EUROPEAN COMMISSION
DG Competition

Case M.10643 - ORACLE / CERNER

Only the English text is available and authentic.

REGULATION (EC) No 139/2004
MERGER PROCEDURE

Article 6(1)(b) NON-OPPOSITION
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EUROPEAN COMMISSION

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PUBLIC VERSION

In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EC) No 139/2004 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus […]. Where possible the information omitted has been replaced by ranges of figures or a general description.

Oracle Corporation
51 Little Falls Drive
Wilmington, Delaware 19808
United States of America

Subject: **Case M.10643 – ORACLE / CERNER**
Commission decision pursuant to Article 6(1)(b) of Council Regulation No 139/2004[1] and Article 57 of the Agreement on the European Economic Area[2]

Dear Sir or Madam,

(1) On 22 April 2022, the European Commission received notification of a proposed concentration pursuant to Article 4 of the Merger Regulation by which Oracle Corporation ("Oracle", or "the Notifying Party", USA) will acquire sole control of the whole of Cerner Corporation ("Cerner", USA) within the meaning of Article 3(1)(b) of the Merger Regulation (the "Transaction").[3] Oracle and Cerner are together referred to as the "Parties".

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1 OJ L 24, 29.1.2004, p. 1 (the 'Merger Regulation'). With effect from 1 December 2009, the Treaty on the Functioning of the European Union ('TFEU') has introduced certain changes, such as the replacement of 'Community' by 'Union' and 'common market' by 'internal market'. The terminology of the TFEU will be used throughout this Decision.

2 OJ L 1, 3.1.1994, p. 3 (the 'EEA Agreement').

3 Publication in the Official Journal of the European Union No C 179, 02.05.2022, p. 3.

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1. THE PARTIES

(2) **Oracle** is a US publicly listed company, headquartered in Texas, USA. Oracle is active worldwide in the development, production, marketing and distribution of Information Technology ("IT") solutions. These include (i) infrastructure software and services, including databases, operating systems, cloud services and middleware, (ii) enterprise hardware, such as servers, and (iii) enterprise applications software ("EAS").

(3) **Cerner** is a US publicly listed company, headquartered in Missouri, USA. Cerner is a global supplier of EAS and services specifically designed for healthcare providers that support the clinical, financial and operational needs of healthcare providers of all sizes, including electronic health records ("EHR") software and services. It also provides clinical research solutions supporting life sciences companies, including healthcare consulting and market research, clinical research organisation services and real world evidence data. Cerner is primarily active in the USA, where the company generates approximately [80-90]% of its revenues.

2. THE OPERATION AND CONCENTRATION

(4) Pursuant to an agreement and plan of merger signed on 20 December 2021, Oracle will acquire (through its subsidiary Cedar Acquisition Corporation) all of the issued and outstanding shares of Cerner through an all-cash tender offer for a total equity value of approximately EUR 25.1 billion. Upon closing of the Transaction, Cedar Acquisition Corporation will merge with and into Cerner and will cease to exist, with Cerner becoming a wholly owned subsidiary of Oracle. As a result, Cerner will be solely controlled by Oracle.

(5) Therefore, the Transaction constitutes a concentration within the meaning of Article 3(1)(b) of the Merger Regulation.

3. UNION DIMENSION

(6) The undertakings concerned have a combined aggregate worldwide turnover of more than EUR 5 000 million (Oracle: EUR 34 148 million; Cerner: EUR 4 827 million).[4] Each of them has a Union-wide turnover in excess of EUR 250 million (Oracle: EUR [Revenue Information] million; Cerner: EUR [Revenue Information] million), and they do not achieve more than two-thirds of their aggregate Union-wide turnover within one and the same Member State.

(7) Therefore, the Transaction has a Union dimension pursuant to Article 1(2) of the Merger Regulation.

4. RELEVANT MARKETS

4.1. Introduction

(8) For the assessment of the Transaction in this decision, the following business activities of the Parties are relevant: (i) Oracle is active in relational database

[4] Turnover calculated in accordance with Article 5 of the Merger Regulation.

management systems ("RDBMS") software[5] and (ii) Cerner is active in healthcare software, i.e. software adapted to the needs of healthcare providers.[6]

4.2. Market for RDBMS

4.2.1. Product market definition

(9) Databases are part of infrastructure software[7] and are used as an input both for general-purpose and for industry specific EAS,[8] including software for healthcare providers.

(10) A database management system ("DBMS") is software (on-premise[9] or cloud based) designed to define, manipulate, retrieve and manage data in a database. It generally manipulates the data itself, the data format, field names, file structure and defines rules to validate and manipulate the data.

(11) A relational database management system (RDBMS) is a type of DBMS that manages and stores data in separate tables and defines relationships between those tables. That makes it possible to combine data from several tables for querying and reporting. Almost all commercial RDBMS use structured query language ("SQL") to access the database, although that is not an inherent feature of RDBMS, which was invented before SQL.

(12) All RDBMS are DBMS, but not all DBMS are RDBMS. Non-relational DBMS differ from relational DBMS in particular in programming language and the structure used to organize the data.[10]

4.2.1.1. The Commission's previous practice

(13) In *IBM/Informix*, the Commission considered the database market as a whole (without segmentation by relational and non-relational databases).[11] In *Oracle/Sun Microsystems* and in *SAP/Sybase*, the Commission segmented the database market between relational and non-relational databases.[12] In *Oracle/Sun Microsystems*, the Commission noted that non-relational DBMS *"do not have the same advantages*

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5 Oracle's flagship product, accounting for the overwhelming majority of its database revenues, is the Oracle Database, an RDBMS. The Notifying Party notes for completeness that modern RDBMS (such as Oracle's RDBMS) also support some non-relational features.

6 E.g. hospitals, clinics and medical groups. Hereinafter the term "healthcare software" and "software for healthcare providers" will be used interchangeably.

7 Infrastructure software refers to the collection of software and services that provides the infrastructure to support enterprise applications and includes server operating systems, databases and middleware.

8 EAS is software that supports the major business functions needed by commercial organisations to manage their business effectively (see Commission decision of 21 January 2010 in case M.5529 - *Oracle/Sun Microsystems*, paragraph 24). Oracle's offer of EAS comprises, on the one hand, general-purpose EAS, which can be used by any business, and, on the other, EAS adapted to the needs of customers in particular industries. Those industries are sometimes referred to as "verticals", to contrast them to "horizontal" software that can be used across various industries.

9 I.e. deployed on a company's own servers.

10 Commission decision of 27 June 2019 in case M.9205 - *IBM/Red Hat*, recital 97.

11 Commission decision of 19 June 2001 in case M.2460 - *IBM/Informix*.

12 Commission decision of 21 January 2010 in case M.5529 – *Oracle/Sun Microsystems* and Commission decision of 20 July 2010 in case M.5904 – *SAP/Sybase*.

and they are not as prevalent as RDBMS".[13] In *IBM/Red Hat*, the Commission looked separately into the market for non-relational DBMS but ultimately left open the question of whether non-relational DBMS constitute a relevant product market.[14]

(14) In *Oracle/Sun Microsystems*, the Commission considered a segmentation of the RDBMS market based on several criteria but ultimately concluded that the market was *"one comprising all RDBMS"*, among other reasons because of supply-side substitutability.[15] Those segmentation criteria included:[16]

- embedded vs. non-embedded RDBMS;[17]
- databases for online analytical processing (OLAP) and databases for online transaction processing (OLTP);
- general purpose databases vs. specialised databases (for example related to data warehousing[18]);
- compatibility with customers' existing IT infrastructure (operating systems);
- RDBMS for mission critical vs. non-mission critical applications.

4.2.1.2. The Notifying Party's views

(15) The Notifying Party submits that due to technological developments the relevant product market should be viewed as DBMS, i.e., not limited to RDBMS.[19] RDBMS were originally seen as an advanced DBMS that allowed for larger amounts of data to be handled in a more efficient way than other DBMS. The relational structure of RDBMS prevents data duplication and allows for efficiency in terms of storage space. [20] However, due to evolutions, such as cloud computing, the cost of data storage dramatically decreased and, as a result, efficient data storage no longer is as important today as it used to be. In addition, the amount of data that applications need to store and query continues to increase exponentially and data structures have become more complex. [21] Therefore, while RDBMS and non-RDBMS might historically have had relative advantages over one another, there has been a convergence of those two types of DBMS in the last decade, which is eliminating those advantages.[22] Since the Commission's decision in

[13] Commission decision of 21 January 2010 in case M.5529 – *Oracle/Sun Microsystems*, recitals 29 and 92.
[14] Commission decision of 27 June 2019 in case M.9205 - *IBM/Red Hat*, recital 105.
[15] Commission decision of 21 January 2010 in case M.5529 – *Oracle/Sun Microsystems*, recitals 107-109.
[16] Commission decision of 21 January 2010 in case M.5529 – *Oracle/Sun Microsystems*, recital 105.
[17] See also Commission decision of 20 July 2010 in case M.5904 – *SAP/Sybase*, recitals 15-16, leaving open the exact definition of the relevant product market in relation to databases, as the proposed transaction did not raise any competition concerns under any alternative market definition.
[18] See also Commission decision of 20 July 2010 in case M.5904 – *SAP/Sybase*, recitals 12-14, leaving open the issue of whether data warehousing tools should be classified as part of "*the business analytics software space rather than the database space*".
[19] Form CO, paragraph 153.
[20] Form CO, paragraph 154.
[21] Form CO, paragraph 155.
[22] Form CO, paragraph 156.

Oracle/Sun Microsystems, other types of DBMS have emerged that serve use-cases that were previously served exclusively by RDBMS. [23] Therefore, it is no longer relevant to consider a separate market for RDBMS not including other forms of DBMS. [24]

(16) In any event, in view of the Commission's precedents, the Notifying Party submits that the relevant product market is at its narrowest the market for RDBMS and that a further segmentation of the RDBMS market according to general-purpose or specialised databases, the type of operating system, customer group, mission critical or non-mission critical, or any other criteria would not be relevant.[25]

(17) First, from a demand-side perspective the same RDBMS can be used across different sectors and types of customers.

(18) Second, from a supply-side perspective, database vendors may seek to differentiate their database product offering in order to address customers' demands and they may offer different editions of an RDBMS to address certain niches. However, the underlying code of these versions is essentially the same.[26]

(19) Third, it would not be possible to draw clear dividing lines between the different segments of the RDBMS market and Oracle does not consider those segmentations in the ordinary course of its business.[27]

(20) The Notifying Party also submits that an embedded database is not a different product to a non-embedded database. Oracle's database products are used in both embedded and non-embedded contexts and a database used as an embedded database by one customer is likely to be used as a non-embedded database by another.[28]

(21) In any case, the Notifying Party considers that no further segmentation of the RDBMS market would be relevant given that no possible competition concerns would arise, regardless of the exact delineation of the relevant product market.

4.2.1.3. The Commission's assessment

(22) From the demand-side perspective, the majority of the respondents (both Oracle's competitors and customers) to the market investigation consider non-relational

23 Form CO, paragraph 156. The Notifying Party provides the following examples of such types of DBMS: non-schematic (also called NoSQL) DBMS, multi-model DBMS and in-memory DBMS. It submits that where applications typically would rely on RDBMS to store applications data, the increasing importance of big data and cloud based delivery have led to many applications relying on NoSQL databases. Similarly, in-memory DBMS are popular substitutes in particular for RDBMS use cases involving applications that require speed and/or involve real-time analysis and reporting of data. The growth in popularity of these various types of database management systems has blurred the lines between RDBMS and other DBMS (see reply to RFI 3, question 3(b)).

24 Form CO, paragraph 156 and Notifying Party's reply to RFI 3, question 3(a) and question 3(b).

25 Form CO, paragraph 149.

26 Form CO, paragraph 149.

27 Form CO, paragraph 149 and Notifying Party's reply to RFI 3, question 3(d). Oracle is active in all segmentations of RDMBS considered in Oracle/Sun Microsystems, whereas Cerner is not active in any.

