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Glossary

Appendix A: Terms of reference

1. In exercise of its duty under section 33(1) of the Enterprise Act 2002 (the Act) the Competition and Markets Authority (CMA) believes that it is or may be the case that:

   (a) arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation, in that:

      (i) enterprises carried on by UnitedHealth Group Incorporated will cease to be distinct from enterprises carried on by EMIS Group Plc; and

      (ii) the condition specified in section 23(1)(b) of the Act is satisfied; and

   (b) the creation of that situation may be expected to result in a substantial lessening of competition within a market or markets in the United Kingdom for goods or services, including the supply of medicines optimisation software in the UK and the supply of population health management services in the UK.

2. Therefore, in exercise of its duty under section 33(1) of the Act, the CMA hereby makes a reference to its chair for the constitution of a group under Schedule 4 to the Enterprise and Regulatory Reform Act 2013 in order that the group may investigate and report, within a period ending on 14 September 2023, on the following questions in accordance with section 36(1) of the Act:

   (a) whether arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation; and

   (b) if so, whether the creation of that situation may be expected to result in a substantial lessening of competition within any market or markets in the United Kingdom for goods or services.

Sorcha O'Carroll
Competition and Markets Authority
31 March 2023

Appendix B: Conduct of the inquiry

1. We published the biographies of the members of the Inquiry Group conducting the phase 2 inquiry on the inquiry webpage on 31 March 2023 and the administrative timetable on the inquiry webpage on 17 May 2023.

2. We invited interested parties to comment on the Merger. We sent detailed requests for information to a wide range of third parties including competitors, customers, representative user groups and other stakeholders in the NHS. We obtained evidence from third parties using written requests and video conference calls. Evidence submitted during the CMA's phase 1 investigation has also been considered in phase 2.

3. We received written evidence from the Parties in the form of submissions and responses to information requests, including a large number of internal documents.

4. On 17 May 2023, we published an Issues Statement on the inquiry webpage setting out the areas on which we envisaged that the phase 2 inquiry would focus. A non-confidential version of the Parties' response to the Issues Statement has been published on our inquiry webpage. We received one third-party response to the issues statement from stakeholders of one or more of the merging parties.

5. On 24 May 2023, members of the Inquiry Group, accompanied by CMA staff, attended a 'site visit' with EMIS and UH respectively, and their advisers. The site visits were held at Slaughter and May's office, 1 Bunhill Row, London, EC1Y 8YY.

6. We sent the Parties a number of working papers for comment. The Parties were also sent an annotated issues statement, which outlined our emerging thinking to date prior to their respective main party hearings, which were held on 14 July 2023. The Parties provided comments on the annotated issues statement and working papers on 25 July 2023.

7. A non-confidential version of the provisional findings report has been published on the inquiry webpage. Interested parties are invited to comment by 17:00 on Friday 1 September.

8. We would like to thank all those who have assisted our inquiry so far.

Appendix C: Vertical arithmetic analysis

Introduction

1. This appendix discusses the methodology we have used in the vertical arithmetic analysis with respect to the MO theory of harm.

2. The main results of this analysis are based on the 'baseline scenario', the results of which form the basis of the discussion in the section *'Outcome of analysis'* of the provisional findings. We also construct two sensitivity scenarios to test the robustness of the results calculated in the baseline scenario, by adjusting some key assumptions. The results of the two sensitivity scenarios are discussed in this appendix.

3. In the following paragraphs of this appendix we explain the methodology and modelling choices behind the baseline and sensitivity scenarios.

Part 1: The baseline scenario

Geography

4. The partial foreclosure strategy would only be feasible in UK nations where EMIS, Optum, and FDB are all present. In UK nations where EMIS is not present, there could be no foreclosure of FDB.[1] In UK nations where FDB or Optum is not present, there could be no customer switching in the MO software market that could benefit the Merged Entity.

