
- 1.17 The Airwave network was described in 2015 by its then owner as a dedicated network for emergency services, which is differentiated from the commercial mobile networks by offering:
- (a) a unique service: mission critical services that include high speed low latency push to talk, telephony, short data service and IP;
 - (b) nationwide interoperability and 99% geographical coverage across Great Britain;
 - (c) encrypted secure communication; and
 - (d) outstanding resilience and reliability on its own national infrastructure (e.g. having power resilience for 5+ days without intervention; air to ground coverage from 0 to 10,000 ft; high levels of responsiveness and fix response times 24x7; etc.).¹⁹
- 1.18 The same document refers to “unparalleled network capabilities, with c.99% geographic coverage of Great Britain, 24/365 customer service, rapid response and fault fix times, high capacity levels, proven resilience, interoperability and fully encrypted secure signal”.

¹⁸ [Motorola/Airwave](#) merger report, paragraph 51.

¹⁹ Largely based on the [redacted].

- 1.19 As is apparent from the above, the Airwave network is a highly differentiated and bespoke offering that was purposefully designed to meet the very specific needs of one customer group. Under such circumstances, one would expect competition to be 'for the market', ie to involve a process through which a long-term contract is awarded to one of a few suppliers and the main competitive interaction occurs when contracts are awarded and/or extended.
- 1.20 Once the contract is in place, competitive constraints within the contract would be expected to be minimal at best²⁰ until the prospect of it being replaced by a new contract and new supplier comes into play. Where the transition from one long-term contract to a replacement one takes a period of time, there can be some competitive constraint, during this transition period, on the incumbent supplier from the impending loss of customers to the new supplier(s), particularly if there is scope to retain some customers for longer, for example by offering attractive prices to encourage customers to delay their transition to the new provider. Similarly, once a new provider wins the competition to develop replacement technology, the incentive of that new provider to develop and implement that new technology will be driven by the prospect of taking revenues away from the incumbent provider.

The PFI procurement process

- 1.21 The long-term contract for the provision of a nationally procured radio service for the police and emergency services (later to be named Airwave) was the subject of a bidding process in 1998. This was considered necessary, as the radio communication systems, which had previously been procured locally, were based on obsolete technology. A key benefit of the approach was that it was a nationwide service, with the added benefit that it could be shared by the police and fire services, along with other public safety organisations.
- 1.22 In markets characterised by bidding and tendering processes, firms bid on the basis of the service they can offer to supply customers with bespoke products. In the context of such processes, the competitive constraint on firms comes from a customer's willingness to award a contract to a rival rather than to switch to a different bespoke product.²¹ In some markets, prices are determined by the relative bargaining power of sellers and buyers. The

²⁰ Unlike blue light customers, sharer organisations, in principle, could have a choice of suppliers: use of the Airwave network is discretionary for them; Airwave is not obliged to contract with them under the PFI agreement; and the price for their use of the Airwave network is not set in the PFI Agreement. However, OFCOM explained to us that only organisations that have a need for instant and direct communication with blue light customers would apply for, and be granted access to Airwave, and there is no other way in which they could get such access. Therefore, there are no substitutes available to sharer organisations when they have the specific need that leads them to apply for access to the Airwave network.

²¹ [CC3 \(Revised\)](#), footnote 76.

presence of large buyers relative to the size of the suppliers does not however necessarily guarantee that the buyers can exert countervailing buyer power. The relative importance to each buyer and supplier of its business with the other party is a key factor, and the strength of the buyers' 'outside options', ie their alternative strategies in relation to the relevant product, is often the crucial determinant of countervailing buyer power.²²

- 1.23 Although, in principle, a competitive outcome can be achieved through an effective bidding process, in this case, there is evidence that the bidding process that led to the PFI Agreement failed to create competitive tension, as briefly explained below and in more detail in Appendix B (paragraphs 12 to 15).
- 1.24 The bidding process was initiated in 1995, with 70 companies expressing an initial interest in the project. Although three potential bidding consortia were formed after the publication of the project advertisement in January 1996, by the time the actual tender process started, only one consortium, led by BT, remained in the running. Other potential bidders had dropped out for various reasons including that there were few companies committed to what was then an emerging technology and that only a few companies had the financial strength to take on such a large project. As existing radio systems were not meeting operational requirements, 'do-nothing' was not considered an option and the solution had to avoid delaying implementation of a new service. After wide consultation, PITO concluded that continuing with the BT consortium as a single bidder posed the least risk of delay.
- 1.25 With only one bidder, the tender process was therefore not a competitive one (as documented by the NAO at the time²³) and although PITO took a number of actions to mitigate the situation, such actions did not address the fundamental lack of competition for the contract and there is currently no reason to believe that, in the absence of any outside option, PITO was able to negotiate a price that was at the competitive level (we examine outcomes further in paragraphs 1.69 to 1.85).
- 1.26 Motorola's economic advisers²⁴ argue that the above account of events places "an undue focus on the very last stage of the procurement exercise" and that "the fact that ultimately only one provider was prepared to submit a bid speaks to the difficult nature of the project and the uncertainties that the supplier would face rather than an inherently uncompetitive procurement process". They also argue that "in any case, even with a single bidder, the

²² CC3 (Revised), paragraph 176.

²³ NAO [Public Private Partnerships: Airwave](#) report, 2002, paragraphs 2.10 to 2.15.

²⁴ DotEcon Ltd.

Home Office and BT would have been in a bilateral monopoly situation, and there is no reason to presume that relative bargaining power was highly asymmetric. Put another way, there was no unilateral market power at the procurement stage; it was open to the customer to agree the terms with which it was satisfied". We note that the account of the process by the NAO directly contradicts this view – it is clear that neither the Home Office, nor the NAO regarded the process to have been competitive or that the Home Office was in a position to obtain terms that would have been competitive by virtue of its bargaining position. Motorola's economic consultants' interpretation of the way bidding markets work is also contrary to the CMA's view that although in principle to be competitive, bidding markets may not need a large number of suppliers, they do nevertheless require that more than one bid is made for any competitive constraint to be exercised on the bidding parties.²⁵ In addition, we note that while the Home Office had little choice but to proceed with awarding the contract, BT on the other hand would have continued to be a profitable company if it had not been awarded the contract. Therefore, we do not agree that the relative bargaining powers of the parties were likely to be balanced.

Events leading to the ESN procurement

- 1.27 In this section, we examine the evolution of the relationship between Airwave Solutions and its customers since 2000, starting with the period of growth from 2001 to 2010; before discussing the deterioration of its relationship with the Home Office, once the Airwave network had reached maturity, at which point the Home Office decided to seek a new communications solution (ESN). A timeline of events is provided in Appendix A.
- 1.28 We have limited information about the relationship between Airwave Solutions and its customers in the period from 2002 to 2010. However, the design and build part of the contract appears to have been delivered successfully with full national coverage completed and services delivered to all police forces by 2005, in line with expectations.²⁶ Between 2005 and 2009, the services were deployed to ambulance trusts and fire and rescue services, while in 2010, the network was further expanded to include the London Underground. It therefore appears to us that by 2010, the Airwave network had reached maturity and acquired a stable, largely captive, customer base.²⁷

²⁵ See for example Klemperer (2007), *Bidding Markets*, Journal of Competition Law & Economics, Volume 3, Issue 1, March. Pages 1–47. This paper explains how even having two bidders for one contract is often insufficient for a competitive outcome, except in the most idealised conditions – whereas in this case, the Home Office did not even benefit from having two bidders.

²⁶ NAO [Public Private Partnerships: Airwave](#) report, 2002, paragraph 1.18.

²⁷ Following several years of consistent growth, revenues plateaued broadly at the current level of over £400m from around 2008.

- 1.29 In 2010 and in the context of the broader austerity measures being rolled out across public services, the Government sought to negotiate a discount with Airwave Solutions but failed to come to an agreement, one reason among others being that the Government was not prepared to offer an extension in return for a discount.²⁸ The Government and Airwave Solutions also failed to agree a list of assets that the Government would own once the contracts entered into under the PFI Agreement expired, and this limited the Government's control over the use and cost of the assets in future (thus tying the Government to Airwave Solutions beyond the duration of the original PFI Agreement, unless it could procure a new communications solution). Recognising the high cost of the Airwave network (and other issues)²⁹ and in the face of a deteriorating commercial relationship, the Government decided to commission a replacement communications solution (ESN) that would enable all emergency services to switch to a 4G network by the time the PFI Agreement came to an end: following a review of options that had started in 2011, the Government put contracts for the delivery and roll-out of ESN out to tender in 2014 and awarded them in 2015; the transfer of customers to ESN was expected to start in 2017 and be completed by around 2019. The Airwave network was expected to be shut down once the switching process was completed, and therefore any market power Airwave Solutions may have had until then, would have been extinguished at that point.
- 1.30 The drivers for change, as described in the Home Office's 2013 outline business case for pursuing ESN, were threefold:
- (a) The expected expiry of the Airwave contracts in the period from 2016 to 2020 and the fact that the Official Journal of the European Union (OJEU) notice for the Airwave service specified a maximum contract period to 2020.
 - (b) The significantly higher cost (estimated to be at least 200%)³⁰ of the Airwave network and services when compared with similar public safety systems in Europe and price trends for publicly available mobile telephony.