28 Form CO, paragraph 150 and Notifying Party's reply to RFI 3, question 3(e).

DBMS to be a suitable alternative to RDBMS.[29] However, a few of Oracle's competitors have nuanced their answer explaining that the degree of substitutability would depend on the customer's requirements, the functional complexity and the amount of data to be processed.[30] One competitor of Cerner submitted that for existing software applications already running on RDBMS, switching to non-relational DBMS would entail significant costs.[31] Another competitor of Cerner submitted that for RDBMS that is *"sold as an integrated part of a specific software application"* substitution might not be possible.[32]

(23) From the supply-side perspective, almost all of Oracle's competitors submitted that supply-side substitutability is limited, as a supplier of non-relational DBMS would need technical capabilities and significant investments in time and resources to develop an RDBMS.[33]

(24) Regarding a further segmentation of the market for RDBMS, according to embedded or non-embedded RDBMS, the type of operating system, customer group, or any other criteria, the Commission considers that its findings in *Oracle/Sun Microsystems* that such a segmentation is not necessary still hold true. First, from the demand-side perspective, the same RDBMS can be used across different industries and customer types.[34] Second, from the supply-side perspective, RDBMS suppliers and industry analysts do not consider such segmentations and no clear dividing lines can be drawn between them.[35] Third, the overall results of the market investigation do not support such a segmentation.[36]

(25) In light of the above, the Commission considers that the relevant product market in this case is that comprising all RDBMS. For the purpose of this Decision, the question of whether the market for RDBMS is part of a broader market (i.e. an overall market for DBMS including RDBMS) can be left open, since the Transaction does not raise serious doubts as to its compatibility with the internal market under any plausible market definition.

4.2.2. Geographic market definition

4.2.2.1. The Commission's previous practice

(26) In *Oracle/Sun Microsystems*, the Commission found the geographic scope of the market for RDBMS to be worldwide as the market investigation showed that *"the*

[29] See replies to Questionnaire Q1 to Oracle's competitors, question 6, Questionnaire 2 to Cerner's competitors, question 12 and Questionnaire 3 to Cerner's customers, question 10.

[30] See for example reply by Cockroach Labs to Questionnaire Q1 to Oracle's competitors, question 6.

[31] See reply by InterSystems to Questionnaire Q2 to Cerner's competitors, question 12.

[32] See reply by IQVIA to Questionnaire 2 to Cerner's competitors, question 12.1.

[33] See replies to Questionnaire Q1 to Oracle's competitors, question 7.

[34] For example, that is the case with Oracle's RDBMS. A competitor of Oracle also explained, "*All relational DBMS solutions support common use cases. Embedded or not they are very much part of the same family*" – see replies to Questionnaire Q1 to Oracle's competitors, question 8.

[35] See IDC's market share reports, provided as Annexes 7(h) and 7(i) to the Form CO (Worldwide Database Management Systems Software Market Shares, 2020: The Enterprise Journey to the Cloud; Worldwide Database Management Systems Software Forecast, 2021-2025).

[36] See replies to Questionnaire Q1 to Oracle's competitors, question 8, Questionnaire 2 to Cerner's competitors, question 11 and Questionnaire 3 to Cerner's customers, question 9.

IT industry is a global industry" and *"any database software can be licensed and installed at any specific geographic location"*.[37]

(27) Similarly, in *SAP/Sybase* the Commission considered the geographic scope of possible database markets as worldwide in view of *"the purchase and utilisation patterns of databases software"*.[38]

(28) In relation to non-relational DBMS, the Commission considered in *IBM/Red Hat* that the relevant geographic market is global.[39]

4.2.2.2. The Notifying Party's views

(29) The Notifying Party agrees with the Commission precedents and submits that the relevant geographic market for RDBMS should be defined as worldwide.[40]

4.2.2.3. The Commission's assessment

(30) Almost all respondents to the market investigation consider that the market for RDBMS is global.[41] The evidence in the Commission's file has not provided any indication that would suggest that the geographic scope of the market for DBMS would be different.

(31) In light of the above, for the purpose of this Decision, and in line with its previous decisional practice, the Commission considers that the markets for DBMS and RDBMS are worldwide in scope.

4.3. Market for healthcare software

4.3.1. Product market definition

(32) The Commission has previously considered a segmentation of the software market based on the industry sector of the application.[42]

(33) In *CSC/iSoft*, the Commission considered a separate market for software for the healthcare sector. Within that market, the Commission considered possible segmentations based on modules, including EHR,[43] i.e. digital records of patient health information.[44] The Commission ultimately left the exact product market definition open.[45]

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37 Commission decision of 21 January 2010 in case M.5529 – *Oracle/Sun Microsystems*, recital 112.

38 Commission decision of 20 July 2010 in case M.5904 – *SAP/Sybase*, recital 17.

39 Commission decision of 27 June 2019 in case M.9205 – *IBM/ Red Hat*, recital 106.

40 Form CO, paragraph 172.

41 See replies to Questionnaire Q1 to Oracle's competitors, question 9; Questionnaire 2 to Cerner's competitors, question 13; and Questionnaire 3 to Cerner's customers, question 11.

42 Commission decision of 20 July 2010 in case M.5904 – *SAP/Sybase*.

43 Electronic Helath Records, also known as Electronic Medical Records or Electronic Patient Records.

44 Commission decision of 20 June 2011 in case M.6237 – *CSC/iSoft Group*. The Commission considered 12 modules: (i) Hospital Information System; (ii) Electronic Medical Records; (iii) Patient Administration System; (iv) Clinical Information Systems; (v) Transactional Clinical Information Systems; (vi) Radiology and Diagnostics Systems; (vii) Accident & Emergency Systems; (viii) Operating Theatre Management Systems; (ix) Laboratory Information Management Systems; (x) Medication Management; (xi) Obstetrics & Gynaecology; (xii) Primary Care Information Systems.

45 Commission decision of 20 June 2011 in case M.6237 – *CSC/iSoft Group*, recital 32.

(34) The Commission has not previously considered a market for software specifically for the health insurance sector.

4.3.1.1. The Notifying Party's views

(35) The Notifying Party submits that the relevant product market is the market for healthcare software (i.e. software catering to the needs of hospitals, clinics and medical groups). Healthcare software is to be distinguished from general purpose EAS, as, from a demand perspective, healthcare software offers distinct functionalities, responding to the specific needs of healthcare sector players and, from a supply perspective, healthcare software has historically been provided by a distinct set of suppliers with healthcare expertise.

(36) The Notifying Party suggests that it is unnecessary for the Commission to determine whether the market for software for healthcare providers should be segmented further as no competitive concerns would arise under any plausible market definition. In any event, the Notifying Party submits that the segmentation of the healthcare software market proposed by the notifying party in *CSC/iSoft* is inadequate and incomplete.[46] In order to assist the Commission in its review, the Notifying Party suggests a streamlined segmentation into (i) software for EHR and other clinical software;[47] (ii) revenue cycle management ("RCM") solutions; (iii) healthcare provider analytics; (iv) patient engagement; and (v) telehealth.[48] The Notifying Party highlights that the boundaries between those segments are blurred. From a supply side-perspective, vendors of healthcare software are increasingly selling EHR solutions, which integrate clinical, RCM, analytics, and telehealth solutions. Similarly, from a demand-side perspective, healthcare providers are increasingly seeking to procure those functionalities in an integrated manner.[49]

(37) However, the Notifying Party notes that the exact definition of the relevant product market for healthcare software can be left open, as no competitive concerns arise regardless of the exact delineation of the relevant product market.

(38) Finally, the Notifying Party submits that the market for software for providers of health insurance (hereinafter "health insurance software") is separate from the market for software for healthcare providers, as the insurance market, similar to the healthcare market, is highly specialised and requires software products specifically tailored to meet the needs of insurance companies.[50]

4.3.1.2. The Commission's assessment

(39) The results of the market investigation confirmed that EAS can be segmented according to the industry of application. The majority of the respondents (both Cerner's competitors and customers) stated that software providers need to tailor

46 Possibly because of the technical evolution that has occurred in the decade since *CSC/iSoft* was adopted – see Form CO, paragraph 115.

47 According to the Notifying Party, clinical software is used for the management of patients within and across different clinical specialisations (e.g. cardiology, paediatrics, radiology), as well as software supporting and streamlining functions such as medication management, laboratory information and patient flow.

48 Form CO, paragraph 116.

49 Form CO, paragraph 120.

50 Form CO, paragraph 126 and Notifying Party's reply to RFI 3, Question 2(b).

their EAS to the specific business sectors or industries in which their customers are active (e.g. healthcare).[51]

(40) The Commission's market investigation has also confirmed the Notifying Party's view that the market for health insurance software is not part of the market for healthcare software. From the demand-side perspective, the majority of the respondents to the market investigation (and all healthcare providers who expressed a view) state that the two products are not substitutable, in particular because of different customer needs, sales channels and regulatory requirements.[52] From the supply-side perspective, the majority of Cerner's competitors explain that it would be "difficult" or "very difficult" for a supplier of healthcare software to start supplying health insurance software and vice versa, *inter alia* because of the investments in time and resources that would be required to understand the customers' needs, build the necessary technology and expertise and develop a trusted brand.[53]

(41) Regarding a possible further segmentation of the healthcare software by modules, there are indications that such a segmentation might not be appropriate. From a demand-side perspective, industry reports confirm a trend of integration across healthcare software modules, with healthcare providers increasingly seeking to procure more functionalities in an integrated manner.[54] From a supply-side perspective, some providers of healthcare software appear to be active in more than one module.[55]

(42) In light of the above, the Commission considers that the relevant product market in this case is the market for healthcare software and that health insurance software is not part of that market. For the purposes of this Decision, the exact product market definition of the healthcare software market can be left open because the Transaction does not raise serious doubts as to its compatibility with the internal market under any plausible market definition (including a possible segmentation of the healthcare software market by both the modules considered in *CSC/iSoft* and the modules proposed by the Notifying Party).

4.3.2. Geographic market definition

4.3.2.1. The Commission's previous practice

(43) In *CSC/iSoft*, the Commission noted, *"regulations relating to national healthcare schemes may affect the geographic scope of the healthcare software market (and any potential submarkets)"*. The results of the market investigation in that case were inconclusive, with half of the respondents considering a national market and

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51 See replies to Questionnaire 2 to Cerner's competitors, question 7 and Questionnaire 3 to Cerner's customers, question 6. For example, a competitor of Cerner has explained, "*EAS for the healthcare sector are subject to local regulations and certifications that are specific to the healthcare sector*".

52 See replies to Questionnaire 2 to Cerner's competitors, question 8 and Questionnaire 3 to Cerner's customers, question 7.

53 See replies to Questionnaire 2 to Cerner's competitors, question 9.

54 See Signify Research, EHR/EMR – Acute and Ambulatory Applications – World – 2021, December 2020, provided as Annex 7(a)i, page 18.

55 See Form CO, paragraphs 120-122, replies to Questionnaire 2 to Cerner's competitors, question 1 and Commission decision of 20 June 2011 in case M.6237 – *CSC/iSoft Group*, recital 31.

half of the respondents a market wider than the EEA.[56] The Commission ultimately left the market definition open.[57]

4.3.2.2. The Notifying Party's views

(44) The Notifying Party submits that competition for healthcare software is at most EEA-wide but might be narrower, as software must be adapted to the healthcare system and other requirements (including language) of the location of the healthcare provider using the software. In any event, as no competition concerns arise regardless of the geographic scope of the relevant markets, the Notifying Party considers that it is not necessary for the Commission to reach a definitive conclusion on that point.[58]

4.3.2.3. The Commission's assessment

(45) The market investigation delivered mixed results. While some respondents pointed to a national market, others supported an EEA-wide market.[59] In particular, from a demand-side perspective, healthcare providers are usually located in one country and there are national limitations resulting from IP-rights and other regulatory or language requirements. On the other hand, from a supply-side perspective, most providers of healthcare software are active in more than one country.

(46) In any event, for the purposes of this Decision, the geographic market definition for the market for software for healthcare providers (and possible segmentation thereof) can be left open because the Transaction does not raise serious doubts as to its compatibility with the internal market regardless of whether any plausible market is national or EEA-wide.

5. COMPETITIVE ASSESSMENT

5.1. Introduction

(47) The Parties' activities are largely complementary. Oracle is active in the development, production, marketing, and distribution of IT solutions, including infrastructure software (such as RDBMS), general-purpose EAS, software for clinical trials and software for health insurance providers. Cerner is active in the supply of healthcare software, as well as clinical research software and services targeting the life sciences sector, such as healthcare consulting services. There is no meaningful horizontal overlap between the Parties' activities on the markets for RDMBS, healthcare software or healthcare insurance software.[60] The Transaction gives rise to non-horizontal relationships between the market for RDBMS (where

56 Commission decision of 20 June 2011 in case M.6237 – *CSC/iSoft Group*, recitals 34-35.

57 Commission decision of 20 June 2011 in case M.6237 – *CSC/iSoft Group*, recital 36.

58 Form CO, paragraph 164.

59 See replies to Questionnaire 2 to Cerner's competitors, question 10; and Questionnaire 3 to Cerner's customers, question 8.