5. The only UK nations where EMIS's primary care EPR system and Optum's and FDB's MO software are all active at present are England and Wales. For of our baseline analysis, we therefore consider only these two nations.[2]

Product range

6. As discussed in Chapter 9 of the Provisional Findings (see section '*Importance of custom integration between primary care EPR systems and MO software'*), FDB currently supplies both point of care MO software (OptimiseRx) and proactive MO software (AnalyseRx). Optum currently

[1] It is possible, however, that due to FDB being foreclosed in England and Wales, its existing offering in Northern Ireland and the potential offering in Scotland could be negatively affected. For example, if scale is important to MO software suppliers, FDB's ability to compete in Northern Ireland and Scotland may decrease.
[2] [✂], we do not consider these nations in our baseline or sensitivity analyses for the purpose of calculating the financial gain/loss of the Merged Entity from the partial foreclosure of FDB.

supplies only a point of care solution (ScriptSwitch) but intends to supply its proactive MO software (Population 360) from [✂].[3]

7. Based on the feedback from the Parties and third parties, we understand that both types of MO software require customised integrations with primary care EPR systems to support their key functionalities. As a result, both types of MO software could potentially be targeted by the Merged Entity in a partial foreclosure of FDB. Therefore, in our calculations of potential gains in MO software due to the Merged Entity's partial foreclosure of FDB, we include FDB's revenues from both types of software.

Temporal assessment

8. Our baseline scenario is a static analysis based on historical data. The Parties' downstream and upstream profits are based on 2022 figures and switching rates are based on the 2018-2022 switching rates of EMIS, Optum, and FDB (see Chapter 9 including Tables 8 and 9 in the Provisional Findings).

9. As a sensitivity, we also consider a forward-looking assessment which takes into account the expected market dynamics of the MO software market and the primary care EPR system market within next five years (until 2027). This is discussed in more detail in section *Forward-looking* of this Appendix C.

Total addressable pool of patients

10. As discussed in Chapter 9, FDB's patient base in England and Wales in 2022 was c. [✂]. This includes patients whose GPs use EMIS Web and GPs who use TPP or Cegedim.

11. We consider that the pool of patients that could be impacted by the Merged Entity partially foreclosing FDB would include all patients whose GPs use both FDB's MO and EMIS Web. In 2022, there were [✂] patients in England and Wales whose GPs used both FDB's MO software and EMIS Web.

12. We consider that it is possible that the patient base of GPs which use FDB's MO and TPP's or Cegedim's EPR could also be impacted. This is because some ICBs and Health Boards that have a preference for buying from just one MO supplier (single-homing) as opposed to buying from both FDB and Optum (multi-homing). These ICBs and Health Boards would likely consider switching from FDB to Optum even across the GP practices who do not use EMIS Web.

[3] Optum's response to s109 1, Tables 8.1 and 11.1.

This is most likely to be the case where a high proportion of practices in the ICB/Health Board's area use EMIS Web.

13. In our baseline analysis we assume that ICBs who currently single-home their MO software services from FDB and where EMIS's share of supply is at least 50% might consider switching all their GP practices to Optum, including those who use TPP's or Cegedim's primary care EPR system. Based on the customer data provided by FDB and Optum, in 2022 there were [✂] patients in England and Wales whose GP practices used TPP's or Cegedim's EPR but across their ICB EMIS's share of patients was more than 50%.

14. Our baseline analysis therefore assumes that, in total, there are [✂] patients who could be impacted by the Merged Entity's partial foreclosure of FDB. We refer to this as 'the addressable pool of patients'.

15. When we calculate the estimated gains from foreclosure, we calculate the number of patients of GP practices that are assumed to switch by multiplying the addressable pool of patients by the switching rate. We generate a range of estimates for switching rates between 5% and 25%, as set out in Chapter 9.

16. The Parties told us that the approach to multi-homing set out above is asymmetric.[4] The Parties argued that our approach assumes that some GPs unaffected by the foreclosure would switch completely from FDB to Optum but it assumes that ICBs and Health Boards in areas where EMIS has a low share would start multi-homing and use FDB and Optum instead of keeping just FDB. According to the Parties, this approach leads to overstated gains from the Merged Entity's foreclosure of FDB.

17. It is true that our assumption that all of the [✂] of patients in England and Wales whose GPs used both FDB's MO software and EMIS Web would consider switching implies that some ICBs and Health Boards that currently single-home would instead multi-home. However, we consider it reasonable to assume that ICBs/Health Boards – even those where EMIS's share is low – would consider switching from FDB to Optum in a scenario where the quality and/or price of FDB's MO software deteriorates, given the low costs of switching GP practices to a new MO software supplier. Consequently, we have maintained the approach set out in paragraphs 11 to 15 above in our baseline analysis.

18. In a sensitivity analysis (section '*Total addressable* pool of patients sensitivity' below), we consider how changing our assumptions used to calculate the total

[4] Parties response to MO Working Paper, paragraph 5.24.

addressable pool of patients changes Merged Entity's overall gains/losses from partially foreclosing FDB.

