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**IN THE COMPETITION**  
**APPEAL TRIBUNAL**

Case No: 1403/7/7/21

Salisbury Square House  
8 Salisbury Square  
London EC4Y 8AP

Wednesday 12<sup>th</sup> February 2025

Before:  
Ben Tidswell  
Dr William  
Bishop  
Tim Frazer

(Sitting as a Tribunal in England and Wales)

**BETWEEN:**

Dr. Rachael Kent

**Class Representative**

v

Apple Inc. and Apple Distribution International Ltd

**Defendants**

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**A P P E A R A N C E S**

Mark Hoskins KC, Tim Ward KC, Michael Armitage, Matthew Kennedy, Antonia Fitzpatrick,  
(Instructed by Hausfeld & Co. LLP) On behalf of Dr. Rachael Kent

Marie Demetriou KC, Brian Kennelly KC, Daniel Piccinin KC, Hugo Leith, Hollie Higgins  
(Instructed by Gibson, Dunn & Crutcher UK LLP) On behalf of Apple Inc. and Apple  
Distribution International Ltd

1 Wednesday, 12 February 2025

2 (11.04 am)

3 PROFESSOR ANDREW SWEETING (continued)

4 Cross-examination by MR KENNEDY (continued)

5 THE CHAIRMAN: Good morning, Professor Sweeting.

6 Mr Kennedy, good morning. When you are ready, yes.

7 MR KENNEDY: Good morning, Professor Sweeting.

8 A. Good morning.

9 Q. Some of my questions this morning will involve simple  
10 arithmetic, and so if you would like me to repeat the  
11 question or slow down, or if you would like to do your  
12 own calculations then let me know. I am not trying to  
13 catch you out, but when I say "simple arithmetic",  
14 I mean it. It is nothing elaborate; I am not capable of  
15 anything elaborate.

16 Can we pick it up in first Sweeting paragraph 405(a)  
17 which is {C3/3/190}. We are back to the value of  
18 fraudulent transactions avoided. You say:

19 "In 2020, Apple stopped more than ... 1.5 billion in  
20 fraud globally. For the average UK iOS device user,  
21 this corresponds to £1.12 for 2020 alone."

22 Yes?

23 A. Yes.

24 Q. Starting with the actual world, if we can look at the  
25 document that you refer to in footnote 514, that is at

1           {D1/1114/1}, and this is the Apple Newsroom press  
2           release that you cite there, yes?

3           A. Yes.

4           Q. If we could pick it up at page 6 {D1/1114/5}, which is  
5           where we get this figure of 1.5 billion in potentially  
6           fraudulent transactions, if we start with the second  
7           paragraph which starts "With online", do you have that?

8           A. "With online data ..."

9           Q. You see:

10                    "With online data breaches frustratingly common,  
11           these protections are an essential part of keeping users  
12           safe. But users may not realise that when their credit  
13           card information is breached or stolen from another  
14           source, fraudsters may turn to online marketplaces like  
15           the App Store to attempt to purchase digital goods and  
16           services that can be laundered or used for illicit  
17           purposes.

18                    "Apple focuses relentlessly on this kind of fraud as  
19           well. In 2020 alone, the fusion of sophisticated  
20           technology and human review prevented more than  
21           3 million stolen cards from being used to purchase  
22           stolen goods and services, and banned nearly 1 million  
23           accounts from transacting again. In total, Apple  
24           protected users from more than \$1.5 billion in  
25           potentially fraudulent transactions in 2020."

1           So that is the 1.5 billion that you are talking  
2           about in 405(a), yes?

3           A. Yes, that is correct.

4           Q. It appears to be -- the 1.5 billion appears to be the  
5           value of transactions which were attempted using stolen  
6           credit card information, yes?

7           A. So the language is not completely -- you know, it is  
8           obviously not completely precise about exactly what is  
9           going into the \$1.5 billion number, but it would  
10          certainly seem to include stolen credit cards.

11          Q. I agree it is not very precise, but you do not know  
12          exactly what goes into it --

13          A. No, no.

14          Q. -- and my best guess, reading this document, is that it  
15          is the stolen credit card information, so let us proceed  
16          on that basis.

17                 Again, it is not entirely clear, but the press  
18          release appears to be saying that those transactions  
19          were prevented by Apple using "a fusion of sophisticated  
20          technology and human review", yes?

21          A. Yes.

22          Q. "Human review" is a reference to the human review  
23          element of Apple's App Review, yes?

24          A. It could be -- you know, there could also be other  
25          elements of human review, but yes, that could include

1 App Review.

2 Q. We discussed this yesterday, but you are aware that it  
3 would be possible for Apple to carry out App Review of  
4 all iOS Apps distributed in the United Kingdom without  
5 maintaining the App Distribution Restrictions or the  
6 Payment System Restrictions, yes?

7 A. So I understand that has been a topic of argument, yes.

8 Q. That is what Mr Federighi said in his cross-examination.  
9 Again, I just ask you to assume that that is correct,  
10 not asking you whether or not it is correct.

11 A. Yes.

12 Q. If we just go back to the first paragraph, the one that  
13 starts "Financial information", we see:

14 "Financial information and transactions are some of  
15 the most sensitive data that users share online. Apple  
16 has invested significant resources in building more  
17 secure payment technologies like Apple Pay and  
18 StoreKit ..."

19 Do you see that?

20 A. Yes, I do.

21 Q. Again, not entirely clear, but it appears that the  
22 "sophisticated technology" that is referred to in the  
23 third paragraph appears to be a reference back to  
24 Apple Pay and to StoreKit, yes?

25 A. Yes, that seems the most --

1 Q. Let us start with Apple Pay. Are you aware that in  
2 cross-examination Mr Schiller accepted that, absent the  
3 Payment System Restrictions, Apple could allow  
4 developers to choose to offer users the option to use  
5 Apple Pay for in-app purchases of digital goods and  
6 services in the United Kingdom?

7 A. Yes, so I understand Apple Pay is a digital wallet that  
8 can be used outside of IAP transactions.

9 Q. Let us look at StoreKit now. If we could briefly go to  
10 {D2/143/1}, this is an extract from Apple's developer  
11 documentation which deals with the StoreKit framework  
12 and if we just see just under the heading "Overview", it  
13 says:

14 "Use the StoreKit framework to provide the following  
15 features and services for your apps and in-app  
16 purchases ..."

17 Then the little heading "In-App Purchase", and it  
18 says:

19 "Offer and promote in-app purchases for content and  
20 services."

21 Yes?

22 A. I see that, yes.

23 Q. Do you know what the connection is between the  
24 restrictions, by which I mean both sets of restrictions,  
25 StoreKit and fraud detection?

1 A. So I understand that StoreKit is, you know, one of the  
2 set of tools that Apple provides for developers who are  
3 doing digital transactions within their apps, including  
4 in-app purchases.

5 Q. The press release that we have been looking at, if we  
6 can get it back up. It is -- perhaps we can just  
7 quickly shuffle back to it -- {D1/1114}, and if we go to  
8 page 5, please {D1/1114/5}. There is no explanation  
9 given here as to how StoreKit helps Apple detect fraud,  
10 is there?

11 A. Not a specific description, no.

12 Q. None of Apple's factual or expert evidence explains  
13 clearly how StoreKit helps Apple to identify fraud, does  
14 it?

15 A. Not specifically that I have seen. Obviously, you know,  
16 the -- they have given opinions about the effectiveness  
17 of Apple at preventing fraud, but I have not seen  
18 a precise description of how StoreKit (inaudible).

19 Q. So it is simply not possible for you to say whether in  
20 fact there is any connection between Apple's use of  
21 StoreKit specifically to prevent fraud and the  
22 restrictions, is there?

23 A. So I -- my understanding is that Apple is investing in  
24 a number of technologies and procedures to detect fraud,  
25 but I do not have technical expertise to explain that

1 integration or evaluate it, or obviously compare it with  
2 alternatives.

3 Q. Let us turn to the counterfactual. It is common ground  
4 between you and Dr Singer that in the counterfactual,  
5 a proportion of initial iOS app downloads and in-app  
6 purchases would go through Apple, yes?

7 A. Yes, that is our expectation, yes.

8 Q. In the Primary Counterfactual, or the app distribution  
9 counterfactual, you estimate that Apple would have  
10 a market share of between 50 and 90% in both of  
11 Dr Singer's markets, yes?

12 A. In the Primary Counterfactual, yes.

13 Q. I think --

14 A. Or the distribution.

15 Q. The distribution counterfactual, yes. In the payment  
16 systems counterfactual, so holding at constant, you say  
17 you would expect nearly all iOS developers to continue  
18 using IAP, yes?

19 A. Yes, that is correct.

20 Q. For the purpose of these questions, let us assume that  
21 50% of initial app downloads and in-app purchases would  
22 go through Apple in the counterfactual.

23 A. In a Primary Counterfactual?

24 Q. Well, in any counterfactual. We have seen what the  
25 range is for your estimates. I am saying let us use 50

1           for the purposes of these questions, not least because  
2           it is easy.

3       A.   Okay.

4       Q.   Apple would continue to be able to carry out fraud  
5           checks in respect of those transactions, the 50% in the  
6           counterfactual?

7       A.   Yes, although there is a question about whether it would  
8           be as effective.

9       Q.   We are going to come to that caveat.

10      A.   Okay.

11      Q.   UK iPhone users' pro rata share of the \$1.5 billion is  
12           \$24 million, or £17 million. We can get that from first  
13           Sweeting 139 at {C3/3/70}. I think if we go -- I have  
14           given a bad reference. We need 139, so back a few  
15           pages. Here we go {C3/3/64}. Just so that you are  
16           aware, in the first sentence you are actually dealing  
17           with the figures for 2021 and 2022, whereas we are  
18           dealing with 2020, but the figure for 2021 and -- 2020  
19           and 2021 is the same, and you will see you give the  
20           proportion for UK users there, so 17 million is the UK  
21           portion, yes?

22      A.   So actually the -- oh, I see, yes, okay. So that is  
23           based on the 1.6%.

24      Q.   Yes, exactly. You have just mentioned this, but you may  
25           recall that Mr Schiller and Professor Rubin have said

- 1           that Apple's ability to detect fraud would be impaired  
2           in the counterfactual, yes?
- 3       A. Yes, and of course that may also lead to more attempted  
4           fraud as well.
- 5       Q. I have challenged that evidence in cross-examination,  
6           but let us assume that the Tribunal accepts that  
7           evidence, that there would be an impairment. So let us  
8           assume that in the counterfactual Apple does not catch  
9           all of the fraud it caught in the actual, yes? So  
10          rather than --
- 11       A. Sorry, when Apple has a 50% share -- (overspeaking) --
- 12       Q. We are going to come -- we are going to break it down.  
13          So we start with 17 million in the actual, yes?
- 14       A. Okay.
- 15       Q. We are looking at the UK share, so we have 1.5; it goes  
16          to 17 when we are looking at pounds sterling and we are  
17          looking at the UK.
- 18       A. Okay.
- 19       Q. Now, we are assuming a 50% share in the counterfactual.  
20          If it was as effective, that would be 8.5 million that  
21          Apple would catch, half of 17?
- 22       A. Yes, that is half of 17, yes.
- 23       Q. Half of 17. So if it was as effective, they would  
24          continue to catch the 8.5?
- 25       A. If -- conditional on the same amount being attempted.

1 Q. Conditional on the same amount and the same  
2 effectiveness. But let us assume, rather than Apple  
3 catching 8.5, let us assume that they only catch 6, for  
4 the sake of argument.

5 A. Okay.

6 Q. So that is 2.5 million less than the actual, yes? 8.5  
7 minus 6?

8 A. Yes, okay.

9 Q. Now let us think about third-parties who are handling  
10 the other 50% of transactions in the counterfactual,  
11 okay?

12 A. Yes, okay.

13 Q. Let us have a look at what Dr Lee says about this. It  
14 is second Lee, paragraph 14 {C2/13/7}. If we can just  
15 have page 1 up, just so we can have a quick look. So  
16 this is the reply report of Dr Lee. As you know, Dr Lee  
17 is the Class Representative's security expert, and in  
18 this section of his report he is explaining his views  
19 on -- sorry, he is summarising his opinions, and I just  
20 want to show you two sentences about what he says about  
21 fraud detection.

22 If we pick it up over the page on page 8 {C2/13/8}.  
23 You see the first full sentence starts "Comparable  
24 levels ..." do you have that?

25 A. Yes.

1 Q. He says:

2 "Comparable levels of security could be (and already  
3 are) achieved by third-party in-app aftermarket services  
4 providers, who are already used by iOS App Developers  
5 for transactions of physical goods and services in their  
6 apps."

7 Yes?

8 A. That is his opinion, yes.

9 Q. Then if we go two sentences down, he says towards the  
10 end of the line:

11 "Alternative in-app aftermarket service providers  
12 like Paddle adhere to strict industry wide security  
13 standards and, in my opinion, may actually enhance fraud  
14 detection."

15 A. I see that.

16 Q. Now, if the tribunal accepts Dr Lee's evidence in this  
17 regard, third-parties would detect the full 8.5 million  
18 worth of fraudulent transactions that came through their  
19 systems, yes?

20 A. I mean it is not obvious whether you should think they  
21 are as effective as Apple in the counterfactual rather  
22 than Apple in the actual.

23 Q. The premise of my question is that they are better than  
24 Apple at detecting fraud in the actual.

25 A. Oh, that they are -- oh, okay -- (overspeaking) --

1 Q. -- Dr Lee's evidence, let us assume the Tribunal accepts  
2 it, that they are better than Apple in the actual, so in  
3 the counterfactual they would catch their full  
4 8.5 million portion.

5 A. I guess exactly whether the comparison to be to --  
6 you know, given if there is some degradation to Apple's  
7 quality in the counterfactual, there could also be some  
8 degradation to Paddle's quality, but I am happy to  
9 assume what you want me to assume.

10 Q. Let us assume in fact that the Tribunal does not accept  
11 that evidence and finds that third-parties would in fact  
12 be less effective in the counterfactual than Apple at  
13 detecting fraud, so the assumption is Apple's level has  
14 gone down and third-parties are still worse, okay?

15 A. Okay.

16 Q. So let us assume that rather than catching Apple's  
17 6 million they catch 5 million, okay, and that is 3.5  
18 less than the 8.5, yes?

19 A. Yes, correct.

20 Q. So we have got a total of 6 million in fraudulent  
21 transactions that were caught in the actual that are not  
22 caught in the counterfactual, yes?

23 A. Yes, so 2.5 -- (overspeaking) --

24 Q. 3.5 plus 2.5, I make it 6.

25 A. Yes, I agree with that.

- 1 Q. So far so good. That figure relates to all UK iPhone  
2 users, yes? The 1.6 that we got the 17 from is  
3 everyone.
- 4 A. Yes, so this is ...
- 5 Q. Let us assume for convenience that all UK iPhone users  
6 and the Class are the same thing.
- 7 A. Okay.
- 8 Q. That would mean that the amount of fraud not detected,  
9 or the value of the fraud not detected in the  
10 counterfactual per Class member would be 16p for 2020,  
11 that is 6 million divided by 36,800,000.
- 12 A. Yes, I am not -- I am not doing that division so  
13 I will ...
- 14 Q. Does it sound about right? So we get 16p rather than  
15 your estimate of £1.12, yes?
- 16 A. Yes, all right, so this is applying some judgment on the  
17 proportion of benefits that are lost and, as we  
18 discussed yesterday, you know, as I think my report is  
19 quite upfront, one has to do that evaluation if you are  
20 applying -- you know, you have to apply that kind of  
21 evaluation to the benefit numbers that I report.
- 22 Q. Absolutely and, as we established yesterday, you have  
23 not attempted to do it on a quantitative basis?
- 24 A. Correct.
- 25 Q. What we are doing now is just looking at if we start to

1           try and do that exercise, even in a rough and ready way,  
2           what we see is that the numbers end up being quite  
3           different from your numbers, so 16p -- (overspeaking) --

4       A. Yes, because you are multiplying them by a fraction. If  
5           the fraction is small -- (overspeaking) --

6       Q. But you accept that the exercise that we are engaging in  
7           is the correct exercise to engage in, in terms of the  
8           principles that you articulate at paragraph 404 of your  
9           report, yes?

10      A. Yes, but recognising that lots of my numbers are -- so  
11         my numbers are deliberately not claiming to capture all  
12         of the effects that are going on, right, so if the fraud  
13         is hurting developers, reduced trust, reduce the number  
14         of transactions overall, or encourage more attempts at  
15         fraud, there could be elements -- additional elements of  
16         harm that are not being captured. But under the  
17         assumptions we have gone through, then yes, you get --  
18         (overspeaking) --

19      Q. I can only deal with the numbers that you have given me,  
20         and all I am trying to do is sketch out the exercise we  
21         discussed yesterday to show the Tribunal where you end  
22         up.

23      A. Sure.

24      Q. What I am putting to you, what I am going to put to you,  
25         is that the estimate that you have provided at 405(a) is

1 not a reliable estimate of any benefit that is referable  
2 to either of the restrictions of which the Class  
3 Representative complains.

4 A. So, as I explained in my report, the number I am  
5 providing is a starting point to which the Tribunal  
6 needs to apply an evaluation of how much is lost in the  
7 counterfactual, and any other factors, even if we cannot  
8 quantify, that need to be added in.

9 Q. Let us look at (b) now, which is the value of data  
10 privacy, 405(b), and you say that:

11 "... I estimate that the total amount of the privacy  
12 of the financial and biometric data for the average  
13 iPhone user to range from ... £125.40 to ... £150.10 per  
14 year."

15 THE CHAIRMAN: Could we have it back on the screen, please?

16 MR KENNEDY: Oh, I am so sorry, sir. It is {C3/3/190}. If  
17 we could just zoom in on (b), and if we could just go  
18 down to footnote 516, so we are all on the same page  
19 about where the range comes from. The lower bound is  
20 the value of privacy, which is the product of \$5.80 and  
21 \$7.60 multiplied by 12 months, yes?

22 A. Yes.

23 Q. The \$5.80 is the amount that users said they would need  
24 to be paid per month in order to share information on  
25 the amount of cash they withdrew, yes?

- 1 A. Yes.
- 2 Q. The \$7.60 is rounded up from \$7.56, which was the amount  
3 they said they needed to share fingerprint information,  
4 yes?
- 5 A. Yes.
- 6 Q. The upper bound is \$8.44 plus \$7.60 times 12, and the  
7 \$8.44 is the amount that users said they would need to  
8 be paid in order to share bank balance information, yes?
- 9 A. That is correct, as I remember.
- 10 Q. We have seen that the \$7.60 is for fingerprint  
11 information, yes?
- 12 A. Yes, and these are averages across a number of  
13 countries -- (overspeaking) --
- 14 Q. A number of countries, yes. We are going to come to  
15 look at Prince and Wallsten in a second, but I just want  
16 to discuss the factual premise of 405(b). In the  
17 subparagraph, you say you are estimating:  
18 "... the total value of the privacy of the financial  
19 and biometric data for the average iPhone user ..."
- 20 Is the premise that in the counterfactual, an iOS  
21 device user might download a malicious app and that  
22 malicious app might exfiltrate biometric data or  
23 financial data?
- 24 A. Yes. I mean there would be -- in the counterfactual,  
25 with the removal of the requirements, there could be

1           some additional scope for a user's data to end up in the  
2           hands of companies that the user may not have intended.

3       Q.   That would be the mechanism.  It would be downloading  
4           a malicious app which then steals the data.  Is that  
5           what you have in mind?

6       A.   You know, to be -- I am not necessarily trying to tie it  
7           to an exact form, for example, of malware or social  
8           engineering attack.  I think there are a number of  
9           mechanisms by which this could -- which this could  
10          happen, but that can certainly be one of them.

11      Q.   Certainly one of them.  Let us assume that that is the  
12          mechanism, because we need to tie it to some mechanism  
13          in order to try and tie it down to some sort of reality,  
14          and it would be unlikely that a given app would attempt  
15          to exfiltrate both financial data and biometric data,  
16          yes?

17      A.   I mean, it obviously depends what the bad actor app is  
18          actually trying to do.  You know, obviously if an app  
19          was able to get permission to access certain types of  
20          data, the more data they could extract, the more  
21          valuable, but it is certainly plausible that one app  
22          could be aiming at financial information and the other  
23          at biometric.

24      Q.   You have probably seen this in the materials, but you  
25          are aware that a banking Trojan is a particular type of

1 malware attack that focuses on banking information?

2 A. Yes.

3 Q. So that may be the most likely form of attack that you  
4 are dealing with here.

5 A. Yes.

6 Q. So what I want to do is I want to consider hypothetical  
7 apps that exfiltrate biometric data, and separately  
8 I want to deal with the possible risk posed by banking  
9 Trojans, okay? So we are separating out the two forms  
10 of data, but we will come back to that, okay?

11 A. Sure.

12 Q. Let us go to the Prince and Wallsten article. It is  
13 {C5/258}. Look at page 1, just to make sure we are on  
14 the same page. This is the article you rely on in 405?

15 A. Yes, it is.

16 Q. What the authors did in this study was to ask people in  
17 Argentina, Brazil, Colombia, Mexico, Germany and the US  
18 how much they would need to be paid per month in order  
19 to permit various entities to share various categories  
20 of data with third-parties, yes?

21 A. Yes.

22 Q. I just want to quickly show you how this was put to  
23 Dr Singer in cross-examination. If we could have  
24 Day 15, page 167, up. {Day15/167}

25 I have had no luck with transcript references so

1            hopefully this is my moment. It looks like we are. If  
2            we pick it up at line 11, just to get your bearings, you  
3            can see a reference there to the Prince and Wallsten  
4            study?

5            A. Yes.

6            Q. So this is the start of the passage where Ms Demetriou  
7            was asking Dr Singer about Prince and Wallsten, okay?

8            A. Okay.

9            Q. If we go to page 170 and pick it up at line 2, what we  
10           see is it was put to Dr Singer that it is:

11                    "Logically underinclusive ..."

12                                Which is the study in question.

13                    "... is it not, because it is asking about what  
14                    information would you share with your bank. So the  
15                    money someone pays -- is prepared to pay to share  
16                    information with their own bank is going to be less, is  
17                    it not, than a situation where they would be prepared to  
18                    share very secure information with some malware actor?"

19                    Yes?

20            A. Yes, that was the question.

21            Q. If we pick the study back up at page 8 {C5/258/8}, and  
22            if we have a look at table 1b, if you zoom in on 1b, and  
23            we are looking at the bottom two rows, and what we see  
24            is "Shares balance", and we see:

25                    "The bank can use and distribute your balance

1 information to any company or individual that pays for  
2 it."

3 Yes?

4 A. Yes.

5 Q. Then bottom row:

6 "Shares frequency and amounts of cash withdrawals":

7 "The bank can use and distribute information about  
8 the frequency and amounts of your cash withdrawals to  
9 any company or individual that pays for it."

10 Yes?

11 A. Yes.

12 Q. Over the page, table 1c, middle row "Shares  
13 fingerprint":

14 "The third party can use and distribute your  
15 fingerprint information to any company or individual  
16 that pays for it."

17 Yes?

18 A. Yes.

19 Q. So the Prince and Wallsten studies, surveys, are based  
20 on the information in question being shared with any  
21 third-party who is prepared to pay for it, yes?

22 A. Yes, although it is -- there is obviously a question  
23 about whether the respondents, you know, necessarily  
24 understand that one of those third -- one of the  
25 additional companies that the data would be supplied to

1           would be a malware bad actor.

2       Q. But it was clear to the respondents that they were not  
3           just sharing information with their bank?

4       A. With their bank.

5       Q. With their own bank, and would logically already have  
6           the balance information?

7       A. Yes, I would agree.

8       Q. You would expect that. Just finally on the scope of  
9           surveys, individuals in the United Kingdom were not  
10          surveyed as part of this paper, correct?

11      A. That is correct.

12      Q. Let us look at the various measures that are sometimes  
13          used to value privacy. If we pick it up at page 6 of  
14          the article, we see the heading, section 2.1 "Measuring  
15          the value of privacy", do you have that?

16      A. Yes, I do.

17      Q. If we pick it up in the second paragraph, we see:  
18                 "A widely recognised phenomenon when it comes to  
19                 data privacy is the so-called privacy paradox, where  
20                 people say in surveys that they care a lot about privacy  
21                 but behave as if they do not ... For example, Savage and  
22                 Waldman ... find high stated demand for privacy in apps;  
23                 however, Kummer and Schulte ... show low revealed  
24                 preference for app privacy."

25                 Then if we go to the next paragraph, it starts

1 "A range of theories", but we want to pick it up at  
2 "Measurement of privacy preferences", do you see that?

3 A. Sorry, where are we?

4 Q. It is the next paragraph down. It starts "A range of  
5 theories", but I want to pick it up in the second  
6 sentence which starts "Measurement of", do you have  
7 that?

8 A. Yes, I do.

9 Q. It says:

10 "Measurement of privacy preferences is further  
11 complicated by distinctions between willingness-to-pay  
12 (WTP) for privacy versus WTA payment in exchange for  
13 disclosing otherwise private information. A substantial  
14 literature finds that WTA estimates tend to be higher  
15 than WTP estimates, and that the two measures often have  
16 little correlation ..."

17 "WTA" is willingness to accept, yes?

18 A. Yes, that is correct.

19 Q. That measures how much someone would have to be paid  
20 voluntarily to give disclosure of certain information in  
21 certain circumstances, yes?

22 A. Yes.

23 Q. That is a subjective measure of how much the individual  
24 values the information in question in the context ...

25 A. I mean, it is -- you know, people often assume a priori

1           that kind of willingness to pay and willingness to  
2           accept should be the same, but when people do surveys  
3           they often find something of a difference. Both are  
4           obviously somewhat subjective.

5       Q. WTA is the measure that this paper, the Prince and  
6           Wallsten paper, uses, yes?

7       A. Yes.

8       Q. If we just look at the final paragraph of this section,  
9           which starts "Our analysis", it says:

10                "Our analysis is not designed to solve the privacy  
11                paradox or explain the WTA-WTP gap, although it does add  
12                new data points for the privacy paradox discussion."

13                Yes?

14       A. Yes --

15       Q. So --

16       A. -- they also have a detailed discussion of their  
17           methodology, and they are making deliberate choices, and  
18           obviously this is a peer-reviewed article so ... these  
19           issues have been framed and taken into account.