60 Cerner is not active in DBMS (including in RDBMS). Oracle is currently not meaningfully present in healthcare software (e.g. [summary of Oracle's revenues in healthcare software]; it has also developed products to help governments to manage the COVID-19 pandemic, such as tools for vaccination registry, but those were donated to governments and thus generate no revenues). [Summary of Oracle's revenues in health insurance software]. Cerner is not active in health insurance software. None of those *de minimis* overlaps give rise to an affected market.

Oracle is active) upstream and the market for healthcare software (where Cerner is active) downstream.

5.2. Market shares

5.2.1. RDBMS

(48) Table 1 provides an overview of Oracle's and its main competitors' market shares in the global market for RDBMS (Cerner is not active on that market).

Table 1: RDBMS - Worldwide market shares by value– 2018-2020

Competitor	**2018**	**2019**	**2020**
Oracle	**[40-50%]**	**[30-40%]**	**[30-40%]**
Microsoft	[20-30%]	[20-30%]	[30-40%]
IBM	[10-20%]	[10-20%]	[10-20%]
SAP	[5-10%]	[5-10%]	[5-10%]
Amazon	[0-5%]	[5-10%]	[5-10%]
Others	[10-20%]	[10-20%]	[10-20%]
Total	100%	100%	100%

Source: Form CO – IDC's Worldwide Database Management Systems Software Market Shares, 2020[61]

(49) While Oracle remains the largest RDBMS player globally, its market share has been decreasing [business secrets concerning the development of market shares].[62] Microsoft is now a competitor of similar size with a [30-40]% market share. Other global players compete with Oracle and Microsoft, such as IBM, SAP and Amazon, with other players accounting for the remaining [10-20]% of the market.

(50) Finally, the Notifying Party submits that Oracle is not active in the supply of non-relational DBMS[63] (and neither is Cerner). Therefore, Oracle's market share in the RDBMS market is a conservative proxy for its market power in a hypothetical overall DBMS market that would include both relational and non-relational DBMS.[64]

5.2.2. Healthcare software

(51) The Notifying Party relies on third-party industry analyst reports to obtain estimates for the total size of the market for software for healthcare providers and shares of the market participants. The Notifying Party refers mainly to the industry reports and data of two third-party analysts, Signify Research ("Signify") and

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61 The Notifying Party relies on revenue data reported by IDC to provide the worldwide market shares for RDBMS for 2020. [Reference to IDC Report]. The Notifying Party provides data for 2020, as IDC's data for 2021 is not yet available.

62 Between 2011 and 2020, Oracle's share dropped from close to [40-50]% in 2011 to [30-40]% in 2020.

63 See also footnote 5.

64 In any event, according to the Notifying Party, based on IDC's data for 2020, Oracle's market share in an overall worldwide DBMS market would be [20-30]% - see Notifying Party's reply to RFI 10, question 2(a).

GrandView Research ("GrandView"). The Notifying Party considers those analysts to provide the most reliable and best available revenue-based market shares for healthcare software, even though it recognises that their reported market shares are subject to limitations.

(52) Regarding Signify, first, it only reports on market shares for EHR, which it defines broadly to include clinical systems and other segments such as RCM, patient engagement, telehealth and analytics, if sold in conjunction or integrated with an EHR platform. In other words, Signify does not include software solutions for clinical systems, RCM, analytics, patient engagement or telehealth that are not sold in conjunction or integrated with an EHR platform. Second, Signify does not report on market shares for all EEA countries, but only for (i) specific regions (in particular DACH (Germany, Austria and Switzerland), UK, Benelux, Spain and Portugal, and the Nordics); and (ii) specific countries (in particular France and Italy). The Notifying Party has been able to procure from Signify country-level market size estimates for some (but not all) EEA countries – in particular for Sweden, Austria, Belgium, Ireland, Finland/Norway/Iceland (together), Germany, Spain, Luxembourg, Netherlands, France and Portugal. The Notifying Party has used those market share totals and Cerner's actual revenues to calculate national market shares for Cerner in those countries.

(53) Despite the limitations of the Signify data, the Notifying Party relies on Signify for the calculation of market shares for the overall healthcare software market. The Notifying Party submits that Signify's "EHR" market value totals and vendors' shares, where available, present a reasonable proxy for both the healthcare software category overall as well as the potential segment for "clinical software including EHR" in the countries and regions on which Signify reports.

(54) Regarding GrandView, it provides separate estimated market value totals for EHR, RCM, healthcare analytics, patient engagement and telehealth, but it does not report vendors' market shares. Furthermore, GrandView only reports those market value totals for "Europe" (including the UK) and for Germany, France, Spain and Italy. It does not, however, report market value totals for other EEA countries.

(55) The Notifying Party thus relies on GrandView with respect to potential segmentations of the market for software healthcare other than "clinical software including EHR". To that end, it uses GrandView's market value totals and Cerner's revenues to calculate market shares in the EEA, Germany, France and Spain. While GrandView's estimated size of the EHR market differs from the market size estimated by Signify due to the different definition of the scope of the EHR market, the Notifying Party notes that the choice of source and the resulting market share calculation would not have a material impact on the competitive assessment.

(56) Table 2 provides an overview of Cerner's and its main competitors' market shares in the EEA-wide market for healthcare software. The Notifying Party considers the EHR vendors' revenue share data[65] for "Western Europe"[66] reported by Signify to

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65 EHR as defined by Signify i.e. including clinical solutions, RCM, analytics, patient engagement and telehealth. See page 245 of Signify's report EHR/EMR – Acute and Ambulatory Applications – World – 2021, provided as Annex 7(a)i to the Form CO.

66 Western Europe includes Belgium, Luxembourg, Netherlands, Austria, Germany, Switzerland, Denmark, Finland, Iceland, Norway, Sweden, France, Italy, Andorra, Cyprus, Greece, Malta,

provide a reasonable proxy for vendors' revenue shares of the healthcare software market in the EEA as a whole.

Table 2: Healthcare software – EEA-wide market shares by value – 2019-2021

Competitor	2019	2020	2021[67]
Cerner	**[5-10]%**	**[5-10]%**	**[5-10]%**
Dedalus	[10-20]%	[10-20]%	-
CompuGroup Medical	[5-10]%	[10-20%]	-
TietoEvry	[5-10]%	[5-10]%	-
Nexus	[0-5]%	[0-5]%	-
Others	[60-70]%	[60-70]%	-
Total	100%	100%	100%

Source: Form CO – Cerner's actual revenues and Signify Research, EHR/EMR – Acute and Ambulatory Applications – World – 2021[68]

(57) Dedalus and CompuGroup Medical are the largest suppliers of healthcare software with market shares of respectively [10-20]% and [10-20]% in 2020. Cerner follows with a market share of [5-10]%.

(58) Table 3 provides an overview of Cerner's market shares in the market for healthcare software at the national level in the EEA States in which Cerner is active, based on Cerner's actual revenues and Signify's market size estimates.

Monaco, San Marino, Portugal, Spain, Ireland and UK. The Notifying Party confirms that Cerner does not have revenues in Eastern Europe as defined by Signify.

67 The Notifying Party has been able to procure a total market value estimate for Western Europe for 2021 by Signify and used that total and Cerner's own revenues to calculate Cerner's market share in 2021. Signify's estimate of competitors' market shares are not yet available for 2021. See Notifying Party's reply to RFI 11, question 3(a).

68 See Annexes 7(a)i and 7(a)ii to Form CO and Notifying Party's reply to RFI 11.

Table 3: Healthcare software – EEA States – Cerner's market shares by value – 2019-2021

EEA States	2019	2020	2021
Sweden[69]	[20-30%]	[40-50%]	[20-30%]
Austria	[10-20%]	[10-20%]	[10-20%]
Belgium	[10-20%]	[5-10%]	[5-10%]
Ireland	[5-10%]	[5-10%]	[5-10%]
Finland/Norway/Iceland[70]	[0-5%]	[0-5%]	[5-10%]
Germany	[5-10%]	[5-10%]	[5-10%]
Spain	[5-10%]	[0-5%]	[0-5%]
Luxembourg	[0-5%]	[0-5%]	[0-5%]
Netherlands	[0-5%]	[0-5%]	[0-5%]
France	[0-5%]	[0-5%]	[0-5%]
Portugal	[5-10%]	[5-10%]	[0-5%]

Source: Form CO – Cerner's actual revenues and Signify Research, EHR/EMR – Acute and Ambulatory Applications – World – 2021

(59) Cerner's 2021 market share in the market for healthcare software is below 30% in each of the EEA States based on Cerner's actual revenues and Signify's estimated market size.

5.2.3. *Healthcare software by segment*

(60) As explained in paragraph (36), in order to assist the Commission in its review the Notifying Party suggests a possible segmentation of the market for healthcare software into (i) software for EHR and other clinical software; (ii) RCM solutions; (iii) healthcare provider analytics; (iv) patient engagement; and (v) telehealth. The Notifying Party explains that Cerner's sales in healthcare software in the EEA consist mainly of sales in [summary of Cerner's revenues generated by healthcare software]. Cerner's sales of RCM, healthcare analytics and patient engagement in the EEA are [summary of Cerner's revenues generated by RCM, healthcare analytics and patient engagement in the EEA]. Its RCM offerings accounted for [percentage of Cerner's revenues generated by RCM] of its total revenues in healthcare software in 2021, its healthcare analytics for [percentage of Cerner's revenues in healthcare analytics] of its total revenues in healthcare software in 2021, and its patient engagement offerings [percentage of Cerner's revenues in patient engagement offerings] of total revenues in healthcare software in 2021.

69 See footnote 92 for an explanation on the fluctuation in Cerner's market share in Sweden.

70 The Notifying Party believes that Cerner's market share of [5-10]% for the combined region of Finland, Norway and Iceland is an appropriate proxy for its market share in each of those individual countries and would in any event not exceed [10-20]% in Finland or Norway; Cerner has [0-5%] in Iceland. (Form CO, paragraph 252).

Cerner has [percentage of Cerner's revenues in telehealth software] telehealth software in the EEA.[71]

(61) With respect to a potential market for clinical software including EHR, the Notifying Party relies on the market shares of Cerner and its main competitors in the overall market for healthcare software at an EEA and national level, as presented in Tables Table 2 and Table 3 above, as the closest available proxy.[72]

(62) Table 4 provides an overview of Cerner's market shares in a potential EEA-wide market for RCM solutions. The Notifying Party considers GrandView's estimated market size for "Europe"[73] to provide the best available proxy for a potential market for RCM solutions in the EEA.[74]

Table 4: RCM – Cerner's EEA-wide market shares by value – 2019-2021

	2019	2020	2021
Cerner	[0-5]%	[0-5]%	[0-5]%

Source: Form CO – Cerner's actual revenues and GrandView, Revenue Cycle Management (RCM) Market Estimates and Trend Analysis from 2016 to 2027.[75]

(63) Cerner's market share in a potential market for RCM solutions is negligible. The Notifying Party is unable to provide market shares for competitors, but lists Allscripts, Epic Systems and CompuGroup Medical as examples of suppliers of RCM solutions in the EEA.[76]

(64) Table 5 provides an overview of Cerner's market shares in a potential market for RCM solutions at the national level in the EEA States in which Cerner is active and for which market size estimates are available, based on Cerner's actual revenues and GrandView's market size estimates.

71 Form CO, paragraph 181.

72 Signify estimates that the revenue generated by clinical software including EHR account for close to [80-90]% of the overall revenues generated by the solutions that form part of Signify's broad "EHR" category. For completeness, the Notifying Party notes that its market share would be [0-5]% if it were to rely on GrandView's estimated market size for Europe in 2020. The choice of market analyst report and the resulting market share calculation would thus not have an impact on the result of the competitive assessment.

73 GrandView does not offer an explicit definition of "Europe" but their RCM report identifies the UK, Germany, France, Italy, Spain and Russia as being part of Europe. The remainder of the European market is listed as "Rest of Europe", without identifying the individual countries. Cerner's revenue within Europe covers Austria, Belgium, France, Germany, Ireland, Netherlands, Portugal, Spain, Switzerland, Sweden, and the UK.