Calculating Optum's profit per patient

19. This section describes the methodology we have used to calculate the profit Optum would gain from one extra patient if an ICB or Health Board was to switch its MO software supplier from FDB to Optum, as a result of the partial foreclosure.

20. For this purpose, we estimate Optum's variable profit margin, ie the profit margin based on Optum's revenues and costs which vary with the volume of patients. We have relied on Optum's historical financial reporting data on revenues and costs associated with the supply of MO software to calculate Optum's profit margin related to the supply of ScriptSwitch. We assume that Optum will make the same variable profit margin from the supply of Population 360 once it is launched. We then apply the variable profit margin to the revenue per patient for ScriptSwitch and Population 360 to obtain the profit per patient for each type of MO software.

21. In its submissions to the CMA, Optum confirmed [✂]. As such, [✂]. Optum submitted to us that it made [✂] in 2022 from selling ScriptSwitch in the UK. Population 360 has not been launched yet and [✂] for Optum.

22. Optum also provided the CMA with information about its UK-wide costs for ScriptSwitch which it considers to be partially or fully variable with the number of customers.[5]

    (a) [✂].

    (b) [✂].

    (c) [✂].

    (d) [✂].[6]

23. Overall, we agree with the Parties' assessment of the identification of the variable costs set out above. However, as Optum's fee paid to EMIS will be internalised post-merger, we deduct the fees Optum paid to EMIS (which

[5] Optum's response to s109 1, paragraph 10.11 and Optum's response to S109 3, question 1.
[6] Optum response to S109 1, question 10. These costs were treated [✂] variable, with the total costs summing to [✂].

equalled £[✂])[7] from Optum's variable costs in 2022.[8] This results in Optum's variable cost equal to [✂]and profits equal to [✂], indicating a variable profit margin of [✂] from Optum's UK-wide MO software business.[9]

24. To calculate Optum's profit per patient for ScriptSwitch and Population 360, we apply Optum's variable profit margin to Optum's revenue per patient for ScriptSwich and Population 360. In 2022, Optum's average revenue from ScriptSwitch in England and Wales was [✂].[10] For Population 360, we have assumed a revenue per patient of [✂] – this is the price Optum intends to launch Population 360 at in [✂].[11] This results in a profit per patient of [✂] for ScriptSwitch and [✂] for Population 360.

Calculating EMIS's profit per patient

25. This section describes the methodology we have used to calculate the profit EMIS would lose if one extra patient's GP practice switched away to a competitor primary care EPR system as a result of foreclosure.

26. For this purpose, we have assessed EMIS's historical financial reporting data on revenues and costs connected to the supply of EMIS's primary care EPR system. To calculate the variable profit margin, we have only the considered the revenues and costs which vary – partially or fully – with the number of customers. We excluded revenues not linked to the number of customers and fixed costs from our assessment because these would not be accrued by the Merged Entity if customers switched from EMIS to rivals' primary care EPR systems.

27. First, EMIS generates revenue directly from the supply of primary care EPR systems to GP practices where it receives revenues from the NHS for every patient that is covered by GP practices using EMIS's primary care EPR system. EMIS receives £1.26 per patient in England and £1.46 in Wales.[12] If a GP practice were to switch from EMIS to another supplier, the NHS would no longer pay EMIS for patients covered by this practice. As such, we have

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[7] EMIS response to S109 3, Table 1.1.
[8] We note that in reality Optum's profit post-Merger would vary depending on which primary care EPR system supplier the customer uses. This adjustment has been adopted for simplicity and provides an approximation of the impact of the internalisation of these fees and we do not consider it should have a material impact on our assessment in particular because we expect the majority of customers who switch to use EMIS.
[9] The Parties consider that the variable profit margin should be adjusted downwards by 1% to account for discrepancies in the data sources that are the basis for revenues and variable costs. As the CMA have not been able to verify the extent which this adjustment is appropriate based on the Parties submissions, we have not adjusted the variable profit margin to account for the discrepancies between the data sources.
[10] To work out the revenue per patient for ScriptSwitch, we have divided Optum's revenues ([✂]) by Optum's patient base ([✂]) for England and Wales only (Optum response to S109 3 Annex 4.1), this in line with the Parties response to the working paper.
[11] Optum's response to RFI 3, question 1.
[12] Parties' response to the MO Working Paper, paragraph 5.14.

calculated EMIS' profit per patient from the supply of EPR systems to GP practices, as follows:

(a) Given that the revenue per patient received from the NHS differs in England and Wales, we calculated a weighted average of EMIS's revenues per patient using EMIS's patient base in the respective countries in 2022. This results in a weighted average revenue per patient of £[✂] in England and Wales.[13]