20       Q. But they do not claim to resolve the privacy paradox or  
21           the WTA gap?

22       A. No, sure.

23       Q. Because the existence of the privacy paradox and the  
24           WTP-WTA gap mean that the estimates given in this paper  
25           are likely to overestimate the value of individual's

- 1 data privacy, yes?
- 2 A. Well, that would explain -- that would depend on what  
3 you think explains, for example, the privacy paradox.
- 4 Q. But if we were to look at the revealed preferences and  
5 compare them to the WTA estimates in this paper, or if  
6 we were to look at equivalent WTP measures and compare  
7 them to WTA measures in this paper, the estimates given  
8 in this paper are likely to be higher than those other  
9 two measures, yes?
- 10 A. So I would say once again that depends. I mean, they  
11 have a discussion when they are actually discussing  
12 exactly how they frame the questions, that they believe  
13 that some of the biases from using the WTA framework  
14 should have been alleviated.
- 15 Q. But it is possible that it would be higher than those  
16 other two measures?
- 17 A. Yes, it is possible, and if you are comparing it with  
18 the revealed preference, obviously you need -- you know,  
19 one would need to understand the setting in which the  
20 choices -- you know, for example, just to accept all  
21 cookies, for example, are actually being made, and what  
22 the user is thinking about the information that the app  
23 developer may already have and so on.
- 24 Q. This is the only study that you refer to in support of  
25 your estimate at paragraph 405(b), yes?

- 1 A. Yes, and this is a -- you know, this is a published  
2 study in a respected journal by respected authors.
- 3 Q. If we just go to page 12 {C5/258/12}, I just want to  
4 look at the results of the study.
- 5 If we look at table 3, which gives the average WTA  
6 figures by feature across country and platform. If we  
7 just look at the three we are interested in, which is  
8 share balance, share fingerprint and share cash  
9 withdrawals. If we start with share balance, we see  
10 Germany at the highest at 15.43, yes? US --
- 11 A. Yes, in purchasing power parity terms.
- 12 Q. Yes, so they have tried to allow you to compare across  
13 countries allowing for differences in currency and  
14 purchasing power parity, yes. The US is the lowest at  
15 4.99, yes?
- 16 A. Yes.
- 17 Q. So there is significant variation between countries,  
18 yes?
- 19 A. Absolutely, yes.
- 20 Q. Then if we look at share fingerprint, we see that  
21 Colombia is the highest at 12.90 and Brazil is the  
22 lowest at 4.68, yes?
- 23 A. Yes.
- 24 Q. Again, significant variation. Finally, share cash  
25 withdrawals, we see Germany is the highest again, 13.42,

1 and the USA is the lowest again at 3.03, yes?

2 A. Yes.

3 Q. So you accept that there is, again, significant  
4 variation between countries across all three measures  
5 that we are interested in, yes?

6 A. Yes, and the numbers that I used are the averages.

7 Q. The averages at the end, yes.

8 If we go to page 15 {C5/258/15}, and if we just look  
9 at the first sentence of the first main paragraph there,  
10 we see:

11 "Beyond our international comparisons, we also  
12 consider within country variation in valuation for  
13 online privacy."

14 Then they explain the methodology that they used to  
15 do that, and that is looking at the difference between  
16 individuals in the same country, yes?

17 A. Yes.

18 Q. Then the results are set out in tables 5a through d?

19 A. Yes.

20 Q. We do not need to look at the detail of that,  
21 thankfully. So not only do the valuations vary between  
22 countries, but they also vary within country, yes?

23 A. Yes, there is evidence -- statistically significant  
24 evidence of variation within country.

25 Q. You would agree it is difficult to draw any conclusions

1           about how much people in the United Kingdom value the  
2           privacy of their data based on this study?

3       A.   Yes.  I mean obviously the study would be more  
4           informative for the question the Tribunal faces if  
5           the UK had been included as one of the countries.

6       Q.   You would agree that different people in the  
7           United Kingdom are likely to value their privacy to  
8           different extents, yes?

9       A.   Yes, which obviously is a question that has come up in  
10          the context of competition between different mobile  
11          ecosystems.

12      Q.   That would be true of members of the Class in this case,  
13          yes?

14      A.   So within the Class there would be heterogeneity.  Yes,  
15          I would expect there to be some(?).

16      Q.   I want to now look at the --

17      A.   What I would just add to that is that, to the extent  
18          that reduced security on the ecosystem has effects on,  
19          say, the number of developers who are present on the  
20          ecosystem, even those who do not care very much about  
21          security could end up being impacted indirectly.

22      Q.   I want to talk about the proportion of the Class that is  
23          likely to be affected by malicious attacks of the nature  
24          that we are discussing here, so malicious apps that  
25          steal information falling into the two categories that

- 1           we are looking at, okay?
- 2       A.   Okay.
- 3       Q.   As we discussed yesterday, in order to estimate any
- 4           benefit arising from the restrictions, it would be
- 5           necessary to estimate first how many device -- sorry,
- 6           first how many iOS Device Users have their data shared
- 7           without their permission in the actual world, and then
- 8           it would be necessary to consider how many iOS Device
- 9           Users would have their data shared without their
- 10          permission in the counterfactual world, yes?
- 11       A.   Yes, although one could -- you know, this is not
- 12          something I quantify, but there is also -- if choices in
- 13          the counterfactual world are more complicated, there
- 14          could also be contemplation costs associated with that,
- 15          but that is not -- (overspeaking) --
- 16       Q.   But that is the basic exercise that we discussed
- 17          yesterday, actual versus counterfactual, and as we
- 18          discussed yesterday, that is not something that you have
- 19          tried to do in your reports, correct?
- 20       A.   Correct.
- 21       Q.   Neither Apple's factual witnesses nor Professor Rubin
- 22          have sought to carry out that analysis, have they?
- 23       A.   No, and obviously one of the challenges is understanding
- 24          exactly what the counterfactual looks like.
- 25       Q.   Let us assume in your favour that the number in the

1           actual is zero, so there are no attacks against iOS  
2           Device Users of this nature in the actual world, okay?

3       A.   On -- in iOS?

4       Q.   Yes, iOS Device Users.   So first limb zero.   We are now  
5           going to look at the second limb and try and come up  
6           with some sort of idea of what it might look like.

7       A.   Okay.

8       Q.   You would accept that in the counterfactual not every  
9           member of the Class would download a malicious app of  
10          the nature that we are contemplating, yes?

11      A.   Correct, although there can be externalities between  
12          users, you know.   So the behaviour of one user could end  
13          up impacting other users, but let us, for the sake of  
14          argument, say that does not -- (overspeaking) --

15      Q.   Yes, it is not every -- (overspeaking) --

16      A.   Not everyone -- (overspeaking) --

17      Q.   -- people are not going to download a banking Trojan, is  
18          the simple point I am putting to you now.   I think that  
19          is uncontroversial.

20                I now want to look at two documents which might help  
21                us to come up with some sort of proxy for what that  
22                proportion might be.   If we go to {D1/803/1}.   This is  
23                the Nokia Threat Intelligence Report from 2020.   I think  
24                you are familiar with this document, are you not?

25      A.   Yes, I cite a number of years of this report.

- 1 Q. Yes, absolutely, so you hopefully remember it.
- 2 We are going to pick it up at page 10 {D1/803/10}.
- 3 This is a chart that breaks down Android malware by type
- 4 of malware, okay? So we are in the Android ecosystem,
- 5 not the iOS ecosystem.
- 6 A. Okay.
- 7 Q. What we are interested in is the pie-chart type chart --
- 8 I am sure it has a different name for those in the know,
- 9 but let us call it a pie-chart, and if we look at the
- 10 key we see, in the imperceptibly different dark navy,
- 11 "Banking Trojan", do you see that?
- 12 A. Yes. It is a bit hard to work out which ...
- 13 Q. It is a bit hard, but I think that corresponds to the
- 14 13% that we see on the top left.
- 15 A. Okay, I will take your --
- 16 Q. We will go with that. There then there is no specific
- 17 entry for malware associated with biometric information,
- 18 but what we do see is we see a category of InfoStealer,
- 19 just below Banking Trojan. If we go back to the key,
- 20 you will see one row down --
- 21 A. Yes, so that would be the 3.5.
- 22 Q. That corresponds to the 3.5%. I am going to suggest
- 23 that we use that as a proxy for apps that might steal
- 24 biometric information, okay?
- 25 A. Okay.

1 Q. So we have got 13, we have got 3.5. Let us keep those  
2 in our head. We are going to look at the next year of  
3 the threat intelligence report, that is {D1/1044/1},  
4 just to see the front page. Again I think you cite this  
5 version in your report, so hopefully a familiar  
6 document.

7 Let us pick it up on page 6, it is a similar diagram  
8 to the one we just looked at. It is Android malware by  
9 class for the following year, 2021. Again, we see, this  
10 time in a slightly different colour, "Banking Trojan",  
11 and I think that that corresponds to the 18%, yes?

12 A. Yes. I mean, I will agree with you.

13 Q. Then "InfoStealer", particularly difficult on this  
14 occasion but I think it corresponds to the 5%?

15 A. I have no idea whether some apps contain multiple forms  
16 of malware. We are just going to assume they are  
17 different apps.

18 Q. We are going to assume that they are separate. We have  
19 a separate category for "Banking Trojan" here. It seems  
20 likely to correspond to the financial information  
21 disclosure risk that you are talking about?

22 A. Yes.

23 Q. We are going to use it, as I say, as a sort of rough and  
24 ready guide to how things might look in the  
25 counterfactual, okay?

- 1 A. Okay.
- 2 Q. So we take the average for the banking Trojan across  
3 2020 and 2021. I make it 15.5%, so 13 plus 18 divided  
4 by 2. For convenience, let us call it 15%.
- 5 A. Sorry, the division by 2 is because of the 50% market  
6 share?
- 7 Q. Just to get the average for the two years. We have got  
8 a 13 --
- 9 A. Okay. Okay, sorry.
- 10 Q. Then for the Info-stealers we had a 3.5 and a 5, divide  
11 by 2 is 4.25. Let us call it 4 for convenience.
- 12 Obviously the figures that we just looked at in  
13 those two diagrams show the proportion of all Android  
14 malware which is of a particular type, yes?
- 15 A. Yes -- I cannot tell whether other types may have  
16 relevance to these categories, but yes.
- 17 Q. That is what the chart is doing, it is saying let us  
18 break them down --
- 19 A. That is what it is trying to do, yes.
- 20 Q. So the 18% is 18% of all Android malware. But if we  
21 assume an equal distribution of all malware across all  
22 Android users, then we can use these figures as a proxy  
23 for the proportion of Android users affected by those  
24 types of malware, yes?
- 25 A. I mean this is -- yes, I think you may need to make some

1 additional assumptions, but this would be part of the  
2 calculation.

3 Q. That would be part of it. I just want to try and get  
4 from all Android malware to all Android users --

5 A. Yes, that is right.

6 Q. -- and I am suggesting we just take the 15% and the 4%  
7 and assume that they can act as a proxy for the  
8 proportion of Android users affected by a particular  
9 class of malware.

10 A. Okay.

11 Q. Does that seem reasonable?

12 A. I mean, you are taking something which seems to be based  
13 on breaking up malware to impose (inaudible) users, but  
14 I am not seeing other assumptions that could be made so  
15 we can go with that for now.

16 Q. I mean, if anything, it may be that one given user  
17 downloads --

18 A. Lots of malware.

19 Q. -- more malware, so if anything it is going to be  
20 a conservative proxy, right?

21 A. Right.

22 Q. You are aware that not all Android apps are reviewed for  
23 malicious behaviour in the actual world, yes?

24 A. So I understand there are, you know -- there are some  
25 things obviously Google Play does. There are some

- 1           that -- you know, other stores may typically do less.
- 2       Q.   Some do none not at all?
- 3       A.   Some -- it is claimed, but obviously that is outside my  
4           expertise.
- 5       Q.   Yes.  But just contextualising these figures, because we  
6           are about to port them over to iOS, so I think it is  
7           just important to have that context when we are thinking  
8           about that.
- 9           You are aware that we say that in the counterfactual  
10          all iOS Apps could and would be reviewed for malicious  
11          behaviour before they were distributed, yes?
- 12      A.   So I understand you are proposing that there is full App  
13          Review for all.
- 14      Q.   So you would accept that these figures, the 15 and the  
15          4, are not a particularly good proxy for the likely  
16          incidence of malware of these types on iOS devices in  
17          the counterfactual?
- 18      A.   I mean, obviously to the extent that the App Review  
19          process, even without the restrictions, is able to  
20          combat malware more effectively than Android does in the  
21          actual world -- (overspeaking) --
- 22      Q.   -- from the Nokia reports, do we not?
- 23      A.   Yes, yes.
- 24      Q.   There are no figures given for iOS.  So we know that in  
25          the actual, Apple is better.  There is obviously a huge

1 fight about what happens in the counterfactual where you  
2 remove the restrictions, but if we assume that App  
3 Review is there, I think we would agree that it is  
4 likely -- we are likely to see lower figures than 15 and  
5 4?

6 A. Yes, that would be part of the value that Apple's  
7 services are providing to developers and other app  
8 stores even if they are distributed outside the  
9 App Store.

10 Q. Let us use 15 and 4 for the purposes of our questions,  
11 because those are the only figures that we have got,  
12 yes?

13 A. Okay.

14 Q. Just looking at time of discovery, in calculating your  
15 estimates you seem to assume that the attack in question  
16 would go undiscovered for 12 months, is that correct?

17 A. So on the basis that these are annual calculations,  
18 I mean --

19 Q. You annualise the monthly figures given in Prince and  
20 Wallsten?

21 A. Yes, yes.

22 Q. If we are hypothesising a malicious attack, that would  
23 suggest the attack goes undiscovered for 12 months?

24 A. So I would not quite interpret it in that way. These  
25 are not calculations -- you know, Prince and Wallsten

1 are not providing us with numbers for the costs of  
2 a malware attack to a user who is attacked. You know,  
3 Prince and Wallsten are asking questions about  
4 willingness to share information with a -- or  
5 willingness to allow your smartphone company or your  
6 bank to share information with third-parties. Obviously  
7 someone who actually has malware on their phone and is  
8 attacked could experience much higher costs. Of course,  
9 they could be lucky and not actually experience any  
10 costs.

11 Q. Yes, but what we do not see in your report is any study  
12 or empirical evidence about what those other costs might  
13 be that flow specifically from --

14 A. Correct --

15 Q. -- some form of malware attack? You have chosen to rely  
16 on the Prince and Wallsten study?

17 A. Correct.

18 Q. We discussed yesterday that what we do not see in your  
19 report is anything that ties back these estimates to  
20 particular bits of factual or expert evidence --

21 A. (Inaudible - overspeaking) Yes.

22 Q. -- expert evidence, and what I am trying to do is to  
23 join the dots and look at the sorts of attacks that are  
24 said to be likely, or are said to have an increased  
25 likelihood in the counterfactual, and try and tie these

1 up with the estimates that you have provided?

2 A. Yes.

3 Q. So that the Tribunal has some sense of how these things  
4 map on to each other, okay?

5 A. Yes, and also after I gave these numbers in my report,  
6 I had some discussions about how things might be  
7 combined in different ways. But I understand the  
8 exercise -- (overspeaking) --

9 Q. -- for the totting up exercise that you come on to for  
10 your conclusion that the benefits outweigh the harms.  
11 I am familiar with that.

12 A. Yes.

13 Q. But in terms of when an attack of the nature that we are  
14 contemplating might be discovered, it could be a matter  
15 of days, it could be a month, it could be a year. It  
16 will just depend on the type of app in question, yes?

17 A. Yes, and obviously it may be discovered more quickly  
18 when the costs have turned out to be much higher.

19 Q. So what I want to do now is to look at the various  
20 factors that we have been discussing and see how these  
21 affect the estimates using the Prince and Wallsten WTA  
22 figures as a starting point, okay?

23 A. Yes.

24 Q. Let us start with fingerprint data, and the average WTA  
25 in Prince and Wallsten was \$7.60, yes?

- 1 A. Per month.
- 2 Q. The per month figure is \$7.60.
- 3 A. Yes, yes.
- 4 Q. I think you convert that to £5.93 at an average exchange  
5 rate, somewhere in your report.
- 6 A. Okay.
- 7 Q. If we multiply that £5.93 by 0.04, which is our proxy  
8 for the likelihood of downloading an InfoStealer app,  
9 that is the 4% that we discussed, and let us assume that  
10 the attack is discovered within a month -- you will have  
11 to trust my maths, or continue to trust my maths -- what  
12 I get is 24p as the estimate of the value.
- 13 A. Okay, I will --
- 14 Q. Per-user.
- 15 A. -- trust your maths but, you know, one needs to  
16 understand that obviously (inaudible) a user, when they  
17 are giving their stated preference to Prince and  
18 Wallsten, you know, that is partly avoiding the risk of  
19 the attack. So it is not so clear you should be doing  
20 this multiplication exercise by the probability of  
21 actually being attacked, but I recognise the calculation  
22 that you have done and I accept that.
- 23 Q. You recognise that I have only got the Prince and  
24 Wallsten figures, that is all you have given me?
- 25 A. Correct, yes, I understand that.

1 Q. I fully accept this is rough and ready, it is just to  
2 try and give some sense of orders of magnitude to the  
3 Tribunal of what the counterfactual might look like.

4 If we turn to financial data, you recall that Prince  
5 and Wallsten give WTA estimates for two types of  
6 financial data: one is bank balance and one is cash  
7 withdrawal, yes?

8 A. Yes, they were the upper and lower bound numbers that  
9 I used.

10 Q. Those categories were both part of what Prince and  
11 Wallsten called the financial survey, yes?

12 A. Yes, that is correct.

13 Q. If we go back briefly to the Prince and Wallsten  
14 article, it is {C5/258/17}, and if we just pick it up  
15 right at the bottom, we see the authors say:

16 "A natural question is whether the results are  
17 additive - that is, is it meaningful to add the data  
18 types within a platform and conclude that the sum is the  
19 total value for all those data types combined? In  
20 short, the answer largely depends on the degree to which  
21 preferences for different types of data privacy are  
22 interrelated. We did not explore any interactions in  
23 this exercise, given the already substantial complexity  
24 of the survey instruments. It remains work for future  
25 research."

1           What I take from that is that it may not be  
2           appropriate simply to add up the values for bank balance  
3           and cash withdrawal and say that that is the total value  
4           of that information?

5           A. Yes, which is not what I did.

6           Q. No, no, absolutely, I am not saying it is. I am just  
7           trying to establish common ground as to whether or not  
8           that would be appropriate.

9           A. Yes, I mean obviously they are asking questions about,  
10          you know, a number of different things that actually  
11          I did not use in my estimates, such as location. One  
12          could also imagine one would want to add those things in  
13          as well. But, you know, specifically here I just took  
14          one of the -- the highest value of the financial  
15          information to give the upper bound and the lowest value  
16          for different attributes. I am trying to be consistent  
17          with -- (overspeaking) --

18          Q. Absolutely. I am not for one second suggesting that you  
19          did --

20          A. Yes.

21          Q. I am just -- my point is that when we are looking at the  
22          possibility of a banking Trojan, which is the hypothesis  
23          that we are working on, it might not be appropriate  
24          simply to add up these values and say that that is  
25          the --

- 1 A. Correct.
- 2 Q. So what I propose we do is we take the average of those  
3 two numbers, which I make \$7.12, or £5.55, when we are  
4 thinking about the value associated with a potential  
5 banking Trojan attack.
- 6 A. Yes. I mean obviously, you know, this is -- these  
7 questions are not asked within the context of, say,  
8 a banking Trojan which is getting the credentials for  
9 your bank. Obviously if a bad actor did get credentials  
10 for your bank, they would be able to extract both the  
11 types of information that we are talking about, plus  
12 other relevant information as well.
- 13 Q. Absolutely.
- 14 A. So in that context, addition might be more plausible,  
15 but I went ahead without addition.
- 16 Q. We do not have any information --
- 17 A. No, we do not.
- 18 Q. There is no evidence before the Tribunal about --
- 19 A. Correct.
- 20 Q. -- what the other types of data might be, what they are  
21 worth, what actual attacks look like, et cetera, so we  
22 are just working with these.
- 23 A. Yes.
- 24 Q. If we multiply that average figure of £5.55, and again  
25 I note your reservation on this point, but if we

- 1 multiply it by 0.15, which is the 15% --
- 2 A. Average.
- 3 Q. -- and again assuming that I have done the calculation  
4 correctly, I get 83p for the banking Trojan. What I am  
5 going to put to you is that once you start taking into  
6 account the proportion of the Class that may be affected  
7 by an attack of the kind that we are contemplating, and  
8 you vary the time that that attack takes to be  
9 discovered, you get estimates which are several orders  
10 of magnitude smaller than the estimates that you  
11 provide, yes?
- 12 A. As I think we were very clear yesterday, you know, the  
13 numbers that I am providing are -- you know, are numbers  
14 to which it was very clear that some fraction for the  
15 difference between the actual and the counterfactual  
16 would need to be applied. But what I would say, if you  
17 think about -- you know, the cost to people of losing  
18 their banking credentials, one can imagine those costs  
19 are actually much larger than -- (overspeaking) --
- 20 Q. But you have not sought to estimate those costs?
- 21 A. I have not estimated those. But of course the Tribunal  
22 will want to keep numbers which I have not been in  
23 a position to provide numerical values for in mind.
- 24 Q. Well, did you look for information on average cost of  
25 a banking Trojan attack?

1       A. You know, there are numbers you can find, but it is not  
2       some -- I was not able to find a precise average number  
3       of malware -- banking Trojan malware attack, no.

4       Q. The Tribunal will just need to do its best with what it  
5       has in front of it?

6       A. Of course, yes, of course.

7       Q. What we have been assuming in this discussion is that  
8       there are no relevant attacks in the actual world, and  
9       that in the counterfactual world iOS is no more secure  
10      than Android, yes?

11      A. That has been the spirit of the exercise, yes.

12      Q. It follows that your estimates are simply not a reliable  
13      estimate of any benefit arising specifically out of the  
14      restrictions, are they?

15      A. No, because I have not attempted to provide the  
16      proportionality factor for the difference between the  
17      actual and the counterfactual.

18      Q. Let us move on to subparagraph (c), which is antivirus  
19      software. If we go to {C3/3/190}, and if I could just  
20      ask you to remind yourself, and ask the Tribunal to read  
21      that paragraph, and just let me know when you are  
22      finished and when you need to turn the page.

23                   (Pause)

24      A. Okay, yes, I am ready.

25                   (Pause)

1 Q. Are you aware, Professor Sweeting, that the tools that  
2 Apple uses as part of its App Review include a malware  
3 scan?

4 A. Yes, I am.

5 Q. We discussed this two or three times now, but you are  
6 aware that it would be possible for Apple to continue to  
7 carry out App Review of all iOS Apps in the  
8 United Kingdom without maintaining the restrictions,  
9 yes?

10 A. Yes, so I understand that in terms of malware detection  
11 there are things that happen at the time of, you know,  
12 App Review and review of updates, but they are also  
13 combined with on-device procedures as well.

14 Q. If Apple were carrying out the same malware scan in the  
15 counterfactual as it carries out in the actual, it would  
16 follow logically that iOS Device Users would have no  
17 need to purchase antivirus software in the  
18 counterfactual, correct?

19 A. You know, assuming that Apple is able to maintain kind  
20 of an identical level of security, then that would be  
21 true. Obviously there is a question about, you know --  
22 depending exactly how the counterfactual is specified,  
23 which is obviously a topic of debate, whether that will  
24 be true and whether the existence of alternative  
25 distribution channels could ultimately result in,

1           you know -- (overspeaking) --

2       Q. We have explored that with -- (overspeaking) --

3       A. Yes, I know.

4       Q. Of course. Are you aware that it is Professor Rubin's

5           evidence that it is in fact not possible for

6           commercially available antivirus software to operate on

7           iOS devices?

8       A. Yes, I understand that on iOS, antivirus software is not

9           doing the same kind of activity that we are familiar

10          with on PCs or on Android Devices.

11       Q. He says it is basically -- it is rubbish, it is

12          basically a password manager, or something to that

13          effect. It is not antivirus software in the sense that

14          Android users are able to purchase antivirus software or

15          Windows users or Mac users, yes?

16       A. Yes, that is what I understand.

17       Q. If that is right, then there would be no effective

18          antivirus software for iOS Device Users actually to

19          purchase in a counterfactual, would there?

20       A. Correct. So, you know, this calculation is based on

21          a -- you know, it is premised on the idea that in the

22          counterfactual, if there is a reduction in security,

23          you know, kind of malware type, antivirus type security,

24          then iOS Device Users may choose -- you know, may end up

25          in a position where they are choosing some type of

- 1 external malware detection service.
- 2 Q. But just so that we are not at cross-purposes,  
3 Professor Sweeting, what I am putting to you is that  
4 they would not be able to purchase any effective  
5 anti-virus software actually to install on the phone, so  
6 what I am suggesting is that they would not do that?
- 7 A. This is obviously a technical question which ... I am  
8 happy to go with kind of your assumption. This is  
9 obviously partly a reflection that at least some Android  
10 users prefer to purchase additional software because  
11 they are concerned about antivirus and malware problems.
- 12 Q. Are you aware -- we can look at each of the pieces of  
13 evidence, but let me ask the question in more general  
14 terms to start with. Are you aware that there are  
15 antivirus mechanisms on Mac, so there is something  
16 called Gatekeeper, something called XProtect, something  
17 called the Malware Removal Tool, MRT. They are features  
18 of Mac. In cross-examination, Mr Federighi confirmed  
19 that those could be applied to iOS devices.
- 20 A. So I am aware there are various tools on Mac but I could  
21 not give you their names.
- 22 Q. Let us have a quick look at it, just so that we are all  
23 on the same page. Let us start with first Federighi.  
24 Let us pick it up at paragraph 106 {B2/3/34}. If we  
25 actually go to page 32, just to start, just to get our

1           bearings, you will see that this is in Mr Federighi's  
2           discussion of macOS, okay?

3           A.   Okay.

4           Q.   If we go back to paragraph 106, page 36, we see  
5           Mr Federighi says:

6                     "Apple also installs and enables, as default  
7           technology on macOS, a security technology called  
8           Gatekeeper, which is designed to help ensure that only  
9           trusted software runs on a user's Mac Device by, for  
10          example, checking for malware in software regardless of  
11          how that software is downloaded and installed onto a Mac  
12          Device."

13                    So a form of malware software, yes?

14          A.   Yes.

15          Q.   Then if we go over the page to 111 {B2/3/35}, we see:

16                    "macOS also includes built in antivirus technology  
17          known as XProtect that checks whether a piece of  
18          software that a user is running matches a set of known  
19          signatures for malware."