²⁸ NAO: [Upgrading emergency service communications: the Emergency Services Network \(2016\)](#), paragraph 4.3.

²⁹ See paragraph 24 of appendix B.

³⁰ A Gartner Study commissioned by the Home Office in July 2013 calculated the normalised total cost of ownership for Home Office users compared to a European peer average and concluded that "Gartner concludes that the UK is paying above the market rate for TETRA services by 250%. The tolerance of the UK total cost of ownership calculation is estimated to be 15%; allowing for this tolerance the UK would still be 200% more expensive than European peers".

- (c) The increasing user requirements for mobile broadband data to support operational transformation that could not be fully met by the existing system.
- 1.31 One strategic objective of procuring the design and roll-out of ESN was that ESN would “be based on a commercial mobile communications network that can be re-competed more regularly to exploit market forces and take advantage of technological evolution”. Four requirements were set for the new system, relating to functionality, security, availability and coverage. It was noted that Tetra technology could not meet all these requirements, without the use of additional broadband technology. While there were various options for combining Tetra technology with broadband, the chosen technology, 4G Long Term Evolution (LTE)³¹ could meet all the stated requirements.
- 1.32 The chosen technological option was to make use of commercial 4G LTE services enhanced with extended coverage and public safety service platform and, as noted above, one key aim was to avoid the risk of ‘lock-in’ (recognised as a key issue in the way in which LMR technology had been implemented) in order to:
- (a) “Encourage competition in the commercial mobile services market segment and benefit from commercial rates (even with a premium for emergency services airtime)
 - (b) Target best of breed providers in this specialist ESN functionality market segment
 - (c) Maintain the ability to compete this separately in the future and as a contingency should there be a delay to open standards.”
- 1.33 The intent to facilitate future competition was further clarified as follows:
- “Currently the extended coverage required is provided only by the incumbent supplier, and moving to 4G LTE would require re-investment in infrastructure to replicate this coverage for ESN. We need to procure this infrastructure to create a “neutral host” to avoid the risk of “lock-in” and support future competition:
- (i) It avoids the mobile service provider having to make this investment

³¹ A standard for wireless broadband communication for mobile devices and data terminals, based on the GSM/EDGE and UMTS/HSPA technologies. See [ETSI's webpage](#) for more information.

(ii) It can be made available to any future MNO provider, allowing a longer period for recovery of the investment.”

1.34 Thus, it was hoped that the long-term competitive dynamics would be very different, once the ESN solution was fully implemented.³²

Competition since Motorola's acquisition of Airwave Solutions in 2016

1.35 In this section, we describe the circumstances and potential impact of the acquisition of Airwave Solutions by Motorola in 2016, including: the merger clearance decision made by the CMA, partly based on the expectation (and assurances made by Motorola and the Home Office) that the Airwave network would be shut down by 2019 (ie the end of the PFI Agreement); the incentives that the merger may have created; and the extent to which Motorola may have acted on these incentives.

Motorola's acquisition of Airwave Solutions

1.36 On 3 December 2015, Motorola agreed to purchase Airwave Solutions from Macquarie (subject to approval by the Home Office). A few days later the Home Office and Motorola entered into the Lot 2 Contract to deliver ESN.

1.37 [To reduce the extent to which Motorola could benefit from delays in delivering ESN and thereby exploit its position] [✂], the Home Office agreed a Deed of Recovery (DoR) with Motorola on 17 February 2016. The DoR contained a number of provisions setting out financial consequences [✂] in the event that [✂].

1.38 Once the DoR was agreed, the Home Office agreed to the acquisition of Airwave Solutions by Motorola, which completed on 19 February 2016. In the course of the subsequent review of the merger by the CMA,³³ Motorola argued that as a result of the DoR, “if the Airwave service remains operational by reason of Motorola’s delay the Home Office is entitled to [✂]”, adding that “in the event that any delay is incurred with regard to the transition to the new ESN programme – whether such delay is caused by Motorola or otherwise – there are no remotely reasonable hypotheses under which Motorola could benefit financially in net terms from any extension of the Airwave contracts beyond 2019” and that “the broader market opportunities for Motorola in relation to the ESN programme are considerably greater than the opportunities that would otherwise arise should the ESN programme be

³² This section draws upon the Home Office’s “Outline Business Case for the Emergency Services Mobile Communications Programme (ESMCP)”.

³³ [Motorola/Airwave](#).

delayed.” The Home office did not express any concerns about possible delays to ESN. On 1 July 2016, the CMA cleared the merger.

- 1.39 In its September 2016 report, the NAO identified risks associated with the ownership of Airwave Solutions by Motorola, stating that: *“This purchase carries significant commercial risk for the programme as Motorola Solutions is now both a supplier on ESN and the main incumbent supplier.”* It also noted the incentives and potential upsides identified by the programme officials, who considered that the purchase *“should help with the overall delivery of ESN and both the programme and Motorola agree that the relationship between government and Airwave is now much better. In considering Motorola’s purchase of Airwave, programme officials [have] agreed a flexible basis on which Airwave can be extended, a firm price for this, re-use of some of Airwave’s radio masts for ESN, and a simpler solution for working across ESN and Airwave during transition than had previously been planned. The programme also negotiated a deed of undertaking to reduce the extent to which Motorola Solutions could benefit from delays in delivering ESN and thereby exploit its position.”*

Delays to the design and roll-out of ESN

- 1.40 By 2017, the Home Office was publicly reporting delays of nine months in delivering ESN and commissioned an independent review, which found that the transition from the Airwave network to ESN was not likely to happen on time for a variety of reasons and that the ESN programme needed to be reset. The Home Office announced the reset on 21 September 2018. On the same date, the Home Office extended the PFI Agreement with Motorola to supply Airwave network services from December 2019 until December 2022, with the option for the PFI Agreement to be further extended.
- 1.41 By 2019, the roll-out of ESN was subject to significant delays. In its 2019 report, the NAO estimated that under a potential ‘near worst-case’ scenario, the Airwave network shut-down could be delayed by a further four years, from December 2022 to December 2026. It again commented on Motorola’s incentives stating that: *“The Home Office will need to manage carefully the commercial consequences of renewing Airwave before changes to the Motorola contract have been agreed. Motorola will benefit from the successful development of ESN, but it also receives large revenues from the continued use of Airwave.”*
- 1.42 The Home Office told the CMA that despite the delays to date, the DoR mechanism has never been applied for a number of reasons:
- (a) The DoR is only applicable once [✂].

- (b) The principle underlying the DoR was that the recovery charge would [REDACTED]. The priority of the programme has been to motivate delivery, rather than punish Motorola – as evidenced by the reduction of the [REDACTED] from [REDACTED]% to [REDACTED]% in May 2019.
- (c) The amount [REDACTED] if applied would not be a sufficient deterrent to Motorola, for two main reasons:
- (i) the [REDACTED] was only applicable to [REDACTED]. If the delay was longer than that [REDACTED]; and
 - (ii) the imbalance between the revenues/profits earned by Motorola from the Airwave network and ESN, which creates incentives for Motorola to prioritise the former which is far more profitable.³⁴

1.43 In relation to the above point, the Home Office told the CMA that Motorola’s annual revenue from its Lot 2 ESN contract is around £[REDACTED]m per annum (with an expected profit margin of [REDACTED]%). We note that this is in sharp contrast with the scale of excess profits that we estimate Motorola stands to make from the extension of the PFI Agreement to 2026 (see paragraphs 1.69 to 1.85).

1.44 The Home Office also told the CMA that delays by Motorola in its delivery of ESN is resulting in significant additional cost to the Government as use of the Airwave network has to be extended to ensure continuity of communications by emergency services. This was looked at by a [REDACTED] Advisor who wrote a report on [REDACTED]. According to the Home Office, the report found that there were [REDACTED].

1.45 In response to the Home Office’s submissions, as summarised in the preceding paragraphs, Motorola provided a chronology of events, purporting to show that it had not held any responsibility for delays in the delivery of ESN. However, we also received a submission (also supported by a chronology of events) from [REDACTED], pointing in the opposite direction. Our review of internal documents³⁵ from Motorola also gives us reasons to believe that some delays within the programme may have been caused by Motorola (which is not to say that there may not be other issues that have played a role in the delays to the delivery of ESN overall).

³⁴ The Home Office told us that the [REDACTED] set at [REDACTED]% and [REDACTED]% (in 2016 and 2018) was considered suitable at the time as (i) the Home Office did not predict that Airwave Solutions would enjoy such large margins going forward; and (ii) Airwave’s 2018 and 2019 accounts were published in 2020 (which is when the profitability of the Airwave network became evident).