74 Form CO, paragraph 260.

75 See Annex 7(d) to the Form CO. While market totals for 2019 and 2020 reflect GrandView's historic figures, totals for 2021 are based on GrandView's forecasts. See Notifying Party's reply to RFI 11, question 3(c).

76 Form CO, paragraph 261.

Table 5: RCM – EEA States – Cerner's market shares by value – 2019-2021

EEA States	2019	2020	2021
France	[0-5%]	[0-5%]	[0-5%]
Germany	[0-5%]	[0-5%]	[0-5%]
Spain	[0-5%]	[0-5%]	[0-5%]

Source: Form CO – Cerner's actual revenues and GrandView, Revenue Cycle Management (RCM) Market Estimates and Trend Analysis from 2016 to 2027.

(65) Consistent with its market share in the EEA, Cerner's market share in each of France, Germany and Spain is [0-5]%. Within the EEA, Cerner also recorded revenues in 2020 in [countries]. While the Notifying Party is unable to provide reliable market share estimates for those countries, it submits that Cerner's market share in a potential market for RCM solutions in those countries would not be significantly different from the market shares already provided in Tables Table 4 and Table 5 above.[77]

(66) With respect to a potential market for healthcare analytics, Table 6 provides an overview of Cerner's market shares at an EEA-wide level. The Notifying Party considers GrandView's estimated market size for "Europe"[78] to provide the best available proxy for a potential market for healthcare analytics in the EEA.

Table 6: Healthcare analytics – Cerner's EEA-wide market shares by value – 2019-2021

	2019	2020	2021
Cerner	[0-5%]	[0-5%]	[0-5%]

Source: Form CO – Cerner's actual revenues and GrandView, Healthcare Analytics Market, Market Estimates and Trend Analysis from 2014 to 2028.[79]

(67) Cerner's market share in a potential market for healthcare analytics is limited. The Notifying Party is unable to provide market shares for competitors, but lists IBM, SAS Institute, Optum, Elsevier, Allscripts and IQVIA as examples of suppliers of analytics for healthcare in the EEA.[80]

(68) Table 7 provides an overview of Cerner's market shares in a potential market for healthcare analytics at the national level in the EEA States in which Cerner is active and for which market size estimates are available, based on Cerner's actual revenues and GrandView's market size estimates.

77 Form CO, paragraph 264.

78 See footnote 73 above.

79 See Annex 7(e) to the Form CO. While market totals for 2019 and 2020 reflect GrandView's historic figures, totals for 2021 are based on GrandView's forecasts. See Notifying Party's reply to RFI 11, question 3(c).

80 Form CO, paragraph 271.

Table 7: Healthcare analytics – EEA States – Cerner's market shares by value – 2019-2021

EEA States	2019	2020	2021
France	[0-5%]	[0-5%]	[0-5%]
Germany	[0-5%]	[0-5%]	[0-5%]
Spain	[0-5%]	[0-5%]	[0-5%]

Source: Form CO – Cerner's actual revenues and GrandView, Healthcare Analytics Market, Market Estimates and Trend Analysis from 2014 to 2028.

(69) Consistent with its market share in the EEA, Cerner's market share in each of France, Germany and Spain is [0-5%]. Within the EEA, Cerner also recorded revenues in 2020 in [countries]. While the Notifying Party is unable to provide reliable market share estimates for those countries, it submits that Cerner's market shares in those countries would not be significantly different from the market shares already provided in Tables Table 6 Table 7 above (i.e., at most [0-5]%).[81]

(70) With respect to a potential market for patient engagement solutions, Table 8 provides an overview of Cerner's market shares at an EEA-wide level. The Notifying Party considers GrandView's estimated market size for "Europe"[82] to provide the best available proxy for a potential market for patient engagement solutions in the EEA.

Table 8: Patient engagement solutions – Cerner's EEA-wide market shares by value – 2019-2021

	2019	2020	2021
Cerner	[0-5%]	[0-5%]	[0-5%]

Source: Form CO – Cerner's actual revenues and GrandView, Patient Engagement Solutions, Market Estimates and Trend Analysis from 2017 to 2030.[83]

(71) Cerner's market share in a potential market for patient engagement solutions is limited. The Notifying Party is unable to provide market shares for competitors but lists Epic Systems, IQVIA, Klara Technologies and Doctolib as examples of suppliers of patient engagement solutions in the EEA.[84]

(72) Table 9 provides an overview of Cerner's market shares in a potential market for patient engagement solutions at the national level in the EEA States in which Cerner is active and for which market size estimates are available, based on Cerner's actual revenues and GrandView's market size estimates.

[81] Form CO, paragraph 270.
[82] See footnote 73 above.
[83] See Annex 7(f) to the Form CO.
[84] Form CO, paragraph 277.

Table 9: Patient engagement solutions – EEA States – Cerner's market shares by value – 2019-2021

EEA States	2019	2020	2021
France	[0-5%]	[0-5%]	[0-5%]
Sweden	[0-5%]	[0-5%]	[0-5%]

Source: Form CO – Cerner's actual revenues and GrandView, Patient Engagement Solutions, Market Estimates and Trend Analysis from 2017 to 2030.

(73) Consistent with its market share in the EEA, Cerner's market share in each of France and Sweden is limited, at [0-5%]. Within the EEA, Cerner also recorded revenues in 2021 in Belgium. While the Notifying Party is unable to provide reliable market share estimates for patient engagement solutions in Belgium, it submits that Cerner's market share would not be significantly different from those market shares already provided in Table 8 andTable 9 above (i.e., [0-5%]%).[85]

(74) The Notifying Party is not aware of any industry analysts that estimate market sizes in a way that is consistent with the segments considered in *CSC/iSoft*.[86] Cerner also does not record revenues in the ordinary course of business according to the categories considered in that case. As such, the Notifying Party is not in a position to provide shares in each of the segments considered in *CSC/iSoft*. The Notifying Party estimates, however, that Cerner's market share in each of those segments would not be materially different from Cerner's market share in the overall market for software for healthcare providers as presented in Table 2 and in Table 3.[87]

5.3. Identification of affected markets

(75) The Transaction results in one vertically affected market because of the relationship between the upstream market for RDBMS (where Oracle has a worldwide market share of [30-40%])[88] and the downstream market for software for healthcare providers (where Cerner has an EEA-wide market share of [5-10%][89] and national market shares of [1-30%]).[90]

(76) Section 5.4 sets out the Commission's assessment of a possible input foreclosure strategy. The Commission considers there is no risk of a possible customer foreclosure strategy because Cerner's position on the downstream market is below 30%, regardless of the exact delineation or geographic scope of the market.[91],[92]

85 Form CO, paragraph 276.

86 Commission decision of 20 June 2011 in case M.6237 – *CSC/iSoft Group*.

87 Form CO, footnote 177.

88 See Annex 7(c) to the Form CO and Form CO, paragraph 327, Table 36.

89 See Annex 7(c) to the Form CO and Form CO, paragraph 236, Table 8.

90 See Annex 7(c) to the Form CO and Form CO, paragraph 239, Table 9.

91 A number of competitors of Oracle expressed a concern that, because of the merger, Cerner will likely only use Oracle's databases (see replies to Questionnaire 1 to Oracle competitors, questions 19.1 and 20.1). However, Cerner is already a customer of Oracle's RDBMS for its main clinical software platform (Millennium EHR) and relies on other RDBMS providers for other products. Furthermore, RDBMS suppliers operate on a global level and across all industry segments (this is supported by the replies to Questionnaire 1 to Oracle's competitors, questions 2, 19 and 20). Therefore, a potential loss of sales by RDBMS suppliers to Cerner, which account for a negligible portion of their RDBMS sales, would not meaningfully affect their ability to compete.

(77) The relationship between the market for RDBMS and the market for software for healthcare providers can also be considered as a conglomerate relationship as some customers may purchase both RDBMS and software for healthcare providers. Section 5.5 sets out the Commission's assessment of possible conglomerate effects.

(78) One competitor of Oracle raised concerns that the merged entity would, as a result of the Transaction, strengthen its position in the market for cloud services.[93] However, Oracle holds a very limited market share of [0-5%] in the market for cloud services, regardless of the exact delineation or geographic scope of the market, and faces competition from much larger competitors including Amazon, Microsoft and Google.[94] The Commission will therefore not further address this potential concern in this decision.

(79) To the extent that any concern would arise in relation to the data of healthcare providers who use Cerner's software, the Notifying Party submits that Cerner neither owns nor controls or collects personal (e.g., patient) or health data from its healthcare provider customers, who remain in control of what happens with such data. Cerner has received contractual permission to process its customers' data exclusively to ensure effective use of Cerner's software and in order to provide software support and training.[95] The Commission considers that, even if Oracle were to gain access to such data, it is unclear at this point in which market(s) Oracle could use such additional data to strengthen its position. Furthermore, the Notifying Party's internal documents reflect that Oracle did not attribute specific valuation to data of healthcare providers. Finally, no such concerns were raised by participants in the market investigation. The Commission will therefore not further address this topic in this Decision.

5.4. Vertical effects

5.4.1. Legal framework

(80) According to the Non-Horizontal Guidelines[96], non-coordinated effects may significantly impede effective competition as a result of a vertical merger if such merger gives rise to foreclosure. Foreclosure occurs where actual or potential competitors' access to supplies or markets is hampered or eliminated as a result of the merger, thereby reducing those companies' ability and/or incentive to compete.[97] Such foreclosure may discourage entry or expansion of competitors or encourage their exit.[98]

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92 A possible exception concerns the Swedish market for healthcare software. While that market is not technically affected, as Cerner's market share was [20-30%] in 2021, there has been significant fluctuation in Cerner's market share ([20-30%] in 2021, [40-50%] in 2020, [20-30%] in 2019 and [10-20%] in 2018 with three- or four-year averages falling just above or below the 30% threshold). The Notifying Party attributes such large fluctuations to Cerner invoicing its projects in Sweden on a percent-complete basis, whereby only the incremental percentage of the project completed in a given year is invoiced that year. Cerner's main turnover in Sweden results from sales of its main clinical software (EHR) platform, for which it currently already relies on Oracle RDBMS.

93 Replies to Questionnaire 1 to Oracle competitors, questions 19.1.

94 Form CO, paragraphs 330 to 334.

95 Notifying Party's reply to RFI 8, question 4.

96 Non-Horizontal Guidelines, pages 6-25.

97 See Non-Horizontal Guidelines, paragraph 18.

98 See Non-Horizontal Guidelines, paragraph 29.

(81) The Non-Horizontal Guidelines distinguish between two forms of foreclosure. Input foreclosure occurs where the merger is likely to raise the costs of downstream competitors by restricting their access to an important input. Customer foreclosure occurs where the merger is likely to foreclose upstream competitors by restricting their access to a sufficient customer base.[99]

(82) Foreclosure may also take more subtle forms, such as the degradation of the quality of input supplied. In its assessment, the Commission may consider a series of alternative or complementary possible strategies.[100]

(83) In assessing the likelihood of an anticompetitive foreclosure scenario, the Commission examines, first, whether the merged entity would have, post-merger, the ability to substantially foreclose access to inputs or customers, second, whether it would have the incentive to do so, and third, whether a foreclosure strategy would have a significant detrimental effect on competition. In practice, these factors are often examined together as they are closely intertwined.[101]

5.4.2. *Notifying Party's views*

(84) The Notifying Party submits that the merged entity would not have the ability or the incentive to foreclose competing suppliers of software for healthcare providers by raising prices of, or degrading or restricting access to Oracle's RDBMS, for the following reasons.

5.4.2.1. Ability to foreclose

(85) First, the Notifying Party submits that Oracle does not have market power in the RDBMS market. Its global market share is relatively limited at [30-40%] and has decreased from [40-50%] in 2011. Moreover, if the merged entity were to restrict access to its RDBMS services, competing providers of healthcare software could switch to other RDBMS providers, such as Microsoft, IBM, SAP and Amazon (a recent entrant).[102]

(86) Second, the Notifying Party considers that Cerner's competitors in the EEA do not currently use Oracle's RDBMS to any great degree as an input for their products. Moreover, the choice of RDBMS provider is a strategic, long-term decision and Cerner's competitors are unlikely to reconsider their choice in the foreseeable future.[103]

(87) Third, the Notifying Party argues that RDBMS is not an important input for software for healthcare providers. In particular, the Notifying Party states that raising prices for RDBMS towards Cerner's competitors would not affect their competitiveness because RDBMS [business secret of Oracle supply chain of RDBMS].[104]

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99 See Non-Horizontal Guidelines, paragraph 30.
100 See Non-Horizontal Guidelines, paragraph 33.
101 See Non-Horizontal Guidelines, paragraph 32.
102 Form CO, paragraphs 14 and 342(a).
103 Form CO, paragraph 342(b).
104 Form CO, paragraph 342(c).