(b) To calculate EMIS's variable profit margin from the supply of primary care EPR systems, we use EMIS's UK-wide revenues and variable costs related to the supply of primary care EPR systems.[14] EMIS estimates that its revenue from the supply of primary care EPR systems in 2022 was [✂],[15] whereas the corresponding variable costs was [✂].[16] Using these figures, we calculate a variable profit margin of [✂]. EMIS considers that the variable profit margin based on the variable costs it previously submitted to the CMA to underestimate the actual profit margin, given that the variable costs may include fixed costs, and that a more appropriate estimate for its variable profit margin is [✂].[17] Whilst we were not able to confirm the appropriateness of the variable margin provided by the Parties, we acknowledge that EMIS's variable profit margin we have assumed in our baseline scenario could underestimate EMIS's profit per patient loss in this analysis, and therefore overestimate the Merged Entity's benefits from foreclosure.

(c) Applying EMIS's variable profit margin ([✂]) to the weighted revenue per patient that EMIS receives annually from the NHS in England and Wales ([✂]), EMIS's profit per patient from the supply of primary care EPR systems in 2022 was [✂].

28. Second, EMIS receives payments from MO partners equal to [✂] of their revenue.[18] EMIS told us that these revenues are fully variable with the number of patients and would be lost if a GP practice were to switch from EMIS to

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[13] In 2022, EMIS' patient base in England was [✂] and [✂] in Wales. These patient numbers were used to weight the revenues per patient in each country, ie the list prices of £1.26 revenue per patient in England and £1.46 in Wales (FMN, footnote 264; EMIS response to S109 6, Q7). The weighted average revenue per patient calculated ([✂]) is broadly consistent with [✂]. According to EMIS, [✂].
[14] EMIS's response to s109 1, question 9. These revenue and cost figures include both the supply of primary care EPR systems and the supply of search and reports and research allocations. According to EMIS, its revenues from search and report and research allocation are low in comparison to the revenue from the supply of primary care EPR systems ([✂] identified by EMIS in its response to s109 1, question 9; see EMIS's response to s109 3, question 2). As such, we consider it appropriate to use these revenues and costs figures as a proxy to calculate EMIS's variable profit margin from the supply of primary care EPR systems.
[15] [✂].
[16] EMIS response to S109 1, question 9.
[17] Parties response to the MO Working Paper, paragraph 5.14.
[18] EMIS' response to S109 1, question 27 and EMIS' response to S109 3, question 9.

another supplier. This is because MO suppliers pay EMIS a share of the revenues they generate from GP practices using EMIS Web, and this revenue is earned from NHS customers on a per patient basis.[19] As such, we have calculated the lost profit per patient from this source as follows:

(a) EMIS told us that in 2022 it generated [✂]in revenues from FDB and incurred a total of [✂] in variable cost to supply FDB MO software to GP practices using EMIS Web in the UK.[20] This implies a profit of [✂].

(b) We have divided this figure for EMIS's variable profit in the UK ([✂]) by the number of EMIS's UK-wide patient base who use FDB ([✂])[21] which generated an estimated profit per patient of £[✂].

29. Third, EMIS receives revenues from EXA which would be at risk in the event of the Merged Entity's foreclosure of FDB.[22] This is because, after foreclosure, customers who use EXA would not be able to access the data from GP practices who switched to a different primary care EPR system supplier (EXA Explorer does not have access to primary care data held on other EPR systems). As such, we have calculated the profit per patient EMIS would lose from this source as follows:

(a) EMIS told us that in 2022 it generated [✂] from EXA in England, incurring a total variable cost of [✂], indicating a variable profit of [✂].[23]

(b) We have divided this figure for the variable profit by the EMIS patient base in England only given that EXA is not available in other UK nations. This results in a profit per patient of [✂].