³⁵ Including a report prepared by a [REDACTED] Advisor for Motorola and electronic communications between Motorola’s senior managers. [REDACTED]

- 1.46 Based on the analysis of Airwave Solutions' forecast profitability (see paragraphs 1.69 to 1.85), the CMA recognises the potential for tension between Motorola's commitments and rewards as a key supplier to the roll-out of ESN and the high profits it derives from the continuation of the Airwave network. It also appears that the DoR may not be effective in constraining the incentives that have been created by Motorola's ownership of Airwave Solutions and the Lot 2 Contract delivery. We note that at the point in time when the DoR was signed, Airwave Solutions' profits were significantly lower than they are today, although Motorola, unlike the Home Office, could have been expected to know what their future trajectory would be (based on confidential information provided by Macquarie, as part of the Airwave Solutions sales process). We also note that when the CMA considered the acquisition of Airwave Solutions by Motorola in 2016, the DoR provided greater disincentives than now following the 2018 negotiation with the Home Office (see paragraph 1.50(e) further below).
- 1.47 In light of the above, the CMA considers that there is evidence that Motorola has at least played a part in the delays to the delivery and roll-out of ESN and that this merits further investigation, given the incentives created by Motorola's dual role in the roll-out of ESN and operation of the Airwave network.

Market dynamics following the ESN procurement and Motorola's acquisition of Airwave Solutions

- 1.48 In this section, we describe the nature of the competitive process, once the ESN procurement had taken place.
- 1.49 As explained in the previous section, at the time when the contracts to design and roll-out ESN were awarded, it had been expected that ESN would have been fully implemented and the Airwave network switched off by 2019, which would have meant a) that there would have been a limited period during which there could have been any competitive interaction between the two and b) the pricing of the Airwave network would not have needed to be re-set outside of the original PFI Agreement.
- 1.50 However, delivery of ESN was delayed, and in September 2018, key terms of the PFI Agreement and associated contracts (see paragraph 2 of Appendix B) were amended through new contractual arrangements extending the operation of the Airwave network to a revised switch-off date of December 2022, including:
- (a) a 5% price decrease to the core charges of the [X] (effective from 1 January 2020)

- (b) the reprofiling of payments
- (c) [Motorola’s commitment relating to capital expenditure], and
- (d) The Home Office waiving its rights under the contracts to [REDACTED].
- (e) Reduction of the DoR [REDACTED] to [REDACTED]% in October 2019 and to [REDACTED]% once certain ESN delivery milestones are achieved. Any claims by the Home Office under [REDACTED].³⁶

1.51 By Spring 2021, it became clear that the operation of the Airwave network would need to continue until at least December 2026. The Home Office told us that the terms of this extension are still to be agreed, and that negotiations with Motorola are on-going.³⁷

1.52 Following the end of the original PFI Agreement period, prices have been set through negotiations between Motorola and the Home Office (negotiating on behalf of other customers in the market). As set out in Motorola’s economic advisers’ report, under such circumstances, the way in which the market operates is best defined as a “bilateral monopoly situation”, in which “relative bargaining power” is the determinant of the market outcome. The outside options open to the two negotiating parties will have a significant impact on their relative bargaining powers and we note in this respect that while walking away from the negotiations (the only outside option Motorola and the Home Office have) would mean giving up large profits for Motorola, for the Home office it would result in the loss of critical communication capabilities for the police, fire services and emergency services in the field.

1.53 At the point at which the 2018 negotiations took place, the design and roll-out of the ESN network had been under way for about two years, with an expectation that a transition period during which users would make the decision either to stay on the old network (for as long as possible) or move to the new one would soon start. Thus, in principle, absent any other market development (such as the involvement of Motorola in the delivery of ESN whilst also owning Airwave Solutions), the negotiations between Motorola and the Home Office would have been impacted by the competitive constraints the impending arrival of ESN would place on Airwave Solutions.

³⁶ Description based on a briefing note prepared by Motorola’s UK team for Motorola’s senior management.

³⁷ On 17 September 2021, Motorola informed us that it was in negotiations with the Home Office [REDACTED] and that it had agreed in principle to [REDACTED]. We understand that the parties have not yet entered into legally binding agreements to give effect to this [REDACTED]. Even if implemented, neither of these developments, in our view, is likely to have a material impact on the features that we have identified. We examine elsewhere the potential impact of [REDACTED] on our estimates of future excess profits, if it were to be agreed upon.

- 1.54 We obtained a large number of internal documents from Motorola, pertaining to the negotiations that took place in 2018 and the current negotiations. These documents indicate that the negotiations have centred on two dimensions: the duration of the extension and the capital expenditure expected over the course of the extension.
- 1.55 The starting point for setting the price for the extension to 2022 appears to have been [REDACTED],³⁸ i.e. the underlying [REDACTED] structure was used as an ‘anchor’ for the negotiations.³⁹ We note that:
- (a) The underlying price had been [REDACTED]. This may have been linked to the fact that [REDACTED] but there may have been other reasons leading to [REDACTED] (including the fact that [REDACTED]).
 - (b) A key driver of the price paid [REDACTED] was [REDACTED] and therefore there was no reason in principle for this pricing structure to be used as a starting point to any negotiation for future prices.
- 1.56 The evidence we have seen indicates that the Home Office has some level of bargaining power with regard to the duration of the extension (although this is somewhat weakened by the risk of political fallout from any long extension and the limits to the Home Office’s ability to control the speed of delivery of ESN).
- 1.57 However, it appears to us from the documents we have seen that there is a significant information asymmetry with regard to Motorola’s proposed capital expenditure programme, both in terms of the amount of information provided to the Home office about future expenditure and in terms of the lack of transparency on actual past capital expenditure. We note that in the period from 2018 to 2020, capital expenditure was significantly lower than had been forecast in the 2018 negotiations, and that this information had not been shared with the Home Office prior to the launch of the CMA’s consultation. This is even though:
- (a) Motorola’s commitment [relating to capital expenditure]⁴⁰ was a key element of the 2018 extension negotiations (see paragraph 1.50(c))

³⁸ Motorola stated that this included [REDACTED].

³⁹ In relation to the 2021 negotiations, Motorola noted in an internal document: “[REDACTED].”

⁴⁰ Motorola disagrees with our description, instead asserting that “commitment was made to make the necessary investments to ensure the Airwave service is always extendable”, rather than to the [REDACTED]. In our view, this is not consistent either with the briefing prepared by Motorola’s UK team for Motorola’s senior management (reproduced at paragraph 1.50(c)), or the provision of [REDACTED], which was shared with the Home Office as part of the negotiations to justify [REDACTED]. Motorola also told us that it shared other information on its capex programme with the Home Office outside of the negotiations, although the shared documents that we have seen do not, in our view, address the issues that we have identified.

(b) Prior to July 2021 (and the CMA’s consultation), Motorola had been arguing for a significant price rise linked to a large capital expenditure in the period from 2023 to 2026.⁴¹

1.58 In addition, Motorola itself acknowledges that the current market situation in the UK is unique, with the government owning neither the spectrum, nor the network. Regardless of the way in which it has come about, this set of circumstances is likely to put the Home Office in a weaker bargaining position in any negotiation following the end of the original PFI Agreement period.

1.59 Motorola’s economic advisers argued that “when long-term exclusive contracts are tendered both buyer and seller need to form expectations about future events. [...] If the buyer does not want to rely on bargaining positions being largely balanced when it comes to re-negotiating terms, it can leverage its stronger position before the long-term contract is agreed, by including provisions governing the negotiation of extensions or modifications.” They went on to argue that “terms for an extension that are considered unacceptable or unfair must be treated as a contractual dispute that should be addressed through arbitration or litigation.” We do not agree with this argument, as it is well documented that the procurement process leading to the PFI Agreement did not deliver a competitive outcome (see paragraphs 1.24 and 1.25), and therefore the theoretical scenario identified by Motorola’s advisers does not apply in this case. Further, the set of circumstances discussed in paragraphs 1.57 and 1.58, whether or not the result of the original procurement process, are not capable of being resolved through arbitration or litigation.

1.60 Given that ESN is not expected to become operational before the end of 2026 and the Airwave network is now expected to continue to be used until then, we are concerned that Airwave Solutions may have a high level of market power for a considerable period of time.

Issues arising from the technology linking the Airwave network to ESN

1.61 A critical aspect of the ESN roll-out is the transition from the legacy system (ie the Airwave network) to the new ESN network, with some public safety organisations moving sooner than others, but all needing to be able to communicate with each other (the bridge between the two systems being called ‘interworking’). This is made possible by upgrades of equipment and infrastructure on the Airwave network side, alongside the use of mission

⁴¹ We note that following the launch of the CMA’s consultation, Motorola changed its stance. However, when considering whether there may be an AEC in a relevant market, our interest is in understanding how the relevant market operates in the absence of any CMA intervention.

critical push to talk (MCPTT) software on the ESN side. The latter was first provided by Motorola through a technology it had developed in-house (called Wave 7000) and later through Kodiak, a technology it bought in August 2017.⁴²

- 1.62 In principle, there should be technical advantages arising from joint ownership and control of the two sides of the interworking arrangement, ie the Airwave network and MCPTT software (a point that we understand was key to the Home Office supporting the acquisition of Airwave Solutions by Motorola in 2016).
- 1.63 However, we have heard concerns about the impact that Motorola’s control over the technology linking the Airwave network to ESN may have on the competitive process, namely that “in a normal functioning market, a provider of the MCPTT software to ESN would do all in its power to deliver a functioning service and encourage adoption as quickly as possible to take first mover advantage before the competition catches up.” The response further indicated that such behaviour from Motorola is absent in circumstances where the incentive to continue to run Airwave is so significant.⁴³ This suggests that Motorola’s control over MCPTT technology (combined with its ownership of Airwave) has the potential to distort competition between Airwave Solutions and ESN suppliers during the transition period from LMR mobile network services to ESN, as described in paragraph 1.20.
- 1.64 Based on our review of the evidence we have obtained, we observe that:
- (a) In addition to providing the link between the Airwave network and ESN, MCPTT technology plays a crucial role in the delivery of ESN: the Home Office told us that this application is critical in providing access to video, messaging and private telephony securely on mobile phones. It also told us that Kodiak has always been on the critical path of the ESN programme.
 - (b) Motorola’s bid for the ESN Lot 2 contract involved MCPTT technology called Wave 7000, which was replaced by Kodiak in 2019. We note that at the time of the 2018 contract negotiations, in which the switch to Kodiak was first put forward by Motorola, the Kodiak software did not yet have some key mission critical functionality.⁴⁴ Around that time, Motorola’s

⁴² Through its acquisition of Kodiak Networks (source: <https://newsroom.motorolasolutions.com/news/motorola-solutions-completes-acquisition-kodiak-networks.htm>).