(88) Finally, the Notifying Party submits that degrading interoperability for Cerner's competitors in particular would require the development of a special version of its RDBMS specifically for healthcare providers, which the Notifying Party claims is unfeasible in practice.[105]

5.4.2.2. Incentive to foreclose

(89) The Notifying Party argues that the merged entity would also not have the incentive to foreclose competing suppliers of healthcare software. On the one hand, the customers of Cerner's competitors would not necessarily switch to Cerner as a result of a foreclosure strategy because the provider of the RDBMS solution integrated in healthcare software is not a differentiating factor; on the other hand, Oracle would forego the margin associated with RDBMS sales to Cerner's competitors and would suffer reputational damage related to one of its core activities.[106]

(90) The Notifying Party also submits that an input foreclosure strategy would be inconsistent with Oracle's practices in past acquisitions (following which Oracle has refrained from increasing the prices of, or limiting access to or interoperability with Oracle's products for the acquired company's competitors).[107]

5.4.2.3. Impact on effective competition

(91) The Notifying Party submits that an input foreclosure strategy would not give rise to a significant impediment of effective competition. This is because Oracle would not be able to materially affect the competitiveness of Cerner's competitors, nor the prices they charge. Even if it did, the Notifying Party considers such effects would need to be weighed against the efficiencies that the merger could give rise to, such as cost reductions related to the elimination of double marginalisation, as well as efficiencies resulting from a closer integration between Oracle's and Cerner's products.[108]

5.4.3. The Commission's assessment

(92) For the reasons set out below and based on the results of the market investigation, the Commission considers that post-Transaction the merged entity would have neither the ability nor the incentive to foreclose its healthcare software competitors by adopting an input foreclosure strategy. Moreover, if the merged entity engaged in such strategy, there would be no detrimental effects on competition in the downstream market for the supply of healthcare software.

5.4.3.1. Ability to foreclose

(93) The Commission considers that post-Transaction, the merged entity would not have the ability to foreclose Cerner's competitors in the market for the supply of healthcare software by either raising the prices of, or degrading or restricting access to Oracle's RDBMS. First, RDBMS is not an important input to the downstream

105 Form CO, paragraph 342(d).
106 Form CO, paragraph 343.
107 Form CO, paragraph 345.
108 Form CO, paragraph 344.

market for the supply of healthcare software. Second, Oracle has no market power in the worldwide market for the supply of RDBMS. Third, several suppliers of healthcare software currently do not rely on Oracle's RDBMS and therefore cannot be targeted by a foreclosure strategy. Fourth, there are several credible alternative providers in the market for RDBMS to whom suppliers of software for healthcare providers (currently relying on Oracle's RDBMS) could switch. Finally, there are no foreclosure mechanisms that the merged entity could rely on to deploy an effective input foreclosure strategy.

(a) Importance of RDBMS as an input for the downstream market

(94) According to the Non-Horizontal Guidelines, input foreclosure may raise competition problems only if it concerns an important input for the downstream product. This is the case, for example, when the input concerned represents a <u>significant cost factor relative to the price of the downstream product</u>. Irrespective of its cost, an input may also be important for other reasons. For instance, the input may be a <u>critical component</u> without which the downstream product could not be manufactured or effectively sold on the market, or it may represent a significant source of product differentiation for the downstream product. It may also be that the cost of switching to alternative inputs is relatively high.[109]

(95) The Commission considers that RDBMS is not a <u>critical component</u> for the downstream market for the supply of software for healthcare providers. The market investigation revealed that RDBMS is necessary to run software for healthcare providers and may be an important input for existing software for healthcare providers' solutions that are exclusively compatible with a given RDBMS solution (see Section (d.ii) below). However, the results of the market investigation indicate that customers' purchasing decisions when acquiring healthcare software are not driven by the RDBMS on which the software runs. Indeed, the majority of Cerner's customers who responded to the market investigation consider that the RDBMS developer is not a distinguishing factor when they purchase healthcare software.[110] Instead, several respondents explain that their choices are rather based on the functionalities of the healthcare software, and that the choice of database supplier is of subordinate importance and generally follows automatically from the choice of healthcare software.[111] Customers of healthcare software usually acquire complementary RDBMS in parallel, either as part of a single agreement or in separate agreements, for which they may nevertheless not have a choice as to the RDBMS provider.[112] One respondent explained, "*when choosing a new IT software, it depends on the content of the software. The database represents a subordinate role*".[113] Other respondents further specified that their choices depend "*on the uses and needs rather than on an integration with a database engine or the*

[109] See Non-Horizontal Guidelines, paragraph 34.
[110] Reply to Questionnaire 3 to Cerner's customers, question 23.2.
[111] Reply to Questionnaire 3 to Cerner's customers, question 23.2.1.
[112] See paragraph 171 for more detail, and the reply to Questionnaire 3 to Cerner's customers, question 15.1.
[113] Reply to Questionnaire 3 to Cerner's customers, question 23.2.1.

developer"[114], and that they "*buy a care tool for the modalities and services it offers and not for its DBMS*"[115].

(96) The Commission considers that the results of the market investigation are inconclusive on whether the cost of RDBMS represents a significant expense in relation to the price of the downstream product. The majority of Cerner's competitors that expressed a view considered that it represents a significant expense.[116] One respondent mentioned that the cost is significant in relation to the total contract value, i.e. in relation to the revenue it receives for its software to healthcare providers offering to healthcare providers (including an integrated RDBMS).[117] Another respondent explained that it pays 20-25% of the price paid by the end customer to Oracle as a royalty.[118] However, another respondent explains that RDBMS costs represent only up to 5% of the respective "*total cost of ownership*", i.e., what a customer needs to pay to use its products.[119] The remaining respondents did not substantiate their responses.

(97) In light of the above, the Commission considers that RDBMS is not an important input for the downstream market for the supply of software for healthcare providers.

(98) Even if RDBMS were to be considered as an important input for the downstream market for software for healthcare providers, Oracle would not have the ability to raise prices of, or restrict or degrade access to its RDBMS by Cerner's competitors, for the reasons set out below.

(b) Oracle has no market power in the upstream market for RDBMS

(99) According to the Non-Horizontal Guidelines, for input foreclosure to be a concern, the vertically integrated firm resulting from the merger must have a significant degree of market power in the upstream market.[120]

(100) The Commission considers Oracle does not have a significant degree of market power in the upstream market for RDBMS. As indicated in Section 5.2 above, in 2020, Oracle had a worldwide market share of [30-40%], followed closely by Microsoft with a market share of [30-40%], with multiple other players such as IBM ([10-20%]), SAP ([5-10%]) and Amazon ([5-10%]) also active in the market.[121]

(101) In the market investigation, respondents across all questionnaires confirmed that there are currently credible alternatives to Oracle's RDBMS in the market,

114 Reply to Questionnaire 3 to Cerner's customers, question 23.2.1: "*Le choix est effectué sur les usages et les besoins plutôt que sur une intégration avec un moteur de base de données ou sur l'éditeur.*"

115 Reply to Questionnaire 3 to Cerner's customers, question 23.2.1 : "*J'achète essentiellement un outils de soins pour les modalités et services qu'il propose et non pour son SGBD.*"

116 Replies to Questionnaire 2 to Cerner's competitors, question 25.

117 IQVIA's reply to RFI 1, question 4.

118 Agreed minutes of the call of 12 May 2022 with Alert, paragraph 11.

119 Reply to Questionnaire 2 to Cerner's competitors, question 25; CompuGroup's reply to RFI 1, question 3.

120 See Non-Horizontal Guidelines, paragraph 35.

121 Form CO, Table 36.

including Microsoft, IBM, Amazon, SAP (and possibly Google).[122] As for the expectation of new entrants, the results of the market investigation were mixed but the vast majority of Oracle's competitors consider that the market is dynamic and identify numerous recent entrants.[123] One respondent indicated, "*recently, there have been numerous entrants in the database space, including startups like FaunaDB, Yugabyte, Cockroach DB, and Planetscale. Moreover, public cloud vendors like Amazon Web Services and Google Cloud Platform are constantly introducing new database products.*"[124] Another respondent anticipates that "*the sheer size of the market and its growth rate will continue to attract new entrants*".[125]

(102) The Commission also notes that Oracle's market share in the market for RDBMS dropped from [40-50%] in 2011 to [40-50%] in 2018 and [30-40%] in 2020 and has therefore been generally in decline over the past decade.[126] According to the Notifying Party, this is the result of intense competition from Microsoft and recent entrants such as Amazon, as well as open source competition (which as a result of being available for free is not fully reflected in revenue shares).[127] Furthermore, although currently most software for healthcare providers in the EU use on-premises solutions, there is a trend (in EAS in general and in healthcare software specifically) to move to cloud solutions.[128] Third party reports also confirm "*the relentless move to the cloud*" as a key driver in the DBMS industry.[129] In view of this trend, Oracle's market share is expected to continue to decline in favour of cloud-focused database providers such as Amazon and Google.

(103) Therefore, the Commission considers that while Oracle is an important supplier of RDBMS, there are other important players in the market that will continue to provide RDBMS post-Transaction.

(c) Several suppliers of software for healthcare providers <u>do not rely</u> on Oracle's RDBMS

(104) Several of Cerner's competitors active in the EEA do not use Oracle's RDBMS for their healthcare software.

(105) The Notifying Party confirmed that, out of the 43 competitors of Cerner who were identified as having an EEA-level market share of more than 1% in the market for healthcare software or any potential segment of such market, (<u>at least</u>) 15 do not rely on Oracle's RDBMS.[130] The Commission considers that the merged entity

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122 Replies to Questionnaire 1 to Oracle's competitors, question 15; replies to Questionnaire 2 to Cerner's competitors, question 21 and replies to Questionnaire 3 to Cerner's customers, question 16.

123 Replies to Questionnaire 1 to Oracle's competitors, question 16; replies to Questionnaire 2 to Cerner's competitors, question 22 and replies to Questionnaire 3 to Cerner's customers, question 17.

124 Reply to Questionnaire 1 to Oracle's competitors, question 16.1.

125 Reply to Questionnaire 1 to Oracle's competitors, question 16.1.

126 Form CO, paragraph 342 and figure 8 prepared based on IDC publications including Annex 7(h): IDC's Worldwide Database Management Systems Software Market Shares, 2020: The Enterprise Journey to the Cloud, August 2021; Notifying Party's reply to RFI 9, question 6.

127 Form CO, paragraph 342.

128 Form CO, paragraph 38 and Markets and Markets, Healthcare Cloud Computing Market Analysis & Global Forecasts to 2025, page 117, provided as Annex 8.

129 Annex 7(h): IDC's Worldwide Database Management Systems Software Market Shares, 2020: The Enterprise Journey to the Cloud, August 2021

130 Notifying Party's reply to RFI 9, question 1.

would not have the ability to engage in a foreclosure strategy towards these suppliers of software for healthcare providers as they are currently not relying on Oracle's RDBMS and have sufficient alternatives to choose from (as detailed above in Section 5.4.3.1(b)).

(106) As for the suppliers of software for healthcare providers active in the EEA who currently rely on Oracle's RDBMS, the Commission will assess below whether they would be able to switch to alternative RDBMS providers.

(d) Suppliers of healthcare software who currently rely on Oracle's RDBMS could switch to several alternative RDBMS providers

(107) The merged entity may only have the ability to foreclose downstream competitors if, by reducing access to its upstream products or services, it could negatively affect the overall availability of inputs for the downstream market in terms of price or quality.[131] In its assessment, the Commission will consider, on the basis of the information available, whether there are effective and timely counter-strategies that the rival firms would be likely to deploy. Such counterstrategies include the possibility of changing their production process so as to be less reliant on the input concerned.[132]

(108) In the market investigation, the majority of Cerner's competitors who are Oracle customers and who expressed a view, indicated that Oracle's RDBMS is an important or very important input for their company to supply software for healthcare providers and that switching RDBMS would be challenging.[133]

(109) For the purposes of its assessment and based on the results of the market investigation, the Commission considers that it should separately assess the merged entity's ability to foreclose Cerner's competitors who currently rely on Oracle's RDBMS (i) when they plan to develop new (healthcare software) products; and (ii) with respect to such competitors' existing (healthcare software) products.