20                    Then, sorry to jump around, but if you go to first  
21          Lee, {C2/5/1}, just to show you the front page --

22          A.   Am I supposed to be remembering the names?

23          Q.   Yes.   Gatekeeper, XProtect, and there is one more coming  
24          which is going to be MRT, okay?

25          A.   Okay.

1 Q. So front page, this is the first page of Dr Wenke Lee,  
2 he is the Class Representative's security expert, and if  
3 we go to page 63, what we see is the second bullet on  
4 that page:

5 "... macOS has a malware removal tool to detect and  
6 remove malware that was able successfully to execute."

7 So that is the third category of malware tool that  
8 exists on macOS.

9 Let us just see what Mr Federighi said about these  
10 three features in cross-examination in these  
11 proceedings. If we go to Day 8 of these proceedings,  
12 please, and pick it up at page 121.

13 A. Sorry, who is ...

14 Q. This is Mr Federighi who you are familiar with, I think?

15 A. Yes.

16 Q. He was cross-examined by me some time ago now. If  
17 I could ask you to read from line 22, you will see  
18 a question "It is correct" --

19 A. Could I just see -- I am just going to read the whole  
20 page.

21 Q. So -- by all means.

22 (Pause)

23 If you could continue over the page to line 6 and  
24 then I will ... (Pause)

25 A. Okay, I have reached the bottom of the page.

- 1 Q. If you read line 6 on the --
- 2 A. Up to line 6?
- 3 Q. Up to line 6, just so you have the full scope of
- 4 Mr Federighi's answer.
- 5 A. Okay.
- 6 Q. So what we see from Mr Federighi's evidence is that Apple
- 7 could provide iOS Device Users with additional malware
- 8 protection in the counterfactual, yes?
- 9 A. Yes. I mean, Apple could obviously always provide
- 10 additional services to either developers or users in --
- 11 (overspeaking) --
- 12 Q. Just focusing on these three specific features that
- 13 already exist on macOS; Apple already provides them to
- 14 Mac users, and Mr Federighi confirmed that it would be
- 15 possible to implement them on iOS. That is in contrast
- 16 to the third-party antivirus software which, as we saw,
- 17 Professor Rubin says cannot be installed, yes?
- 18 A. So I agree with your description of what Mr Federighi
- 19 said. Obviously there is a question about how effective
- 20 these tools are. So we understand from -- or
- 21 I understand from the Nokia report that the number of --
- 22 the amount of malware on Macs, while it is lower than
- 23 Windows PCs, you know, there may be many reasons for
- 24 that, is higher than it is on iOS.
- 25 Q. Me and Mr Federighi explored that previously so we do

1 not need to get back into it, thankfully.

2 A. Sure.

3 Q. What I am going to suggest to you is that when we look  
4 at this evidence in the round, on any view iOS Device  
5 Users in the counterfactual are not going to be  
6 purchasing third-party antivirus software.

7 A. You know, under the counterfactuals you have laid out  
8 now, that is true. I would note that -- and I think  
9 I remember this accurately and I apologise if I do  
10 not -- you know, in his first report Dr Lee was kind of  
11 envisaging one of the things that might happen in the  
12 counterfactuals would be the use of antivirus software.

13 Q. What he was referring to is Gatekeeper, XProtect and  
14 MRT. That is his evidence. So that is -- and what  
15 happened was --

16 A. Was he precise about that? Okay.

17 Q. He was precise about that, and then I asked the question  
18 of Mr Federighi "Could you do it?" and he said "Yes",  
19 just so you have the full context of how it all played  
20 out.

21 But look, let us assume that I am wrong about the  
22 ability or incentives for iOS Device Users to purchase  
23 antivirus software in the counterfactual and let us just  
24 look at your point estimate for what the average  
25 expenditure by Android device users is on antivirus

1 software.

2 THE CHAIRMAN: Mr Kennedy, forgive me for interrupting.

3 Although we have got a short session, we probably still  
4 should take a break for the shorthand writer.

5 MR KENNEDY: I have about two minutes left on this topic,  
6 sir, so I wonder whether, if I wrap that up, and then we  
7 come to a natural break, is that okay?

8 THE CHAIRMAN: That would be very helpful, thank you.

9 MR KENNEDY: Sorry, Professor Sweeting, we were just talking  
10 about your average Android device user estimate, which  
11 I understand to be 97 cents, yes?

12 A. Is that p or cents? I cannot remember.

13 Q. I that is cents, and then you convert it to p at 0.76,  
14 is my recollection.

15 A. This is obviously reflecting the fact that only a small  
16 proportion of Android users in the actual world install  
17 antivirus.

18 Q. Precisely, and I just want to look at where we get the  
19 0.97 or the 0.76 from.

20 A. Sure.

21 Q. You get the 3.4 billion -- sorry, let me go back a step.  
22 You get that figure by dividing 3.4 billion by  
23 3.5 billion which is your estimate of the number of  
24 Android users worldwide, is that correct? I can show  
25 you. It is first Sweeting --

1 A. Yes, I would need to remind myself of that.

2 Q. -- footnote 205 at {C3/3/65}. If we could zoom in on  
3 footnote 205, you see:

4 "As of 2024, there are 3.5 billion Android users  
5 and ..."

6 A. They are spending 3.4 billion.

7 Q. Yes, and we see the calculation about five lines down:  
8 3.4 divided by 3.5 equals 97 cents, yes?

9 A. Okay, yes.

10 Q. You take the 3.4 billion figure from an Apple document.  
11 Let us just turn it up. It is {D1/1176}. Let us look  
12 at the first page -- sorry, second page. It is a White  
13 Paper published by Apple, October 2021, "Building  
14 a trusted ecosystem for millions of apps. A threat  
15 analysis of side loading". Do you recall this?

16 A. Yes.

17 Q. If we turn to page 8, we will see where we get the  
18 figure from. It is near the bottom. {D1/1176/8}

19 If we could zoom in on the bottom paragraph, and  
20 then you want to look about seven lines up, and it is  
21 the sentence starting "On platforms". It says:

22 "On platforms that support side loading many  
23 consumers also needed to add antivirus services on their  
24 devices to attempt to stem the problem - at a cost of  
25 \$3.4 billion per year for those services."

1                   Yes?

2       A.   That is correct, yes.

3       Q.   Android is not the only platform that supports side  
4           loading, is it?

5       A.   So I cannot remember -- I mean obviously -- I cannot  
6           remember which year this document is.  If we are looking  
7           at --

8       Q.   It is October 2021.

9       A.   If we are looking at mobile apps, as the blue part on  
10          the top of the paragraph says, then it is likely that  
11          Android is --

12      Q.   But the sentence --

13      A.   -- by far the biggest component, even though others may  
14          allow some side loading.

15      Q.   But the sentence does not specify whether we are talking  
16          simply about Android or about other platforms, yes?

17      A.   That is correct.  I mean, the sentence itself is not  
18          specific.  However, to the extent that the discussion is  
19          specifically about mobile apps, I would regard it likely  
20          that the 3.4 billion is primarily --

21      Q.   We have no citation here for where Apple gets the  
22          3.4 billion from?

23      A.   No, correct.

24      Q.   The simple point is that if it is not limited to Android  
25          Devices then the figure for Android Devices would be



1 Apple's subscription management feature."

2 Yes?

3 A. Yes.

4 Q. Let us go to the document that you refer to at footnote  
5 521. It is {D1/1723}. This is the Citizens Advice  
6 press release that you take the headline figure of  
7 688 million from, yes?

8 A. Yes, that is correct.

9 Q. Let us have a look at what it says. Let us pick it up  
10 beneath the bullet points:

11 "New research from Citizens Advice has found that  
12 over 13 million people (26% of UK adults) have  
13 accidentally taken out a subscription in the last  
14 12 months. These subscriptions cover services from  
15 fitness apps to food delivery services, and repeat pet  
16 food to magazine subscriptions."

17 Next paragraph:

18 "The charity is warning that the problem of  
19 subscription traps is deepening, as it estimates unused  
20 subscriptions have cost consumers £688 million in the  
21 last year. This is up £382 million from £306 million  
22 citizens Advice found when it last looked into the  
23 problem at the end of 2022."

24 Yes?

25 A. Yes.

1 Q. Next paragraph:

2 "Of those who ended up with an accidental  
3 subscription, the most common reason was because it auto  
4 renewed without their knowledge ... this is followed by  
5 people who took out a subscription for a free trial but  
6 forgot to cancel later ... and worryingly, almost one in  
7 four ... people who have ended up in an accidental  
8 subscription thought they were making a one-off  
9 purchase."

10 Yes?

11 A. Yes, that is correct.

12 Q. Three factual questions which you may or may not know  
13 the answer to: does Apple provide iOS Device Users with  
14 alerts about auto renewal of subscriptions?

15 A. I certainly believe they do for some subscriptions but  
16 I cannot say they necessarily do for all.

17 Q. Does Apple provide iOS Device Users with alerts about  
18 free trials coming to an end?

19 A. I believe that depends on the length of the trial.

20 Q. Does --

21 A. This is based on -- I read a -- the CMA has an analysis  
22 of subscriptions and I believe that is one factor they  
23 mentioned.

24 Q. Appendix K, I think, of the CMA report. Does Apple help  
25 iOS Device Users discriminate between subscriptions and

- 1           one-off purchases?
- 2       A.   So, I mean, I -- yes, I am just going to say I do not  
3           know to that. I am not going to claim --
- 4       Q.   I want to look now at the proportion of the Class that  
5           is likely to be affected by the issue which we are  
6           discussing, okay?
- 7       A.   Sure.
- 8       Q.   This press release does not relate specifically to iOS  
9           Device Users, correct?
- 10      A.   For sure, yes, that is correct.
- 11      Q.   It relates to UK adults generally.
- 12      A.   Yes.
- 13      Q.   Smartphone ownership in the UK is about 98%, I think?
- 14      A.   Of adults.
- 15      Q.   Of adults. So a small fraction of the 26% of people who  
16           accidentally took out a subscription would not be  
17           smartphone device owners, yes?
- 18      A.   Presumably.
- 19      Q.   But let us ignore them, that is going to be my proposal.  
20           Not everyone who is a smartphone owner is an iOS  
21           device owner, correct?
- 22      A.   Correct. It is around -- (overspeaking) --
- 23      Q.   50-60% of smartphones in the United Kingdom are iPhones,  
24           yes?
- 25      A.   Around that.

- 1 Q. That is the CMA figure. So, at most, 60% or  
2 412.8 million of the 688 million could relate to iOS  
3 Device Users, yes?
- 4 A. In the current world, yes.
- 5 Q. 60% of 13 million is about 7.8 million, on my reckoning?
- 6 A. Yes. I mean, obviously, ideally one might account for  
7 the fact that iOS Device Users may have a greater  
8 propensity to take out subscriptions, but obviously we  
9 do not know that.
- 10 Q. Yes. Not all of the accidental subscriptions that are  
11 dealt with in this press release will be subscriptions  
12 that were purchased in an app, correct?
- 13 A. That is correct.
- 14 Q. Some will have been purchased on, say, Netflix's  
15 website, yes?
- 16 A. Correct.
- 17 Q. Those subscriptions, or subscriptions that are purchased  
18 outside of an app cannot be managed within an app,  
19 correct?
- 20 A. Yes, I believe that is correct.
- 21 Q. This article does not tell us what proportion of  
22 subscriptions were purchased in in-app and what  
23 proportion were purchased out of an app, does it?
- 24 A. It does not.
- 25 Q. Let us assume for the purposes of argument it is a 50/50

1 split?

2 A. Okay.

3 Q. So now we have 206.4 million of potential accidental iOS  
4 in-app subscriptions, yes? With me so far?

5 A. You are doing the maths so I will trust you.

6 Q. I am doing the maths, unfortunately.

7 Now, the examples that were given in the article,  
8 and they were just examples, but they were fitness apps,  
9 food delivery services, repeat pet food and magazine  
10 subscriptions, yes?

11 A. Yes.

12 Q. If we are thinking about an iOS context, some of those  
13 transactions would be processed --

14 A. Are for physical goods.

15 Q. Pardon me?

16 A. Sorry, I was going to say some of these are for physical  
17 goods.

18 Q. Some are physical, some are digital. If it is physical  
19 or person to person, so fitness apps, you do not have to  
20 use IAP.

21 A. Yes.

22 Q. So if we have a quick look at the relative values of  
23 digital and physical content to try and give us some  
24 sort of proxy for what the split is. If we look at  
25 {D1/888}. This is -- can we start on page 1. This is

1 a report by the Analysis Group. Have you seen this  
2 before?

3 A. Yes, I believe so.

4 Q. It was put to Mr Owens by Apple's counsel in  
5 cross-examination. If we just pick it up on page 3  
6 {D1/888/3}, this was the table that was shown to  
7 Mr Owens and it gives -- table 1 gives "Estimated  
8 billings and sales facilitated by the Apple App Store  
9 ecosystem worldwide, 2019". What we see is digital  
10 goods and services at 61 billion, physical goods and  
11 services at 413 billion.

12 Just out of fairness to you, Professor Sweeting, if  
13 we look at the double asterisk, we see:

14 "Estimated billings and sales from digital goods and  
15 services is not the same as total app store billings.  
16 Our estimate also includes the volume of sales from  
17 digital goods and services purchased elsewhere but used  
18 on apps on Apple devices ..."

19 So the Reader Rule, Multiplatform Rule type  
20 purchases.

21 "... and conversely subtracts billings from in-app  
22 purchases made via the App Store but used elsewhere.  
23 The estimate is based on a combination of third-party  
24 sources and Apple data."

25 A. To be -- so obviously for the goods and services in

1           either category, this is not specifically referring to  
2           subscriptions versus --

3       Q. It is not, that is absolutely correct. But out of  
4       fairness to you, I just want to point out that the  
5       61 billion figure is not a true in-app purchase figure  
6       because of the subtraction and the addition that has  
7       been performed by Analysis Group, but I suggest we just  
8       ignore that nuance for now, but I did not want you to be  
9       unaware of that nuance whilst I am asking you questions  
10      about it.

11                So the total value of digital and physical is  
12      61 billion plus 413 billion, so 474 billion, yes?

13      A. Yes.

14      Q. I make 61 billion as a proportion of 474 billion to be  
15      13%.

16      A. That looks roughly right.

17      Q. Now, lots of physical goods and services transactions  
18      will not be subscription transactions, picking up on the  
19      point that you just made to me.

20      A. Yes.

21      Q. So let us assume that for subscriptions, rather than  
22      being a 13/87 split, it is a 50/50 split between  
23      physical and digital, again just for the purposes of  
24      these questions.

25                So then we take our 206.4 million and we divide that

1           by 2 to get 103.2 million of potential accidental iOS  
2           digital in-app subscriptions, yes?

3       A.   Okay.

4       Q.   Then we need to ask how many of those accidental  
5           subscriptions are avoided because iOS Device Users must  
6           use IAP to purchase those subscriptions, yes?

7       A.   That is getting closer to the -- you are thinking about  
8           this relative to the counterfactual?

9       Q.   I am thinking about it in the actual, actually, and what  
10          I am trying to work out is how much of this is avoided  
11          in the actual by the fact that iOS Device Users are  
12          required to use IAP which gives them a subscription  
13          management --

14      A.   Tool.

15      Q.   -- functionality.

16      A.   Okay.

17      Q.   We do not have a figure for that.  You do not provide  
18          one?

19      A.   No, I have not provided one.

20      Q.   I have not been able to find a proxy.  So again, for the  
21          sake of argument, I just want you to assume that the  
22          existence of the subscription management functionality  
23          in the actual reduces the risk of accidental purchases  
24          by half, so a 50/50 split.  It is not going to eliminate  
25          them all, it is going to eliminate some.

- 1 A. Okay.
- 2 Q. That would take us down to 51.6 million. Then we need  
3 to move to the counterfactual, and we have discussed  
4 this before, but in the counterfactual a proportion of  
5 in-app subscription purchases will continue to be made  
6 through IAP, yes?
- 7 A. Yes.
- 8 Q. We agreed earlier on that we could use 50% as a proxy  
9 figure for the proportion --
- 10 A. In the Primary Counterfactual.
- 11 Q. In the primary, and it would be higher in the payment  
12 systems counterfactual?
- 13 A. That is correct.
- 14 Q. iOS Device Users would continue to enjoy the advantages  
15 of subscription management facilitated by Apple in  
16 respect of those transactions, the 50%?
- 17 A. Yes. I mean, I would point out, you know,  
18 subscriptions -- you know, the ability of users to  
19 easily cancel subscriptions is one kind of area where  
20 you could imagine there could be some misalignment of  
21 the incentives of developers, who of course may benefit  
22 from users not cancelling promptly, versus users, which  
23 is one reason why you could understand a platform  
24 wanting rules and requirements.
- 25 Q. So if we take the 51.6, we divide that by 2 to get our

- 1           50%, we are at 25.3 million?
- 2           A. Yes.
- 3           Q. That is what is left on the table. You are aware that
- 4           in the counterfactual, there may be other ways of iOS
- 5           Device Users managing descriptions, other payment
- 6           services providers, or an example given by Mr Burelli
- 7           was Visa providing a subscription management service,
- 8           yes?
- 9           A. Yes, and I also understand there are third-party
- 10          subscription management tools.
- 11          Q. Again just for the purposes of this discussion, let us
- 12          assume that those alternatives are less effective than
- 13          the Apple subscription management, so let us assume that
- 14          rather than reducing accidental subscriptions by half,
- 15          they reduce them by 25%, okay?
- 16          A. Okay.
- 17          Q. That takes our 25 million-odd down to 18.98 million, and
- 18          then if we divide that by our 7.8 million users, and
- 19          then we divide by 12 to get to the monthly figure,
- 20          I make it 20p per month in terms of the average cost, or
- 21          the overall cost to iOS Device Users who made accidental
- 22          subscriptions -- subscription purchases in the
- 23          counterfactual. If we multiply that by 0.26, which was
- 24          the proportion of people who actually enter into
- 25          accidental subscriptions, we get 5 pence, yes?

- 1 A. I am letting you do the maths, so ...
- 2 Q. Okay, 20p times 0.26, you get about 5 pence. If we  
3 annualise that on the same basis that you do in your  
4 methodology, we get to 60 pence a year, yes?
- 5 A. Yes.
- 6 Q. That is for 2023. You will recall that we saw that the  
7 figure for 2022 that Citizens Advice gave --
- 8 A. Was lower.
- 9 Q. -- was considerably lower. So it follows that in 2022,  
10 assuming everything else remains the same, we would have  
11 figures of about 2.5 pence per month or 30p a year, yes?
- 12 A. Yes. I mean, you know, this logic is obviously  
13 suggesting that the number of iOS Device Users who are  
14 actually excessively enrolled in subscriptions right now  
15 is small, as well as the ability of IAP to solve the  
16 problem is also limited, but I understand the maths you  
17 have done.
- 18 Q. What I am going to put to you is that once we try  
19 embarking on some sort of consideration of both the  
20 actual and the counterfactual and break down the global  
21 figures that you rely on from Citizens Advice, what we  
22 see is that the estimate you provide at paragraph 405(d)  
23 of your first report is simply not a reliable estimate  
24 of the value of any benefit arising from the Payment  
25 System Restrictions?

1 A. Yes. I mean, as I was clear, this is -- you know, there  
2 was no proportionality factor applied and that the  
3 Tribunal would need to do so.

4 Q. Yes. Final estimate, Professor Sweeting, is Ask to Buy,  
5 and if I could ask you and ask the Tribunal just to  
6 remind yourselves of what paragraph first Sweeting  
7 405(e) says. That is {C3/3/192}.

8 (Pause)

9 THE CHAIRMAN: Sorry, yes, no need to wait for us. You keep  
10 going.

11 MR KENNEDY: If we just look at the article that you cite  
12 that you take these figures from, Professor Sweeting, it  
13 is {D1/231.1} I hope. This is an article from the  
14 Guardian newspaper updated 8 May 2013, yes?

15 A. Yes, that is correct.

16 Q. If we go over the page we will see, picking up in the  
17 second paragraph, that Microsoft carried out "a survey  
18 of 2,000 British parents who own a smartphone or  
19 tablet," yes?

20 A. Yes.

21 Q. Then we see the results of that survey two paragraphs  
22 down:

23 "28% of parents surveyed said that their children  
24 had made app and in-app purchases without their  
25 permission and of those parents 83% said they had

1           suffered from bill shock - noticing an increase in their  
2           'monthly bill statement' - as a result."

3           If you multiply the 28% by the 83% you get 23% as  
4           set out in your report.

5           A. Yes.

6           Q. The 23% of people were asked to estimate how much the  
7           purchases had added to their monthly bill, and they said  
8           that on average it was £34.18, yes?

9           A. That is correct, yes.

10          Q. Those are self reported figures by the people surveyed,  
11          yes?

12          A. Yes, that is what I understand.

13          Q. What you do in your report is you try and calculate the  
14          expected cost of unintended purchases to the average UK  
15          parent by multiplying the figure of £34.18 by 0.23, yes?  
16          You can see that in your report if --

17          A. Yes.

18          Q. That gives you the figure of £7.94, yes?

19          A. Yes, so that is obviously assuming that there is no cost  
20          to unauthorised purchases for the remaining --

21          Q. For the remaining people. So it is trying to get ...

22          A. Yes.

23          Q. If we treat that average UK -- I think it is really an  
24          average UK adult figure as a proxy for the average Class  
25          figure, what I want to do is work out how many people in

1 the Class actually use Ask to Buy and might benefit from  
2 the services facilitated by Apple, okay? That is the  
3 exercise that I am trying to engage in.

4 A. Okay.

5 Q. It is going to be similarly tortured to the other  
6 exercises, I am afraid. I think we will agree that not  
7 every member of the Class will have children?

8 A. I assume that is correct.

9 Q. So the proportion of the Class that would have cause to  
10 use Ask to Buy will be some subset, yes?

11 A. Yes, yes.

12 Q. Of that subset, some members of the Class will be  
13 parents to the same children? Lots of people within  
14 a family --

15 A. (Inaudible - overspeaking)

16 Q. -- all have iPhones. My wife has an iPhone, we have  
17 children. Only one member of the family group can be  
18 the organiser under Apple's Family Sharing ... I am told  
19 it is not right. It does not matter particularly, but  
20 my understanding had been that you had one organiser who  
21 would authorise the purchases.

22 A. Okay, I mean, it depends ...

23 Q. It is not going to affect the calculation so we will  
24 move on, and if I am wrong I apologise for inadvertently  
25 misleading you, Professor Sweeting.

1           But what we are trying to do is get to a proxy for  
2           the proportion of the Class that uses Ask to Buy. We do  
3           not find that in your report, but what we do find is  
4           a figure for use of Family Sharing as a whole.

5           A. Yes.

6           Q. We pick that up at first Sweeting paragraph 159  
7           {C3/3/77}. It is the second, third sentence:

8                     "An internal Apple survey of iPhone buyers in 2020  
9           found that nearly [blank] of iPhone buyers surveyed were  
10          aware of Apple's Family Sharing feature, with  
11          approximately [blank] of respondents indicating that  
12          they use the feature."

13                    Yes?

14          A. Yes.

15          Q. If we just remember what the percentage figure is, but  
16          I am going to do my best not to read it out. We could  
17          treat that as an upper bound on Ask to Buy usage, since  
18          Ask to Buy is a feature of Family Sharing, yes?

19          A. Yes, okay.

20          Q. The logic is that only people who use Family Sharing can  
21          use Ask to Buy --

22          A. Will be using...

23          Q. -- and so we know what the upper limit is.

24          A. Correct.

25          Q. Then if we multiply your £7.94 figure by the percentage

1 figure that we just saw, so we are taking the average  
2 adult or average Class member figure and we are  
3 multiplying it by the percentage of Class members that  
4 actually use the feature in question, yes?

5 A. Okay.

6 Q. That gives me a figure of £1.11, and again in the  
7 counterfactual a proportion of iOS app and in-app  
8 purchases will continue to be made through the App Store  
9 and IAP, correct?

10 A. Yes, and some of the loss will come from the fact that  
11 parents may not have visibility into transactions that  
12 are being done outside IAP, yes, that is correct.

13 Q. But some proportion of the --

14 A. (Inaudible - overspeaking)

15 Q. -- and we have agreed that 50% is a reasonable proxy, so  
16 again if we divide the £1.11 by 2, we get 56p. Then you  
17 are aware that in the counterfactual there will be  
18 potentially other ways of iOS Device Users controlling  
19 app and in-app purchases, so IAP is not the only option,  
20 correct?

21 A. Correct. Of course those --

22 Q. Sorry, would not be the only option, I should restate  
23 the --

24 A. Right, and obviously those options could come with some  
25 costs associated with them.

1 Q. What we need to do is we need to understand the efficacy  
2 of those alternative options and how much they would  
3 mitigate the --

4 A. The cost.

5 Q. -- potentially lost benefits that we have identified as  
6 being worth 56p, and it is not possible to do that, we  
7 do not have the figures. But what I am going to put to  
8 you is what I have put to you in respect of your other  
9 estimates, is that once we start trying to even carry  
10 out this kind of actual exercise, even on a rough and  
11 ready basis, what we see is that your estimate of £7.94  
12 is simply not a reliable estimate of any benefit to iOS  
13 Device Users arising out of the restrictions?

14 A. Yes, I mean, as I -- you know, I tried to make the basis  
15 of my numbers clear, and also I was clear that one  
16 would -- the Tribunal would have to apply some  
17 proportionality factors to them.

18 Q. Final question, Professor Sweeting, and one not  
19 involving any arithmetic, you will be glad to hear.

20 A. Good.

21 Q. Each of the benefits that we have just been looking at,  
22 so paragraph 405(a) through (e), are benefits to iOS  
23 Device Users, correct?

24 A. So I have tried to put them in a per-user term, so that  
25 it can then be applied to the iOS class.

1 Q. Yes, but the Class of users, and the distinction I was  
2 seeking to draw is that what you have not sought to do  
3 is to quantify any benefits to iOS App Developers  
4 specifically, correct?

5 A. Well, I guess, you know, one could view, for example,  
6 the fraud prevention. You know, some of that is harm  
7 avoided -- should be interpreted probably as harm  
8 avoided for developers as well as, for example, the  
9 users who have had their -- people who may have had  
10 their credit cards stolen.

11 Q. The specific form of fraud that you consider is actually  
12 fraud perpetrated by developers, right? Use of stolen  
13 credit card credentials tends to be perpetrated by  
14 developers, not by users, correct?

15 A. Well, I guess the -- a developer has stolen -- or  
16 whoever put in the malware or whatever has stolen the  
17 credit card information, but then they are engaging in  
18 transactions with other developers.

19 Q. Yes.

20 A. Right, and those other developers will experience some  
21 harm.

22 Q. But you agree that you have not sought to quantify  
23 discreetly any benefits to developers, correct?

24 A. That is correct, that is correct.

25 MR KENNEDY: No further questions from me,

1 Professor Sweeting.

2 THE CHAIRMAN: Thank you.

3 Ms Demetriou.

4 Re-examination by MS DEMETRIOU

5 MS DEMETRIOU: Thank you.

6 Professor Sweeting, two short points from today, and  
7 then I have a couple of points from I think it was  
8 yesterday, it may have been the day before, I am losing  
9 track.