⁴³ [REDACTED]’s submission.

⁴⁴ The Home Office’s review of Kodiak during the 2018 negotiations was based on release 8.3/8.4 which did not include some of the necessary mission critical functionality. Such functionality was partially introduced in release 9.0 in 2019. Motorola told us that the Home Office team observed demonstrations of the Kodiak Release 9.0

Programme Director (user services ESN) appears to have identified as a key risk the fact that Kodiak would not [REDACTED] and that Motorola's "product strategy leaves door open for [REDACTED]".⁴⁵

- (c) We have received representations that the change from one technology to the other led to delays. The Home Office is of the view that it was unlikely that Wave 7000 would have been able to meet its requirements in a timely manner because it would have required a significant amount of development to make it fit for purpose. It also told us that the ESN programme would have never delivered Mobilisation Complete⁴⁶ using Wave 7000 and that Motorola were in delay because of the number of issues identified during testing of the software. The Home Office told us that although it was originally offered a choice to swap to Kodiak, this choice was effectively rescinded when Motorola later informed the Home Office that the next Wave release would be the last and that all customers would be migrated to Kodiak.
- (d) The Home Office told us that [Motorola achieved its Kodiak software release delivery milestones but there were issues that needed to be worked through]. We have also seen documentary evidence of [REDACTED] and of Motorola's expectation that there will be [REDACTED] to 2024.⁴⁷ We consider that this second issue could have a negative impact on users' willingness to switch from the Airwave network to ESN.
- (e) Motorola's approach to the development of Kodiak was commented upon in the following terms by the [REDACTED] consultant (report of 20 April 2021): "The treatment of Kodiak as a black box is [REDACTED]. Regardless of the COTS [commercial off-the-shelf] product nature of Kodiak, HO [Home Office] are critical to the influential development of the product and its evolution as a mission critical platform. We experienced multiple instances of Kodiak

feature set at the time of the negotiations. Motorola also stated that Kodiak Release 9.0 was being deployed to Kodiak's customers at the time of the 2018 contract negotiations. We struggle to reconcile this second statement with internal documents that show that the specification was still in draft in August 2018 (i.e. around the time when the heads of terms were being negotiated with the Home Office).

⁴⁵ Comment made in an early draft of a presentation that was later amended (and the comment removed). This comment nevertheless suggests concerns may have been held by a senior individual with responsibility for the delivery of Kodiak. We therefore regard it as relevant to our investigations.

⁴⁶ This term refers to the point at which all users have transferred from the Airwave Network to ESN and ESN is functioning properly.

⁴⁷ According to an internal document, Motorola expects to [REDACTED]. Motorola disagreed with our initial interpretation of its internal documents. In particular, it disputed the existence of likely [REDACTED], instead referring to "worst case" [REDACTED]. We note that the relevant document in fact refers to "likely" [REDACTED], rather than "worst case" [REDACTED] and that [REDACTED] are also expected in the [REDACTED] scenario. In addition, Motorola's explanation appears to us to acknowledge that [REDACTED], even though Motorola characterises this as a "technical" matter. We acknowledge that the concerns raised in the document may not be about [REDACTED] as such, but instead about what appears to us to be likely [REDACTED] (and have altered the text accordingly).

simply being referred to as a black box solution which we do not believe to be a [REDACTED].⁴⁸

- (f) We received representations that the delivery of ESN's requirements is subject to "an elongated commercial product roadmap". Documents we have seen suggest that the timing of at least some aspects of delivery may be subject to Motorola's planned product releases for Kodiak (as Motorola treats it as a COTS product), rather than the needs of the ESN programme.⁴⁹
- (g) The Home Office told us that although Motorola is content to incorporate updates to the functionality of Kodiak to meet the emergency services' requirements, this is scheduled to follow the Kodiak product roadmap process, which means waiting for future iterations of Kodiak to be released. The Home Office added that [it has little influence on the speed at which critical functionality is included in Kodiak].

1.65 Motorola disagrees with many aspects of the above account and in particular our interpretation of its internal documents. Where appropriate, we have reflected our preliminary consideration of their representations in footnotes. However, in order to assess properly these comments and reach a firm view on the above matters, extensive gathering and assessment of technical evidence would be required. At this stage, based on the above evidence, it appears to us that Motorola's approach to the development of its MCPTT software may have been (and may continue to be) a material factor in delays to the ESN programme, because of the alleged inadequacies of the solution it had put forward as part of its original bid (Wave 7000); the need to develop mission-critical capability into the replacement technology (Kodiak); and the lengthy and apparently inflexible product roadmap that Motorola has adopted in order to do so. In addition, the evidence suggests that Motorola largely controls the speed at which the various features required for ESN are delivered as part of its product release schedule. Thus, through Kodiak and its crucial role in supporting communication between Airwave network users and ESN network users, Motorola appears to have the ability to impede the timely transition of public safety organisations from the Airwave network to ESN.

1.66 In addition, we understand that the Home Office would not be able to switch easily from Kodiak at this point in the programme for the following reasons:

⁴⁸ Motorola commented that although it does not dispute the accuracy of the CMA's quoted statement, it does reject the sentiment expressed, asserting that [REDACTED]. Motorola's view is however not supported by evidence we received [REDACTED].

⁴⁹ [REDACTED]. There is also evidence of delays to the development of the network interworking solution on the Airwave side.

- (a) The Home Office has had a significant role in the development of the Kodiak software to ensure that it meets its mission critical requirements: based on market testing it carried out in early 2021, the Home Office estimates that to switch from Kodiak to another solution would take [REDACTED] and cost approximately £[REDACTED].
- (b) Switching would also be hampered by the fact that the technological solution developed on the Airwave side (called the Wave Radio Gateway) is specific to Kodiak and would require several years to be modified to work with an alternative MCPTT solution. In addition, any alternative MCPTT solution would also need to be developed to handle the required volume of calls.

1.67 Lastly, we note that as at March/April 2021, Motorola was considering [REDACTED], at least in part because of concerns about [REDACTED].⁵⁰ According to Motorola's calculations, [REDACTED] would improve its cash flow by [REDACTED]. It weighed these financial benefits against other strategic considerations. At the time, Motorola made a decision not to [REDACTED].

1.68 Motorola disagreed with the above summary but the explanation it gave was high level and unsubstantiated. In the absence of evidence to the contrary, we consider our interpretation of this document and its context to be a reasonable one at this stage in our process. Referring to the same document, Motorola also stated that no decision was made to [REDACTED], which we note is consistent with our observation that the option was simply being considered (and the fact that some months elapsed before the matter was [REDACTED]). The relevance of this point at this stage is that Motorola's considerations, as reflected in paragraph 1.67 above, predated the CMA's consultation on the making of a market investigation and that there were clear perceived financial benefits to Motorola from pursuing the course of action that was envisaged in this document.

Outcomes: profitability

Introduction

1.69 Evaluating outcomes of the competitive process in their different forms in a market – eg prices and profitability, levels of innovation, product range and quality – helps the CMA determine whether there are competition problems and, if so, the extent to which customers may be harmed by them. Prices and profits are among the more observable and measurable outcomes and an

⁵⁰ As set out in an email to [REDACTED], drafted by [REDACTED] on 12 April 2021, stating: "Basically we have two options: [REDACTED]. I wanted to make your [sic] aware of the facts and current [REDACTED]. Currently we are [REDACTED] so we can [REDACTED]. I am truly worried as [REDACTED]".

analysis of these may be useful in understanding the extent and nature of competition and can be helpful in measuring customer detriment.⁵¹ Given that the Airwave network is a highly differentiated and bespoke offering, we have focused our analysis of outcomes on the profitability of Airwave Solutions.

1.70 The CMA guidelines state that:

‘Firms in a competitive market would generally earn no more than a ‘normal’ rate of profit – the minimum level of profits required to keep the factors of production in their current use in the long run, ie the rate of return on capital employed for a particular business activity would be equal to the opportunity cost of capital for that activity.’⁵²

1.71 Return on capital can be based on cash flows (internal rate of return (IRR)) or profits (return on capital employed (ROCE)). The IRR is the conceptually correct method for measuring the profitability of an activity over an extended period of time as it takes into account the cash inflows and outflows of an activity over time, and reflects the economic principle of the time value of money. In order to calculate the IRR, data about the cash flows of the activity in question over the relevant period, and the asset values at the start and end of that period, are required. In many cases, we use ROCE, as this can be computed annually and thus can provide insights into trends over time and the drivers of profits above the ‘normal’ level. The opportunity cost of capital is the weighted average cost of capital (WACC),⁵³ which investors expect for providing capital to firms undertaking the in-scope activities. However, where data permits, and where cash inflows and outflows are particularly “lumpy”, as in the case of a PFI-type project, we generally prefer to estimate the IRR of a project over the relevant period.