(d.i) Development of new products

(110) Although suppliers of healthcare software who currently rely on Oracle's RDBMS are likely to have significant knowledge and expertise in relation to that product, the market investigation indicates that a supplier of software for healthcare providers currently using Oracle's RDBMS could consider switching RDBMS provider for the development of a new product. In this regard, one respondent to the market investigation explained that such decision is made when the supplier for software for healthcare providers is developing its product.[134] Other respondents have made statements implying that switching is possible for the development of new products, e.g. by explaining that they have never switched for an existing product, or that they have switched in the past "*when a new software choice needs a new RDBMS*".[135]

131 See Non-Horizontal Guidelines, paragraphs 35 and 36.
132 See Non-Horizontal Guidelines, paragraphs 36 and 39.
133 Replies to Questionnaire 2 to Cerner's competitors, questions 17 and 18.
134 Replies to Questionnaire 2 to Cerner's competitors, question 18.
135 Replies to Questionnaire 2 to Cerner's competitors, question 20.1.

(111) As mentioned above in Section 5.4.3.1(b), Oracle has no market power and respondents across all questionnaires of the market investigation confirmed that there are currently credible alternatives to Oracle's RDBMS in the market.[136]

(112) The Commission therefore considers that the merged entity would not have the ability to engage in a foreclosure strategy towards suppliers of healthcare software who currently rely on Oracle's RDBMS, when they plan to develop new products, given that they would have alternative providers to whom they could turn.

(d.ii) Existing products

(113) As for existing products, the majority of Cerner's competitors indicated that switching would be time consuming, costly and complex.[137] The majority of Cerner's customers that purchase RDBMS also consider that, while technically possible, it would be difficult to switch to an alternative RDBMS provider, as it would require migration of the software, the transfer of data would need to be guaranteed, and performance problems could come up.[138]

(114) Within the scenario of switching RDBMS for an existing (healthcare software) product, the Commission considers, based on the results of the market investigation that a further distinction can be made between: (i) existing products that can work on several RDBMS solutions; and (ii) existing products that are dependent on Oracle's RDBMS because their software has been entirely developed around it.

(115) As regards existing products that can work on several RDBMS solutions, the Commission considers that Oracle's RDBMS is not an important input. While switching to another RDBMS necessarily involves some investment in terms of time, costs and/or technical expertise, suppliers of software for healthcare providers and their end customers are well placed to overcome such challenges. This is true with respect to any healthcare software, as set out in detail below. However, it is even more the case where the healthcare software was by design already intended to work with several RDBMS, and migration is therefore likely easier and less costly. The challenges of switching and the capability of software suppliers and customers to overcome such challenges will therefore be set out in further detail with respect to software that was built around one specific RDBMS solution.

(116) As regards existing products that are exclusively compatible with Oracle's RDBMS, the Commission considers that Oracle's RDBMS may be considered as an important input. Notwithstanding that fact, the Commission considers that this category of suppliers of software for healthcare providers is still well placed to overcome potential challenges of switching RDBMS provider.

(117) As a general point, the Commission notes that enterprise software best practices include ensuring that an application by design is database-agnostic and can therefore run on multiple databases. Independent software vendors (ISVs) tend to develop their applications to be largely database agnostic, so that they are not

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136 Replies to Questionnaire 1 to Oracle's competitors, question 15; replies to Questionnaire 2 to Cerner's competitors, question 21 and replies to Questionnaire 3 to Cerner's customers, question 16.

137 Replies to Questionnaire 2 to Cerner's competitors, questions 23 and 23.1.

138 Replies to Questionnaire 3 to Cerner's customers, questions 21 and 21.1.

dependent on a particular database. This means that a supplier of healthcare software that is written to run on one specific RDBMS must determine the necessary changes to its code to ensure that its application continues to run as intended on a new/different RDBMS.[139]

(118) If such best practices were not followed, the cost and complexity of migrating from one database to another depends on the complexity of the application, the underlying IT infrastructure, and the similarity of source and target database. However, suppliers of software for healthcare providers are technology companies that likely developed their own software and have in-house technical expertise to run any migration in-house. Moreover, some suppliers of software for healthcare providers use different RDBMS providers for the development of several of their products and are therefore likely to have knowledge in different database systems, even if some of their specific software for healthcare providers are exclusively compatible with Oracle's RDBMS. If required, RDBMS providers also have programs (personnel and automated tools) to assist suppliers of software for healthcare providers to switch (i.e., to understand interfaces, dependencies and technical details). In addition, all RDBMS are typically based on the same language (i.e., SQL) and use publicly available, standardised interfaces to interoperate with application software, which facilitates the migration process.[140] Therefore, while some costs will be involved, suppliers of software for healthcare providers have the ability to overcome such costs in order to switch to a different RDBMS provider in relation to an existing product.

(119) In addition, switching RDBMS by suppliers of software for healthcare providers does occur, typically in the context of migration to the cloud or for purposes of security, performance, scalability, standardisation, or cost.[141] The Notifying Party provides concrete examples of healthcare software suppliers switching to different RDBMS suppliers[142], along with examples of suppliers of other types of EAS that require the same type of interaction with RDBMS as healthcare applications migrating to other RDBMS solutions.[143]

(120) Furthermore, while currently most software for healthcare providers in the EU use on-premises solutions, there is a trend (both in EAS in general and in healthcare software specifically) to move to cloud solutions.[144] Moreover, vendors such as

139 Notifying Party's reply to RFI 9, questions 4, 6 and 8.

140 Notifying Party's reply to RFI 9, question 4.

141 Notifying Party's reply to RFI 9, question 4.

142 For example, CompuGroup Medical recently migrated its CGM LABDAQ product from Oracle to Microsoft SQL Server and recently announced a new agreement with FairCom DB, a global database technology provider. See https://www.faircom.com/news-pr/cgm-signs-new-agreement-to-use-faircom-db.

143 See Notifying Party's reply to RFI 9, question 5(a). For example, Amdocs, Intuit and Sage software moved from MySQL to Amazon (see https://d1.awsstatic.com/asset-repository/Aurora_Amdocs_CaseStudy_FINAL%20(1).pdf; https://aws.amazon.com/blogs/database/intuit-story-automate-migration-from-on-premises-mysql-to-amazon-aurora/; and https://aws.amazon.com/solutions/case-studies/sage-software/), and ServiceNow migrated from MySQL to MariaDB (see https://mariadb.com/resources/customer-stories/servicenow-massive-scale-with-mariadb/).

144 Form CO, paragraph 38 and Markets and Markets, Healthcare Cloud Computing Market Analysis & Global Forecasts to 2025, page 117, provided as Annex 8. To illustrate this, the Notifying Party submits that Amazon never had an on-premises offering and its growth in the past decade necessarily involved moving on-premises technology (including database) from multiple vendors.

Meditech, Allscripts and Cerner (pre-Transaction) have all entered into partnerships with cloud vendors (other than Oracle) in the last four years for specific software for healthcare applications and such partnerships typically involve database functionality for the relevant applications.[145]

(121) The Notifying Party submits that given this trend and the rapid growth of cloud services, any switching from an on-premises database is likely to be to a cloud RDBMS, as the migration to a cloud in itself already involves deployment, implementation and training effort and the use of cloud services may be a less costly migration.[146]

(122) Finally, as mentioned above in Section 5.4.3.1(a), end customers' choice of RDBMS is secondary in relation to the application that fits their needs and use cases. Customers are thus more likely to keep their current supplier of software for healthcare providers and switch their RDBMS providers than the contrary. In case their supplier of healthcare software needs to switch to another RDBMS supplier, end customers who intend to stay with the same healthcare software submit that the burden and responsibility for such switch lie with the healthcare software supplier, as the latter would take care of any migration of data and will need to ensure compatibility with the new RDBMS.[147] In case they need to switch between software for healthcare applications (and the underlying RDBMS), this may involve the migration of their data to the RDBMS of the new application (if different from the RDBMS they were using in their previous application).[148] In that case, RDBMS vendors to whom the end customers are switching will provide any additional expertise or resource that may be necessary to assist with that process.[149]

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145 Notifying Party's reply to RFI 9, question 5(a).

146 This is because: (i) customers pay a fee on the basis of usage and avoid the upfront acquisition cost of a database, as well as unneeded licenses and associated support fees; (ii) the cloud providers offers as a service the management, performance, tuning, updating and patching of the database which eliminates the need for specialized trained personnel and the time and cost of performing such tasks, (iii) major cloud providers offering databases such as Amazon, Microsoft, Google, IBM and Alibaba provide extensive migration tools for end customers and investment support to ISVs (e.g. Amazon offers cloud credits). See Notifying Party's reply to RFI 8, question 3 and RFI 9, question 5(b). One market participant confirmed this trend and the cost advantages of a cloud solution "*as the client pays for a service and all the relevant licences for the use of the final product are included in that service*". See agreed minutes of the call of with Alert on 12 May 2022, paragraph 17.

147 Replies to Questionnaire 3 to Cerner's customers, question 21.1.

148 Notifying Party's reply to RDI 9, question 4(b).

149 Notifying Party's reply to RDI 9, question 4(b). For example, Amazon offers AWS Database Migration Service that helps "*migrate databased to AWS quickly and securely*" and advertises that "*the source database remains fully operational during the migration, minimizing downtime to applications that rely on the database*" (https://aws.amazon.com/dms/; IBM has similar tools that advertise "*native Oracle compatibility, providing seamless, secure and cost-effective migration of your data to the IBM Cloud*" (https://www.ibm.com/analytics/data-migration); Google offers its Database Migration Program that enables customers to "*start migrating in just a few clicks with a single, integrated migration experience*" and "*get all the operational benefits of fully-managed MySQL, PostgreSQL and SQL Server, plus enterprise availability, stability, and security you can trust for your most mission-critical workloads*" (https://cloud.google.com/solutions/database-migration). It also offers specific tools to "*Migrate Oracle workloads to Google Cloud*" (https://cloud.google.com/solutions/migrate-oracle-workloads#section-3); Microsoft offers an Azure Database Migration Service, advertised as "*a tool that helps you simplify, guide, and automate your database migration to Azure*" and lets customers "*easily migrate your data, schema, and objects from multiple sources to the cloud at scale*" and "*execute a complete migration with near-zero downtime*" (https://azure.microsoft.com/en-us/services/database-migration/#overview); and Alibaba offers an

(123) The Commission therefore considers that suppliers of healthcare software who currently rely on Oracle's RDBMS for the supply of an existing product are likely able to switch to other providers, in which case the merged entity would not have the ability to engage in a foreclosure strategy towards. However, even if the relevant switching costs could not be overcome, the Commission considers Oracle would not have the ability to foreclose this category of suppliers of software for healthcare providers, for the reasons set out below.

(e) There are no foreclosure mechanisms which the merged entity could rely on to deploy an effective input foreclosure strategy

(124) The Commission has considered whether the merged entity could engage in targeted foreclosure of those suppliers of software for healthcare providers who currently rely on Oracle's RDBMS by **raising prices of Oracle's RDBMS**.

(125) The Notifying Party has identified revenues generated by providers of any healthcare software application that purchase its RDBMS but is unable to determine whether the licensed RDBMS is used for internal purposes only or in customer-facing applications.[150] This is indicative that Oracle would likely be unable to clearly identify Cerner's rivals using its RDBMS for their activity as suppliers of healthcare software. The Commission also notes that ISVs can become distributors or resellers of Oracle's software by acceding to its partner network[151] on the basis of objective criteria that apply across all sectors.[152] The Notifying Party estimates that [percentage of independent software vendors]% of the independent software vendors within Oracle's network are direct competitors of Oracle in some way, including companies having become competitors following an acquisition by which Oracle expanded its activities into a new industry. Oracle's policy has been to [summary of Oracle's pricing policy].[153] Furthermore, the Commission considers that it would be unlikely that the merged entity could recoup any losses of RDBMS sales as a result of a price increase. This is because a price increase in RDBMS would apply across all sectors (not just the healthcare sector) and may lead to customers switching away more broadly. Secondly, given Cerner's limited market position in the downstream market for healthcare software, it is not certain that customers switching away from suppliers who rely on Oracle's RDBMS would switch to Cerner. There are many alternative providers active in the downstream market, and as explained in detail in Section 5.4.3.1(d) above, the Commission considers that software suppliers and customers who are relying on Oracle's RDBMS would be capable to overcome the challenges of switching in response to an increase in prices of Oracle's RDBMS.