30. Fourth, EMIS receives payments from non-MO partners.[24] In addition to MO partners, EMIS also has other partners, that is third party suppliers who interact with EMIS and who also supply services to the NHS. EMIS provided the revenues it generated from non-MO partners in the UK, as follows:

(a) Usage fees – covering the cost of processing on EMIS's primary care EPR system of relevant interfaces. These fees are charged on a revenue share or per patient basis (variable with the number of patients).[25] According to EMIS, it generated [✂] of revenue from this source in 2022

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[19] The Parties' response to Issues Letter, paragraph 70.
[20] EMIS response to S109 1 Q27. EMIS response to S109 5, question 5.
[21] This is in line with the Parties response to the working paper. EMIS estimates that [✂] of its patient base in the UK are also FDB customers, where it's UK-wide patient base equalled [✂] in 2022.
[22] According to the prices advertised on G-cloud, EMIS charges between £0.15 per patient to £0.30 per patient for EXA Explorer (source).
[23] Parties response to the MO Working Paper, paragraph 5.19.
[24] EMIS's response to s109 1, question 19.
[25] EMIS response to S109 6, question 4.

and incurred [✂] of variable costs, indicating a [✂] profit, or [✂] profit per patient.[26]

(b) Elite partner fees – covering charges paid by EMIS's non-MO partners who interoperate with EMIS's primary care EPR system. These fees are charged on a revenue share or a per patient basis (variable with the number of patients).[27] According to EMIS, it generated [✂] of revenue from this source in 2022 and incurred [✂] of variable costs, indicating a [✂] profit, or [✂] profit per patient.[28]

(c) EMIS also considers it would lose revenues generated from non-MO partners for charging configuration and development fees, membership fees and assurance fees. However, EMIS also submits these fees are paid on a [✂].[29] As these fees would not vary with the number of patients, we have excluded the revenues generated from these fees from the calculation of EMIS's profit per patient at risk.[30]

31. Fifth, EMIS also generates revenues from the NHS for the supply of interfaces based on IM1 standards for third party software. According to EMIS, this revenue would be at risk if the Merged Entity were to foreclose FDB and would be lost in the event of GP practices switching away from EMIS Web. From NHS England, EMIS receives revenues for IM1 based on two types of fees, these are: [31]

(a) Connection fees which are paid per connection between EMIS Web and third party suppliers per annum by NHS England. EMIS submits that the connection fees are linked to the size of EMIS Web customer base and would be lost if customers switched away from EMIS. This is because EMIS data would become less valuable to third parties if customers switch to rival EPR systems and may not pay to set up an IM1 connection to interoperate with EMIS Web. We consider that it is unlikely that any loss in revenues would be material as switching away from EMIS upstream would be limited (given the low historical switching rates and high costs of switching), and so we would expect there to be a limited impact on the value of an IM1 connection.

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[26] Parties response to the MO working paper, paragraph 5.18. EMIS' response to S109 3, Q7. To work out profit per patient, we divided by EMIS' UK-wide patient base ([✂]).
[27] EMIS response to S109 6, question 4.
[28] EMIS' response to S109 3, Q7. To work out profit per patient, we divided by EMIS' UK-wide patient base ([✂]).
[29] EMIS response to S109 6, question 4.
[30] In any event these revenues are small. Dividing the total of these revenues by EMIS's UK-wide patient base would give a profit per patient of £[✂].
[31] EMIS response to S109 6, question 4.

(b) Transaction fees which are paid per 'API message'. For example, when a GP uses a partner product which interoperates with EMIS Web, an API message will be sent between the two systems which will have a fee attached to it. EMIS considers that if a GP practice switched away from EMIS Web, EMIS would no longer generate revenues from that GP practice's use of partner products which interoperate with EMIS Web, as no API message would be generated. We consider these fees could be lost in the event a patient's GP practice switches to a rival EPR system.

32. While we have data on the revenues from the supply of IM1 interfaces, we do not have sufficient information to identify the proportion of these revenues which are attributable to connection fees (which should be excluded as they are fixed with the number of patients) and the proportion which are attributable to transaction fees (which should be included as they are variable with the number of patients). We have excluded the entirety of these revenues from the calculation of EMIS's profit per patient at risk. In the interpretation of the final results we acknowledge that EMIS's profit per patient could be underestimated as a result.[32]

33. Based on the above assessment, we consider that for each patient lost as a result of the Merged Entity's partial foreclosure of FDB, EMIS would have the following profit at risk:

(a) [✂] per patient from EMIS's supply of primary care EPR systems;

(b) [✂] per patient from EMIS's revenues from FDB (MO Partner);

(c) [✂] per patient from EXA revenues; and

(d) [✂] per patient from EMIS's revenues from non-MO partners from usage fees, elite partner fees and EXA access.

34. We consider that EMIS's total profit at risk would therefore amount to [✂] per patient.

35. As discussed in paragraph 27 and 31 in this Appendix C, we consider that the [✂] profit per patient that EMIS could lose as a result of a patient's GP practice switching to a rival EPR systems is likely to be understated in the baseline scenario, given that i) the variable profit margin we have assumed in the baseline likely contains fixed costs and ii) we have excluded revenues EMIS generated from supplying IM1 interfaces where a portion of these revenues varies with EMIS' number of patients.