1.72 The extent to which the results of profitability analysis indicate limitations in the competitive process may depend on both the size of the gap between the level of profitability and the cost of capital and the length of the period over which the gap persists. The appropriate time period over which to examine the persistence of the gap between profitability and the cost of capital may therefore vary according to the specific market.⁵⁴

1.73 Motorola told us⁵⁵ that:

⁵¹ CC3 (Revised) paragraphs 103 and 104.

⁵² CC3 (Revised), paragraph 116.

⁵³ Specifically, the mean ex ante expected return on capital of debt and equity holders, weighted by gearing.

⁵⁴ CC3 (Revised), paragraphs 120 and 121.

⁵⁵ See: 18 August 2021 response to the CMA’s consultation, paragraph 8.

- (a) the economic model the Home Office agreed at the outset of the Airwave project anticipated a pre-tax nominal IRR for the initial duration of the Airwave contract (2000-2019) to be around [X]%;
- (b) the actual investment required in the network by far exceeded the anticipated investment so that despite additional revenue streams the actual project IRR fell far short of the anticipated level; and
- (c) even if the Airwave service were provided until 2026 on the current contractual terms, the average IRR for the period 2000-2026 will be less than [X]%

1.74 We do not agree with Motorola's assertion (reflected in paragraph 1.73(c)) that the correct analysis of the profitability of the Airwave network should combine the profits and losses made during the lifetime of the PFI Agreement with those from the post-PFI (or extension) period, ie from 2000 to 2026. The extension to the original PFI Agreement was not an automatic one and involved negotiations spanning several months. The extension profitability therefore reflects the respective negotiating powers of the Home Office and Motorola, which are the product of the competitive situation at the time of the negotiation, rather than the competitive conditions at the time of the negotiation of the original PFI Agreement (see paragraphs 1.48 to 1.60 for a full discussion of these negotiations).

1.75 We note that our assessment of the profitability of the extension contract, ie for the period from 2020 to 2026, indicates significantly higher returns than either the [X]% estimated by Motorola for the 2002 to 2026 period, or the [X]% anticipated in the original economic model (see paragraph 1.73). In this context, we note that Motorola's internal forecasts used a discount factor of [X]% (post tax, real). We consider this is a reasonable estimate of the rate of return on capital to apply at this stage of our investigation, against which to compare Motorola's returns. We also note that the actual returns Motorola estimates it achieved over the PFI Agreement period, ie from 2002 to 2019 appear to have been sufficiently high to enable Airwave Solutions to recoup its initial investment (see paragraph 1.81).

1.76 While the original economic model for the Airwave project may have anticipated a nominal pre-tax IRR of [X]%, we do not consider that a realised return over the PFI period which falls below that level necessarily reflects an economic loss. Rather, in a context in which, as Motorola highlights, there was significant complexity involved in designing, building and operating the

Airwave system,⁵⁶ it seems probable that the [X]% anticipated return contained an element of insurance against adverse financial performance, such as higher than expected required capex.⁵⁷

Forward looking assessment

1.77 We have sought to analyse the profits made by Motorola from the operation of the Airwave network in the period from 2020 to 2026, ie from the beginning of the contract extensions to the time when it is currently expected that the Airwave network will be switched off.

August Model

1.78 Motorola provided us with a model it prepared in August 2021 (the “August Model”) which it used to demonstrate that the IRR for Airwave Solutions would be less than [X]% for the period 2002 to 2026. The model shows a pre-tax nominal IRR of [X]% ([X]% post-tax, real),⁵⁸ and a Net Present Value (NPV) of discounted cashflows of £[X]m over the whole period. Motorola used a [X]% real discount rate for the whole period in its model and the NPV figures are based on that figure.

1.79 The August Model uses statutory accounts figures for the period 2002 to 2020,⁵⁹ and assumes [X] residual asset value at the end of the extension period in 2026 and decommissioning costs of £[X] in 2027.

1.80 In order to analyse forecast profitability over the extension period 2020-2026, we split the model into two periods: (i) the period of the original PFI agreement 2002-2019, (ii) and the forecast extension period, 2020-2026. For the asset values at the end of the PFI Agreement period and the beginning of the extension period, we used the Net Book Value (NBV) of the assets, calculated based on the capex shown in the model as at 31 December 2019.⁶⁰ We made no other adjustments to the August Model.

1.81 For the period of the original PFI Agreement 2002 to 2019, the split August Model shows a post-tax real IRR of [X]% and an NPV of discounted cashflows of £[X]m. For the extension period 2020-2026, the split August

⁵⁶ See Motorola’s 18 August response to the CMA’s consultation, paragraph 44.

⁵⁷ In effect, the “anticipated return” reflects expected profitability if the forecast cashflows associated with the project are realised. However, such a return can be increased above the cost of capital to reflect uncertainty in those cashflows rather than a higher cost of capital. Such an approach could be seen to provide Airwave with a “fair bet”.

⁵⁸ We present IRR figures on a post-tax, real basis which is on the same basis as we present the NPV figures.

⁵⁹ Motorola adjusted certain items in the statutory accounts figures for 2016-2020.

⁶⁰ The NBV of the capex shown in the model was the same as in the statutory accounts, with a small adjustment by Motorola for a re-allocation of depreciation charges.

Model shows a post-tax real IRR of [X]% which is well in excess of Motorola's internal estimate of its cost of capital. The NPV of discounted cashflows over the extension period is £[X]m: over twice as much as the NPV of discounted cashflows over the period of the PFI Agreement. These results were not sensitive to testing of the assumed level of inflation.⁶¹

June Model

- 1.82 Motorola told us that the August Model was based on financial projections it made for internal purposes in June 2021, with certain adjustments. Motorola provided us with these financial projections which covered the extension period 2020-2026 (the "June Model"). The revenue and profit forecasts were materially higher, and the capex forecasts were materially lower,⁶² than those in the August Model. Motorola told us that the difference in revenue between the two models was related to different assumptions about pricing, and that the June Model was based on its initial proposal to the Home Office which included a capital spend uplift, while the August Model was based on Motorola's then current proposal. We looked at the revenue line items and noted that the August Model showed lower revenue from core charges and included indexation which the June Model had omitted. Motorola told us that the main difference in net margin between the two models was due to the August Model being prepared on the basis that Airwave were a standalone company without any synergies from being part of the wider Motorola group, with differences in net margin related to lower capital spend, transfer pricing adjustments, and differences in depreciation assumptions.
- 1.83 Motorola did not explain to us the reasoning behind the changes in assumptions and we will be critically assessing the assumptions used in both models in due course. We note that, in general, the CMA attaches more weight to figures which are prepared for management purposes in the ordinary course of business than to figures and assumptions that have been assembled specifically for the purpose of making representations in the context of a CMA investigation.
- 1.84 In order to calculate the IRR and NPV for the extension period 2020-2026, we made some adjustments to the June Model. We changed assumptions on inflation,⁶³ and made changes to tax charges in 2021-2026.⁶⁴ For the asset values at the end of the PFI Agreement period and the beginning of the

⁶¹ Using [X]% inflation for the extension period instead of [X]% results in a post-tax real IRR and NPV of discounted cashflows of [X]% and £[X]m respectively.

⁶² £[X]m (June 2021) compared to £[X]m (August 2021)

⁶³ [X]% inflation for the extension period instead of [X]%.

⁶⁴ Tax based on net margin before tax multiplied by the relevant corporation tax rate (2021 & 2022: 19%; 2023-2026: 25%). This has the effect of increasing the tax charge.

extension period, and at the end of the extension period, we used the NBV of the capex shown in the model at 31 December 2019 and 31 December 2026 (ie the same basis as the August Model). The June Model shows a post-tax real IRR of [x] % and an NPV of discounted cashflows of £[x]m.

- 1.85 These two models show that the return forecast to be made over the extension period 2020-2026 is well in excess of Motorola's internal estimate of its cost of capital. Even under the more conservative August Model, which shows lower revenue and profit forecasts than the June Model, [x] residual asset value at the end of the extension period in 2026, and decommissioning costs of £[x] in 2027, Motorola will be expected to make considerable levels of excess profits from its operation of the Airwave network in the period 2020 to 2026; the NPV of discounted cashflows over the period from 2020 to 2026 is over twice the NPV of discounted cash flows over the period of the PFI Agreement. Ultimately any excess profits generated by Motorola from the operation of the Airwave network in Great Britain will be borne by the British taxpayer.