10 So Prince and Wallsten, so it was -- if we can go to  
11 today's transcript, [draft] page 27, lines 13 to 15. In  
12 fact if you look at this, it was first of all put to you  
13 that the survey does not cover UK consumers, and then  
14 looking at 13 to 15 it was put to you that different  
15 people in the UK are likely to value their privacy to  
16 different extents, and then you said:

17 "Answer: Yes, which is obviously a question that has  
18 come up in the question of competition between different  
19 mobile ecosystems."

20 Do you see that?

21 A. Yes.

22 Q. So my question is do you have any opinion on the extent  
23 to which members of this Class, as opposed to Android  
24 customers, are likely to value their privacy?

25 A. So I understand that, you know, Apple has marketed

1           itself as providing higher security and privacy.  Some  
2           of the evidence in the Apple surveys that were discussed  
3           is consistent with iPhone users having higher average  
4           values of privacy and security than users of Android  
5           Devices.

6           Q.  Okay, thank you.  Then more generally.  So it was put to  
7           you that the survey does not cover UK consumers.  Can  
8           you explain briefly why you nevertheless considered it  
9           relevant to refer to this survey?

10          A.  So obviously, you know, one is searching for the best  
11          possible, you know, robust, peer-reviewed evidence that  
12          one can have about how people value different  
13          characteristics of their iPhones, of their devices,  
14          including privacy and security.  This survey was --  
15          you know, a strength of this study is that it looks at  
16          a number of different countries.  The average in that  
17          basis may be somewhat informative about how consumers in  
18          the UK value different characteristics, but of course,  
19          you know, I do recognise that it could be that consumers  
20          in the UK feel differently from those in other  
21          countries, but I was not in particular taking the  
22          highest values, for example, and basing my analysis on  
23          that.

24          Q.  Thank you.  Then if we can go to [draft] page 38,  
25          please, of today's transcript.  Then if we look at -- so

1           this is one of the multiplication points that was being  
2           put to you by Mr Kennedy, and the same point or  
3           a similar point but with a different -- in a slightly  
4           different context was made a little bit later. But if  
5           you look at line 12 to the end of the page -- if you  
6           just read to yourself line 12 to the end of the page.

7                       (Pause)

8           A. Okay.

9           Q. Then at the very end of the page, you say:

10                   "... so it is not so clear you should be doing this  
11                   multiplication exercise by the probability of actually  
12                   being attacked ..."

13                   Can you just explain why you said that?

14           A. Let me just read it again. (Pause)

15                   So Prince and Wallsten are asking a kind of ex ante  
16                   hypothetical question about how much you would be  
17                   willing to accept in order for your -- for example, your  
18                   banking data to be -- not to be shared with other  
19                   companies or individuals. Obviously, you know, that  
20                   does not -- they are not necessarily thinking about an  
21                   exercise where they are being actually attacked by  
22                   a banking Trojan malware, which presumably, if that  
23                   happens, it is actually very likely to extract their  
24                   banking data and do some potentially quite significant  
25                   harm with it, right?

1           So obviously if one was really thinking about the  
2 Trojan exercise, in the ideal world one would actually  
3 be looking at kind of the realised harm of actually  
4 being attacked, rather than this kind of ex ante survey  
5 done.

6       Q. Thank you. Now a different topic, one you covered with  
7 Mr Hoskins. Can we go to {AB6/25/139}, and this is part  
8 of the CMA report that Mr Hoskins put to you. It is in  
9 the context of the Google Play Store. Do you remember  
10 you had a discussion with him about the Google Play  
11 Store?

12       A. Yes. I cannot remember the details of the discussion.

13       Q. Do not worry. He took you to paragraph 4.208, which is  
14 the CMA's conclusions, and these were its conclusions in  
15 relation to both Apple and Google, and in relation to  
16 Google it was -- the CMA was considering why it was that  
17 Google -- the Google Play Store has such a high  
18 proportion, 90% of transactions, take place through the  
19 Google Play Store, and I just want to look at the  
20 conclusions one by one, the summary of them that  
21 Mr Hoskins took you to, and I just want to think about  
22 Google rather than Apple because the conclusions cover  
23 both.

24           So the first one is pre-installation, and the Google  
25 Play Store is pre-installed, and do you have a view on

1           whether the App Store is likely to be pre-installed in  
2           the competitive counterfactual?

3       A.   Yes, I would expect it to be as Apple would continue to  
4           be the device manufacturer.

5       Q.   Then when we look at the second bullet point, that  
6           refers -- that says:

7                   "The Play Store accounts for [90-100]% of downloads  
8                   and alternatives face material barriers such as indirect  
9                   network effects ..."

10                   So taking that first, again the same question: do  
11                   you expect in the competitive counterfactual Apple to  
12                   benefit from indirect network effects?

13       A.   Yes.  As I discuss in my reports, any transactions  
14           platform is likely to benefit from indirect network  
15           effects and they are likely to be particularly strong in  
16           the case of the App Store.

17       Q.   Then the third bullet point relates to side loading and  
18           talks about the -- on Android Devices the fact that  
19           users have to follow a particular process "which  
20           includes warnings of the potential security risks of  
21           side loading".  Again, same question.  Do you think it  
22           likely or not that in the counterfactual, Apple would  
23           want to include warnings about the risks of side  
24           loading?

25       A.   I would expect that Apple would provide warnings to

1 consumers whenever they are taking an action that may  
2 endanger security or privacy.

3 Q. Then finally, web-based alternatives. It is making the  
4 point there that:

5 "The development and usage of web apps is  
6 substantially lower than native apps ..."

7 Again I am going to ask you the same question,  
8 whether you would expect that to be a feature of the  
9 competitive counterfactual in the present case?

10 A. That is likely to be the case, although web apps is not  
11 something that I have specifically studied.

12 Q. Thinking about all of the points that we have just  
13 covered, do these points -- and the CMA's conclusion --  
14 do these points provide you with any assistance on the  
15 question as to whether the Google Play Store is  
16 an appropriate comparator in this case?

17 A. Yes, they do, and they suggest that the Play Store is  
18 an appropriate comparison. Some of the things, like  
19 network effects, pick up on points I made in my original  
20 report.

21 Q. Thank you. I want to now look in the same context --  
22 Mr Hoskins also took you to the Commission's Android  
23 decision, and we can find that at {AB6/16/129}. We can  
24 take it from page 129. So he took you to recital 590 --

25 A. Yes.

1 Q. -- where "the Commission concludes that Google holds  
2 a dominant position, [do you see that], in the worldwide  
3 market for Android app stores"?

4 A. Yes, I see that.

5 Q. I just want to start -- I am going to do a similar  
6 exercise. So looking at number 2 -- I am going to come  
7 back to 1, but looking at number 2:

8 "The quantity and popularity of apps available on  
9 the Play Store."

10 Again, do you expect that to be a feature of the  
11 App Store in the competitive counterfactual?

12 A. Yes, I would expect the App Store to be home to almost  
13 all of the apps that are available on iOS, and this is  
14 actually something that Dr Singer has agreed as well.

15 Q. Then number 3:

16 "The automatic update functionalities of the Play  
17 Store."

18 Again, do you have a view on whether the same is  
19 likely to be true of the App Store in the competitive  
20 counterfactual?

21 A. I would expect it to be true, but I have not studied  
22 update functionalities specifically.

23 Q. Now, the fourth one talks about third-party  
24 manufacturers of Android handsets, so do you see:

25 "The fact that the only way for OEMs to obtain

1 Google Play services is to obtain the Play Store."

2 Would that question of third-party manufacturers of  
3 handsets be relevant to Apple in the counterfactual?

4 A. No, because it would be my understanding that Apple  
5 would remain the only manufacturer of iOS devices.

6 Q. Looking at 6, can I just ask the same question. That  
7 talks about lack of countervailing buyer power of OEMs.  
8 So again, is that going to be relevant to Apple?

9 A. No, that will not be relevant.

10 Q. Then number 5 talks about the existence of barriers to  
11 entry and expansion. Let us just look at what a couple  
12 of those are. If we go to page 140, please  
13 {AB6/16/140}, and if we look -- this is under the  
14 section "Barriers to entry". If we look at recital 630:

15 "Commercialisation costs also result from the need  
16 to convince users to try a new Android app store in  
17 a market where the Play Store has an established  
18 position."

19 So again I am going to ask you the same question as  
20 to whether you think that would pertain to Apple's App  
21 Store in a competitive counterfactual?

22 A. Yes, so specifically this would apply to potential  
23 alternative iOS app stores.

24 Q. Then looking at 633, that talks about pre-installation  
25 of the Google Play Store, and I think in relation to

1 that you have already confirmed so I do not need to ask  
2 you ... Yes, and 631, sorry ... Yes, so 633 is talking  
3 about the pre-installation of alternative app stores.  
4 Now, do you have a view as to whether Apple is likely to  
5 pre-install alternative app stores in a competitive  
6 counterfactual on its own devices?

7 A. No, I would regard that as unlikely unless it was forced  
8 to by regulation.

9 Q. Then can we go back, please, to recital 590 on page 129  
10 {AB6/16/129}. I said I would come back to point 1:

11 "The market shares of Google and competing Android  
12 app stores market shares."

13 So thinking about the points we have just covered,  
14 do you have any comments on whether Apple's market share  
15 is likely to be similar or different to the Google Play  
16 Store's market share in light of what we have just been  
17 looking at?

18 A. I would expect Apple's market share in the  
19 counterfactual to be similar to the Play Store and  
20 potentially higher.

21 Q. Thank you. Then one last point which is not  
22 controversial, I am sure, but it is just that Mr Hoskins  
23 put to you a number of questions about Dr Singer's  
24 payment systems counterfactual.

25 A. Yes.

1 Q. We do not need to think about the detail of that, but if  
2 we go to the transcript -- I think this must be  
3 yesterday's transcript, so end of page 42 {Day20/42}.  
4 Let us see if that works. Yes.

5 So do you see at the end of the page -- so you are  
6 asked a question about the payment systems  
7 counterfactual, the payment systems counterfactual being  
8 Dr Singer's payment systems counterfactual.

9 A. Yes.

10 Q. You say:

11 "Answer:" ... so specifically in the context of the  
12 first report, this was really very much focused on  
13 payment processing as being kind of the product we were  
14 talking about."

15 You came back to that point a couple of times when  
16 you were asked about the payment systems counterfactual  
17 in the context of your first report, and to be fair to  
18 you I would just like to show you the amendment to the  
19 case that was made after your first report to see if  
20 this is what you were talking about. I think it is,  
21 but --

22 A. Yes.

23 Q. If we go to the pleading, please, at {A1/1/6}. You can  
24 see -- I am going to show you two parts of the pleading.  
25 Do you see "q" is in a different colour, and that is

1           because it was added after your first report?

2           A. Yes, that is correct.

3           Q. So you have the definition of in-app aftermarket  
4           services.

5                     If we go to page 24 of the same document {A1/1/24},  
6           so if you look at paragraph 76 at the bottom of the page  
7           do you see that there is an amendment, so "Payment  
8           processing market" is crossed out and in-app --

9           A. Yes.

10          Q. Is that what you meant when you said there was a change  
11          of focus?

12          A. Yes, that is what I meant, yes.

13          Q. So in your first report, would it be right to say that  
14          you were not considering Dr Singer's payment systems  
15          counterfactual?

16          A. So that is -- I mean yes, I was very much thinking about  
17          a world where, you know, the -- we were talking about  
18          payment processing. Obviously Dr Singer referred to  
19          these kind of skinny service providers who are much  
20          closer to the payment processors -- specifically payment  
21          processors that I had in mind during my first report.

22          MS DEMETRIOU: Thank you very much. Those are my only  
23          questions in re-examination.

24                     Questions by THE TRIBUNAL

25          THE CHAIRMAN: Professor Sweeting, I have a question and, if

1           you do not mind, I will keep going, just so we can let  
2           you go, rather than start again at 2 o'clock. I do not  
3           think I will be very long.

4           I just want to come back to a discussion we had  
5           yesterday about disintermediation.

6           A. Sure.

7           THE CHAIRMAN: It might be helpful just to put that up on  
8           the screen. So it is Day 20, page 26. {Day20/26}

9           You will see it starts at the bottom there where  
10          I interrupt, saying "Sorry to interrupt", and then I ask  
11          you:

12          "Professor Sweeting, you have used the expression  
13          'disintermediation counterfactual' a number of times."

14          I wonder if you could just read from there down to  
15          I think probably line 20, just to remind yourself.

16          (Pause)

17          A. Okay.

18          THE CHAIRMAN: Actually, if you want to keep reading. If  
19          you have got the gist of it, I do not think you need to,  
20          but I just want to give you a sense of what we are  
21          talking about. It might be worth just reading the next  
22          section as well, where you say "Of course".

23          A. Yes.

24          THE CHAIRMAN: Then over the page as well, please. Could we  
25          have the next page, please. Then you go on and talk

1           about Netherlands and South Korea. So that was the  
2           discussion.

3           A. Yes.

4           THE CHAIRMAN: I think you referred back to my rather  
5           scruffy diagram, which I am going to put up again, which  
6           is bundle K1, I think it is the only document in  
7           bundle K {K/1/1}. Yes, thank you.

8           I think you were making the reference back to this,  
9           because the purpose of this, certainly my purpose, was  
10          to show some of the different services that Apple and  
11          others might provide in the counterfactual.

12          A. Yes.

13          THE CHAIRMAN: I think your point was that Apple would have  
14          a choice about where and to what extent it would charge  
15          commissions and fees for the services shown on this  
16          page?

17          A. Yes, that is correct, yes.

18          THE CHAIRMAN: I am not suggesting that every service is on  
19          here. For example --

20          A. Right --

21          THE CHAIRMAN: -- there may be some other things that ought  
22          to be on here that are not. So, for example, the  
23          discussion about App Review clearly might be a service  
24          that was provided by Apple to somebody in this  
25          counterfactual, and I am not entirely sure myself who

1           would be paying for that, or where the charge would go,  
2           so I am not treating this as being the last word but it  
3           is just illustrative really.

4           A. Yes.

5           THE CHAIRMAN: I think just focusing on the commission on  
6           the left-hand side there, the commission that Apple is  
7           being paid by the developer in relation to the App Store  
8           distribution, and that might or might not include  
9           payment services, so it could depend on the extent of  
10          the services, I think you indicated when you were  
11          talking to Mr Hoskins that you would expect that to be  
12          a competitive rate, in other words, it would be a rate  
13          that would reflect the competition that happened on the  
14          other side in the counterfactual. Shall we have a look  
15          at that?

16          A. Yes.

17          THE CHAIRMAN: It was Day 20, page 19. I just want to make  
18          sure I properly understood your evidence on that. It  
19          may be helpful just to go back a page and you can see  
20          the run-in to it. {Day20/18}

21                 At the bottom he says:

22                 "So you accept that in these counterfactuals, it is  
23                 plausible that Apple would lose between 10 and 50% of  
24                 its market share ..."

25                 Then you say:

1            "... the context ... my counterfactual which  
2 involves the disintermediation of prices ..."

3            Then over the page, please:

4            "... obviously consistent with Apple having no  
5 anti-competitive incentive to exclude. That holds this  
6 principle that what Apple will do will set a competitive  
7 distribution price ...

8            "The competitive price for its distribution service,  
9 if we are looking at the distribution counterfactual,  
10 holds regardless of what is going to happen to Apple's  
11 market share in the counterfactual."

12            So I just wanted to understand. I think you are  
13 accepting that when you get into that world of  
14 competition, Apple is going to set a competitive price  
15 for its commission for the distribution services, and  
16 remember we are disaggregating here?

17        A. Yes, the commission for Apple's distribution service  
18 that is going to be applied by kind of the menu of  
19 prices, and commissions and fees that developers are  
20 offered, will reflect -- you know, the prediction is  
21 that the implied price for Apple's distribution service  
22 will be competitive, and that, for example, would mean  
23 it will reflect the costs of providing the service.

24        THE CHAIRMAN: Yes, yes, no, I understand that point.

25            I mean, I think really what I am interested in -- if we

1           could go back to the diagram at K1, please -- what I am  
2           really interested in asking you about, the point of this  
3           discussion, is to get a sense of what you think about  
4           how the service providing the tools and the tech find  
5           their way into the charging structure, and I am thinking  
6           about this, just to be absolutely clear, at the moment  
7           I am thinking about the counterfactual for the  
8           exclusionary abuse. So I appreciate there may be lots  
9           of cases this issue comes back in, like damages and so  
10          on, but I am just trying to get a handle on it in  
11          relation to the likely effect of the restrictions on  
12          competition in the market or the structure of the  
13          market.

14                 I had a discussion -- you will have picked up I had  
15          a discussion with Dr Singer about this. I think in this  
16          world, just to be clear, again, sorry, we are talking  
17          about Dr Singer's market definition on dominance, and we  
18          are looking to see how the restrictions might impact the  
19          market, including its structure, so that is the point of  
20          the counterfactual. So we are assuming, as we have just  
21          discussed, that Apple is going to be charging  
22          a competitive commission for distribution and payment  
23          services, so it is the sort of premise, and that it also  
24          might want to impose a charge for the use of the tools  
25          and the tech.

1           The question is how does that fit into that  
2 counterfactual analysis, that charge for the tools and  
3 the tech, and when I talked to Dr Singer about it, he  
4 was essentially saying we can disregard it, I think for  
5 two reasons: one, he was saying that if Apple tried to  
6 charge it as part of its commission, it would be  
7 competed away by the process of competition from the new  
8 entrant, and the other was that if it was put into the  
9 picture anywhere else, it would reinstate effectively an  
10 anti-competitive restriction. Those were his two  
11 arguments.

12           I am not necessarily inviting you to argue with him  
13 about it, but I just wanted to get your best view as to  
14 how we should think about the charge for tools and tech  
15 in this counterfactual analysis. How does it actually  
16 fit in? If we are regarding it, how should we take  
17 account of it?

18       A. So I make a couple of points. The first one would be  
19 actually slightly an atmospheric point, that the kind of  
20 tools and tech has kind of become a shorthand for lots  
21 of value that Apple is providing through the ecosystem  
22 to developers. So sometimes when we -- just thinking  
23 about it, for example, as an intellectual property  
24 licensing fee is in some ways missing some of that  
25 value. But I think, coming to the question that you

1           were really asking --

2       THE CHAIRMAN: Well, just before you do, on that point, if  
3       I may, I absolutely get that point, and I suppose you  
4       can look at, for example, if one is thinking just about  
5       the tools and tech rather than the wider stuff, you can  
6       think about some of that as being to enable the creation  
7       of the app, and of course the app is necessary for there  
8       to be distribution, so I am not suggesting there is no  
9       connection, but there is a sort of -- a set of different  
10      stages of the interaction between the developer and  
11      Apple, some of which are closer than others when you  
12      actually come to the question of distribution, if one  
13      can put it that way. I do not know if that is a helpful  
14      way of looking at it but it is definitely one way of  
15      thinking about it.

16     A. Sure. I think one of the difficulties that probably all  
17     the experts have had is actually kind of delineating  
18     kind of exactly what distribution services or payment  
19     services consist of, but, you know, my underlying point  
20     is whatever -- Apple is clearly providing a lot of  
21     things of value to developers, including those who would  
22     choose to use an alternative distribution service or  
23     payment service, and the idea that, you know, in any  
24     competitive economic counterfactual one would be  
25     expecting Apple to monetise that, and the kind of

1 penalty fee terminology that Dr Singer refers to,  
2 I think, you know, it is trying to appeal to an idea  
3 that maybe those prices could be set too high, but that  
4 certainly does not imply that Apple should not be  
5 monetising that value in some way.

6 THE CHAIRMAN: I suppose another way of -- I am not sure  
7 this is quite how Dr Singer put it, but another way of  
8 looking at this would be to say if you draw a line  
9 effectively above where it says "developer", then -- and  
10 this goes I think to your point about what is and what  
11 is not a distribution service, but if the market we are  
12 interested in is actually the market for distribution  
13 and the commission that is paid for that, you could --  
14 I do not think Dr Singer went as far as this, but you  
15 could argue -- and I am not putting a legal point to  
16 you, I am putting an economic question -- you could  
17 argue that the market we are interested in is actually  
18 about distribution and commission, and what happens with  
19 these other things is really neither here nor there. If  
20 Apple chooses to charge developers as a whole for  
21 providing it with any sort of assistance or IP or  
22 whatever it is, that is nothing to do with the  
23 counterfactual analysis. What would you say to that?

24 A. So, you know, I -- the way I think about it as an  
25 economist is that, you know, there is a set of --

1           you know, this is basically a vertical problem. We are  
2           talking about what is going to happen for one specific  
3           piece of the supply chain, or maybe two. But if we were  
4           just to focus on one of them, then Apple's incentives,  
5           when it is also supplying all of these complements, is  
6           to have that part of the supply chain as efficient as  
7           possible, and that is going to mean setting its own  
8           distribution service at a competitive price, but also,  
9           you know, if other developers were adding value to  
10          the -- sorry, other app stores would add value to the  
11          ecosystem, you know, Apple would benefit from that,  
12          because of course all its technology and tools and so  
13          forth would actually kind of become more valuable.

14                 That is actually what, in my perspective, means that  
15          Apple actually does not have any anti-competitive  
16          incentive to foreclose, which suggests some of the  
17          pro-competitive benefits that I have discussed with  
18          Mr Kennedy probably explain the requirements that Apple  
19          has in place.

20          THE CHAIRMAN: Yes, I see. So you are saying if you do look  
21          at it effectively in a vertical way, do not draw the  
22          line, look at the whole thing in a vertical way, that it  
23          is quite helpful to -- in doing this exercise of  
24          breaking out the charges, it is quite helpful to help  
25          think about the incentives that Apple might have, both

1 in the actual and the counterfactual?

2 A. Exactly.

3 THE CHAIRMAN: Yes, that is really helpful. Thank you.

4 Is there anything that comes out of that that you  
5 want to ask about?

6 Further re-examination by MS DEMETRIOU

7 MS DEMETRIOU: I think just to clarify one point to make  
8 sure I have understood also.

9 Professor Sweeting, assume that Apple charges --  
10 because you said Apple has an incentive to monetise its  
11 tools and tech, so assume Apple charges 10% for its  
12 tools and techs on revenues that are made by developers,  
13 and then charges 20% if it is carrying out the  
14 distribution and payment services, so what would  
15 a competitor -- what is your view as to what  
16 a competitor would need to charge to be competitive? A  
17 competitor app store.

18 A. That would obviously depend on, you know, the exact set  
19 of services that the rival app store is offering.  
20 Obviously if we do look at what comparable distribution  
21 focused app stores provide on other platforms which are  
22 not providing tools and tech, that is often 20% or more.

23 Q. I suppose what I am thinking about is if you have -- if  
24 Apple is charging a 10% fee, say a sort of royalty for  
25 its tools and tech, and Apple, for those -- in this

1 counterfactual, for those developers who choose to use  
2 the App Store for distribution and payment, Apple is  
3 charging 20% just for those services, so 20% for the  
4 distribution and payment and 10% to any developer that  
5 uses its tools and tech, then just mathematically what  
6 would be the sort of -- what would a competitor app  
7 store have to be charging below in order to be  
8 competitive?

9 A. Right, so developers are obviously going to take into  
10 account kind of their total costs of their different  
11 alternatives that they can put together. So in the  
12 example that was just given, the total cost of using  
13 Apple's service would be a 30% commission, and then,  
14 you know, the comparison the developer would be doing  
15 for going the other way would be to say "Okay, the 10%  
16 from the tools and tech, plus whatever they are paying  
17 to alternatives", you know, and at least some of the  
18 comparisons that we have seen would be consistent with  
19 a cost of 30% or more and obviously that would then feed  
20 into the market shares that one would expect.

21 MS DEMETRIOU: Okay, thank you.

22 THE CHAIRMAN: That is helpful. I think that is very  
23 helpful, thank you.

24 Mr Kennedy?

25 MR KENNEDY: Nothing, thank you.

1 THE CHAIRMAN: Very good. I think in that case we are  
2 finished, Professor Sweeting. Thank you so much for  
3 coming along. It has been very helpful and you are  
4 released from the witness box. Thank you.

5 Are we still on track for Professor Hitt at 2 pm?

6 MS DEMETRIOU: Yes, he is here.

7 THE CHAIRMAN: Then he is going to be happy to get in the  
8 witness box at 2 o'clock.

9 MS DEMETRIOU: At 2 o'clock, yes.

10 THE CHAIRMAN: Excellent. We will rise and start then.  
11 (1.17 pm)

12 (The lunch break)

13 (2.00 pm)

14 THE CHAIRMAN: Yes, Ms Demetriou.

15 MS DEMETRIOU: Sir, Apple calls Professor Hitt.

16 PROFESSOR LORIN HITT (called)

17 THE CHAIRMAN: Yes, welcome back, Professor Hitt. We need  
18 to swear you in again, I am afraid.

19 PROFESSOR LORIN HITT (affirmed)

20 Examination-in-chief by MS DEMETRIOU

21 MS DEMETRIOU: Professor Hitt, you should have hard copies  
22 of your reports there. We need to go through them in  
23 turn so you can confirm they are your reports. They are  
24 going to come up on the screen as well. So if we can go  
25 to {C3/1}.

- 1 A. Okay.
- 2 Q. Can you confirm this is your first report? Let us look  
3 at your signature. It is on page 44, is that your  
4 signature? {C3/1/44}
- 5 A. Yes, it is.
- 6 Q. The second report is at {C3/4}, and again if we look at  
7 {C3/4/293}, is that your signature there?
- 8 A. Yes, it is.
- 9 Q. Your third report is at {C3/8}, and page {C3/8/149}, is  
10 that your signature, can you confirm? It should be on  
11 the screen in front of you as well.
- 12 A. Yes.
- 13 Q. Finally, your fourth report is at {C3/9}, and if we go  
14 to {C3/9/8}, is that your signature?
- 15 A. Yes, it is.
- 16 Q. You signed three joint expert statements, the first one  
17 is at {C4/3}, and this is the joint statement with  
18 Dr Singer and Mr Holt. Do you have that?
- 19 A. Yes.
- 20 Q. If we can go to {C4/3/3}, is that your signature on the  
21 right?
- 22 A. Yes.
- 23 Q. The second joint expert report is at tab 4 of the same  
24 bundle {C4/4/1}, so this is with Mr Holt, and you should  
25 find your signature at page {C4/4/4}. Can you confirm



- 1 not?
- 2 A. Let me catch up with the pages.
- 3 Q. It is coming up on the screen. It is up to you if you  
4 want to use hard copy or electronically.
- 5 A. Let me do hard copy, if that is okay. What is the page  
6 number?
- 7 Q. Page 14.
- 8 A. Okay. So your question was I have done previous work  
9 for Apple?
- 10 Q. I said you have done a lot of trial work for Apple over  
11 the last three years, as listed at paragraphs 8 to 10 of  
12 your report, yes?
- 13 A. Yes, I have done the work that is listed there.
- 14 Q. Have you got any other work for Apple that is ongoing  
15 that is not mentioned there?
- 16 A. I think the -- so I believe the US case is ongoing.  
17 I do not know if you count that as being mentioned, but  
18 that case is ongoing.
- 19 Q. But no other cases, other than the ones mentioned there?
- 20 A. I think there are some discussions about getting  
21 involved in other things, but right now the only other  
22 one is the continuation of the US class action.
- 23 Q. Okay, but with some possible further work for Apple in  
24 the pipeline?
- 25 A. Possibly, yes.