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[32] For completeness, EMIS generates a profit per patient from the supply of IM1 interfaces of [✂].

Part 2: Sensitivity analyses and results

36. We have conducted two sensitivity analyses testing the robustness of the results under the baseline scenario.

    (a) Forward-looking sensitivity, where we calculate the incentive of the Merged Entity to foreclose FDB based on the likely development of the MO software and primary care EPR systems market, as well as the expected future profitability of the Parties, within the next five years (until 2027).

    (b) Total addressable pool of patients sensitivity, where we calculate the incentive of the Merged Entity to foreclose FDB using different assumptions in relation to the willingness of ICBs/Health Boards to multi-home MO software suppliers, compared to the baseline scenario.

Forward-looking sensitivity

37. In this section, we set out our approach to the 'forward-looking sensitivity' and discuss the results. This sensitivity is based on the expectations of market participants about the likely development of the MO software and primary care EPR systems markets in the next five years (until 2027). In the following sections we identify the changes in the assumptions for the vertical arithmetic analysis vis-à-vis the baseline scenario.

Growth in the MO software and primary care EPR systems markets

38. Based on Optum's and FDB's responses, we understand that the size of the 'point of care' and 'proactive' MO software segments is likely to change in the next five years. This is relevant for our vertical arithmetic analysis to the extent that it increases the pool of FDB's customers who could switch to Optum as a result of the Merged Entity's partial foreclosure of FDB. We have made the following assumptions in relation to the growth of the MO software market:

    (a) Because almost 100% of patients in England and Wales are covered by ICBs and Health Boards who already use 'point of care' MO software, we understand that Optum expects, in the next five years, this segment will grow by [0-5]% in total, slower than the expected growth in population.[33] In line with 2022 shares of supply, we assume [✂]% of these extra

[33] Optum's response to s109 5, paragraph 2.6. In response to S109 5, Q2c, Optum told us it expects the population in England and Wales to increase by [0-5]% between 2022 and 2027.

patients would be covered by ICBs using FDB's MO software and [✂] by ICBs using Optum's.[34]

(b) According to FDB's forecasts its 'proactive' MO software is estimated to yield revenue of approximately £[✂] million in England and Wales in 2027.[35] This would be equivalent to [✂] million patients based on the assumption that the price of AnalyseRx is equal to £[✂].[36] Currently, there are [✂] patients covered by ICBs who have purchased FDB's 'proactive' MO software and a further [✂] patients, whose ICBs trial it. We include the growth in this product as per this forecast in our forward-looking sensitivity analysis.

39. According to FDB, the MO software market could be worth £67 to 80 million in five years time. To reach this valuation, FDB has assumed that all patients in the UK will be covered by point of care and proactive MO ([✂]) and that the combined price of point of care and proactive MO would increase to [✂]. We do not consider this an accurate estimation of the MO software market given that it assumes all ICBs and Health Boards will procure point of care and proactive MO.[37] Moreover, it assumes that the combined price per patient for point of care and proactive MO products would increase by 40-70% above FDB's current prices. On top of this, FDB also considers that the MO software market could grow at a compound rate of circa 10% each year. FDB's estimate of the annual growth of the MO software market is materially larger that than the [✂] growth observed between 2018 and 2022.[38]

40. We have not received any evidence that any new entrants plan to enter the MO software market. As such, no new players could be expected to affect the growth of the market or to gain market share from Optum (which would increase the potential size of gains that the Merged Entity could make from foreclosing MO software rivals).

41. In terms of the growth in the primary care EPR systems market, EMIS expects it to grow in line with the population.[39] In our forward-looking scenario we have adjusted EMIS's patient base in line with the expected population growth between 2022 and 2027 which was [0-5]%.[40]

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[34] CMA calculation from Optum S109 1 Q13, and [✂].
[35] [✂]
[36] [✂]
[37] Currently not all ICBs or Health Boards use point of care MO software and very few use proactive MO software. According to FDB, in 2022, [✂] patients were covered by ICBs who procured AnalyseRx. [✂].
[38] CMA analysis of Optum response to S109 1 question 13 and [✂].
[39] Parties response to the MO Working Paper, paragraph 5.57.
[40] Optum response to S109 5, question 2c.