CMA views on the competitive assessment

- 1.86 We consider that, due to the combination of the factors set out below, there are reasonable grounds to suspect that Airwave Solutions has unilateral market power in relation to the supply of LMR network services for public safety in Great Britain.
- First, the Airwave network is a highly differentiated, bespoke piece of critical infrastructure, requiring it to be designed, built and operated under a long-term exclusive contract.
 - Second, the replacement of the Airwave network is now very significantly delayed:
 - By 2010, it became evident that the Airwave network was a costly solution and that the Home Office had limited bargaining power within the terms of the existing arrangement. Its decision to replace the Airwave network was made in 2011 and following a tender process started in 2014, it was expected that the roll-out of a new technological solution, ESN, would be complete by 2019.
 - However, this target was not achieved with the result that the Home Office had no realistic option but to extend the contract with Airwave Solutions beyond 2019, initially to 2022.

- It is now apparent that due to further delays to the roll-out of ESN, a further extension until the end of 2026 will be required (and we are not aware of any reason the resulting prices would be more competitive than those agreed in 2018).
- Third, the acquisition of Airwave Solutions by Motorola in 2016 may have changed the combined entity’s incentives, which in turn may have impacted the way the market has developed since the merger was completed:
 - given the relative size of the profits made by Motorola from the continued operation of the Airwave network compared to the revenue (and consequently, the profits) it can expect to make from the delivery of ESN, it is plausible that Motorola’s approach to the delivery of its contractual obligations in relation to ESN may have been influenced by the incentives created by its ownership of the Airwave network, and
 - we have seen some evidence to suggest that at least some of the delays may have been caused by Motorola.⁶⁵
- Fourth, the current market situation, in which the agreed price is the result of the relative bargaining powers of a monopoly supplier and a monopsony purchaser, may be placing the Home Office in a significantly weaker bargaining position than Motorola, because of:
 - The absolute criticality of LMR network services for public safety, combined with an unusual set of circumstances in which the Government owns neither the spectrum, nor the network needed to deliver these services, and
 - The significant asymmetry of information, in relation to key drivers of pricing.
- Fifth, the Airwave network was established following a PFI procurement process that attracted only one bid. Given the critical nature of the network, the Home Office considered that its only viable option at that stage was to proceed regardless. The procurement process therefore failed to achieve a competitive outcome and with no outside option open to

⁶⁵ While the Home Office sought to address this issue through financial disincentives for non-delivery, the mechanism through which the financial disincentives are triggered and the agreed level of redress (as set out in the DoR signed in 2016) appear to be ineffective. We note that they were negotiated at a time when the Home Office (unlike perhaps Motorola) could not foresee the future upward trajectory of Airwave’s profits.

it, the Home Office may have been in a weak bargaining position when negotiating the terms of the PFI Agreement with BT.

- 1.87 In light of the above factors, there are reasonable grounds to suspect that the current pricing of LMR network services for public safety reflect the significant level of market power that Airwave Solutions and its owner, Motorola, are able to exercise, and may be able to continue to exercise until the Airwave network is switched off. Such pricing appears capable of resulting in very high levels of excess profits going forward: our preliminary calculations indicate that under both the scenarios that we have examined, Airwave Solutions is predicted to achieve profits that are well in excess of any reasonable estimate of Motorola's cost of capital.
- 1.88 The CMA therefore is of the view that the current situation resulting from the unexpected lengthy extension of the Airwave network beyond the original PFI Agreement, and in which the Home Office appears to have limited bargaining power in pricing negotiations with Motorola, may result in significant consumer harm in the form of large excess profits that may continue to accrue to Motorola, for as long as the Airwave network is in operation. This is likely to be until the end of 2026, if not longer, given the risk of further delays to the roll out of ESN.

2. The case for a market investigation reference

- 2.1 The CMA may decide to make a market investigation reference (MIR) when it has reasonable grounds for suspecting that a feature or combination of features of a market or markets in the UK prevents, restricts or distorts competition, and a market investigation reference appears to be an appropriate response.⁶⁶
- 2.2 For the reasons set out in section 1 of this report, our current view is that the market for the supply of LMR network services for public safety in Great Britain is not working well and that this can be expected to result in significant detriment for customers, in the form of the large and persistent excess profits that Motorola may be able to make from 2020 until the Airwave network is switched off at the end of 2026 at the earliest (see paragraphs 1.69 to 1.85).
- 2.3 In this section we set out our decision as to whether to make a MIR in relation to the supply of LMR network services for public safety in Great Britain.
- 2.4 We first set out the legal framework that the CMA uses when deciding to exercise its discretion as to whether to make a MIR before assessing the present case against the four criteria set out as part of that framework.

The legal framework

- 2.5 As set out above, the reference test is a ‘reasonable grounds to suspect’ test and does not require the CMA to have concluded that there are, in fact, features of a market which prevent, restrict or distort competition.⁶⁷
- 2.6 Where the reference test is met, the CMA can exercise its discretion to make a MIR. In our guidance on making MIRs, we set out four criteria which help to guide our exercise of that discretion:
- (a) The scale of the suspected problem is such that a reference would be an appropriate response.
 - (b) There is a reasonable chance that appropriate remedies would be available.
 - (c) It would not be more appropriate to address the concerns through undertakings in lieu of a reference (UILs).

⁶⁶ Section 131 (2) of the Enterprise Act 2002 sets out what is to be construed as a feature for the purposes of Part 4 of Enterprise Act 2002.

⁶⁷ *Competition Appeal Tribunal in Association of Convenience Stores v OFT*, [2005] CAT 36, paragraph 7.

(d) It would not be more appropriate to address the competition problems through alternative powers available to the CMA or through the powers of sectoral regulators.⁶⁸

2.7 In considering these factors, we recognise that a MIR leads to significant costs, both to the CMA itself (and the public purse) and to the parties involved.

The reference test

The market

2.8 In making a MIR, the CMA must specify the goods or services in relation to the supply or acquisition of which there may be an adverse effect on competition (AEC). This will require some consideration of the definition of the relevant market (or markets) and will usually comprise two dimensions: the product dimension and the geographic dimension.⁶⁹ We set this out below. However, as stated in the guidance on the making of MIRs, the CMA is not obliged to provide a precise definition of the market or markets to which any MIR relates.

2.9 LMR network services for public safety in Great Britain are supplied solely through the Airwave network and associated services. Our starting point for the consideration of market definition was therefore the CMA's 2016 assessment of the acquisition of Airwave Solutions by Motorola. Without needing to reach a firm conclusion, this assessment considered the Airwave network to represent a distinct frame of reference for the purposes of the assessment of the impact of that merger on competition.⁷⁰ The CMA found that the Airwave network is the only secure communications network for emergency services and blue light organisations and that there is no alternative method for emergency services to access this network without contracting with Airwave Solutions. It also considered that the geographic frame of reference was Great Britain because "the network provides coverage across Great Britain and is provided to user organisations based in Great Britain". The CMA therefore assessed the impact of the merger on the "supply of the Airwave network in Great Britain" as a separate frame of reference.

⁶⁸ [Guidance about the making of references under Part 4 of the Enterprise Act](#), OFT 511, paragraph 2.1.

⁶⁹ [Market Investigation References guidance](#), OFT511 paragraphs 4.8 and 4.9.

⁷⁰ [Motorola / Airwave merger inquiry - GOV.UK \(www.gov.uk\)](#).

- 2.10 To our knowledge, there have not been any significant changes to the supply of these services since the merger was considered. We therefore have reasonable grounds to believe that the above considerations still apply.⁷¹
- 2.11 For the avoidance of doubt, we consider that any ancillary service to the Airwave network for which customers have no alternative supplier to Airwave Solutions, should be included in the terms of reference. For example, as explained in the Motorola/Airwave decision, in order for radio terminals and software to be used on the Airwave network they have to be tested to ensure they will not damage the service received by other users. Airwave Solutions' testing facility is [redacted]. We therefore consider that Airwave Solutions may also be able to exert unilateral market power in its supply of testing services and any other such ancillary services. We have therefore decided that the terms of reference for the MIR should include all relevant Airwave network ancillary services, including the testing facility.
- 2.12 In conclusion we consider the appropriate market for the purposes of any MIR, to be the supply of LMR network services for public safety (including all relevant ancillary services) in Great Britain.

The features of this market

Our preliminary views

- 2.13 In the CMA's 8 July 2021 consultation on the proposal to make a market investigation reference, we identified the following possible features relating to the supply of the Airwave network (and ancillary services) in Great Britain:
- (a) the highly differentiated and bespoke nature of the Airwave network, requiring it to be designed, built and operated under a long-term exclusive contract,
 - (b) the dual role of Motorola, as owner of Airwave Solutions and key supplier in the roll-out of ESN since 2016, with the incentives such a position creates,
 - (c) the absence of competitive tension in the award of the original contract, with only one supplier taking part in the bidding process and the resulting likely uncompetitive pricing structure, and

⁷¹ Notwithstanding the market definition chosen, incentives relating to products and/or services not included in market definition (such as incentives to develop ESN) are relevant to the functioning of the supply of LMR network services for public safety, and would be taken into account in the competitive assessment.

- (d) the delays in the roll-out of ESN that have necessitated the extension of the Airwave network by three years to 2022 and now require a further extension until the end of 2026, thereby prolonging the likely uncompetitive pricing structure well beyond the original term of the PFI Agreement.