- 1 Q. Did you do any work for Apple in relation to the  
2 European Commission's investigation into *Spotify's*  
3 complaint?
- 4 A. So I did not work on the *Spotify* complaint. I know the  
5 *Spotify* information was something I did read and  
6 consider, but I was not involved in that.
- 7 Q. Okay. Did you do any work for Apple and are you doing  
8 any work for Apple in relation to the EU's Digital  
9 Markets Act regulation?
- 10 A. So I am not doing any direct work. I am familiar with  
11 the DMA and the associated documents, but I did not do  
12 any work for them related to those actions.
- 13 Q. What do you mean by "direct work"? Is there  
14 a distinction you are drawing there, sorry?
- 15 A. I was not working on anything related to the DMA to the  
16 extent it is relevant to the things we are talking about  
17 today, but I did review those documents.
- 18 Q. Did you do any work for Apple in relation to the  
19 Competition and Markets Authority markets investigation  
20 in the United Kingdom?
- 21 A. No. Again, the scope of my work would have been this  
22 action, so -- yes, so I did -- for example, I know the  
23 CMA is involved here as well, so I have reviewed those  
24 documents, but I did not do any work for Apple  
25 specifically for the CMA.

1 Q. Have you had any contact with any of the people who were  
2 working in relation to the *Spotify* complaint or the  
3 Digital Markets Act or the CMA's investigation?

4 A. Not that I know of.

5 Q. Are you aware that, as an expert, you are under an  
6 obligation to draw the Tribunal's attention to material  
7 that is unhelpful to Apple?

8 A. Yes.

9 Q. Have you complied with that obligation in your reports  
10 and in the joint expert statements?

11 A. Yes, to the best I can.

12 Q. Staying in this second report and going to page 113,  
13 please {C3/4/113}, you say there in paragraph 190:

14 "Consumers use, own, or have access to multiple  
15 devices on which game developers offer games, thus  
16 allowing consumers to make game app transactions on  
17 platforms for these devices. Multiple surveys confirm  
18 this. The 2022 Accent Survey commissioned by the  
19 Competition and Markets Authority indicates that among  
20 iPhone owners in the UK ..."

21 Et cetera. So as you state in your report, you are  
22 aware that the Accent Survey was commissioned by the  
23 Competition and Markets Authority as part of its market  
24 study into mobile ecosystems, aren't you?

25 A. Yes.

- 1 Q. Presumably you are aware that the CMA published its  
2 final market study report in June 2022?
- 3 A. Yes, I am -- (overspeaking) --
- 4 Q. I think you indicated in response to some earlier  
5 questions that you have read that report?
- 6 A. Yes, as part of this action.
- 7 Q. Can we have a look at that report {AB6/25/82}. This  
8 sets out the key findings of the report in relation to  
9 competition in the distribution of native apps. Can  
10 I ask you just to remind yourself of what the CMA said.  
11 (Pause)
- 12 A. Okay.
- 13 Q. So you see that these key findings, and indeed the  
14 material that underpins the findings, are highly  
15 relevant to the issues raised in this tribunal, are they  
16 not?
- 17 A. So they are on the same topic, so that would make them  
18 relevant, I would think.
- 19 Q. In your reports you refer to the Accent Survey, but you  
20 do not make any mention of these key findings by the  
21 CMA, do you?
- 22 A. No, that is correct. I relied on data that they  
23 gathered. I did not rely on their findings.
- 24 Q. Nor did you address their findings?
- 25 A. Yes, I understood my assignment was to respond to the

1 issues in this litigation.

2 Q. Can we go to your third report at paragraph 81, that is  
3 {C3/8/43}. You see the heading:

4 "Neither consumers nor developers are 'locked in' to  
5 the App Store because they can and do transact outside  
6 the App Store."

7 If we go to page 46, please --

8 A. Hold on, let me catch up to you.

9 Q. Sorry, are you still not at page 43?

10 A. I just wanted to -- because I am doing it on paper, so  
11 it takes me a moment to catch up.

12 Q. Do you want to go back to the previous ...

13 A. Yes, please.

14 Q. Can we go to page 43, please, and I just ask you to note  
15 the heading so that you can locate yourself within your  
16 own report. So you see the heading at 3.5.2?

17 A. 3.5.2, okay.

18 Q. I am not going to dissuade you using the paper, but it  
19 will be quicker if you can look at it on the screen.

20 A. Yes, I do like some of the context, though. So I will  
21 do it on here since it is taking time, but I do prefer  
22 to use the paper.

23 Q. I am just asking you to note the heading so you can  
24 locate the bit of your report we are looking at:

25 "Neither consumers nor developers are 'locked in' to

1 the App Store because they can and do transact outside  
2 the App Store."

3 Yes?

4 A. That is what it says, yes.

5 Q. Then to page 46, please {C3/8/46}, paragraph 88, towards  
6 the bottom of that paragraph you say:

7 "Moreover, real world examples like Netflix and  
8 Spotify also demonstrate that developers can  
9 successfully substitute transactions on the App Store  
10 with transactions outside of the App Store. Indeed,  
11 since 2023, Spotify has discontinued its in-app  
12 purchases on the App Store."

13 So you rely specifically on evidence in relation to  
14 *Spotify* to support your suggestion that -- here I am  
15 quoting -- "developers can successfully substitute  
16 transactions on the App Store with transactions outside  
17 of the App Store", do you not?

18 A. So, yes, I cite to facts related to *Spotify* in support  
19 of that opinion, that is correct.

20 Q. You are obviously aware that the European Commission  
21 adopted its final decision in the *Spotify* investigation  
22 in March 2024, are you not?

23 A. Yes, I have reviewed that decision.

24 Q. You have read that decision, yes?

25 A. Yes.

1 Q. Let us look at the decision. That is at {AB6/45/1}. So  
2 you will see the title is "Apple App Store Practices  
3 (music streaming)"

4 If we go to page 80, please {AB6/45/80}, and if you  
5 go to recital 260 at the top of the page, you will see  
6 that the *Spotify* decision finds that:

7 "... the relevant product market is the market for  
8 the provision to developers of platforms for the  
9 distribution of music streaming apps to iOS Device  
10 Users."

11 Were you aware of that?

12 A. I think I was aware of that, yes.

13 Q. If you go to page 83, please {AB6/45/83}, you see the  
14 sub-heading halfway down the page, "Assessment of  
15 Apple's arguments", and in the final sentence of recital  
16 275 the decision says:

17 "According to Apple, the relevant market would be  
18 the market for the sale of music streaming subscription,  
19 which would include the purchases of subscriptions not  
20 only via IAP but also outside of the apps."

21 So you see that that was Apple's argument before the  
22 Commission, yes?

23 A. Yes.

24 Q. Then I would invite you to read recitals 276 and 277  
25 please.

1 (Pause)

2 A. Okay.

3 Q. You need to go over the page as well. {AB6/45/84}

4 (Pause)

5 A. Okay.

6 Q. Were you aware that the Commission had rejected Apple's  
7 argument that the relevant market was the sale of music  
8 streaming subscriptions, not only via Apple's in-app  
9 purchase mechanism but also outside of the apps?

10 A. I became aware of it when I reviewed this document, yes.

11 Q. Did you review this document before you wrote your  
12 reports, before you wrote any of your reports? I cannot  
13 quite get the chronology.

14 A. I do not believe I reviewed this before my reports, at  
15 least before the third report. I think I reviewed it in  
16 conjunction with the fourth report.

17 Q. We can check the dates. If you go back to page 83,  
18 please {AB6/45/83}, recital 274. If you pick it up  
19 about seven lines from the bottom, you will see  
20 a sentence that begins:

21 "As this Decision analyses ..."

22 It says:

23 "As this Decision analyses Apple's practices related  
24 to the distribution of music streaming apps, the  
25 analysis of the relevant market is conducted from the

1 perspective of developers of music streaming apps,  
2 although the underlying considerations may not  
3 necessarily differ depending on the type of apps, given  
4 that the App Store is the only conduit through which  
5 native apps can be distributed to iOS Device Users and  
6 that all developers that wish to sell native apps to iOS  
7 Device Users have [to] do so through Apple's App Store."

8 Were you aware of that recital?

9 A. Yes, when I reviewed this report I became aware of that.

10 Q. So again, the Commission's findings, and the reasoning  
11 and evidence that underpins those findings, is again  
12 very relevant to the issues before this tribunal, is it  
13 not?

14 A. So it is certainly on the same topic. I think the Panel  
15 can make their own judgment as to the relevance, but  
16 certainly it is on the same topic, or at least a related  
17 topic.

18 Q. I would like to clarify your position on market  
19 definition. I would like to go first of all to the  
20 joint expert statement {C4/7/9}, and it is  
21 proposition 11. You will see that the proposition is:

22 "The relevant product(s) in this matter are the  
23 collection of supporting services that facilitate iOS  
24 App transactions."

25 You say:

1           "Disagree. The relevant product is app  
2 transactions, defined as a single occurrence of a free  
3 or paid app download, an in-app purchase or an app  
4 update."

5           Is that still your position?

6       A. Yes.

7       Q. So you disagree that the relevant products in this  
8 matter are the collection of supporting services that  
9 facilitate iOS app transactions?

10      A. So I personally prefer my definition, I think, as I note  
11 a little bit later on, because it focuses on -- I think  
12 the way I have defined it focuses on the ability to --  
13 the question of whether it is substitutable.

14           I understand Dr Singer has defined it as the collection  
15 of services. I think I note elsewhere in here, maybe  
16 even in this paragraph, that it does not fundamentally  
17 change the analysis however you define it. I am  
18 defining it as the output, he is defining it as the  
19 input.

20           Again, I do not see any position where that changes  
21 my conclusion, even if I adopted his frame, but I prefer  
22 mine because I think it highlights the substitution  
23 across platforms.

24      Q. Can we go to page 12, please {C4/7/12}. You just said  
25 to me "I prefer mine because I think it highlights the

1 substitution across platforms", and that does suggest  
2 you are trying to get to a result rather than starting  
3 from a blank sheet of paper?

4 A. No, I disagree. I think that if you define -- and this  
5 is also my concern with the *Spotify* decision. If you  
6 limit your analysis -- and I think I said this in the  
7 hot-tub as well -- to simply saying "There is only one  
8 place you can download apps, therefore it is  
9 a monopoly", I think you miss a lot of the substitution  
10 that goes on in this market, including the market --  
11 including the substitution that is being engaged in by  
12 Netflix and *Spotify*.

13 Q. If we look at proposition 18, the proposition is:

14 "iOS App Developers and iOS Device Users can  
15 substitute away from the App Store by transacting  
16 outside the App Store."

17 You say:

18 "Agree. The App Store competes for app transactions  
19 with several other channels through which app developers  
20 and app consumers can transact, including other two  
21 sided app transaction platforms that enable app  
22 transactions for various mobile devices, PCs, consoles  
23 and other devices, as well as developers' own websites  
24 accessible on web browsers and on many devices."

25 Is that still your position?

1 A. Yes, it is.

2 Q. I would like to look at this issue from the perspective  
3 of developers. If we can go to page 10 of this joint  
4 statement {C4/7/10} and proposition 15, the proposition  
5 is:

6 "The observation that developers sell and consumers  
7 buy (ie engage in-app transactions in) the same digital  
8 content through multiple channels implies that those  
9 channels are economic substitutes."

10 You say:

11 "Partially agree. The existence of the same content  
12 on multiple channels does not by itself mean that those  
13 channels are substitutes, let alone close substitutes."

14 The question is this: why do you say that the  
15 existence of the same content on multiple channels does  
16 not "by itself" mean that those channels are  
17 substitutes, let alone close substitutes?

18 A. I think the distinction is that the idea if you can  
19 transact for one thing on one platform and you can  
20 transact for the exact same thing on another platform,  
21 that makes it plausible that they could be substitutes,  
22 but again the definition of economic substitution is  
23 would you shift under a change in circumstances, and so  
24 I am trying to make that distinction clear.

25 I do think it is informative of the potential for

1 substitution, but again it does not follow the exact  
2 technical definition, which is that you need a change in  
3 circumstance, and you need to observe individuals  
4 shifting from one to the other, either with  
5 a deterioration in quality or a change in price.

6 Q. So you need a change in circumstance, you need to  
7 observe individuals shifting from one to the other.  
8 That is your position, yes?

9 A. That is the strongest, most direct evidence of  
10 substitution. There is only a limited amount of that  
11 available in this case, because there are very few  
12 situations where you can observe changes. So I think  
13 the idea is helpful to see that -- you know, for  
14 example, V-Bucks on Epic's website are the same exact  
15 V-Bucks on iOS. That is potential substitution. Then  
16 to the extent you can actually observe the actual  
17 substitution, I think that reinforces it.

18 Q. If you go back to your comments in relation to  
19 proposition 15 in this statement, in the second sentence  
20 of your comments you say:

21 "The ability of different app transaction platforms  
22 to constrain each other is an empirical question that  
23 should be evaluated on a case-by-case basis. I have  
24 presented empirical evidence that indicates transactions  
25 on different app transaction platforms are substitutes."

1           Then if we can go over the page, please, you will  
2           see that you refer to two examples, and that is Fortnite  
3           and Netflix, yes?

4           A. Yes.

5           Q. Now, Netflix I am going to come back to, because there  
6           is confidential information in there and I want to do  
7           that with you in closed session, so we can both talk  
8           about what the result show, so I am going to deal now  
9           with Fortnite.

10           If we go to page 20 of this joint statement  
11           {C4/7/20}.

12           It is proposition 45. The proposition is:

13           "Empirical analysis of the exclusion of Fortnite  
14           from the App Store shows that developers and consumers  
15           do substitute between digital game app transaction  
16           platforms."

17           Here we have to be careful, because whenever we see  
18           pink we are not allowed to say it out loud, and you say:

19           "Agree. I find that [X]% of iOS consumer spend on  
20           Fortnite was diverted to other platforms in the four  
21           weeks immediately following Fortnite's removal from the  
22           App Store."

23           You note that your analysis is set out at  
24           section 3.5.2 of your third report, do you see that?

25           A. Yes.

1 Q. Let us go to that section of your third report. That is  
2 {C3/8/44} and it is paragraph 83. Perhaps you would  
3 like to remind yourself what you say in paragraph 83.

4 (Pause)

5 A. Okay.

6 Q. Then in the next paragraph you go on to say:

7 "On 13 August 2020, Epic implemented a Hotfix update  
8 on the iOS (and Android) version of its Fortnite app  
9 that allowed customers to bypass Apple's (and Google's)  
10 in-app payment functionality and instead purchase  
11 V-Bucks in the app directly from Epic. Apple  
12 subsequently removed Fortnite from the App Store (and  
13 Google removed it from Google Play), stopping new  
14 consumers from downloading the app and existing users  
15 from downloading updates."

16 So that is the situation you rely upon as the  
17 empirical evidence, yes?

18 A. That is one of them, yes.

19 Q. Then if you go to page 45, so over the page here  
20 {C3/8/45}, at paragraph 86 you say:

21 "As shown in exhibit 2, I find that [X]% of iOS  
22 consumer spend on Fortnite was diverted to other  
23 platforms in the four weeks immediately following the  
24 Hotfix."

25 So that is the analysis in relation to Fortnite that

1           you rely upon as evidence of substitution to support  
2           your market definition, is it not?

3           A. Yes, that is correct.

4           Q. Can we go to the joint statement {C4/7/7}.

5           Proposition 2 is:

6                     "The boundary of the relevant product market depends  
7                     on the ability of market participants to substitute  
8                     alternatives in response to an increase in price and/or  
9                     a decrease in quality of the relevant product or service  
10                    at issue."

11           You agree with that proposition, do you not?

12           A. Yes, noting that I focus -- that you should focus on the  
13           marginal consumer, and I think that is relevant here.  
14           But, yes, broadly that is the definition of  
15           substitution.

16           Q. Your Fortnite example is not a situation in which there  
17           was an increase in price and/or a decrease in quality,  
18           is it?

19           A. I would -- you could consider it a decrease in quality,  
20           in the sense that you could no longer transact there.  
21           So certainly a change in circumstances.

22           Q. It was a change in circumstances because Fortnite was  
23           removed from the App Store by Apple. That was the  
24           change in circumstances.

25           A. Yes, that is correct.

- 1 Q. The people who played Fortnite were not exercising  
2 a choice between the App Store and other platforms  
3 because Fortnite simply was not available on the  
4 App Store, was it?
- 5 A. So I agree with the second part of your statement, which  
6 is yes -- well, it was sort of still kind of available,  
7 because if you already had the app you could still use  
8 it, but I will agree that it was -- it became  
9 unavailable on Apple. I will disagree that consumers  
10 did not have a choice. They had a choice to move or  
11 stop or do something else.
- 12 Q. Well, that is not evidence of substitution at all, is  
13 it? It is just Fortnite was removed, and if you wanted  
14 to carry on playing, you had to go somewhere else. That  
15 is not a substitution exercise.
- 16 A. So be careful about the term -- you know, this is one of  
17 the issues that is going to come up a lot, is this  
18 confusion I think that is in the background between the  
19 usage and the transactions. So you can transact on many  
20 different platforms; you may not be able to -- there may  
21 be differences in where people use things versus where  
22 they choose to perform transactions. So what the focus  
23 of a Hotfix analysis is, is that when they were no  
24 longer able to perform transactions on iOS, did they  
25 move to somewhere else to perform those transactions?

1           Now, they still had the app, and they still could  
2           play it I think for a little while thereafter, but the  
3           focus on this is the movement of those transactions, and  
4           that is what I analysed. That would be -- I will stop  
5           there because it is not in evidence here.

6           Q. As I said to you, there are some aspects of Netflix that  
7           I need to do in closed, but some of it I can do with you  
8           now you in open. If we go to page 20, please, of this  
9           joint statement {C4/7/20}.

10          A. Okay.

11          Q. Proposition 44 is:

12                 "The real-world example of Netflix shows that video  
13                 streaming app transactions across app transaction  
14                 platforms are substitutes."

15                 You say:

16                 "Agree. In December 2018, Netflix chose to no  
17                 longer allow any paid transactions through the App Store  
18                 for new customers, entirely removing the possibility of  
19                 new customers signing up for Netflix's service within  
20                 the iOS app. My analysis shows that Netflix  
21                 successfully substituted new subscription purchase  
22                 transactions from the App Store to its website or other  
23                 video streaming app transaction platforms (ie neither  
24                 Netflix's overall user base, nor monthly number of new  
25                 downloads of the Netflix iOS app declined)."

1           Again, your Netflix example is not a situation in  
2           which there was an increase in price, is it?

3       A. It was -- again, you could think of it as a change in  
4           circumstances, you know, think of it as a change in  
5           quality. You can no longer transact there; where do you  
6           go?

7       Q. Well, again the change in circumstances was that the  
8           ability to pay for a new Netflix subscription on the  
9           App Store was entirely removed, but this time by Netflix  
10          itself, wasn't it?

11      A. Yes, that is correct, they removed it and they were able  
12          to have their consumers shift over and obtain  
13          subscriptions in other channels and, according to my  
14          analysis, without any significant loss in customer base.

15      Q. The people who wanted to take out a new Netflix  
16          subscription were not exercising a choice between paying  
17          on the App Store and paying somewhere else, they simply  
18          could not pay for a new Netflix subscription on the  
19          App Store, could they?

20      A. Right, when they were unable to do so they moved their  
21          transactions elsewhere, which is -- part of the point is  
22          that these transactions can move across platforms, and  
23          that is what this analysis focuses on, that idea that  
24          transactions that are performed on iOS could also be  
25          performed on other platforms. These are circumstances

1           where you actually see a change where people did move,  
2           and I think that is informative of substitution.

3       Q.   Your Netflix example is consistent with Netflix becoming  
4           so exasperated with Apple's market power in relation to  
5           facilitating in-app purchases that it simply stopped  
6           dealing with Apple, is it not?

7       A.   You added a few things in that question that I will not  
8           necessarily agree with, for example the "exasperated"  
9           with market power. We do not know what they were  
10          thinking at the time, but what I -- as an economist  
11          viewing this, I would say they did not think at this  
12          time that transacting through iOS was a good value for  
13          them and therefore they moved off the platform. That is  
14          exactly the type of competitive constraint I am talking  
15          about, which is if Apple's not a good deal, developers  
16          like Netflix can go elsewhere.

17      Q.   But Netflix is a household name. Its high level of  
18          brand awareness means that it is by no means a typical  
19          app developer, is it?

20      A.   So again I will agree with that, but many of the  
21          successful app developers are quite large on iOS.  
22          I think we have a statistic that I think -- you know,  
23          [redacted] of the revenue generated in the UK App Store  
24          comes from just [redacted] developers. So I will agree  
25          Netflix is widely known, but there are many other large

1 developers that are also widely known, and --

2 Q. But this is an isolated and atypical example of a very  
3 large developer voting with its feet, is it not?

4 A. I would not say it is atypical, but I can agree with the  
5 rest of it, which is, yes, Netflix decided that for  
6 whatever reasons they did not think iOS was a good value  
7 for them. They shifted their activity to another  
8 platform and did not seem to suffer for it. They  
9 continued -- and I will just note this is also another  
10 example why it is important to distinguish the usage  
11 from the transactions. Consumers can still download the  
12 app, still watch Netflix on their iOS device, they just  
13 could not transact for Netflix content there.

14 Q. They could still download the app, only through the  
15 App Store?

16 A. That is correct.

17 Q. I would like to look now at the position of consumers.  
18 If we go to your second report {C3/4/112}.

19 DR BISHOP: Mr Hoskins, can I ask one little question?

20 MR HOSKINS: You can ask as many questions as you like.

21 DR BISHOP: Professor Hitt, when he was examined, Dr Singer  
22 said the Netflix example is just an example of  
23 countervailing power, a phrase that we do not hear as  
24 much as we used to but it is a well-known concept in  
25 economics and in law. It is a famous brand, it has

1 alternative distribution channels, it has some measure  
2 at least of countervailing power. That is simply not  
3 true, Dr Singer said, of the great bulk of the apps.  
4 Are you rejecting his analysis?

5 A. So I did not frame it that way, so I do not think I am  
6 accepting or rejecting that direct analysis. What I can  
7 say is that I will agree that Netflix is very large and  
8 they have a considerable amount of power. They have  
9 many options that maybe some smaller app developers  
10 might not have. But I also note there are many other  
11 Netflix-like developers there, you know, there are  
12 [redacted] others that represent [redacted] the revenue.  
13 So if you think about, you know, Apple, the constraints  
14 that are operating on Apple, they have to find ways to  
15 retain some fraction of this, and so that is what  
16 I was -- that is what is on my mind when I am thinking  
17 about this.

18 DR BISHOP: Right, but did they not do precisely that? They  
19 applied the 15% rate to a couple of categories and left  
20 the 30% rate for everybody else.

21 A. So, yes, I will agree that they have adapted their rates  
22 over time, and so if -- again, I do not know what is  
23 going on in the heads -- oh, sorry.

24 DR BISHOP: You were offering this as an example that the  
25 market is wide and lots of choice, but is not

1 Dr Singer's analysis of countervailing power for a few  
2 people, and response by a gatekeeper with considerable  
3 power to that countervailing power, is that not a more  
4 intuitively appealing analysis than saying that  
5 everybody has lots of -- all developers have lots of  
6 choice, and consumers can easily substitute, and all of  
7 that?

8 A. Let me respond to that in two ways. One is I think what  
9 you can layer on to that is the observation that a lot  
10 of these developers have power, and Apple is constrained  
11 by a variability to move just as well, given there are  
12 [redacted] developers that represent [redacted] the  
13 revenue, a lot of those are large developers that have  
14 many options, so I think that is one consideration.

15 DR BISHOP: I just wanted to put (inaudible).

16 MS DEMETRIOU: Can I interrupt to say, not Professor Hitt's  
17 fault, but those particular figures are confidential, so  
18 if we could just note that for the transcript.

19 DR BISHOP: I am sorry, I missed that.

20 A. Apologies.

21 MR HOSKINS: I want to look at this issue now from the  
22 perspective of the consumers. We have your second  
23 report on the screen, paragraph 188, but you will see  
24 the heading above it -- sorry, you need to catch up.  
25 Second report, paragraph 188 {C3/4/112}.

1 A. Okay.

2 Q. You see the heading is:

3 "Consumers can and do substitute game app  
4 transactions through the App Store with transactions  
5 through other game app transaction platforms."

6 If we go to page {C3/4/114}, paragraph 192, you say:

7 "The 2022 Accent Survey provides evidence that  
8 consumers play games and spend money on multiple  
9 devices."

10 Then skipping on a little:

11 "In addition to playing games on multiple devices,  
12 iOS Device Users also spend money on multiple devices."

13 Again skipping down to the bottom of the page:

14 "Moreover, some iOS Device Users consider an  
15 alternative platform as the main platform they use to  
16 purchase content for gaming apps that they have on their  
17 smartphone."

18 We see that all the footnotes to this paragraph, so  
19 footnotes 254, 254 and 256, refer to the 2022 Accent  
20 Survey, do you see that?

21 A. Yes.

22 Q. If we go to page 129 {C3/4/129}, paragraph 219, you see  
23 that you rely on the Accent Survey to make similar  
24 points in relation to video streaming, do you not?

25 A. Yes, the Accent Survey helpfully did these kind of

1 questions and I think they are informative.

2 Q. Then if we go back to, please, page 114 {C3/4/114},  
3 paragraph 192, and can we go over the page {C3/4/115},  
4 yes, so it is the top of page 115, the final sentence of  
5 paragraph 192 -- do you have it? It begins "For  
6 example".