Future profitability of the MO software and primary care EPR systems markets

42. We also considered the extent to which future profitability of the MO software and primary care EPR systems market would change in the next five years. This is because changes in profitability would result in a different profit per patient assumed in the baseline scenario affecting the net total profits the Merged Entity could gain as a result of partial foreclosure.

43. In submissions to the CMA, both Optum and EMIS submitted that they do not expect significant changes in their future profitability in the supply MO software and EPR systems in the next five years.

(a) Optum expects that, in the next five years, it would incur the [✂] as it did in 2022.[41] It also considers that Optum's margins may [✂] in the next years due to [✂]. However, Optum did not provide any evidence why it expects its [✂] to increase, nor did it estimate the value of any [✂].

(b) In terms of future profitability of the supply of primary care EPR systems, EMIS expects its EBITDA margin to grow in the next five years (due to lower system development cost in the future) but only to a small extent.[42] EMIS did not provide an estimate for the expected increase in profitability.

44. We assume that Optum's and EMIS's profit per patient in 2027 is the same as in 2022 [✂].

45. Table A1 below shows the results of our forward-looking sensitivity analysis.

Table A1: Merged Entity's financial gain/loss (in £) from partially foreclosing FDB under the forward-looking sensitivity analysis

		Switching upstream (primary care EPR systems) away from EMIS				
		0%	1%	2%	3%	4%
Switching downstream (MO software) to	5%	[✂]	[✂]	[✂]	[✂]	[✂]
	10%	[✂]	[✂]	[✂]	[✂]	[✂]
	15%	[✂]	[✂]	[✂]	[✂]	[✂]
	20%	[✂]	[✂]	[✂]	[✂]	[✂]
	25%	[✂]	[✂]	[✂]	[✂]	[✂]

46. As shown in Table A1 above, the values of the financial gain that the Merged Entity would incur as a result of partially foreclosing FDB would increase to a limited extent (and losses would be slightly lower) under the forward-looking scenario compared to the baseline analysis. The largest estimated loss [✂] and the largest gain [✂]. The increase in potential gains (and the decrease in potential losses) is driven by a larger pool of potential customers – compared

[41] Optum's response to RFI 5, question 3.
[42] EMIS response to RFI 7, question 2.

to the baseline analysis – who could switch downstream, reflecting a larger number of FDB's 'proactive' MO customers.

Total addressable pool of patients sensitivity

47. In this sensitivity analysis, we apply different assumptions to calculate the total addressable pool of patients, compared to the baseline scenario.

48. In the baseline scenario we assume that all patients whose GP practice uses FDB's MO software and EMIS Web and some patients whose GP practice uses FDB's MO software and TPP's/Cegedim's primary care EPR system would be part of the total addressable pool of patients. For the latter, we assume that only those who currently single-source their MO software services and where EMIS's share of supply is at least 50% would be included in the total addressable pool of patients (see section '*Total addressable pool of patients*').

49. In this sensitivity, we assume that those ICBs/Health Boards which currently single-source their MO software services and where EMIS's share of supply is at least 25% would be included in the total addressable pool of patients.

50. Our motivation for this sensitivity is to consider a scenario where ICBs show a greater tendency to single-source their MO software services compared to the baseline analysis. We consider that, compared to the baseline analysis, this approach may be more aligned with the single-sourcing tendencies currently exhibited by ICBs/Health Boards (where only a small proportion of ICBs/Health Boards procures from both Optum and FDB).

51. Table A2 below presents the results of the total addressable market sensitivity.

Table A2: Merged Entity's financial gain/loss (in £) from partially foreclosing FDB under the total addressable pool of patients sensitivity analysis

		Switching upstream (primary care EPR systems) away from EMIS				
		0%	**1%**	**2%**	**3%**	**4%**
Switching downstream (MO software) to	**5%**	[✂]	[✂]	[✂]	[✂]	[✂]
	10%	[✂]	[✂]	[✂]	[✂]	[✂]
	15%	[✂]	[✂]	[✂]	[✂]	[✂]
	20%	[✂]	[✂]	[✂]	[✂]	[✂]
	25%	[✂]	[✂]	[✂]	[✂]	[✂]

52. As shown in Table A2 above, assuming a lower willingness of ICBs to multi-home MO software results in similar magnitude of financial gains/losses compared to the baseline scenario. The maximum financial loss that the

Parties could incur as a result of partially foreclosing FDB would be [✂] and the maximum gain would be [✂].