Oracle Database Migration Solution, which "*can help you easily and efficiently migrate Oracle databases to the cloud*" (https://www.alibabacloud.com/solutions/oracle-database-migration). Oracle itself offers MySQL Workbench Migration Wizard, which allows migration from other RDBMS providers to Oracle (https://www mysql.com/products/workbench/migrate/).

150 Notifying Party's reply to RFI 8, questions 1 and 2.

151 The Notifying Party explains that membership in "Oracle Partner Network" is a channel partner program that provides resources and benefits for value-added resellers, ISVs and other businesses that want to collaborate with Oracle. All major IT vendors including SAP, Amazon, Google, IBM, Salesforce and Microsoft have similar partner networks with similar types of benefits and thousands of members. See Notifying Party's reply to RFI 9.

152 Notifying Party's reply to RFI 9, question 2.

153 Notifying Party's reply to RFI 9, question 11 and RFI 10, question 4.

(126) Two competitors of Cerner expressed concerns that, post-Transaction, the merged entity will have access to commercially sensitive information about Cerner's competitors and could use this information to its advantage in commercial negotiations downstream.[154] However, the Commission notes that Oracle uses one of the following pricing structures: [summary of Oracle's pricing structures].[155] Neither of these options require the sharing of the ISVs pricing information, and any information that is shared is transmitted to Oracle after the ISV has won an opportunity and made the sales.

(127) As concerns the scenario where Oracle would **degrade or restrict access to its RDBMS** to this targeted group of suppliers of software for healthcare providers, the Commission notes the following.

(128) The Commission considers that Oracle would not be able to technically restrict access to its RDBMS because software for healthcare providers is connected to RDBMS through standard interfaces that are publicly available to all companies and are generally used by all RDBMS providers.

(129) The majority of the market participants (Cerner's competitors) indicated than an interface between RDBMS and software for healthcare providers is necessary for the two products to work together.[156] For this purpose, the majority of respondents explained that they use industry standard interfaces like Java Database Connectivity ("JDBC") or Open Database Connectivity ("ODBC"), which are often provided by the RDBMS provider. One respondent confirms it uses the "*JDBC interface and driver that Oracle provides to integrate the RDBMS with the IQVIA solution*".[157]

(130) The Notifying Party has clarified that there are no customer-specific or Oracle proprietary versions of these interfaces. The interfaces are standardised, publicly documented and freely available and include, for example, JDBC, ODBC and Python DB-API (PEP 249). Applications connect to Oracle's RDBMS through these standardised interfaces, which are implemented by Oracle in the database. All applications across industries use the same standard interfaces to connect to RDBMS. . The Notifying Party states that to the best of its knowledge, RDBMS providers other than Oracle connect to the same standardised interfaces as Oracle RDBMS. Database drivers connect a generic interface to a specific database vendor implementation and Oracle's RDBMS drivers are the same worldwide, industry-agnostic, and application agnostic (the driver is based on the OS and it is the same independent of whether a healthcare provider software application or a banking application running on the same OS use it). Furthermore, Oracle's RDBMS does not distinguish between the types of applications interfacing with it (healthcare or any other industry) and could therefore not selectively restrict or degrade access by Cerner's competitors.[158]

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154 Replies to Questionnaire 2 to Cerner's competitors, question 28.1 and 30.1.

155 Notifying Party's reply to RFI 9, question 11.

156 Replies to Questionnaire 1 to Oracle's competitors, question 18; replies to Questionnaire 2 to Cerner's competitors, question 27.

157 IQVIA's reply to RFI 1, question 6.

158 Notifying Party's reply to RFI 9, questions 7-9.

(131) This is supported by one market participant that considers that post-Transaction, Oracle would not be in a position to degrade the technical interoperability between its software and Oracle's RDBMS: "*any change to Oracle's RDBMS in order to impede interoperability with ALERT's software would not make sense as it would equally impact many more users of Oracle's products including in other sectors*".[159]

(132) In light of the above, the Commission concludes that Oracle would not have the ability to foreclose Cerner's competitors that are currently relying on Oracle's RDBMS, by raising the prices of, or degrading or restricting access to Oracle's RDBMS.

(133) The Commission also considers Oracle would not have the incentive to engage in such foreclosure strategies for the reasons set out below.

5.4.3.2. Incentive to foreclose

(134) Since the Commission has concluded above in Section 5.4.3.1 that Oracle would not have the ability to raise the prices of, or degrade or restrict access to Oracle's RDBMS, the question whether Oracle would have the incentive to engage in such foreclosure strategies can be left open for the purposes of the present Decision.

(135) In any event, the Commission considers that, post-Transaction the merged entity would not have the incentive to foreclose Cerner's competitors in the market for the supply of software for healthcare providers by either raising the prices of, or degrading or restricting access to Oracle's RDBMS.

(136) As regards the possibility for Oracle to raise the prices of its RDBMS for competing suppliers of software for healthcare providers, as mentioned above in Section 5.4.3.1, Oracle's policy has been to maintain a single pricing policy towards all partners and across all sectors, including in relation to acquired competitors. It is not clear that the merged entity could recoup potential losses of RDBMS sales. There is also no mention of a strategy to raise prices in the Notifying Party's internal documents.

(137) As regards the possibility to degrade or restrict access to Oracle's RDBMS, even if it were possible for Oracle to distinguish between the types of software applications in order to target any technical foreclosure towards Cerner's competitors in the market for healthcare, such strategy would become immediately evident and would result in reputational damage and significant losses.

(138) RDBMS is Oracle's main business accounting for revenues across all verticals (including healthcare). Oracle estimates that over 80% of its ISVs (around [number of ISVs in Oracle's network]) compete with Oracle, including companies such as IBM, SAP and Salesforce. Degrading or restricting access by Cerner's competitors to its RDBMS would signal to all Oracle's ISVs that they could also be the target of a future similar strategy, thus undermining Oracle's reputation based on interoperability and resulting in significant losses for its business.[160]

159 Agreed minutes of the call of with Alert on 12 May 2022, paragraph 14.

160 Notifying Party's reply to RFI 9, question 9.

(139) The above is supported by the fact that Oracle's database is seldom altered (there have been only two versions of its RDBMS since it has been created)[161] and, following past acquisitions (over 140) Oracle has not technically or contractually restricted or degraded access to its RDBMS.

(140) For example, following Oracle's acquisition of Micros, a leading hospitality and retail software provider NCR Corporation, Epicor and Blue Yonder (previously JDA software) became direct competitors of Oracle. Access of these companies to Oracle's RDBMS has not been restricted as all three companies are active members of Oracle's partner network today, which was confirmed by the Notifying Party and is mentioned on Oracle's webpage and HSR's website. There is also no indication of any type of "degradation" of the terms of such partnership: NCR generated [business secret regarding revenue calculation] million in Oracle revenues and HSR has turned into a market leader in IT for the hospitality and retail industries and states it is "*Oracle's largest hospitality partner worldwide*". Oracle has an incentive to have as many companies as possible as members of its network (currently [number of Oracle partners]) and supporting its RDBMS as these generate revenues. The Notifying Party confirms that the only reason for Cerner's competitors that are currently members of its network not to remain so into the future is if such companies decide themselves not to retain their membership or fail to meet objective criteria (such as failure to pay dues, bankruptcy and criminal convictions).[162]

(141) Moreover, the Commission's analysis of the Notifying Party' internal documents has not yielded any results suggesting that the merged entity intends to modify the current interoperability requirements for its RDBMS or restrict/degrade access to its RDBMS to Cerner's competitors.

(142) Furthermore, the Notifying Party also confirmed it has no plans to change its RDBMS as it relates to healthcare providers (any change or innovation will be the same for all partners, regardless of whether they are competitors) or to distinguish between the interoperability of acquired companies and third parties (there will be no "special" or "reserved" access of Cerner's software to Oracle's RDBMS). It is in Oracle's interest that the standardised interfaces upon which thousands of applications of all ISVs rely are supported by Oracle's RDBMS. The two versions (and upgrades) of Oracle's RDBMS that are currently available to the entirety of the market will continue to be made available to Cerner's competitors.[163]

5.4.3.3. Impact on effective competition

(143) Since the Commission has concluded above in Section 5.4.3.1 that Oracle would not have the ability to raise the prices of, or degrade or restrict access to Oracle's RDBMS, the question whether such strategies would have a detrimental effect on competition can be left open for the purposes of the present Decision.

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161 Notifying Party's reply to RFI 9, question 9: the Enterprise Edition and the Standard Edition.

162 Notifying Party's reply to RFI 9, question 2; NCR is mentioned in https://partner-finder.oracle.com/catalog/Partner/SCPP-NCR-COM1#profile-overview. HSR mentions on its website at https://www.hrsinternational.com/en that it is "*Oracle's largest hospitality partner worldwide*".

163 Notifying Party's reply to RFI 9, question 10.

(144) In any event, the Commission considers that, as mentioned above in Section 5.4.3.1, even if the Notifying Party were to engage in a foreclosure strategy of raising the prices of, or degrading or restricting access to Oracle's RDBMS, they could only target those downstream competitors that rely on Oracle's RDBMS. The remaining part of the downstream market for the supply of software for healthcare providers would be unaffected as downstream competitors use another RDBMS provider (other than Oracle) and have a choice of alternative providers. Therefore, even if the merged entity could target some downstream competitors, sufficient competition would remain on the downstream market for the supply of software for healthcare providers.

(145) This conclusion is consistent with the results of the market investigation, in which the majority of respondents (both Cerner's competitors and customers) that expressed a view considered that the Transaction would have a positive or neutral impact on the market and some indicate it can lead to lower prices.[164]

5.4.4. Conclusion

(146) For the reasons set out above, the Commission considers that the Transaction will not raise serious doubts as to the compatibility with the internal market with respect to possible foreclosure of competing suppliers of software for healthcare providers by either raising the prices of, or degrading or restricting access to Oracle's RDBMS.

5.5. Conglomerate effects

5.5.1. Legal framework

(147) According to the Non-Horizontal Guidelines, in the majority of circumstances, conglomerate mergers will not lead to any competition problems.[165]

(148) However, foreclosure effects may arise when the combination of products in related markets may confer on the merged entity the ability and incentive to leverage a strong market position from one market to another closely related market by means of tying or bundling or other exclusionary practices. While tying and bundling have often no anticompetitive consequences, in certain circumstances such practices may lead to a reduction in actual or potential competitors' ability or incentive to compete. This may reduce the competitive pressure on the merged entity allowing it to increase prices.[166]

(149) In assessing the likelihood of such a scenario, the Commission examines, first, whether the merged firm would have the ability to foreclose its competitors[167], second, whether it would have the economic incentive to do so[168] and, third, whether a foreclosure strategy would have a significant detrimental effect on

164 Replies to Questionnaire 2 to Cerner's competitors, question 31.
165 See Non-Horizontal Guidelines, paragraph 92.
166 See Non-Horizontal Guidelines, paragraphs 91 and 93.
167 See Non-Horizontal Guidelines, paragraphs 95-104.
168 See Non-Horizontal Guidelines, paragraphs 105-110.

competition, thus causing harm to consumers.[169] In practice, these factors are often examined together as they are closely intertwined.

(150) In order to be able to foreclose competitors, the merged entity must have a significant degree of market power, which does not necessarily amount to dominance, in one of the markets concerned. The effects of bundling or tying can only be expected to be substantial when at least one of the merging parties' products is viewed by many customers as particularly important and there are few relevant alternatives for that product.[170] Further, for foreclosure to be a potential concern, it must be the case that there is a large common pool of customers, which is more likely to be the case when the products are complementary.[171] Finally, bundling is less likely to lead to foreclosure if rival firms are able to deploy effective and timely counter-strategies, such as single-product companies combining their offers.[172]

(151) The incentive to foreclose competitors through bundling or tying depends on the degree to which this strategy is profitable.[173] Bundling and tying may entail losses or foregone revenues for the merged entity.[174] However, they may also allow the merged entity to increase profits by gaining market power in the tied goods market, protecting market power in the tying good market, or a combination of the two.[175]

(152) It is only when a sufficiently large fraction of market output is affected by foreclosure resulting from the concentration that the concentration may significantly impede effective competition. If there remain effective single-product players in either market, competition is unlikely to deteriorate following a conglomerate concentration.[176] The effect on competition needs to be assessed in light of countervailing factors such as the presence of countervailing buyer power or the likelihood that entry would maintain effective competition in the upstream or downstream markets.[177]

5.5.2. *Notifying Party's views*

(153) The Notifying Party submits that Cerner's customers might also require general-purpose EAS and infrastructure software, which they could source from Oracle.[178] Specifically in relation to RDBMS, the Notifying Party considers that a customer acquiring certain types of healthcare software effectively also acquires a built-in RDBMS as part of that solution and will only need to acquire another RDBMS solution to support different enterprise applications (e.g. a finance application). For such use cases, customers could opt to source their RDBMS from the merged entity.