7 A. Yes.

8 Q. You say:

9 "For example, of all iOS Device Users who spent any  
10 money on gaming apps, at least 11% classified game  
11 consoles (for example a PlayStation) as the main  
12 platform they used to purchase content for the game apps  
13 that they have on their smartphone."

14 Your footnote 256 refers to figure 48 in the Accent  
15 Survey, so let us have a look at figure 48. The Accent  
16 Survey is at {D1/1287/1}. You will see the title page.  
17 Do you recognise that?

18 A. Yes.

19 Q. If we go to page 80, please {D1/1287/80}, you see  
20 figure 48 on that page, but above figure 48, just  
21 picking up the text, the text says:

22 "Figure 48 for iOS and figure 49 for Android show  
23 all means and the main means of spending money on gaming  
24 apps (after excluding those who did not spend any money  
25 on gaming apps in the past 12 months)."

1           It goes on to say:

2           "For iOS, all and main means (for those who mention  
3 more than one means) are dominated by in the app on  
4 their smartphone or tablet/iPad: 85% all means and 78%  
5 main means."

6           If you go to figure 48 you see the question:

7           "How, if at all, have you spent money on gaming apps  
8 (eg levels, tokens) that are on your smartphone in the  
9 last 12 months? And which of these is the main way you  
10 pay for content in the gaming apps that are on your  
11 smartphone?"

12           Then you will see the result that was described  
13 above, "In the app on my smartphone or tablet/iPad", 85%  
14 spent all their money on that, and 78%, that was their  
15 main spending, and then you see the games console  
16 figure, et cetera.

17           In your report you refer to the 11% figure for games  
18 consoles, but you make no mention at all of the figure  
19 for smartphones and iPads, do you?

20       A. I do not believe so, no. I thought this was an  
21 interesting and informative figure, that is why I cited  
22 it here.

23       Q. But presenting just the 11% figure without referring to  
24 the results as set out in figure 48 is, to be  
25 charitable, selective, is it not?

1       A. So, no, I would not characterise it that way. The way  
2       I would say is, is that I was making a very specific  
3       point that across -- that consumers can move across  
4       platforms. We know that, for example, 11% of consumers,  
5       as this survey says, transact on consoles for content on  
6       their smartphones, illustrating that that is a viable  
7       option for at least these consumers. I would not  
8       dispute the fact that IAP is quite convenient, and if  
9       I am in the app that is one thing I can do, and you  
10      would -- it would not be surprising that many consumers  
11      would choose to transact in that way, especially when  
12      prices are similar, but the emphasis of this discussion  
13      is on the ability of consumers to move across channels,  
14      so it is not surprising I can pay for content in the  
15      same app. It is a little more surprising, or at least  
16      important to think about the possibility that they might  
17      also be able to pay for content elsewhere and choose to  
18      do so.

19      Q. Now, we have already noted that the 2022 Accent Survey  
20      was commissioned by the Competition and Markets  
21      Authority as part of its market investigation into  
22      mobile ecosystems, you remember that, yes?

23      A. Yes.

24      Q. So let us go to the Competition and Markets Authority's  
25      final report. That is {AB6/25/1}. As you said, you

1 have seen this before.

2 A. Yes.

3 Q. The CMA specifically considered the extent to which  
4 Apple might be constrained by users moving purchases  
5 from within the native app to other platforms at  
6 paragraphs 4.176 to 4.178 of its report. If we could go  
7 to page 131, please, of this document {AB6/25/131}, and  
8 if we pick it up at paragraph 4.178, the CMA says:

9 "Our survey results ..."

10 You will see that the survey results referred to are  
11 in fact the Accent Survey, you see that in footnote 363.  
12 So:

13 "Our [Accent] survey results found that the native  
14 app was the main method used to purchase content to be  
15 used in the native app in relation to three of the four  
16 categories and that in two cases less than a quarter of  
17 users making purchases through their native apps also  
18 used another method. Therefore, most users using the  
19 native app to purchase content to be used in the native  
20 app do not use another channel."

21 If you look at footnote 363 you will see the  
22 reference to the Accent report and you will see  
23 a specific reference to figure 48 of the Accent report  
24 which is the figure that you relied upon in your report,  
25 do you see that?

1 A. Yes, that is one of the figures referenced, yes.

2 Q. As we have seen, in paragraph 192 of your second report,  
3 you stated that the Accent Survey, and here I am quoting  
4 from your report:

5 "... provides evidence that consumers play games and  
6 spend money on multiple devices."

7 Why did you not make it clear that the Accent Survey  
8 shows that most users using the native app to purchase  
9 content do not use another channel?

10 A. So for the reasons I discussed earlier, which is the --  
11 you know, facing into the actual world where, you know,  
12 prices are often very similar, and consumers have no  
13 reason to do so, it is not surprising, for example, they  
14 would transact on the device -- in many cases transact  
15 on the device they are on.

16 However, the possibility that they can transact on  
17 other devices, when given reason to do so, is I think  
18 the -- is one of the competitive constraints that I have  
19 been discussing in my report. So the interesting fact  
20 that I think is present there is the fact that consumers  
21 do transact on other channels. Again, not surprising  
22 that they -- you know, given no reason to, they may very  
23 well transact where they are. But the possibility that  
24 they can go elsewhere under an average change of  
25 conditions is the competitive constraint that I am

1 talking about.

2 Q. If we can go over the page, please {AB/25/132}, you see  
3 what the CMA's conclusion was on the basis of inter alia  
4 the Accent Survey. At paragraph 4.180 the CMA found:

5 "On balance, the evidence suggests that Apple and  
6 Google face a limited constraint from alternative  
7 devices and users switching away from purchasing content  
8 and features in native apps."

9 You do not make any reference to that finding in  
10 your reports, do you?

11 A. No, but I am also -- again, I have not adopted the  
12 CMA's -- I certainly used material that CMA generated,  
13 but I have not made it a practice of adopting their  
14 findings one way or the other, so that is -- the fact  
15 that I did not cite to that is not unusual. I did my  
16 own analysis. Some of the things they had data on  
17 I thought were useful. I have also done other things as  
18 well, and that is what my conclusions are based on.

19 Q. Let us look at the CMA's reasoning to see how it reached  
20 its conclusion, and the CMA actually relied on seven  
21 points to reach that conclusion. If you go to  
22 {AB6/25/130} of this document, and to spare you having  
23 to listen to me read all this out, could you read 4.176  
24 down to 4.179, please.

25 (Pause)

1 A. Okay.

2 Q. Now, I am not going to sort of enumerate them all. If  
3 you split them up, I think there are seven separate  
4 points there. I do want to look at one of the points  
5 with you.

6 Paragraph 4.178:

7 "Our survey results ..."

8 We have just looked at this, so that is the Accent  
9 Survey, yes?

10 A. Yes.

11 Q. At the end of paragraph 4.178, they say:

12 "Further, for those users that use multiple channels  
13 to purchase content to be used in the native app, our  
14 survey did not identify the frequency with which  
15 different methods were used ..."

16 So the Accent Survey was looking at "Did you spend  
17 any money at all on an alternative channel", but did not  
18 look at all on the frequency with which anyone did it.  
19 So if someone used an alternative channel once in the  
20 course of a year, that would be picked up in the Accent  
21 Survey but not the frequency.

22 Now, the fact that the Accent Survey did not look at  
23 the frequency is a very significant point in terms of  
24 the weight one can put on the Accent Survey to establish  
25 market definition, is it not?

1       A. So it is certainly I think useful to consider, but  
2       the -- again, the discussion in my report is that,  
3       you know, should somebody face a change in  
4       circumstances, you know, the question is whether or not  
5       they might move elsewhere. The fact that they have in  
6       the past I think is indicative that it is certainly  
7       a possibility. Again, they would have to have a reason  
8       to shift whatever the natural purchasing patterns there  
9       are, but the fact that they can do it -- it is  
10      a separate -- the frequency is a sort of separate  
11      question from this. This demonstrates they can indeed  
12      do it. I think that was my usage of it.

13     Q. Were you aware that the Accent Survey did not identify  
14      the frequency with which different methods were used,  
15      was that something you knew?

16     A. I believe so, yes.

17     Q. So you knew that, and yet you thought it was appropriate  
18      to rely on figure 48?

19     A. Yes, for exactly the reason I just described, which is  
20      we are thinking about a circumstance where consumers  
21      have a pattern of which they are currently purchasing  
22      things. Should they face a reason to make a shift, the  
23      question is whether or not they can. The fact that they  
24      already do is helpful evidence that that is  
25      a possibility. Certainly having frequency would add to

1           that, but certainly the idea that you can is sufficient  
2           to make that point.

3       Q.   So we see that the CMA came to a different conclusion  
4           from you on this issue, relying on a series of reasons,  
5           did it not?

6       A.   Could you be more specific?

7       Q.   Look at the conclusion at paragraph 4.180 over the page  
8           {AB6/25/132}. You do not agree with that, do you? You  
9           come to the opposite view from the CMA?

10      A.   I think it is fair to say I disagree with that point, or  
11           at least in the context of Apple which I actually  
12           analysed.

13      Q.   But you do not address any of the seven reasons that the  
14           CMA puts in its report in your reports, do you?

15      A.   So let us -- if we can go back to the seven reasons, and  
16           I can talk through all of them, I believe, but -- would  
17           you like to do that?

18      Q.   No, if you have addressed these particular paragraphs of  
19           the CMA in your report and you can show me where they  
20           are in your report, but I do not want to go through them  
21           all.

22      MS DEMETRIOU: I think they at least need to be identified  
23           because there is a mismatch in those paragraphs. So if  
24           my learned friend has identified seven, could he  
25           enumerate them? I think that might help the witness.

1 THE CHAIRMAN: The point I think he is making, unless I have  
2 misunderstood it, is that there is no direct reference  
3 to this passage in Professor Hitt's report, and  
4 obviously that is all I am taking from it. But if you  
5 are --

6 MR HOSKINS: That is all I am --

7 THE CHAIRMAN: Presumably you are going to address Professor  
8 Hitt's criticisms, you are doing and will continue to do  
9 so. I think on that basis we will leave it as it is.

10 MR HOSKINS: So I am quite happy ... I have not identified  
11 in your reports a reference to these paragraphs of the  
12 CMA, and the legal team for Apple, if I have got that  
13 wrong, no doubt will correct me at a later date.

14 A. You are correct on that point. I did not set out to  
15 rebut the CMA report or comment on their analysis one  
16 way or another. I did look at some of the data that  
17 they had that I thought was useful for the purposes of  
18 reaching my conclusions, but I do address at least  
19 similar points to that in various points but not with  
20 respect to the CMA conclusions.

21 Q. Let us move on to a slightly different topic. Can we  
22 have Dr Singer's second report {C2/8/90}, please, at  
23 paragraph 189, and if you could remind yourself of what  
24 Dr Singer said there.

25 (Pause)

1 A. Would you like me to read the rest of 189?

2 Q. Please. When you are ready you can ask to flip the page  
3 for you.

4 (Pause)

5 A. Okay.

6 Q. Just to get the facts straight, Steam announced  
7 a reduction in its commission in October 2018, the Epic  
8 Games Store was launched in December 2018 with  
9 a commission of 12%, and the Microsoft Store announced  
10 a reduction in its commission from 30% to 12% for games  
11 sold through its store from 1 August 2021, and there is  
12 no dispute about the basic facts, is there?

13 A. No, those facts are all correct, yes.

14 Q. If you can go, please, to {TB/6/10}, this is the  
15 transcript of the evidence that Mr Schiller gave to this  
16 tribunal on Day 6, and if I can ask you please to read  
17 lines 12 to 19 on page 33.

18 (Pause)

19 A. Okay.

20 Q. Mr Schiller's evidence of the lack of a response by the  
21 App Store is evidence, is it not, that Apple is --  
22 sorry, the App Store is not in the same market as gaming  
23 stores such as Steam, the Epic Games Store or the  
24 Microsoft Store? To be clear, I am not saying it is  
25 necessarily conclusive on its own, but it is evidence

1           that supports the suggestion that they are not in the  
2           same market?

3       A. I think it is a data point that could be consistent with  
4           that. Again, I would want to think about this on  
5           a quality adjusted basis, and it could very well be that  
6           these reductions on a quality adjusted basis are not  
7           sufficient to engender a response, but certainly that  
8           could be one thing you consider.

9       Q. I would like to move on to consider the Multiplatform  
10           and the Reader rules in the context of market  
11           definition. Can we go to the joint statement {C4/7/19}  
12           and proposition 43.

13      A. 43?

14      Q. So page 19.

15      A. Okay, I am just catching up.

16      Q. Proposition 43. Do you have that?

17      A. Okay, yes.

18      Q. The proposition is:

19                "Developers can choose to enable consumers to make  
20           paid transactions outside the App Store for content that  
21           can be used within or outside iOS devices."

22           As I understand it, your position is that Apple's  
23           Multiplatform and Reader rules impose a material  
24           competitive constraint on the App Store, is that a fair  
25           encapsulation?

1 A. Yes, I think that is fair.

2 Q. In your comments you say:

3 "Dr Singer considers that these rules do not  
4 competitively constrain the App Store because he focuses  
5 on a narrower definition of steering, such as placing  
6 a link within an app to an external website. However,  
7 developers can steer (ie incentivise) users to transact  
8 through channels outside of the App Store, for example  
9 by offering lower prices (on which Apple imposes no  
10 restrictions) outside of the App Store, or by offering  
11 device-independent accounts that make it easy for users  
12 to access purchased content across their devices through  
13 the same account."

14 So that is the position between you and Dr Singer.

15 Can we go back to the *Spotify* decision, please, that  
16 is {AB6/45/252}. If we look at Article 1 at the top of  
17 the page, the decision finds that:

18 "Apple Inc and Apple Distribution International  
19 Limited have committed a single and continuous  
20 infringement of Article 102 of the Treaty and Article 54  
21 of the EEA agreement by imposing the Anti-Steering  
22 Provisions on music streaming service providers to the  
23 detriment of consumers. The single and continuous  
24 infringement has been taking place since 30 June 2015  
25 and is continuing at the date of the adoption of this

1 Decision."

2 The decision was adopted on 4 March 2024.

3 If we can go please to page 62 {AB6/45/62}, recital  
4 184. If you read that to yourself, you will see that  
5 this recital identifies the anti-steering provisions  
6 that were found to infringe the EU competition rules.

7 (Pause)

8 A. Okay.

9 Q. So the fact that the European Commission had adopted  
10 a detailed decision finding that Apple's anti-steering  
11 provisions are anti-competitive is again highly relevant  
12 to the issues before this tribunal, is it not?

13 A. I think the Tribunal can make their own judgments, but  
14 this is a decision that was published, yes, six months  
15 or so ago -- eight months ago.

16 Q. The non-confidential version of this decision was  
17 published on 6 May 2024. Your second report was  
18 14 May -- sorry, I may have misspoken there; no, I got  
19 that right -- the decision published 6 May, your second  
20 report 14 May, your third report 15 September, the joint  
21 expert statement 25 October and then your fourth report  
22 18 January, but you do not make any reference, as we  
23 have established, to this decision, this *Spotify*  
24 decision in your reports, do you?

25 A. No, it was not -- it was not within my assignment to

1           rebut the *Spotify* decision. I was aware that this had  
2           been going on, but I was not asked to respond in any way  
3           to this.

4        Q. But if you were aware of it and you saw the content of  
5           it, presumably if you wanted to come up with a robust  
6           opinion you would have felt it necessary to consider the  
7           sorts of arguments that were being put that contradicted  
8           your opinion. You cannot just wear blinkers, can you,  
9           as an expert?

10       A. No, I disagree. So they can reach conclusions based on  
11         the analysis that they have. In these decisions you do  
12         not have full access to the materials they have. There  
13         is no way, as an expert, I can do a full evaluation of  
14         this that would enable me to say one way or the other  
15         whether these conclusions are correct. I can comment on  
16         things that I have actually analysed and that is what  
17         I have done.

18       Q. But Professor Hitt, this is a decision addressed to  
19           Apple. Did you ask Apple for any of the data that might  
20           have helped you form conclusions? This is not a closed  
21           box.

22       A. So I did not ask for it, and again it was not within the  
23         scope of my assignment to respond to the *Spotify*  
24         decision, at least at the time I wrote the reports here.  
25         I was asked later on, but there is some side discussion

1           about that, and it was not presented to the Tribunal in  
2           the end.

3           Q.   What do you mean, there was some side discussion about  
4           that later on?  What are we talking about there?

5           A.   Is it permissible for me to answer this?

6           MS DEMETRIOU:  Yes.

7           A.   Okay, so in -- I was asked as part of Hitt 4 to examine  
8           the *Spotify* decision explicitly, and I did so, and  
9           I think the Tribunal decided that that evidence was not  
10          appropriate, appropriately admissible.  That was  
11          included in the original draft of Hitt 4, which then  
12          became a smaller report.

13          MR HOSKINS:  Were you told not to address the *Spotify*  
14          decision before then?  Were you actively told not to  
15          address it?

16          A.   No, it just was not within the scope of my assignment.  
17          It was brought to my attention directly and I was asked  
18          to specifically respond and I did.

19          Q.   I do not understand what you mean by the scope of your  
20          assignment.  Your assignment, as an expert, is to come  
21          to this tribunal and give an expert opinion on market  
22          definition.  Here is something that is very germane to  
23          that, and it is not simply a finding for you to agree or  
24          disagree with, there is reasoning, there is evidence  
25          referred to.  You chose not to have regard to it in your

1 reports.

2 A. No, so again I generally do not rely on court decisions.  
3 I prefer to do my own analysis and get my own data. If  
4 asked to do so, I will certainly evaluate things, but  
5 I have access to plenty of data regarding the points  
6 that I am making and I used that to reach my conclusion.  
7 They had access to other materials and other things in  
8 another litigation. Since I do not have access to the  
9 full scope of what they had, including some critical  
10 materials that are not sourced from Apple in this  
11 particular case, such as some of the things that they  
12 used as the inputs to their anti-steering provisions,  
13 I could not properly evaluate it beyond being able to  
14 comment.

15 So I relied on materials that I had available to  
16 reach my conclusions. I generally do not rely on things  
17 like court decisions and other types of decisions unless  
18 I am explicitly asked to because, again, I do not know  
19 the full basis of how they reached those --

20 Q. But you could have asked Apple. This was an Apple  
21 decision. You could have had access to all the data?

22 A. I am not sure that is actually true. So I have access  
23 to full -- I have access to plenty of Apple data, but  
24 I do not have access to some of the materials that were  
25 produced, and in other litigations I have had access to

1 third-party discovery. That was not available here.

2 Q. Let us look at some of the other stuff that you turned  
3 a blind-eye to. Can we go to page 152, please  
4 {AB6/45/152}. Recital 506, the decision says:

5 "The Commission considers that alternative  
6 subscription mechanisms outside of the iOS app do not  
7 constrain Apple's power to behave to an appreciable  
8 extent independently of music streaming service  
9 providers in the market for the provision to developers  
10 of platforms for the distribution of music streaming  
11 apps to iOS Device Users, including with regard to the  
12 conditions for in-app sales which it attaches to the  
13 acceptance of apps in the App Store."

14 Then the Commission sets out detailed reasons for  
15 this finding at recitals 507 to 513. Is that something  
16 you read? Was that you were aware of?

17 A. Yes, I am aware of it, yes.

18 Q. Can we go back to the joint statement {C4/7/19},  
19 proposition 43, and if you read your comments, please,  
20 there, in relation to 43.

21 (Pause)

22 A. Okay.

23 Q. Can we go over the page for me, because I do not have  
24 the hard copy.

25 A. I have it so ...

- 1 Q. You have it, I do not, so bear with me.
- 2 A. Okay.
- 3 Q. So the point you are making there is that Dr Singer had  
4 overlooked the fact that developers can steer users to  
5 transact outside the App Store by offering lower prices  
6 outside the App Store. That is the point you are  
7 making, is it not?
- 8 A. That is one of the points that I am making, yes.
- 9 Q. So if we go back to the *Spotify* decision {AB6/45/153},  
10 and if you could please read recital 511.
- 11 (Pause)
- 12 A. Okay.
- 13 Q. So this recital expressly addresses your point about the  
14 ability to offer lower prices outside the app, does it  
15 not?
- 16 A. I am not sure it explicitly addresses that point, but my  
17 point is it does give an example of Napster, for  
18 instance, later on in the paragraph that is -- where  
19 there is a difference in price, and consumers have  
20 chosen not to transact on another platform, which could  
21 be any number of reasons.
- 22 Q. This recital contains some detailed reasoning, including  
23 the results or the evidence that was submitted to the  
24 Commission and upon which it relied. You see the  
25 reference to Napster? You see the reference to the

1           *Spotify* evidence?

2           A. I see Napster ... and there is a reference to *Spotify*.

3           But I do not think -- let us see, hold on ...

4           Q. Again, you have chosen just not to engage with these  
5           points at all in your reports?

6           A. No, I disagree. I think I have engaged with these  
7           points as a reference to this paragraph, but I have  
8           certainly addressed the question of the opportunity of  
9           developers to shift customers across channels. Keep in  
10          mind the anti-steering provisions are a very specific,  
11          very specific prohibition that allows a wide range of  
12          other activity outside, and they are focusing  
13          specifically on the anti-steering provisions, but in  
14          fact the anti-steering provisions are simply a situation  
15          where, at the point of sale or within the app, you  
16          cannot then direct people outside, and there are also  
17          some restrictions on the use of emails that were not  
18          explicitly contributed by the customer.

19                 There are many other ways in which large developers  
20          could, for example, encourage people to transact  
21          outside, and in fact developers like Netflix and *Spotify*  
22          have taken advantage of that.

23          Q. Can we go back to the joint statement {C4/7/19}, back to  
24          paragraph 43. You also say that Dr Singer had  
25          overlooked the fact that:

1            "... developers can steer ... users to transact ...  
2            outside the App Store, or by offering device-independent  
3            accounts that make it easy for users to access purchased  
4            content across their devices through the same account."

5            Do you see that?

6            THE CHAIRMAN: You need to go over the page, please.

7            A. Yes, I think it is on the other page. Let me catch up  
8            quickly.

9            MR HOSKINS: You see it is towards the end:

10            "... or by offering device-independent accounts ..."

11            Do you see that?

12            A. Yes.

13            Q. Can we go back to the *Spotify* decision {AB6/45/153},  
14            recital 509. If you could read that, please.

15            (Pause)

16            A. Okay.

17            Q. So again we see the Commission setting out in this  
18            decision a conclusion and reasoning which expressly  
19            addresses the argument you are putting forward in the  
20            JES, do we not?

21            A. So I think they have an opinion on this. This is one of  
22            those points where I disagree -- at least as I read it,  
23            I disagree with, because this appears to me to be making  
24            that same what I consider a flaw, and different people  
25            can reach different conclusions, of conflating the

1 process of download and use with the ability to  
2 transact, and I agree that download and use is -- if you  
3 are going to use an iOS app, it has to come from the  
4 App Store. But if you need to acquire content for that  
5 app you can do that in many ways. I think this is sort  
6 of -- this is focused on, at least in part, on that  
7 issue.

8 Q. So let us have a look at the reasoning that you do rely  
9 upon for suggesting that Apple's Multiplatform and  
10 Reader rules impose a material competitive constraint on  
11 the App Store. Let us go back to the joint statement  
12 {C4/7/19}. So I am still flogging proposition 43 to  
13 death. If we can turn over the page, please, to page 20  
14 {C4/7/20}, you see the references you give at the end,  
15 Hitt 2, glossary, et cetera.

16 Now, footnotes 146 and 45 in your second report  
17 simply provide descriptions of the Multiplatform and  
18 Reader rules, they do not contain any substantive  
19 reasoning, so I am not going to go to them.

20 A. Okay.

21 Q. You also refer to your third report, paragraphs 180 to  
22 182. They are at {C3/8/97}. Just give me one second.

23 (Pause)

24 So in paragraph 181, about four lines down, you see  
25 a sentence that begins "Notably"?

1           Let us do this another way --

2       A.   Okay, I see it.

3       Q.   To be fair to you, why do you not read paragraphs 180 to  
4           182 and then I will draw your attention to some passages  
5           in them.

6           (Pause)

7       A.   Okay.

8       Q.   So in paragraph 181 you say:

9           "Notably, Apple does not put any restrictions on the  
10          prices that the developer charges consumers outside the  
11          App Store relative to what is charged through the  
12          App Store."

13          Then in paragraph 182 you say:

14          "For example, many game and video streaming  
15          developers allow consumers to set up device-independent  
16          accounts that make it easy for users to access purchased  
17          content across their devices through the same account."

18          But here you have not conducted any analysis of the  
19          extent to which these possibilities actually impose  
20          competitive constraints on Apple in practice, do you?  
21          You recognise the possibility, but you do not assess the  
22          extent to which that possibility actually imposes  
23          a constraint?

24       A.   So I will note that this is a summary of other points,  
25          I believe.  So usage without observing a change in

1           circumstance, you cannot do the full complete  
2           substitution test, but what you can do is you can  
3           observe the fact that this is a very, very common  
4           business practice, that some of these -- for example,  
5           the device-independent account is commonly used by most  
6           of the large developers. Other kinds of things that are  
7           in the same vein, for example, the use of digital  
8           currencies which are fungible across platforms, is  
9           another way in which they enable this kind of switching  
10          across platforms.

11                 So for example, we will go back to Epic, V-Bucks  
12          used -- V-Bucks purchased on Epic's website is fully  
13          useable in iOS. Apple places no constraints on either  
14          pricing or the usage of those things. That is the kind  
15          of substitution that I am talking about here. But  
16          again, without a change in circumstance, you cannot take  
17          it beyond the fact that it is something you can do,  
18          developers actively enable by these choices, and that at  
19          least in the Fortnite example we see people able to  
20          actually take advantage of that with a change of  
21          circumstances, but I think it is the precursor to the  
22          ability to make that switch that this is focusing on.

23         Q. Are you aware that the Class Representative has  
24          submitted expert evidence from Mr David Howell in  
25          relation to mobile app development?

1 A. Yes, I am aware.

2 Q. Have you read his reports?

3 A. I -- yes, I have read his reports, and I have -- I saw  
4 some of his -- well, I reviewed some of his testimony in  
5 front of you, yes.

6 Q. Can we go to Mr Howell's first report, that is at  
7 {C2/4/65}. Can I ask you to refresh your memory on what  
8 he says in paragraph 136, please.

9 (Pause)

10 A. Okay.

11 Q. You therefore see the points that Mr Howell makes about  
12 the limitations, the practical limitations of the Reader  
13 and Multiplatform rules from the perspective of an  
14 expert in in-app development, do you not?