Glossary

Term	Definition
the **Act**	The Enterprise Act 2002
API	Application Programming Interface
AWMSG	All Wales Medicines Strategy Group
Bordeaux UK Holdings II Limited	Acquisition vehicle of UH for this transaction
Catalogue Agreement	An agreement signed by healthcare IT providers to enter the DCS Catalogue
CDS	Clinical Decision Support
CMA	Competition and Markets Authority
the **Commercial Standard**	A standard issued by the NHS that regulates commercial relationships between suppliers, it is a part of the Overarching Standards
CSI	Commercially Sensitive Information
DCB0129	DCB0129 Clinical Risk Management is an information standard that provides a set of requirements suitably structured to promote and ensure the effective application of clinical risk management by those organisations that are responsible for the development and maintenance of Health IT Systems for use within the health and care environment
DCS Catalogue	Digital Care Services Catalogue allows NHS bodies to buy assured digital tools and systems through approved assurance frameworks
DHCW	Digital Health and Care Wales
DTAC	NHS Digital Technology Assessment Criteria
EMIS	EMIS Group Plc
EMIS NUG	EMIS National User Group

EMIS Web	EMIS's main primary care EPR system product
EMIS-X Analytics	Full name for EXA
EMIS-X GP	A new EMIS primary care EPR system compliant with the TIF
EPR	Electronic Patient Record
EV	Enterprise Value
EXA	EMIS-X Analytics, a new data platform which allows users to access and interrogate EMIS data; also stands in for EMIS-X Analytics Explorer – a data inquiry module within EMIS-X Analytics
FDB	First Databank, provider of MO software
FDP	Federated Data Platform
Framework agreement	Agreement between one or more NHS body and one or more suppliers establishing the terns under which the supplier will enter into one or more contracts with the NHS body
FY	Financial Year
GBP	Great British Pound, currency of the UK
GP	General Practitioner
GP ITF	GP Information Technology Futures Framework, a framework from which primary care EPR systems can be procured in England
Health Boards	NHS local health boards in Wales and NHS regional boards in Scotland
HSC	Health and Social Care
HSNI	Health and Social Care Northern Ireland
HSSF	Health Systems Support Framework
ICB	Integrated Care Board, manages the budget and health services within an ICS

ICS	Integrated Care System, a partnership of organisations that meet health and care needs across an area in England
IM1	Interface Mechanism 1, a mechanism for accessing data held in primary care EPR systems as part of the GP ITF
INPS	Now Cegedim, a primary care EPR system provider
the **Inquiry Group**	A group of CMA panel members
Interoperability Standard	One of the standards to be met by suppliers to be included on the GP ITF, including requirements relating to integration and interoperability
IRR	Internal Rate of Return
LPF	The Leader Provider Framework
M&A	Mergers and Acquisitions
MAGs	Merger Assessment Guidelines (CMA129)
Merged Entity	UH and EMIS (for statements relating to the future)
the **Merger**	The anticipated acquisition of EMIS Group Plc by UnitedHealth Group Incorporated
MO	Medicines Optimisation
NDA	Non-Disclosure Agreement
NHS	National Health Service
NI	Northern Ireland
NICE	National Institute for Health and Care Excellence
NSS	National Services Scotland
Open API standard	An NHS standard that mandates Healthcare IT suppliers connect and transmit data through standard APIs
Optum	Optum Health Solutions (UK), subsidiary of United Health Group Incorporated

the **Overarching Standards**	A collection of standards mandated by the NHS to which the Commercial Standard and others belong
the **Parties**	**UH** and **EMIS** together
Patient Access	Product offered by EMIS that allows patients to book GP appointments and reorder repeat prescriptions
PCDM	Primary Care Demand Management
PCN	Primary Care Network
PDCPF	Primary Care Digital Pathways Framework
PHM	Population Health Management
POC	Point of care
Primary care EPR systems	An EPR system designed for use in primary care (GP) settings, these also store all patient data collected by GPs
RFI	Request for Information
RMS	Relevant Merger Situation
SaaS	Software as a System
SBS	NHS Shared Business Services Framework
SLC	Substantial lessening of competition
SLS	Service License Agreement
SMC	Scottish Medicines Compendium
SystmOne	TPP's primary care EPR system
TIF	Tech Innovation Framework, a framework from which primary care EPR systems can be procured in England
TPP	The Phoenix Partnership, a primary care EPR system provider
UH	UnitedHealth Group Incorporated
UK	United Kingdom

USD	US Dollar, currency of the United States of America
Vision	Cegedim's primary care EPR system
WCAG	Web Content Accessibility Guidelines
WSSP	NHS Wales Shared Services Partnership