Responses to consultation and new evidence received

- 2.14 Motorola's economic advisers argued that analysing competition in the proposed reference market is "absurd" for two main reasons:
- (a) The services provided by Airwave could not be bought and sold in a (spot) market where the customer could at different points in time choose between competing suppliers. By definition, the Airwave network can only be supplied by whoever has been contracted to design, build and operate the network. Therefore, no market can exist.
- (b) "Any competition concern would have to be considered at the point at which competition for the contract takes place. Where contract delivery requires investments in highly specific assets (as in this case) contract extensions by definition will involve negotiations between the two contracting parties rather than a market transaction."
- 2.15 Motorola's economic advisers also imply that this situation is inherent to the nature of the products and services purchased and cannot change over time by stating that "neither competitive outcomes nor market realities will change over time when the subject of the investigation is a highly differentiated and bespoke network that must be designed, built and operated under an exclusive long-term contract."
- 2.16 We do not agree with this representation of the market situation or of our analysis:
- (a) First, for a market to exist, there is no requirement for the conditions implied by Motorola's advisers, ie that a spot market exist and that there is scope for switching. This logic would undermine the CMA's ability to examine well-recognised structural features, such as market concentration and switching costs.
- (b) Second, the CMA does not agree with the apparent suggestion that there is no scope for negotiations between the contracting parties to be subject to competition. Negotiations are competitive processes, the outcomes of which are determined by each side's outside options. The unavailability of ESN as an outside option for the Home Office may be impacted by the dual role of Motorola described in paragraph 1.3. Further there is

significant information asymmetry between the Home Office and Motorola in relation to key drivers of price. The existence and persistence of the current “bilateral monopoly situation”, in which one party has a significantly higher level of bargaining power than the other, is therefore the result of features of the market, rather than, as appears to be argued by Motorola, an inherent characteristic of the product and services that are required to meet the communication needs of the British emergency services.

- (c) Third, even in markets where supply is characterised by long-run provision by a single entity with limited or no scope for switching, there may nevertheless be scope for some form of competition to arise. In the present case, the market realities surrounding the supply of LMR network services for public safety changed materially when contracts for the design and roll-out of ESN were awarded by the Home Office, because this development introduced the prospect of revenue losses from Airwave Solutions to ESN operators over time (as users would gradually transfer to the new provider) and eventually the wholesale switch away from LMR technology by all public safety customers in Great Britain. Under such circumstances, Airwave Solutions may be expected to seek to retain users on its network as long as possible, for example by offering an attractive price during negotiations. Similarly, the ESN operator(s) may have the incentive to seek to take revenues away from Airwave Solutions as soon as possible, e.g. by incentivising more users to switch to its services sooner (or taking steps to develop the necessary technology sooner). Both of these are part of the competitive process.

2.17 Motorola argued that section 131(1) of the Enterprise Act 2002 does not permit the CMA to establish a ‘reasonable suspicion’ that Motorola’s incentives to deliver ESN amount to a ‘feature’ for the purposes of section 131(1) and thus restrict competition unless there is a reasonable basis to suspect that:

- (a) Motorola has such incentives; and
- (i) Motorola has successfully been able to act upon such incentives; or
- (ii) Motorola will have the ability to act upon those incentives in the future, whether or not it has done so in the past.

2.18 The evidence we have obtained since publication of the consultation on 8 July 2021 indicates that both financially and strategically, Motorola has incentives to slow down the delivery of ESN and/or use its position to re-shape ESN as a complementary solution to the Airwave network. It can also use its position as

contracting party with Airwave network users (police forces, ambulance services and fire services) to influence the various stakeholders in supporting its strategy, eg by tapping into users' potential concerns about any risk of loss of resilience or quality arising from switching from a well-established technology to a new, untested, solution. This is aside any argument, which would require an in-depth investigation, about whether Motorola is technically able to slow down delivery through its role in the delivery of ESN (see evidence received on this point at paragraph 1.45). We note that:

- (a) Investors' concerns about the possible weakening of Motorola's future profitability due to the threat of 4G technology⁷² on its strong position in the supply of solutions based on LMR technology are well documented. The concerns appear to have abated considerably following the announcement of the extension of the Airwave contract in 2018, which itself appears to have led to improved investor confidence in the future of Motorola and LMR technology.⁷³
- (b) Products and services associated with the provision of the Airwave network account for a proportion of Motorola's earnings that is significantly higher than its revenue from such products and services would suggest. They also account for a large proportion of its global profits.
- (c) Motorola has publicly stated that it sees the future of critical communication for public safety in the UK, as a hybrid LMR/LTE 4G technology, as illustrated by the following comments made recently by Greg Brown, its Chief Executive:

"I know that the UK Home Office aspires to have ESN do more and more. We support that. We will obviously fuel and work with them closely to enable ESN. But by the customer's own admission, I think that Airwave and ESN—much like here in the [United] States—LMR and LTE will coexist for a lot longer."

Commenting on the future of the technology in the US, Germany, and the UK, *"In all three of these theaters, we see a recognition of the criticality and duration of LMR, but [entities] also wanting higher-speed LTE 4G,*

⁷² The specific type of technology used in the context of emergency services and similar other types of private networks is called Long Term Evolution (LTE).

⁷³ For example: September 2018 Credit Suisse research note, September 2018 Cowen research note); April 2021 Credit Suisse 07/04/2021 note and JP Morgan May 2021 TMC conference take-away.

and eventually 5G, for ... video and data to complement and integrate with LMR—not necessarily as a substitute, but as a complement."⁷⁴

(d) Motorola's intent to pursue a [REDACTED] was stated in a recent strategy document.⁷⁵ The assessment showed that such a strategy would be significantly more profitable to the company over the period considered in the document (i.e. from 2021 to 2030) than [REDACTED].

2.19 Motorola also argued that it was irrational and procedurally unfair to investigate Motorola's conduct in relation to the delivery of ESN without broadening the terms of reference. We do not agree with this view, given the CMA's guidance,⁷⁶ that "the conduct of firms which supply the market when acting in other markets can be a feature of the market. For example, if the market investigation concerned competition to supply a particular manufactured good, the conduct of vertically integrated suppliers in the market for the input might be a conduct feature".

2.20 The large amount of documentary evidence that we obtained from Motorola with regard to the nature of the negotiations between itself and the Home Office has also enabled us to identify two new features relating to current market dynamics (see paragraphs 1.48 to 1.60):

- (a) the extremely concentrated nature of the current market, in which the price is established through negotiation between a monopoly provider and a monopsony buyer, and
- (b) the asymmetry of information between Motorola and the Home Office in relation to key drivers of pricing, for example the level of capital expenditure needed to keep the Airwave network operational.

Revised features

2.21 In light of the above, we have reached the view, based on the evidence set out in section 1, that there are reasonable grounds for suspecting that one or more of the following features, alone or in combination prevent, restrict or distort competition:

⁷⁴ Urgent Communications - 26/05/2021

⁷⁵ It is not currently clear whether this strategy (referred to as a scenario in the document) is actively being pursued, but the recommendation made was to: [REDACTED] explore the strategy in principle. We also note that the analysis feeding into this presentation was started in October 2020; that the presentation was used in a discussion between [REDACTED]; and that it was circulated to [REDACTED] in early March 2021.

⁷⁶ Paragraph 160 of CC3.

- (a) the extremely concentrated nature of the current market, in which the price is established through negotiation between a monopoly provider and a monopsony buyer;
- (b) the asymmetry of information between Motorola and the Home Office in relation to key drivers of pricing, for example the level of capital expenditure needed to keep the Airwave network operational;
- (c) Motorola's position as owner of Airwave Solutions and key supplier in the design and roll-out of ESN, which may be resulting in the preservation of weak competitive constraints on Motorola in the supply of LMR network services for public safety, because of:
 - (i) the ability of Motorola to shape or otherwise delay the design and roll-out of ESN, and thus hamper the emergence of the significantly different competitive dynamics envisaged by the Home Office when it procured the design and roll-out of ESN; and
 - (ii) the incentive on Motorola to do so, arising from the significant profits it derives from operating the Airwave network.
- (d) the delays in the roll-out of ESN (which may or may not have resulted from Motorola's conduct in relation to the design and roll-out of ESN since 2016), that are preserving weak competitive constraints on Motorola in the supply of LMR network services for public safety; and
- (e) the absence of competitive tension in the award of the original contract, with only one supplier taking part in the bidding process.

2.22 We have reasonable grounds for suspecting that the above features, alone or in combination, give rise to unilateral market power for Airwave Solutions and that, as a consequence, it may be able to make profits well in excess of its cost of capital in the period from 2020 until the end of 2026.

Conclusion on the 'reference test'

2.23 For the reasons set out above and in paragraphs 1.86 to 1.88 of this decision, the CMA's conclusion, is that there are reasonable grounds to suspect that one or more features (alone or in combination) in relation to the supply of LMR network services for public safety (and ancillary services) in Great Britain prevent, restrict or distort competition and that the reference test is met. Based on the evidence set out in paragraphs 1.69 to 1.85, the CMA also has reasonable grounds to suspect that any adverse effect on competition resulting from the features that it has identified may lead to significant customer harm.

2.24 Having reached this view, we now go on to consider the factors relevant to the exercise of the CMA's discretion to make a MIR.