15 A. So I definitely see his perspective. I see a couple of  
16 sort of things I would disagree with within these, and  
17 in particular the inability to direct customers to other  
18 channels in other ways. So although you are not allowed  
19 to, for example, at point of sale, inform customers that  
20 there is a cheaper price elsewhere, you can market to  
21 them in any number of other ways, including through  
22 emails that is obtained outside. So you have lots of  
23 options to do that kind of -- to provide that kind of  
24 information, and certainly many of these large  
25 developers have the resources to do that independently,

1 so that is one.

2 Second is to the extent the consumers choose the --  
3 he notes that, for example, later on in the paragraph,  
4 they choose the more convenient option. Well, yes, that  
5 is part of the value that the App Store is providing,  
6 and that is part of what Apple is charging for, is  
7 the -- you know, is providing a good option for  
8 consumers to transact, and I think that is -- I would  
9 consider that part of the value contributed by the  
10 App Store in transacting through IAP.

11 Q. But, Professor Hitt, you are an expert in economics,  
12 Mr Howell is an expert in relation to in-app  
13 development, and you are not in a position to challenge  
14 his conclusion at the end of paragraph 136, that:

15 "... these two factors significantly limit the  
16 practical impact of the multi-platform services  
17 exception."

18 Because as you have already explained to us, that is  
19 not something you have looked at. You have recognised  
20 the possibility, you have described the possibilities,  
21 but you have not been able to assess the extent in  
22 practice?

23 A. Well, I think -- so let me break that up into pieces.  
24 Yes, I have considered this, and certainly I have looked  
25 at the possibility that developers have the ability to

1 reach customers outside of iOS and they have the  
2 resources to do so, and I will note that, you know, it  
3 is a well understood industry fact that customer  
4 acquisition costs are a significant fraction of the cost  
5 of operating many of the services. Those customer  
6 acquisition costs could be -- you know, could be viewed  
7 as consumed in part of the commission, or they could  
8 choose to invest them elsewhere to direct customers to  
9 other sites. That is a pretty well understood factor  
10 here which I did consider.

11 Then, finally, I think -- so the first part, well,  
12 I will agree that he is an expert in in-app development,  
13 at least in this case. I am relying on industry facts  
14 for that particular point. Then for the second point,  
15 that is an economic point, which is to simply point out  
16 that if consumers get more value transacting in the  
17 App Store, that is value from the App Store. There is  
18 nothing in economics that says that just because one  
19 service offers a lower price somewhere else that  
20 everybody rationally should shift over there. For  
21 example, consumers may prefer obtaining subscriptions  
22 through things like the App Store because they can  
23 manage them more effectively there.

24 So you have to also think about the quality  
25 adjustment, and he does not seem to have considered that



1           Then if we can go over the page, please {C3/4/82},  
2 you then suggest:

3           "Differences in optimal monetisation strategies  
4 imply, in turn, differences in competitive conditions."

5           Then skipping on a few lines:

6           "I find that there is significant variation in  
7 business models and monetisation strategies for  
8 different types of apps ..."

9           Then the final sentence:

10          "This variation in competitive conditions further  
11 indicates that it is inappropriate to cluster all app  
12 transactions into a single market and indicates that  
13 there are multiple relevant app transaction markets."

14          Then if we go to paragraph 134, further down this  
15 page {C3/4/82}, the empirical analyses that you present  
16 are based solely on transactions on the App Store, are  
17 they not?

18       A. Yes, the ones referenced here, yes, because that is the  
19 data that I had available.

20       Q. So your analyses cannot tell us anything about methods  
21 of distribution other than through the App Store, can  
22 they? That is all you have looked at?

23       A. So in this analysis, yes, I am relying on App Store  
24 data. So the conclusions there are the heterogeneity  
25 and choices made by developers on the App Store, that is

1 correct.

2 Q. Then can we go on to page 99 {C3/4/99}, paragraph 165.

3 You see about the middle of that paragraph you say:

4 "I showed in exhibit 9 that game developers rely  
5 heavily on purchases of non-subscription in-app content  
6 to monetise their apps. However, as I will discuss  
7 below, video streaming app developers take the opposite  
8 approach and rely heavily on subscription purchases to  
9 monetise their apps."

10 So that is where you pithily summarise what you have  
11 found through your empirical analyses, yes?

12 A. For those two -- those are examples for those two  
13 specific markets, because I did a more fulsome  
14 (inaudible).

15 Q. But those are the main two you look at in your reports?

16 A. Those are the two that I define, yes, and I think it is  
17 fair to say it is the main ones I look at, but I also  
18 looked across genres as well, and you see the same kinds  
19 of variation, which indicates that could be also present  
20 in other markets.

21 Q. If you are in the middle of playing a game, then you are  
22 likely to want the most immediate access to an extra  
23 life or a power-up. That is just the nature of the  
24 exercise, is it not?

25 A. That is not something I specifically studied but that

1           seems plausible.

2           Q. If you are watching a movie, you do not want to be  
3           interrupted by making an in-app purchase, do you?

4           A. I do not think that changes anything I would -- I am  
5           concluding, but I would agree with that point too.

6           Q. Well, I was going to suggest to you that different  
7           monetisation strategies may, to a large extent, simply  
8           reflect the nature of the app and how it is consumed.  
9           That is potentially the driver for these differences  
10          that you are finding?

11          A. So I certainly think that contributes to it, but let me  
12          just talk about the two examples you gave, which is if  
13          developers really are concerned that the ability to  
14          perform in-app transactions might be disruptive,  
15          especially if they want to move people across platforms,  
16          they can transact on digital currencies which are  
17          readily available across all platforms, and now you are  
18          not performing any incremental transaction, you already  
19          have the digital currency there, and you can redeem that  
20          for a sword or whatever it is, without having to engage  
21          in the equivalent of IAP or go to another environment.

22                 Similarly, for video streaming, those are long --  
23          those are typically long-term subscriptions. There are  
24          some that do not do that, but for the most part you are  
25          thinking Netflix, you are talking about a month to month

1 subscription. That should be in place already. You get  
2 it in once, you let it run, and now you are not  
3 interrupted.

4 So I do not think your examples really limit the  
5 ability of consumer and developers to do more or less  
6 what they want without friction. There could be  
7 circumstances where that is the case, but in these two  
8 I do not think it really limits it very much, subject to  
9 developer choice of how they implement some of these  
10 policies.

11 Q. The means of distribution in the Apple ecosystem does  
12 not differ depending on the type of iOS app. A gaming  
13 app has to be distributed through the App Store, a video  
14 streaming app has to be distributed through the  
15 App Store. The distribution is the same for all genres  
16 of apps, yes?

17 A. So to the extent that we are talking about  
18 downloading -- you know, going through the process to  
19 get your app approved and downloading it, in general the  
20 processes are similar. That is not the margin of  
21 substitution I am talking about, but, yes, I will agree  
22 that all these apps have to be downloaded from the  
23 App Store because Apple requires all apps on iOS to be  
24 downloaded through the App Store and go through, for  
25 example, App Review and the other processes.

1 Q. Could we have the joint statement at {C4/7/1}. I would  
2 like to look at the definition of "relevant purchases".  
3 The definition is:

4 "Any purchase of an iOS app in the App Store or  
5 purchase by an iOS device user within an iOS app, as  
6 described by the purchases listed below with the  
7 exclusion of in-app purchases of real time person to  
8 person services between two individuals and the in-app  
9 purchase of physical goods or services that will be  
10 consumed outside of the iOS app."

11 It is the case, is it not, that all relevant  
12 purchases, as defined in the joint statement, must be  
13 made through the App Store, correct?

14 A. Yes, because the relevant purchase is constrained within  
15 the iOS app. Of course, that does not stop other  
16 purchases from being made outside on other transactions,  
17 for example, subscribing to Netflix elsewhere and using  
18 it in the app, but the definition of "relevant purchase"  
19 is on iOS.

20 Q. I would like to talk to you now about device switching.  
21 Can we go to page 14 of this joint statement {C4/7/14}.  
22 It is proposition 7 and the proposition is:

23 "Competition in the market for devices disciplines  
24 App Store commission rates."

25 You say:

1 "Agree. Apple's commission rates are constrained by  
2 the significant competition Apple faces for devices."

3 You then refer to some results from the Accent  
4 Survey, and you then continue:

5 "If consumers switched to Android Devices following  
6 an increase in App Store's quality-adjusted commission  
7 rates, Apple will lose all associated App Store and  
8 device revenues (and therefore margins), which will  
9 likely render such a degradation unprofitable."

10 Can I check, have you actually read the Accent  
11 Survey yourself or was it something that was done by  
12 your team?

13 A. No, I reviewed the Accent Survey. I make it a practice  
14 to review all the documents that I rely on.

15 Q. Can we go to the Accent Survey, that is at {D1/1287/4},  
16 page 4 of that, please. This is an executive summary at  
17 the front of the Accent Survey. You will see  
18 the heading "Key Findings". The first bullet is:

19 "For Apple users the most mentioned factor in the  
20 decision to purchase the smartphone was brand (66%) with  
21 screen size and quality next (47%)."

22 Then if we look at the third bullet, it says:

23 "App related factors were the least mentioned  
24 factors for both Apple and Android users."

25 If we go to page 17 {D1/1287/17} -- sorry, page 22

1 of this {D1/1287/22}. It is figure 5, and you see the  
2 question asked was:

3 "What factors were important in your decision to  
4 buy/choose your current smartphone?"

5 iOS Device Users are in black, their responses are  
6 in black, and you will see that for iOS Device Users the  
7 price of subscriptions or content for apps available on  
8 the device was the least mentioned factor. Do you see  
9 that?

10 A. That is the way the bar chart appears, yes.

11 Q. We see that the survey question was concerned with the  
12 overall price of subscriptions or content for apps, and  
13 obviously Apple's commission is only a percentage of  
14 that, yes?

15 A. Apple's commission is a percentage of the transaction  
16 price if transacted on iOS, that is correct.

17 Q. So looking at this evidence, the idea that the Accent  
18 Survey supports your suggestion that a 5 to 10% increase  
19 in Apple's commission would trigger material switching  
20 from iOS to Android Devices is not sustainable, is it?

21 A. So a couple of things about that. So let me -- I will  
22 address first of all, I am not putting this into a SSNIP  
23 text context, so the 5 to 10%, or whatever it is, is not  
24 part of my analysis. It is my position that you cannot  
25 feasibly do a SSNIP test in this environment.

1           So now setting that aside, there are examples of  
2 questions like this where you see:

3           "What are the factors important in your decision to  
4 buy or choose your current smartphone?"

5           You have to -- I think you have to interpret these  
6 surveys in light of the question that is actually being  
7 asked. So if you are, for example, already an iOS  
8 consumer and you are thinking of "Should I upgrade to  
9 another iOS phone?", the decision on the margin probably  
10 does not matter too much what the apps are, because you  
11 are going from iOS to iOS, whereas brand or screen size  
12 and quality, if you think of the things that improve  
13 every year that are obvious in the device, you see those  
14 tend to be there. So that is one point.

15           Then the second point I think is why you have to be  
16 careful in interpreting figures like this is that there  
17 is a fair amount of parity in pricing across the  
18 platforms, particularly between iOS and Android, and so  
19 in that kind of environment on the margins it does not  
20 matter. You know, most apps are available on most  
21 platforms, prices are often similar, and so on the  
22 margin it is fully plausible that consumers do not weigh  
23 this very much, because it does not really matter to the  
24 decision that they are making.

25       Q. But, Professor Hitt, it is your reports that rely

1 heavily on the Accent Survey. I have not just pulled  
2 this out of the ether by a Google search. This is the  
3 survey that you rely upon. So when I take you to the  
4 slides and I show you what the questions asked are, you  
5 do not have the luxury of saying "Well, I do not like  
6 that slide, you have taken it out of context". This is  
7 the survey you rely upon heavily in your report, is it  
8 not?

9 A. I agree that I rely on the survey, and I consider very  
10 carefully all my usages of it to make sure that the  
11 interpretation makes sense in the context. So, yes,  
12 I will agree that this says that on the margin in this  
13 particular question, you know, 10 or 11%, depending on  
14 which platform you are on, consider the price of  
15 subscriptions. That is not the only fact I rely on, but  
16 the idea that people do at least consider it in some  
17 circumstances I think is one point, but again it is not  
18 necessarily surprising that it is not a large number  
19 because of some of these other considerations as to how  
20 the question is framed.

21 Q. Can we go over the page to page 23, please. Can you see  
22 at the bottom of the page a heading "Ranked Factors".  
23 Underneath the heading it says:

24 "Participants who chose two or more factors were  
25 then asked which one of these was the most important,

1 which was the second most important and the third most  
2 important."

3 The results for the iOS sample -- so this is  
4 iOS-specific -- are set out in figure 6, and again if  
5 you see the results for the price of subscriptions or  
6 content for apps available on the device, you will see  
7 it is equal or least important {D1/1287/24}.

8 You see below figure 6, the very last sentence, that  
9 Accent state in light of this evidence or this data:

10 "App related features were the two least important  
11 factors."

12 So again, the idea that the Accent Survey supports  
13 a suggestion that a 5 to 10% increase in Apple's  
14 commission -- and I appreciate you have not carried out  
15 the SSNIP test, but that is the fundamental thing we are  
16 all concerned about with. The idea that the Accent  
17 Survey supports the suggestion that a 5 to 10% increase  
18 in Apple's commission on apps would trigger material  
19 switching from iOS to Android Devices just is not  
20 sustainable on the Accent Survey evidence, is it?

21 A. So it would be -- so a couple of things. One is  
22 I fundamentally disagree that the HMT with the 5 to 10%  
23 change is the only way you can do this, and in fact,  
24 given that we are in this environment, I do not think it  
25 can be properly done. So I disagree that that is the

1           only thing we care about, or I cannot remember your  
2           phraseology, but that is there. Again, you have to take  
3           these things in context of the questions that they are  
4           being asked.

5           So certainly some consumers do consider these  
6           things, I consider that. Again, it may not show up very  
7           highly in these kinds of ranked comparisons, because  
8           again there is a combination of two things, which is if  
9           you think about what drives choice, it is preferences  
10          and then available options, and if the available options  
11          are very densely packed in the choice space, they are  
12          not going -- no matter how strong I care about it, I am  
13          not going to make a different choice if they are all  
14          basically the same on these things.

15          So that is one of the things that I think is useful  
16          to consider when you interpret these things.

17        THE CHAIRMAN: Can I just ask a question, Mr Hoskins?

18        MR HOSKINS: Of course.

19        THE CHAIRMAN: Professor Hitt, can we go back and just have  
20          a look at proposition 27 in the joint expert statement  
21          {C4/7/14}, and it is just the last bit of it, where you  
22          say -- if we go over the page {C4/7/15}, you say:

23          "If consumers switch to Android Devices following an  
24          increase in App Store's quality adjusted commission  
25          rates, Apple will lose all associated App Store and

1 device revenues ... which will likely render such  
2 degradation unprofitable."

3 That strikes me as being the language of a SSNIP  
4 test. Is that not broadly what you are saying?

5 A. It is the language of a SSNIP test, but I would not --  
6 I would say the logic -- there is nothing wrong with the  
7 logic of a SSNIP test. Whether you can then say, okay,  
8 can I build a model sufficiently precise that I can then  
9 throw in a 5 or 10% change and do so. But yes, that  
10 is -- what is anticipated is the idea that if I reduce  
11 quality or increase price, people will switch away  
12 sufficiently to discipline you. That underlies the  
13 logic I have. Whether you could actually do the formal  
14 SSNIP test with the right model, that I disagree is --  
15 has been done and is feasible within this context, given  
16 the complexities of -- you know, two sided markets and  
17 such.

18 THE CHAIRMAN: But you are not saying, are you, that the  
19 only way to do the SSNIP test is quantitatively?

20 A. No, I would not agree. But, again, we were interjecting  
21 the 5 or 10% change, which is normally an input to,  
22 you know, what you do after you have a model that is  
23 sufficiently robust to be able to do those kinds of  
24 comparisons.

25 THE CHAIRMAN: It is also conceptually just an indication of

1 the question you are asking yourself about the SSNIP  
2 test, is it not, which, I mean, I had understood you  
3 were doing it here in the sense of saying -- you know  
4 clearly you are asking yourself some -- there is no  
5 point asking yourself the question about an increase in  
6 the App Store's quality adjusted commission rates unless  
7 it is of some meaning in the context of the question of  
8 substitution we are looking at, and presumably you are  
9 thinking about one in the region of 5 to 10%?

10 A. So I am implicitly thinking about that, but since I do  
11 not think we quantify it that way -- since we cannot  
12 quantify it, I do not try to impose that on it. But the  
13 idea that if quality deteriorates or prices rise that  
14 people will switch away sufficiently to matter is the  
15 core thing. But, yes, you -- and is it -- I would  
16 not -- again, I cannot make a qualitative judgment  
17 whether what I have said is greater than 5 or 10%  
18 because I have not quantified my part, but it is  
19 perfectly plausible that Apple, given its -- or any, you  
20 know, Samsung or any of the smartphone manufacturers,  
21 would be concerned about adverse changes that cause  
22 people to shift away from the platform in a two sided  
23 environment.

24 That could be pretty -- that could be substantial.  
25 Again, I have not quantified it, but could it exceed 5

1 or 10? Perhaps, and that is kind of mental, but I did  
2 not want to make that direct comparison because  
3 I think -- I just do not have the numbers to do it.

4 THE CHAIRMAN: Yes, thank you.

5 MR HOSKINS: If we go to your third report, that is  
6 {C3/8/47}. Paragraph 90, you say:

7 "Dr Singer's assertion that consumers and developers  
8 are locked in to the App Store is also inconsistent with  
9 market evidence which shows that consumers switch  
10 between iOS and Android Devices and many iOS Device  
11 Users are likely not myopic (in terms of App Store  
12 prices) when making their choice in the implied primary  
13 market. Evidence also shows that developers substitute  
14 between iOS and non-iOS platforms."

15 Then in paragraph 91, you again go on to cite  
16 certain figures from the Accent Survey. Do you see  
17 that?

18 A. Yes. So specifically their computation of switching  
19 rates, there are lots of those numbers flitting around,  
20 but one of the ones I said is theirs. Also another  
21 interesting figure, which is the number of iOS or --  
22 I think I just cite the iOS one here, but there is also  
23 an Android figure of how many iOS Device Users have had  
24 an Android phone and vice versa.

25 Q. Can you just shift the page up so we can see the

1 footnotes, please.

2 When you say, for example -- that is too much,  
3 sorry.

4 You see you say:

5 "For example, according to a survey commissioned by  
6 the [CMA] ..."

7 That is the Accent Survey again, is it not?

8 A. That is the Accent Survey.

9 Q. Let us go to the CMA's report, that is {AB6/25/1}, and  
10 if we pick it up at page 39, we see in paragraphs 3.32  
11 and 3.33 the CMA explains the nature of the Accent  
12 Survey, so perhaps you could remind yourself of that.

13 A. Okay.

14 Q. Then if we go to page 40, so over the page {AB6/25/40},  
15 you see paragraph 3.36 explains that the CMA's  
16 conclusions, based on the Accent Survey, are set out in  
17 the following paragraphs.

18 (Pause)

19 Have you read 3.36?

20 A. Okay, yes.

21 Q. Then 3.37. So the first conclusion reached by the CMA  
22 is:

23 "... we have found that users are generally buying  
24 replacement devices so are already currently either  
25 within Apple's or Google's ecosystems."

1           Then at 3.39 {AB/25/41}:

2           "Second, we have found that users generally do not  
3 have both an iOS and an Android device."

4           Then over the page at page 42 {AB6/25/42}, 3.41:

5           "Third, we have found that users buying replacement  
6 devices do not generally switch mobile operating system,  
7 and this is particularly the case for Apple users.  
8 Further, our survey shows that, among non-switchers,  
9 only a small proportion consider switching operating  
10 system when purchasing a new smartphone."

11           3.42:

12           "While neither Apple or Google could provide data  
13 for us to calculate actual rates of switching, survey  
14 evidence shows there is limited switching in practice  
15 between mobile devices with different operating systems  
16 and users are more likely to switch from Android Devices  
17 to iOS devices than vice versa."

18           Then 3.43:

19           "For example, based on our survey evidence dated  
20 April 2022 [so the Accent Survey], we found that 8% of  
21 users who purchased an iPhone as their current  
22 smartphone had switched from an Android smartphone and  
23 5% of users who purchased an Android smartphone as their  
24 current smartphone switched from an iOS smartphone. In  
25 addition, our survey finds that only 11% of the Apple

1 users and 12% of the Android users are marginal users."

2 Now, this is not simply a conclusion, this is what  
3 the CMA takes from the Accent Survey, and it differs  
4 again, very differently, from your reliance on the  
5 Accent Survey, does it not?

6 A. Well, so I think we are looking at the same figures and  
7 coming to a different conclusion. I do not rely on  
8 their conclusion but I do certainly rely on the data  
9 inputs that they used on it, in context with other  
10 things that I consider.

11 Q. Again, no attempt by you in your reports to engage with  
12 these paragraphs. You just simply cite the Accent  
13 Survey and draw a different conclusion, without noting  
14 that the CMA, relying on the very same survey, reached  
15 the opposite conclusion. You do not engage with that?

16 A. So I was not asked to rebut the CMA's work. Similarly,  
17 I was not asked to rebut the *Spotify* report. I was  
18 asked to address the questions that were brought to me  
19 in this litigation, and I have done so using the  
20 available information that I have, including the Accent  
21 Survey, including other information that is informative  
22 about that.

23 Q. If we go to your third report at paragraph 94. I want  
24 to look at the issue of consumer awareness. That is  
25 {C3/8/50}. You say there:

1            "In addition, as I explain in section 4.3.2.1 below,  
2 many iOS consumers are likely to consider the price of  
3 digital content when making their purchase decisions in  
4 the implied primary market, ie they are not myopic as  
5 Dr Singer claims."

6            If we go to page 86 of this report {C3/8/86}, this  
7 is in section 4.3.2.1 that you referred to in the  
8 previous paragraph we saw, and in paragraph 167 you say:

9            "Second, survey evidence ..."

10           Again, that is the Accent Survey.

11           "... indicates that consumers can and do take into  
12 account the prices of digital content on the App Store  
13 (which, to be clear, are set by developers) when  
14 purchasing their device. The 2022 Accent Survey  
15 commissioned by the CMA found that 10% of iPhone owners  
16 considered the price of digital content available on the  
17 device as important in their decision to purchase the  
18 device."

19           Can you go over, please {C3/8/87}, and perhaps you  
20 could read the rest of that paragraph to yourself.

21           (Pause)

22           A. Okay, yes.

23           Q. Then can we go to page 88 of this report, please  
24 {C3/8/88}. I want to look at -- this is paragraph 168  
25 and I want to look at (b).

1 A. Okay.

2 Q. Perhaps the easiest thing is if you want to read that  
3 subparagraph (b) to yourself and tell me when you have  
4 finished.

5 (Pause)

6 A. Okay.

7 Q. So you say, picking it up about four lines down:

8 "... I identify users who spent more than £1,000 on  
9 the App Store using their iPhone in 2022. As a point of  
10 comparison, the current retail price of an iPhone ... in  
11 the UK is between £799-£1,099. This means that these  
12 users spend more in the UK storefront in one year than  
13 the cost of the flagship iPhone."

14 Then you go on to say:

15 "If prices on the UK storefront increased, I would  
16 expect these high spending consumers to substitute away  
17 from the App Store because such a price increase would  
18 have a large impact on their total expenditure."

19 So that is the conclusion you come to, relying on  
20 inter alia the Accent Survey.

21 Let us see what the CMA made of this point, if we go  
22 back to its report {AB6/25/126}. It is paragraph 4.166  
23 and it is the third bullet. What the CMA found was  
24 that:

25 "Apps, the prices of apps and the range of apps --"

1 THE CHAIRMAN: Sorry, I think we need to be in section -- it  
2 is actually the second bullet, I think.

3 MR HOSKINS: Thank you. So I am reading from the bottom of  
4 the page:

5 "Apps, the prices of apps and the range of apps  
6 appear to have limited importance to users in their  
7 choice of device given the multiple dimensions (eg  
8 camera type, battery life) considered by users when  
9 purchasing a device and the complexity of the costs they  
10 have to take into account (eg immediate cost for the  
11 phone versus deferred costs for apps, in-app purchases  
12 and subscriptions). This is supported by the literature  
13 on consumer myopia (ie consumers care more about present  
14 costs over future costs), evidence from our consumer  
15 survey [which again is the Accent Survey] and the  
16 surveys we have received."

17 So again we are in a situation where you have  
18 reached a different conclusion from the CMA, albeit  
19 relying on some of the same evidence, and you do not  
20 refer to that or attempt an express rebuttal in your  
21 reports, do you?

22 A. So, again, I was not asked to explicitly rebut the CMA  
23 report, what I was asked to do is to form my opinion on  
24 various issues, including the degree of switching, and  
25 whether or not that is relative -- that the potential

1 for switching is a relevant constraint, and that is  
2 exactly what I have done.

3 I will note that within the CMA decision there  
4 are -- they did not consider the question of whether or  
5 not the marginal consumer can switch. I do not believe  
6 there is -- at least I have not seen any evidence in  
7 their report of the discussion of marginal consumers,  
8 and that is important, because indeed you do not need  
9 everybody to switch, just the ones you care about, and  
10 this would suggest that -- and because the expenditure  
11 is concentrated, a relatively small number -- this time  
12 I will not cite the numbers, but a relatively small  
13 number of consumer switching could have a big effect.

14 In this context, a relatively small number of  
15 consumers who have a very strong incentive to know what  
16 the App Store prices are, and what the prices are in  
17 alternative channels, could have a significant effect on  
18 overall revenue, and so I think that is a potentially  
19 important consideration. This concentration point, I do  
20 not think that is something they considered, and again  
21 it would not take many people to switch in order to have  
22 a significant portion of revenue.

23 The other thing also from the Accent Survey, I also  
24 highlight the fact, that many consumers have experience  
25 with both platforms, so they have an opportunity to

1 learn there.

2 Then finally I will respectfully disagree with their  
3 point that you cannot find out the prices of apps on  
4 other platforms. This is largely public information,  
5 and there are review sites, you can access it online.  
6 So if you care you could figure this out, and you will  
7 encounter it casually, for example, if simply exploring  
8 the same kinds of places that talk about smartphones.

9 So I have some direct points of disagreement. There  
10 are some things they simply did not do. But I would  
11 like to highlight this marginal consumer effect, which  
12 would amplify even modest amounts of switching.

13 You know, if you cannot retain the people who generate  
14 the most revenue that should be of considerable concern.

15 Q. Professor Hitt, there are express questions and findings  
16 that relate to marginal consumers in the Accent Survey  
17 and the CMA does make express reference to marginal  
18 consumers in its report. You are simply wrong about  
19 that, I am afraid.