169 See Non-Horizontal Guidelines, paragraphs 111-118.
170 See Non-Horizontal Guidelines, paragraph 99.
171 See Non-Horizontal Guidelines, paragraph 100.
172 See Non-Horizontal Guidelines, paragraph 103.
173 See Non-Horizontal Guidelines, paragraph 105.
174 See Non-Horizontal Guidelines, paragraph 106.
175 See Non-Horizontal Guidelines, paragraph 108.
176 See Non-Horizontal Guidelines, paragraph 113.
177 See Non-Horizontal Guidelines, paragraph 114.
178 Form CO, paragraph 17.

5.5.2.1. Ability to leverage Oracle's position in RDBMS

(154) The Notifying Party submits that Oracle would not have the ability nor the incentive to foreclose competitors in healthcare software by engaging in a conglomerate strategy related to its RDBMS.

(155) First, as set out in Section 5.4.3.1 above, the Notifying Party submits that Oracle does not have market power in the RDBMS market. It therefore considers that Oracle's market position does not allow it to compel healthcare provider customers to acquire Cerner's healthcare software through tying or bundling with its RDBMS. The Notifying Party further considers that strong alternatives to Oracle's RDBMS are present in the market, including those offered by Microsoft, Amazon, IBM and SAP. [179]

(156) Second, the Notifying Party considers that customers who purchase both healthcare software and RDBMS for different enterprise applications do not make such purchase decisions at the same point in time. Furthermore, the Notifying Party submits that different departments within the healthcare providers often run the procurement processes for those products, with professionals with a healthcare background playing a role in selecting the supplier of healthcare software while not being involved in the selection of RDBMS for other applications.[180]

(157) Third, the Notifying Party considers that the increasing popularity of Software-as-a-Service eliminates any scope for tying or bundling, as customers in such a context already acquire integrated applications without separately contracting for infrastructure software such as RDBMS.[181]

5.5.2.2. Incentive to leverage Oracle's position in RDBMS

(158) The Notifying Party argues that an anticompetitive tying or bundling strategy would be inconsistent with Oracle's practices in relation to past acquisitions (following which Oracle has refrained from tying acquired products with existing Oracle products and has maintained interoperability of newly acquired products with competing third-party infrastructure software).[182]

5.5.2.3. Impact on effective competition

(159) Finally, the Notifying Party submits that any strategy to leverage Oracle's position in RDBMS into the market for healthcare software would not be capable of generating anti-competitive effects. That is because Oracle's moderate market share in RDBMS would not allow the merged entity to win sufficient customers from competitors post-Transaction to force them to compete less effectively.[183]

[179] Form CO, paragraph 347 (a).
[180] Form CO, paragraph 347 (b).
[181] Form CO, paragraph 347 (c).
[182] Form CO, paragraph 348.
[183] Form CO, paragraph 347 (d).

5.5.3. *The Commission's assessment*

(160) As noted above in paragraph (95), customers that purchase healthcare software may also purchase RDBMS, either in order to run the healthcare software, or for entirely different use cases (e.g. in support of enterprise applications such as finance or other). With respect to the latter situation, the Commission considers that a conglomerate effects analysis is not required, as there is no clear complementarity between RDBMS and the healthcare software, and the products are not generally purchased by the same set of customers for the same end use. The conglomerate analysis with respect to leveraging Oracle's position in RDBMS will therefore focus exclusively on the situation of customers of healthcare software who acquire RDBMS as a complementary product, in order to be able to run the healthcare software.

(161) The Commission will assess potential conglomerate strategies through (i) technical tying of Oracle's RDBMS and Cerner's healthcare software, and (ii) bundling of both products.

5.5.3.1. Technical tying of Oracle's RDBMS and Cerner's healthcare software

(162) As set out in the Non-Horizontal Guidelines, foreclosure effects may arise when the combination of products in related markets may confer on the merged entity the ability and incentive to leverage a strong market position from one market to another closely related market by means of tying or bundling or other exclusionary practices. Similarly to input foreclosure, conglomerate foreclosure may also take more subtle forms, such as the degradation of the quality of a product supplied on a standalone basis. In certain circumstances, such practices may lead to a reduction in actual or potential competitors' ability or incentive to compete, which may in turn reduce the competitive pressure on the merged entity, allowing it to increase prices.

(163) As with vertical non-coordinated effects, in assessing the likelihood of conglomerate foreclosure, the Commission examines, first, whether the merged entity would have the ability to engage in such conduct by reducing the ability to compete of its actual or potential competitors, second, whether it would have the economic incentive to do so and, third, whether such strategy would have a significant detrimental effect on competition, thus causing harm to consumers.

(164) In relation to technical tying through a restriction or degradation of access to Oracle's RDBMS, the Commission refers to Section 5.4.3 on vertical effects of the Transaction, given that the assessment framework for exclusionary practices is largely the same for both vertical and conglomerate non-coordinated effects. The assessment of a restriction or degradation of access to Oracle's RDBMS would not materially change if examined through the lens of conglomerate non-coordinated effects in the context of a technical tying strategy.

(165) As such, for the purposes of this Decision, the Commission does not consider it necessary to carry out a separate conglomerate effects assessment as the vertical assessment carried out by the Commission addresses each of the various elements that may be necessary to determine the likelihood of conglomerate foreclosure.

5.5.3.2. Bundling of Oracle’s RDBMS and Cerner’s healthcare software

(166) For the reasons set out below and based on the results of the market investigation, the Commission considers that the merged entity would not have the ability to foreclose downstream competitors by bundling its RDBMS with healthcare software. Therefore, the Commission considers that the question whether the merged entity would have the incentive to bundle its RDBMS with healthcare software and the effect that such strategy would have on competition in the healthcare software market as a result, are not relevant and can be left open.

(a) Ability to leverage Oracle's position in RDBMS

(167) According to the Non-Horizontal Guidelines, for bundling to be a concern, the merged entity must have a sufficient degree of market power in one of the markets concerned, in order to be able to leverage that power to a closely related market.

(168) As set out in detail in Section 5.4.3.1(b) above, the Commission considers that Oracle has no market power in the worldwide market for the supply of RDBMS, in particular as many alternatives remain available. In addition, while many customers of healthcare software also acquire RDBMS, only a fraction of Oracle's RDBMS customers also acquire healthcare software, or would have an interest in doing so. Therefore, the overwhelming part of Oracle's customers who lie at the basis of Oracle's market share in RDBMS would in any case not be potential targets of a bundling strategy, further weakening Oracle's market position to successfully engage in such practice.

(169) Moreover, customers do not view RDBMS as particularly important. It is clear from the results of the market investigation that customers' purchasing decisions are not driven by RDBMS when acquiring a bundle of RDBMS and healthcare software. Indeed, the majority of Cerner's customers who responded to the market investigation consider that the RDBMS developer is not a distinguishing factor when they purchase healthcare software.[184] Instead, several respondents explain that their choices are rather based on the functionalities of the healthcare software and that the choice of database supplier is of subordinate importance and generally follows automatically from the choice of healthcare software.[185]

(170) In this regard, within the market for healthcare software, Cerner is one among many players and does not have a significant market share, as illustrated in Section 5.4.3.1(a). Furthermore, many of Cerner's competitors have software products that rely on RDBMS from a supplier other than Oracle (see Section 5.4.3.1(c)).

(171) As to the purchasing patterns for both products, respondents to the market investigation confirm that customers of healthcare software usually acquire complementary RDBMS in parallel, either as part of a single agreement or in separate agreements. Approximately half of Cerner's customers who responded to the market investigation indicate that they acquire RDBMS and software for healthcare providers in a bundle today, while others explain that even if they purchase the two products separately, they often do not have a choice as to the RDBMS provider.[186] Both Oracle's and Cerner's competitors who responded to the market investigation confirm the mix of contractual arrangements, although some of Oracle's competitors do highlight that many software suppliers certify their software for use against multiple RDBMS solutions, in which case customers would have a choice of RDBMS provider.[187]

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184 Reply to Questionnaire 3 to Cerner's customers, question 23.2.

185 Reply to Questionnaire 3 to Cerner's customers, question 23.2.1.

186 Reply to Questionnaire 3 to Cerner's customers, question 15.1.

187 Reply to Questionnaire 1 to Oracle's competitors, question 14.1 and reply to Questionnaire 2 to Cerner's competitors, question 16.1.

(172) When asked whether the merged entity would obtain an advantage by offering a bundle of Oracle's RDBMS and Cerner's software for healthcare providers, four of Cerner's competitors responding to the market investigation explicitly noted that bundling is unlikely to have a significant impact on competition.[188] One market respondent pointed out that "*Cerner already provides OEM licenses of Oracle*", while another stated that "*Bundling is unlikely to have a material impact on competition in this market*."[189] Those respondents who believe a bundled offer may result in a competitive advantage refer almost exclusively to the possibility for the merged entity to offer a more competitive price.[190] The majority of Cerner's customers, however, do not believe the merged entity could obtain a significant advantage from offering a bundle, with a number of respondents referring to the availability of many alternative software providers in the market for healthcare software.[191]

(173) In light of the above, taking into consideration the overall results of the market investigation and, in particular, the fact that the end customer's purchasing decision is not driven by the RDBMS, the Commission considers, for the purposes of the present Decision, that Oracle does not have the ability to engage in a strategy of bundling its RDBMS with Cerner's healthcare software.

(174) Even if Oracle were considered to have market power in the RDBMS market and the choice of RDBMS would be of relevance to the customer, the Commission considers that a bundling strategy to increase Oracle's position in the healthcare software market is unlikely to succeed. First, all suppliers of healthcare software who do not rely on Oracle's RDBMS would remain unaffected. Second, as regards Cerner's competitors who do rely on Oracle's RDBMS, the investigation did not reveal any indications that a bundling strategy would lead a reduction in actual or potential competitors' ability or incentive to compete.

(b) Incentive to leverage Oracle's position in RDBMS

(175) Since the Commission has concluded in Section 5.5.3.2(a) that Oracle would not have the ability to bundle RDBMS with healthcare software, the question whether Oracle would have an incentive to engage in such bundling strategy can be left open for the purposes of the present Decision.

(c) Impact on effective competition

(176) As mentioned in Section 5.5.3.2(a), even if the Notifying Party were to engage in a bundling strategy, a part of the downstream market for the supply of software for healthcare providers would remain unaffected as they use another RDBMS provider (other than Oracle).

(177) That conclusion is consistent with the results of the market investigation, in which the majority of respondents (both Cerner's competitors and customers) that

[188] Reply to Questionnaire 2 to Cerner's competitors, question 28.1

[189] Reply to Questionnaire 2 to Cerner's competitors, question 28.1.

[190] Reply to Questionnaire 2 to Cerner's competitors, question 28.1. Only two of Cerner's competitors referred to potential technical advantages for the merged entity's bundled product. However, those concerns were not substantiated and are covered by the Commission's analysis regarding interoperability in paragraphs 127 to 131.

[191] Reply to Questionnaire 3 to Cerner's customers, question 23.2 and 23.2.1.

expressed a view considered that the Transaction would have a positive or neutral impact on the market.[192]

5.5.4. Conclusion

(178) In view of the above considerations and in light of the results of the market investigation and the evidence and information available to it, for the purposes of the present Decision, the Commission concludes that the Transaction will not raise serious doubts as to the compatibility with the internal market as a result of the potential conglomerate relationship between Oracle's RDBMS and Cerner's healthcare software.

6. CONCLUSION

(179) For the above reasons, the European Commission has decided not to oppose the notified operation and to declare it compatible with the internal market and with the EEA Agreement. This Decision is adopted in application of Article 6(1)(b) of the Merger Regulation and Article 57 of the EEA Agreement.

For r the Commission

(Signed)
Margrethe VESTAGER
Executive Vice-President

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192 Replies to Questionnaire 2 to Cerner's competitors, question 31. Replies to Questionnaire 3 to Cerner's customers, question 25.