Views on the appropriateness of a reference

First criterion: scale of the suspected problem

2.25 The CMA recognises that a MIR may impose a burden on the businesses concerned and, in addition, requires a significant commitment by the CMA itself. It will only make a MIR when it has reasonable grounds to suspect that the adverse effects on competition of features of a market are significant.⁷⁷

2.26 In determining the scale of the suspected problem, our guidance identifies three factors of particular significance:

- a) the size of the market,
- b) the proportion of the market affected by the features, and
- c) the persistence of those features.⁷⁸

The size of the market

2.27 As set out in paragraph 1.4, Airwave Solutions' revenue was £424 million in 2019, nearly all of which was accounted for by the provision of its Airwave network to blue light customers and sharer organisations.

2.28 When deciding whether the suspected adverse effect on competition is of a sufficient scale to justify the cost of a MIR, the CMA has taken account of the particularly high economic profits that it has reasonable grounds to suspect Airwave Solutions will be able to generate before the Airwave network is switched off.

The proportion of the market affected by the features

2.29 As the Airwave network appears to be a monopoly, the entirety of the market is affected by the features set out in paragraph 2.21.

⁷⁷ [Guidance about the making of references under Part 4 of the Enterprise Act](#), OFT 511, paragraph 2.27.

⁷⁸ [Guidance about the making of references under Part 4 of the Enterprise Act](#), OFT 511, paragraph 2.28.

The persistence of those features

2.30 At this stage, and based on the evidence we have obtained so far, we expect that the features will persist until the end of 2026 and possibly longer, given that there is currently no reason to believe that the dynamics that have led to significant delays in the roll-out of ESN will change fundamentally in the short to medium term.

Conclusion on first criterion: scale of the suspected problem

2.31 The CMA therefore considers that the suspected AEC in the supply of the LMR network services for public safety (and ancillary services) in Great Britain and associated harm are sufficiently large and persistent to justify the burden of a MIR. The CMA notes that in this case, the burden of any excess profits made by Airwave Solutions ultimately falls to the British taxpayer and that this apparent burden far outweighs the cost of a CMA MIR.

2.32 Second, in deciding whether a MIR is justified, we consider it highly relevant that the Airwave network is critical to the effective operation of emergency and police services.

2.33 Finally, we consider that any perceived risk that the MIR might inadvertently cause delays to the roll-out of ESN, thus prolonging any AEC and its detrimental effects, is small and outweighed by the likely benefits of the proposed MIR:

- (a) At the time of writing, it is expected that transition from the Airwave network to ESN will not be completed before December 2026,⁷⁹ ie 7 years behind schedule. It is these pre-existing long delays that have necessitated extension of the Airwave network beyond 2019 and prompted stakeholders to call for CMA action. Absent such continuing delays (and concerns among stakeholders of further delays if the current market situation - including Motorola's incentives - is not addressed), the need for CMA action would have been unlikely.
- (b) We have reasons to believe that a large proportion of the costs to the taxpayer resulting from the delays is likely to come from excess profits made by Airwave Solutions. The CMA's work therefore has the potential to lessen the financial impact on the taxpayer of the delays.

⁷⁹ 8 June 2021 Urgent Communications article: [UK officials revamp ESN plans again, target Airwave-to-LTE transition for end of 2026.](#)

- (c) The terms of reference centre on LMR network services, rather than the market in which ESN operates. Any decisions made by suppliers in relation to ESN are therefore likely to be motivated by commercial considerations that are separate from the proposed MIR (see paragraph 1.67).

Second criterion: availability of appropriate remedies through a MIR

- 2.34 The availability of remedies and the prospective value of a market investigation is part of the CMA's assessment when considering whether to make a MIR. This is not however an assessment of the appropriateness of such remedies.
- 2.35 At this stage, the CMA considers that there may in principle be three remedies to the potential AEC and resulting detrimental effects identified in paragraphs 2.21 and 2.22:
- (a) A form of rate of return regulation typically employed by regulators setting price caps for natural monopoly networks. The price control would fall away as soon as the Airwave network is turned off and/or its operator ceases to have market power. This could address adverse effects resulting from the exercise of market power by Airwave Solutions.
 - (b) Open book accounting, including the mandatory reporting of capital expenditure. This could address adverse effects resulting from the feature identified in paragraph 2.21(b).
 - (c) Divestiture of the Airwave network. This could address adverse effects resulting from the feature identified in paragraph 2.21(c).
- 2.36 In response to the CMA's consultation, Motorola stated that it was not clear why the CMA has ignored the alternative [X] remedy of requiring that [X]. Motorola stated that this remedy would [X]. The CMA's current view is that such a remedy would not be practicable and would be disruptive to the roll-out of ESN. In addition, this remedy would not address any excess profit that Airwave Solutions may be making until it is switched off.

Conclusion on the second criterion: availability of appropriate remedies through a MIR

- 2.37 Therefore, the CMA considers that appropriate remedies are likely to be available.

Third criterion: the availability of undertakings in lieu of a reference

2.38 The CMA has the power under section 154 of the Enterprise Act 2002 to accept undertakings in lieu of a reference (UILs) instead of making a MIR. Before doing so, the CMA is obliged to: *'have regard to the need to achieve as comprehensive a solution as is reasonable and practicable to the adverse effect on competition concerned and any detrimental effects on customers so far as resulting from the adverse effect on competition'*.⁸⁰ As the CMA's guidance notes, such UILs are 'unlikely to be common', but *'where an adverse effect on competition arises from the conduct of a very few firms there may be more scope for accepting undertakings in lieu'* than *'when the adverse effects on competition arise from market features involving several firms or industry-wide practices'*.⁸¹

2.39 Motorola has not offered UILs as at the date of this decision nor indicated at any point since we published our proposal to make a MIR that it considered this to be a possible way of addressing the issues we had identified.

Conclusion on the third criterion: the availability of undertakings in lieu of a reference

2.40 In light of the above, the CMA concludes that UILs are not available in this case.

Fourth criterion: alternative powers available to the CMA or to sectoral regulators

Alternative powers available to the CMA

2.41 Finally, we have carefully considered what actions the CMA should take to address the concerns we have identified. This has included whether we should launch a market investigation and/or use our Competition Act 1998 enforcement powers.

2.42 For the reasons set out in this document, we have decided that a MIR is the most appropriate tool to address the concerns we have identified, in particular given its focus on remedying AECs and/or their adverse effects in the future, rather than seeking redress for past conduct.

⁸⁰ [Section 154\(3\) of the Enterprise Act 2002](#).

⁸¹ [Guidance about the making of references under Part 4 of the Enterprise Act](#), OFT 511, paragraph 2.21.

2.43 Nevertheless, at this stage, we have not ruled out the possibility of using our powers under Competition Act 1998 in the future. The CMA will keep this option under review as the MIR progresses.

Powers available to Ofcom

2.44 Under the Communications Act 2003, Ofcom regulates the TV and radio sectors, fixed line telecoms and mobiles and the airwaves over which wireless devices operate. Ofcom has concurrent powers with the CMA to investigate suspected infringements of the Competition Act 1998 resulting from agreements or conduct relating to activities connected to electronic communications, broadcasting and postal services matters. It also has the power to investigate and, where merited, determine that a provider of an electronic communications service has significant market power (SMP) in an identified services market. Where that is the case, the Communications Act 2003 enables Ofcom to impose SMP conditions and such conditions include, where appropriate, price control measures.

2.45 In considering the most appropriate way to address the concerns that we have identified, we have taken account of the broader remit and flexibility of a MIR, compared to other options. In particular, a market investigation enables the CMA inquiry group to consider not only Airwave Solutions' current conduct within the market in which it operates but also assess the potential significance of Motorola's interest in the ESN for the features giving rise to a potential AEC. We also note in this context that the range of remedies available in the MIR context is wider than would be available to Ofcom as SMP conditions.

Alternative forms of resolution

2.46 Lastly, we have also considered whether any other routes are available to the Home Office to address the concerns we have identified. In principle, it may be possible for the Home Office to seek to address some of the identified concerns by way of contractual dispute resolution and/or stand-alone litigation. However, this is not necessarily the case for all identified concerns (see for example paragraph 1.59) and may require a number of separate actions (with the added risk of divergent or inconsistent outcomes). In light of the above, we consider that the broader remit and flexibility of a MIR to take into account all the elements giving rise to the potential AEC means that it is better suited to address the identified concerns.

Conclusion on the fourth criterion: alternative powers available to the CMA or to sectoral regulators

2.47 In light of the foregoing, the CMA considers that it would not be more appropriate for it or another regulator to address the identified features using alternative powers to a MIR.

Conclusion on the appropriateness of a reference

2.48 For the reasons set out above, the CMA considers that it is appropriate to exercise its discretion to make a MIR.

2.49 Further, in deciding whether to intervene in this market, we considered the circumstances that have led to some of the suspected features, namely the acquisition of Airwave Solutions by Motorola in 2016. There was at the time a general expectation that the Airwave network would be turned off by 2019 (ie at the end of the original PFI Agreement). However, events did not unfold as predicted and, for the reasons set out in this report, we consider it appropriate for a MIR to be made to investigate how this market is operating.

Conclusion

2.50 In light of the foregoing, the CMA has therefore decided to make an 'ordinary'⁸² MIR within the meaning of section 131(6) of the Enterprise Act 2002 in respect of the supply of the LMR network services for public safety (and ancillary services) in Great Britain.

⁸² As opposed to a cross market reference.