20 A. No, you are misdefining "marginal". A marginal consumer  
21 is not the one who is deciding whether to switch or not,  
22 in my usage. A marginal consumer -- well, it is the one  
23 potentially willing to switch, but the point being there  
24 is a very large -- they do not address the question of  
25 the concentration of expenditure, and the idea that

1 a small number -- a relatively small number of consumers  
2 shifting over could have a very, very large effect, that  
3 they do not do.

4 Q. I am going to come on to that, because that is a point  
5 you do make, and I am going to address that with you.

6 The point I am putting to you is throughout your  
7 reports you rely again and again on the Accent Survey,  
8 and again we see the CMA relying on exactly the same  
9 information, and it comes to a different conclusion, and  
10 you simply have not either even flagged that up as an  
11 issue in your reports, let alone addressed the specific  
12 reason of the CMA for coming to the opposite conclusion.  
13 That is the theme here.

14 A. Can I respond? Is that a question or a statement?

15 Q. You can respond if you want. I am just making clear  
16 what the case is that is being put to you.

17 A. No, and my response is that I addressed the questions  
18 that I was asked to evaluate, using all the available  
19 evidence. I think the Accent Survey is informative,  
20 because it asked certain questions in a reasonably large  
21 population survey that I think are useful. I was not  
22 asked to rebut the CMA survey.

23 I reach a different conclusion based on the evidence  
24 that I reviewed, and in many cases I think I have --  
25 I believe I have very strong reasons to believe the

1 conclusions I made are the correct ones, but again,  
2 different experts can look at different things and reach  
3 different conclusions, but I can explain why I reached  
4 the conclusions I did reach.

5 Q. Go to page 65, please, of the CMA's report {AB6/25/65}.  
6 Over the page -- sorry, you see the heading there  
7 "Conclusion", so we are in the conclusion section of  
8 this report, and now over the page, please {AB6/25/66},  
9 and then if you could please read to yourself  
10 paragraphs 3.121 and 3.123.

11 (Pause)

12 A. Okay.

13 Q. So I think there is no doubt that the CMA's findings on  
14 this issue, as on many others, are directly contrary to  
15 the position that you have reached, yes?

16 A. I think they characterise switching rates as low and  
17 include a number of barriers to switching. I disagree  
18 that those are substantial barriers. I disagree that it  
19 is low relative to other things, and I disagree that  
20 some of these things are switching costs. For example,  
21 the fact that many consumers prefer to repurchase the  
22 device they already have is indicative that they believe  
23 it generates a value for them. That is true for iOS, it  
24 is true for Android. So that is -- while that is  
25 a reason why people may not switch, it is certainly

1 something that is subject to the constraint that you  
2 have to continue to add value within the ecosystem. So  
3 I do not think -- I think they are confusing two things,  
4 with respect to those types of issues.

5 Q. Now, the CMA conducted a detailed market investigation  
6 over the course of a year. We have had a flavour of the  
7 nature of the investigation, we have had a flavour of  
8 the extent to which they investigated the issues, and  
9 your position, as set out in your reports, relies  
10 heavily on limited extracts from the Accent Survey and,  
11 with respect, Professor Hitt, your analysis just does  
12 not stand up. You have not done the work necessary to  
13 reach the valid conclusions, have you?

14 A. I completely disagree. I cite the Accent Survey as one  
15 of many useful inputs to my analysis. I also have  
16 access to App Store data, I have access to other sources  
17 of information which I cite here as well, and also  
18 I have -- and again for each one of these points, for  
19 example if you take a look at 3.121, I think I address  
20 most of these points in my report, and I can explain why  
21 I reach a different conclusion than they do.

22 I think I am right, but of course they think they  
23 are right, and that is okay. But I can explain why  
24 I reached the conclusions that I did using the available  
25 data that I had and it is documented in my reports.

1 Q. Let us look at the *Spotify* decision, that is  
2 {AB6/45/139}. If you could read recital 465 to yourself  
3 please.

4 (Pause)

5 A. Okay.

6 Q. So the Commission has also reached a different opinion  
7 to you on this issue, has it not?

8 A. With respect to -- so it depends on what issue you are  
9 talking about, but if they are saying that prices on the  
10 App Store do not constrain -- that consumers do not  
11 consider prices on the App Store when they are deciding  
12 which platforms to choose, I think we -- I disagree with  
13 them on this point, and I think we do have a point of  
14 disagreement, yes.

15 Q. So you disagree with the CMA on this. You disagree with  
16 the Commission on this. Again, I do not want to be like  
17 a broken record, you did not see fit to refer to these  
18 in your own reports or to seek to explain why you  
19 disagreed with these specific findings and the reasons  
20 for them?

21 A. So, yes, (a) I do disagree with certain points that they  
22 have there, and those are where you can see the analysis  
23 that is done to reach the conclusions that I have done.  
24 Again, I was asked to respond to Dr Singer, not to rebut  
25 the CMA, not to rebut the DMA in the process of doing

1 so.

2 I believe that, you know, having reviewed both of  
3 these things, it does not change my conclusions, ie the  
4 reasons for why I reached the conclusions that I did,  
5 and to the extent we differ, I disagree with their  
6 analysis.

7 Q. I want to move on to the question of whether there are  
8 separate markets for iOS App Distribution Services and  
9 iOS In-App Aftermarket Services. Can we go to the joint  
10 statement {C4/7/7}. It is proposition 4, and  
11 proposition 4 says:

12 "The distinction between iOS App Distribution Market  
13 and iOS In-App Aftermarket is economically valid."

14 As we see, you disagree with that proposition, do  
15 you not?

16 A. That is what I said.

17 Q. Can we go to Mr Schiller's first report {B2/5/32},  
18 paragraph 117. Mr Schiller's evidence is that:

19 "When the App Store first launched in 2008, iOS  
20 Device Users could not make in-app purchases. An app  
21 was either free or it could be downloaded for an initial  
22 one-off fee. In the initial period after launch, there  
23 was no means by which users could make subsequent  
24 purchases after downloading an app. For example, there  
25 was no capacity to pay for additional in-app content."

1           So we see that when the App Store was first launched  
2           there was no means to make in-app purchases. You  
3           understand that?

4           A. Yes, that is correct.

5           Q. If we go to his paragraph 121 on page 33 {B2/5/33}, he  
6           explains:

7                     "In March 2009, in response to the developer  
8                     feedback mentioned above, Apple announced a new set of  
9                     APIs that introduced an in-app purchase functionality to  
10                    the App Store. IAP is a feature of the App Store  
11                    commerce system that provides a seamless, safe and  
12                    trusted mechanism for developers to offer digital  
13                    content and services to consumers."

14           So we see that the App Store was originally launched  
15           without the ability to make in-app purchases, and the  
16           ability to make in-app purchases was introduced later,  
17           yes?

18           A. Yes. My understanding is I think that Apple may very  
19           well be attributed with inventing IAP, at least in the  
20           smartphone ecosystem.

21           Q. That chronology is evidence that the distribution of iOS  
22           Apps and the ability to make in-app purchases within  
23           such apps are distinct services and may be not enough on  
24           its own, but is evidence that points in that direction,  
25           do you agree?

1       A. I do not think that follows. I do not think that  
2       follows. You can have innovations where you introduce  
3       substitutes later on, so I do not think that follows.

4       Q. Can we go to paragraph 119 of Mr Schiller's evidence  
5       which is on the same page. He says:

6               "Following the launch of the App Store, developers  
7       seeking to monetise their apps (other than through the  
8       initial purchase of the app) sought from Apple the  
9       ability to sell digital content and features within apps  
10      at a point after the initial download."

11             So Apple introduced the means to make in-app  
12      purchases in response to developers, did it not?

13      A. Yes, I think this was a developer request, the ability  
14      to engage in different kinds of monetisation models, and  
15      Apple responded by introducing the innovation of IAP, at  
16      least on the iOS ecosystem.

17      Q. So Mr Schiller's evidence indicates that there is  
18      separate demand from developers for the ability to make  
19      in-app purchases on one hand as distinct from the  
20      ability to distribute and download apps in the first  
21      place, does it not?

22      A. So certainly developers sought the ability to engage in  
23      it certain kind of monetisation models, I will  
24      definitely agree with that. Is there separate demands?  
25      Well, certainly there was a demand for IAP. That does

1 not cause it to not be a substitute for the ability to  
2 do paid download, and in fact that is what we find.

3 So I think I can mostly agree with you, but again  
4 this was again something that developers sought out, the  
5 ability to do IAP was introduced and developers used  
6 that in lieu of paid downloads.

7 Q. Can we go, please, to {CB2/11/1}. This is a letter  
8 dated 7 September 2024 from Gibson Dunn who are Apple's  
9 lawyers, to Hausfeld who are the Class Representative's  
10 lawyers. If you can turn to page 2, please {CB2/11/2},  
11 you will see about halfway down that page there is  
12 a paragraph that begins "Firstly", do you see that?

13 A. Yes.

14 Q. Can you read that paragraph, please.

15 (Pause)

16 A. Okay.

17 Q. This is a technical matter that is not within your  
18 expertise as an economist, is it?

19 A. I would safely say -- safely agree with that, yes.

20 Q. Again, whilst not necessarily conclusive on its own,  
21 this is another piece of evidence that supports the  
22 conclusion that there are separate markets for iOS App  
23 Distribution Services and iOS In-App Aftermarket  
24 Services, is it not?

25 A. I would not reach the economic conclusion there. So,

1           for example, you can have substitutes that are made by  
2           a different production process, that is not necessary  
3           for things to be separate or the same. I do not think  
4           it is dispositive.

5       Q. It is not dispositive, but it can be relied upon to  
6       support that conclusion?

7       A. I am not sure it goes there, for the reasons I just  
8       described, which is you can have two things that are  
9       extremely close substitutes that are produced with  
10       different production technology. So I think to the  
11       extent this is informative, it is very limited, and  
12       I would not -- I do not see this as particularly  
13       informative, no.

14      Q. Well, let us look at another part of the picture. In  
15      order to download an app initially, a user has to search  
16      for it in the App Store, do they not?

17      A. Yes, they do -- well, maybe. They may be directed to it  
18      in some other way, but that is one way in which you can  
19      discover an app.

20      Q. Once a user has downloaded an app, if they want to make  
21      an in-app purchase they do so through the app itself,  
22      not through the App Store, do they not?

23      A. That is generally correct, yes.

24      Q. So there is no matchmaking function, as Dr Singer would  
25      style it, after the initial download of the app, is

1           there?

2           A. No, I disagree with that. I think this issue came up in  
3           the hot-tub as well. I disagree with that point, and  
4           the reason is that when consumers are considering apps  
5           they are considering the full capabilities of the apps,  
6           and that includes things that may be unlocked from IAP.

7                     I may not have clearly articulated this before, but,  
8           for example, you would not be matched to the Netflix app  
9           without the capabilities of actually watching movies in  
10          the Netflix app, so the idea that these things are  
11          entirely separable I do not think is quite right.

12          Q. Let us look at another bit of the picture. If we go  
13          back to Mr Schiller's statement, that is {B2/5/49}. At  
14          paragraph 171 he explains that there are five business  
15          models by which developers may monetise their app on the  
16          App Store, and he then describes them.

17                     If we go to paragraph 173 {B2/5/50}, he explains  
18          that under the free app model, apps are free to download  
19          and do not include paid in-app purchases.

20                     If we go to paragraph 176, he explains that under  
21          the freemium model apps are free to download initially  
22          but users can make subsequent in-app purchases for  
23          additional content.

24                     If you go to paragraph 178, we see that developers  
25          under the subscription model can offer automatically

1 recurring subscriptions to users and, under that model,  
2 the downloading of the -- the initial downloading of the  
3 app and the taking out of the subscription within the  
4 app are separate acts, are they not?

5 A. Yes. There may be rare exceptions, but generally that  
6 is the way it works.

7 Q. Then if you go to paragraph 179 {B2/5/51}, under the  
8 paid model developers charge a price for users to  
9 download the app, that is the initial download of the  
10 app, yes?

11 A. Yes.

12 Q. Then paragraph 180, under the paymium model developers  
13 charge a price for users to download the app, and they  
14 also offer subsequent in-app purchases for additional  
15 content, do they not?

16 A. Yes.

17 Q. So the monetisation models that Apple makes available to  
18 developers are premised on a distinction between the  
19 initial download of an app and separate payments for  
20 content, are they not?

21 A. I do not know if they are premised on it. The process  
22 of implementing these various models may involve  
23 payments of the initial download, or, much more  
24 commonly, payments through the IAP.

25 Q. Well, that is how they distinguish one from the other.

1 Some of them you have to pay for the initial download,  
2 some you do not. Some you can pay for subsequent in-app  
3 purchases, some you cannot. That is the whole basis  
4 upon which these five categories are defined. That is  
5 how they distinguish one from the other.

6 A. I will agree that each of these five has a different  
7 process by which there is payment and monetisation,  
8 sure, that is true.

9 Q. Again, whilst not necessarily conclusive on its own, the  
10 fact that Apple has defined its basic monetisation model  
11 on the basis of this distinction provides some evidence  
12 that the iOS app distribution is a different market,  
13 a distinct market, from the in-app services, does it  
14 not?

15 A. No, I strongly disagree with that. It is an integrated  
16 system enabling these five models in different  
17 configurations, but they work together to be able to  
18 deliver the ability of developers to monetise within  
19 iOS.

20 Q. Let us look at another part of the picture. You are  
21 obviously aware of the EU's DMA regulation. Can we have  
22 that up, please {AB1/6/1}. Have you seen the transcript  
23 for, or did you watch my cross-examination of  
24 Professor Sweeting?

25 A. I may have seen bits and pieces of it. I have read the

1 transcript at least quickly.

2 Q. So you know what is coming then.

3 If we go to page 2, please {AB1/6/2}. Remind  
4 yourself of the basic premise of the regulation, that is  
5 recitals 3 and 4. If you read those, please.

6 (Pause)

7 A. Okay, I have read 3 and 4.

8 Q. You are obviously aware that Apple has been designated  
9 as a gatekeeper under this regulation in relation to the  
10 App Store, yes?

11 A. Yes.

12 Q. If you go to page 11, please {AB1/6/11}, and if you  
13 would read recital 43.

14 (Pause)

15 A. Okay.

16 Q. So you will see, and it is clear from the first  
17 sentence, is it not, that this regulation draws  
18 a distinction between core platform services and payment  
19 services, does it not?

20 A. It does make that distinction, yes. It lists out  
21 payment services separately from core platform services.

22 Q. If we go, please, to page 33 {AB1/6/33}, you see  
23 Article 5 sets out the obligations for gatekeepers. If  
24 we can go to the next page {AB1/6/34}, the 7 on that  
25 page, so Article 5(7), if you could read that, please.

- 1 A. 7?
- 2 Q. Please.
- 3 A. Okay.
- 4 (Pause)
- 5 Okay.
- 6 Q. So you will see that the effect of this provision in the  
7 regulation is that Apple cannot require developers to  
8 use Apple's payment systems for in-app purchases, do you  
9 see that?
- 10 A. I think that is an implication, yes.
- 11 Q. So the EU's DMA regulation quite clearly makes  
12 a commercial and economic distinction between iOS App  
13 Distribution Services and iOS In-App Aftermarket  
14 Services, does it not?
- 15 A. I would say they make a distinction. It is written in  
16 the regulation. I am not sure I can read anything else  
17 into it other than that, is that they do distinguish the  
18 two and they have specific regulatory restrictions about  
19 whether or not they can be (inaudible).
- 20 Q. How familiar are you with the position in South Korea  
21 and the Netherlands?
- 22 A. It is something I became aware of. It is not something  
23 I have extensively studied.
- 24 Q. Are you aware that in South Korea, even after the new  
25 legislation, iOS app distribution must still take place

- 1           via the App Store?
- 2           A. I believe that is correct, yes. I mean, again, it is  
3           something I have looked at a while ago and had not  
4           really considered as part of my analysis here, so  
5           I would be doing it from vague memory.
- 6           Q. Are you aware that under the new Korean legislation  
7           developers may choose alternative providers to Apple for  
8           facilitating in-app purchases?
- 9           A. Yes, that I am familiar with.
- 10          Q. So the South Korean legislation similarly makes  
11          a commercial and economic distinction between iOS App  
12          Distribution Services and iOS In-App Aftermarket  
13          Services, does it not?
- 14          A. So they are making a distinction. I am not sure I would  
15          add "commercial" or "economic", they are just simply  
16          saying that they are not going to allow -- or at least  
17          not -- they are going to require that they provide the  
18          ability to do independent payment solutions. I am not  
19          sure if I can read it any more than that. It is not  
20          something I would have thought of, so I do not really  
21          know.
- 22          Q. Are you aware the same distinction is made in the  
23          Netherlands in relation to dating apps?
- 24          A. Yes, I am aware that they made a similar change,  
25          although the details -- again, it is not something

1 I have engaged with for a while.

2 Q. Can we go to Mr Howell's first statement. That is  
3 {C2/4/49}. If you could read paragraph 108, please.

4 (Pause)

5 Then if we go to page 50 {C2/4/50}, paragraph 112 --  
6 sorry, are you still reading that?

7 A. So which would you like me to read?

8 Q. So I had asked you to read 108.

9 A. Sorry, I was just working my way through it, and then it  
10 changed, so let me do that again.

11 (Pause)

12 Okay, I have read 108.

13 Q. Then if we go to page 50 {C2/4/50}, at paragraph 112, he  
14 says:

15 "As referred to above at paragraph 106, Apple's  
16 changes to comply with the DMA in the EU allow  
17 alternative app stores and authorised side loading of  
18 iOS Apps, ie without the need to jail break the iOS  
19 device first."

20 If we drop to the bottom of that page:

21 "I note that, nonetheless, AltStore PAL, Aptoide for  
22 iOS, the B2B-focused app marketplace Mobivention, the  
23 Epic Games Store, and MacPaw have already been announced  
24 in the EU. Microsoft has also stated that it intends to  
25 create an alternative app store in the EU."

1           Again, these are not matters that are within your  
2           expertise, are they?

3           A. I mean, these are statements about firms' intentions to  
4           do certain kinds of services. I do not know if -- these  
5           are just statements of fact. I am not sure there is  
6           expertise involved in here.

7           Q. Do you have any reason to disagree with Mr Howell's  
8           statement of those facts?

9           A. In terms of others or -- so I have reason to disagree  
10          with the separate demand point. I do not have reason to  
11          disagree that others have raised the possibility or have  
12          pursued the idea of alternative app stores.

13          Q. Can we go to page 71 {C2/4/71}. Again, I think the  
14          easiest thing is, I am afraid I am going to ask you to  
15          read them briefly. You do not need to read in detail,  
16          the list in paragraph 149, it is sufficient for you to  
17          just look at the names, but if you briefly look at 147,  
18          148 and 149.

19          A. This is the Howell report?

20          Q. This is still the Howell report, yes.

21          A. Okay, 148, 149? Okay.

22                       (Pause)

23                       Okay.

24          Q. So we see from Mr Howell's evidence that he identifies  
25          the types of payment service providers who might enter

1 the market to provide payment support services to iOS  
2 App Developers in relation to relevant in-app purchases  
3 and relevant subscription purchases. You have seen  
4 that, yes?

5 A. He identifies Paddle as a potential entrant for payment  
6 services.

7 THE CHAIRMAN: I think we have probably only seen the --

8 MR HOSKINS: I am sorry, you need to go over the page. It  
9 is my fault.

10 THE CHAIRMAN: We have seen 149.1, but I think it goes on,  
11 does it not?

12 MR HOSKINS: It does.

13 THE CHAIRMAN: Shall we just flick through those pages  
14 perhaps.

15 A. Yes. Oh good, and Stripe and a few others, yes,  
16 Shopify.

17 MR HOSKINS: You see a number of other names and you see the  
18 types of companies that he is identifying and, again,  
19 you have no reason to disagree with the statement of  
20 facts here, do you?

21 A. That these firms could potentially do the payment  
22 solution which is one portion of the IAP service?  
23 Again, I -- this is not something I evaluated so  
24 I cannot say one way or the other, but the idea that  
25 there could be payment solution providers that might

1 appear if those are permitted is -- I do not think that  
2 is controversial. Whether -- the conclusions as to  
3 whether or not they offer the same kinds of services,  
4 I am not sure I can evaluate that because I have not  
5 evaluated these specific ones.

6 Q. It is clear from the evidence we have just seen that the  
7 sorts of companies who might wish to enter the iOS App  
8 Distribution Market, if permitted to do so, are  
9 different from the sorts of companies that might wish to  
10 enter the iOS In-App Aftermarket. They are different in  
11 nature, are they not? That is what we see from this  
12 evidence.

13 A. So these are companies focused on payment solutions.  
14 I think, as I have noted in my report, they do not  
15 overlap completely with the services provided by IAP,  
16 but these companies -- there do exist companies that  
17 provide payment solutions alone.

18 Q. I think I may have misled you with the question. I am  
19 trying to distinguish the sorts of companies who would  
20 enter the distribution market with the sorts of  
21 companies who would enter the payment market and the  
22 point I am making, as we see from Mr Howell's evidence,  
23 is that they are different types of companies. As you  
24 say, for the payment market it is the payment service  
25 providers; for the app stores, it is an entirely

1 different type of company. Paddle is not coming in to  
2 do app distribution.

3 A. So I disagree with your characterisation of it being  
4 that a payment market is comparable to IAP. I will  
5 agree there exist payment processors that provide  
6 certain capabilities for collecting payments.  
7 I disagree that that is -- that there is this  
8 independent market. That is actually one of the areas  
9 in which Dr Singer and I disagree. I view this as an  
10 integrated service that provides many overlapping  
11 services that are used by both developers and consumers  
12 in both markets. He disagrees with some of those  
13 points.

14 THE CHAIRMAN: Professor Hitt, I think you are at  
15 cross-purposes with Mr Hoskins.

16 A. We are, I think.

17 THE CHAIRMAN: I think he is asking you a different question  
18 altogether, so do not worry about -- I think we  
19 understand what you say about the differences in the  
20 market description, shall we put it that way --

21 A. Okay, good.

22 THE CHAIRMAN: -- and also what the players -- what the  
23 players -- the services they might offer.

24 I think the question he is asking you is that he  
25 showed you Mr Howell suggested there might be some

1 people who were going -- who would be interested, or  
2 might potentially be interested in entering and setting  
3 up an alternative app distribution store and there was  
4 a list of names we saw a little bit earlier --

5 A. Oh, okay.

6 THE CHAIRMAN: -- and that was a different list from the  
7 list of names we see that Mr Howell is suggesting might  
8 be interested in entering into some form of payment  
9 provision, whatever it is. So I think he is just simply  
10 making the point we have two different lists of names  
11 and asking you just to accept that.

12 MR HOSKINS: Thank you, sir.

13 A. I will certainly accept that, without the additional  
14 market and other things that I fundamentally disagree  
15 on.

16 THE CHAIRMAN: (Overspeaking) --

17 A. But yes, sure, this list of names is different than the  
18 other list of names, I will agree.

19 MR HOSKINS: The fact that if these activities were opened  
20 up to competition that you would have different sets,  
21 different types of companies providing each set of  
22 services, is again an indication that they are indeed  
23 separate markets, is it not?

24 A. So I do not necessarily think that is correct because of  
25 the definition of IAP. In my view that is not

1 a separate market and it is not simply the services  
2 provided by these payment processors. Maybe in  
3 Dr Singer's world that would be an argument, but that  
4 presumes that you have already -- that it has already  
5 been established that that is an independent market and  
6 I disagree; it is an integrated service. So in  
7 Dr Singer's world I can agree with you, but I disagree  
8 that Dr Singer's world is correct.

9 Q. For the next set of questions -- I am aware of the time,  
10 sir, but this links from what we have just been doing  
11 and it won't take too long.

12 For the next set of questions I want you to assume  
13 that the Tribunal has found that there are two separate  
14 relevant markets in this case: an iOS App Distribution  
15 Market and the iOS In-App Aftermarket Services market,  
16 yes?

17 A. Okay.

18 Q. Just bear with me on that.

19 A. Okay.

20 Q. Now, imagine that I want to play Clash of Clans on my  
21 iPhone. The first thing I need to do is to download the  
22 app onto my iPhone from the App Store, yes?

23 A. Yes.

24 Q. Now, assume that I then want to purchase some gems and  
25 I decide to buy them on the Clash of Clans website.

1           When I go to that website and purchase the gems, that is  
2           a purchase on a one sided market, is it not?

3           A. So in the sense that it is basically a retail  
4           distribution, I think that safely can be described as  
5           one sided because it is one developer, so, yes, I think  
6           that is fine. You have one developer, many consumers,  
7           that is a one sided market.

8           Q. So the next time I decide to purchase some gems I do so  
9           from the Clash of Clans app on my iPhone and that must  
10          also therefore be a purchase in a one sided market,  
11          correct?

12          A. That does not follow. So direct retail -- you can have  
13          retail distribution through platforms, you can have  
14          retail distribution direct distribution. One is one  
15          sided and one is two sided, so the idea that if I, as  
16          a developer, decide to distribute direct that is a one  
17          sided market because it is me with the consumers on the  
18          other side.

19                 If you think of a platform like iOS, while the  
20          transaction eventually is occurring between one  
21          particular consumer and one particular developer, this  
22          is a many-to-many configuration, many consumers using  
23          the same services and many developers using the same  
24          services, so I disagree that that is a one sided market.

25          Q. It is the same transaction. If I buy from the Clash of

1 Clans website I am going direct to that particular  
2 retailer. If I buy it from within the app, it is  
3 exactly the same: I am going to the one retailer, I am  
4 dealing with them. It simply happens that Apple is  
5 providing the services, but the actual transaction is  
6 directly with Clash of Clans. There is no difference  
7 between the two.

8 A. I am going to respectfully disagree with that  
9 characterisation. So, for example, there is  
10 a fundamental difference between buying a book on Amazon  
11 and buying a book on eBay from a marketplace of sellers.  
12 Those are different kinds of things. EBay is  
13 a multi-sided platform. Amazon, if you think of Amazon  
14 Retail at least, is a one sided distribution mode and  
15 those are fundamentally economically different.

16 Q. But it does not matter if -- that is a distinction  
17 without purpose here. The point is I am going to Clash  
18 of Clans. I am not going into a marketplace where there  
19 are a number of people offering gems and picking between  
20 them. In both examples I am going to Clash of Clans and  
21 I am buying the gems from Clash of Clans.

22 A. But you are doing so in a two sided market where both  
23 developers and consumers come together to perform  
24 transactions, and that is true in the foremarket, which  
25 is what Dr Singer called distribution, it is also true



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