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I N D E X

WITNESS

PAGE

MARK ISRAEL

Continued Direct Examination by Mr. Sommer

8506

Cross-Examination by Mr. Dintzer

8603

E X H I B I T S

NO EXHIBITS WERE MARKED

P R O C E E D I N G S

1
2 **THE COURT:** Welcome back everybody. Mr. Sommer, ready
3 when you are.

4 CONTINUED DIRECT EXAMINATION OF MARK ISRAEL

5 **BY MR. SOMMER:**

6 **Q.** Thank you, Judge.

7 Welcome back, Dr. Israel.

8 **A.** Thank you.

9 **Q.** We were about to move on -- a little deeper on to
10 substitution, and I was up to slide 72. So let's get that
11 up, let's see if I can get it up. There it is, 72.

12 Can you describe to the Court the concepts you're
13 addressing in this slide, please.

14 **A.** Yeah, so as I mentioned earlier, I'm going to try to
15 present the evidence that I've been able to review and
16 develop on substitution between ad formats, as we talked
17 about. So there's really three forms of evidence that I'll
18 go through. The first one -- and you had asked about
19 empirical studies before, and I'll come to that. As I said,
20 tried to make what -- you know, what's possible of the
21 empirical evidence in the record. There's only so much of
22 it, though. And so the first thing I've done is look at what
23 the people in the marketplace are doing, particularly the
24 people who are providing tools, who are serving the needs of
25 advertisers under the logic that if they're investing in and

1 providing tools to help people substitute across channels,
2 that indicates that there's an important demand for that, and
3 that's something people want to do.

4 So I'll look at the tools, then I'll go to the empirical
5 evidence that's available. And then I'll spend a fair bit of
6 time on what Professor Whinston presented as his three main
7 factors that he is -- affecting the substitutability of ad
8 products. And I'll describe why my conclusion from his
9 factors, as well as my own, is that there's greater
10 substitution between Google search ads and other formats than
11 between Google search ads and other general search ads.

12 **Q.** All right. Let's start with the tools that you
13 mentioned. Performance Max, is that one of them?

14 **A.** Yeah, so this is -- this slide has a description of
15 the Performance Max offering from Google. So just to take a
16 step back -- and I'm sure you know much of this, but I
17 mentioned Google Ads earlier, right. So Google Ads is the
18 native interface through which people buy Google search ads.
19 So there's an auction running in the background, but
20 generally advertisers work through Google Ads to submit their
21 campaigns and their bidding strategies and so on. So you can
22 submit various -- advertisers can come to Google and submit
23 various campaigns.

24 In a recent development at Google -- which I think you've
25 heard about, which is their fastest growing campaign form is

1 called Performance Max. And the key feature of Performance
2 Max is that it explicitly -- you don't set a search campaign
3 or a PLA campaign or a display campaign separately. You tell
4 it your goals, you give it a budget, and it uses AI
5 effectively to shift your budget across channels in order to
6 maximize return. So this is saying it will optimize
7 performance in realtime across channels. If you have a CPA,
8 which is cost per action, or a return on an advertising spend
9 target, it will do that for you. So Google is providing a
10 tool that explicitly doesn't separate between display,
11 search, PLA; it optimizes across them.

12 Q. And did you see testimony from Dr. Raghavan that also
13 addressed this issue?

14 A. Right. And he was clear, using the sort of same
15 logic I've been describing, an advertiser comes in with a
16 budget, and Google figures out where to put money in that
17 budget in order to maximize their return on ad spend.

18 Q. Is Google the only ad platform that offers an ad
19 optimization tool like Performance Max?

20 A. Definitely not. So on the next slide, we see
21 Microsoft has a similar, although in some ways broader,
22 offering. So Microsoft offers something called Smart
23 Campaigns. Interestingly, Microsoft -- the name of
24 Microsoft's sort of technology that manages these is also
25 called Performance Max. But it's Smart Campaigns, it's the

1 same idea: Automatically optimize your budget for the best
2 performance. One interesting notable difference is Google
3 Ads is doing this across Google stuff, Google search. Google
4 also has a display network of display ads. Google is
5 optimizing across those. Microsoft is explicitly optimizing
6 across its own Bing search ads, also Google Ads, also
7 Facebook and Instagram.

8 So you give Microsoft a campaign, and it will optimize
9 your budget across those. So it's explicitly considering how
10 to move money across channels.

11 **Q.** Are these ad platforms the only tools out there or
12 are there others?

13 **A.** There's lots of others. The ones that I just
14 described are native to Google and Microsoft, so Google and
15 Microsoft offer them. Probably the place that I think you
16 see this the most -- or certainly one of the most, is with
17 advertising agencies. It's a lot of what advertising
18 agencies are doing for their advertising clients, is helping
19 them optimize -- move money between channels. And so the
20 next couple documents are from an advertising agency, IPG --
21 there's been a witness from them. And then Reprise is a part
22 of IPG that manages some of these technologies.

23 So on slide 75, we see IPG/Reprise has something called
24 optimization engine. It's a realtime budget optimizer. It
25 mentions that it looks across channels: display, video,

1 search, social, OTT -- which is over-the-top video, connected
2 television and so on. And it says -- it recommends budget
3 reallocations away from underperforming channels to
4 outperforming channels for more impactful business outcomes
5 and better ROI versus in-channel optimization only. So it's
6 sort of a clear description of this move money to where the
7 ROI is higher.

8 Q. And with that same company, IPG/Reprise, that's
9 featured on the next slide as well?

10 A. Right. So they have a guide to paid search reporting
11 and optimization, a publication from the same company. And
12 they indicate, again, measuring the performance across
13 multiple channels. The highlighted part says: "As an
14 example, if paid social is performing well within the target
15 ROI but paid search is not, then we may recommend moving the
16 budget to ensure we spend in the most efficient channel."

17 Q. And Dr. Israel, is IPG the only ad agency that offers
18 advertisers these types of optimization tools?

19 A. Definitely not.

20 Q. And did you see testimony from Mr. Lowcock from IPG
21 who testified at this trial?

22 A. Yes. He said every agency or every significantly
23 sized agency that he's aware of has such tools. That's also
24 my experience in the industry. Agencies have to compete for
25 the business of advertisers, so they basically have to offer

1 them these tools or they won't be effective in maximizing
2 returns.

3 **Q.** So you've mentioned the platforms have tools, the ad
4 agencies have tools. Are there other optimization tools out
5 there as well?

6 **A.** There's a variety of firms, sort of third-party
7 tools, that work with the agencies often or work with the
8 advertisers to help them with this sort of function.

9 **Q.** So on slide 78 --

10 **A.** So Nexoya is an example of a company that provides
11 these services. They provide a budget optimizer. Their
12 statement is: "Optimize your digital ad spend with automated
13 cross-channel portfolio management."

14 **Q.** And then we see one from a company called Grid
15 Dynamics?

16 **A.** Right. And I think -- maybe, yeah, if we -- theirs
17 says the same: "Optimally allocate budgets across marketing
18 channels. Measure the true contribution of each channel."
19 So it's another similar service.

20 **Q.** And there's also one from ChannelMix?

21 **A.** ChannelMix. Again, theirs talked about protecting
22 optimal media mix, protect budgets and reduce wasted spend.
23 You know, all of these are evidence of what -- the service
24 that's being provided, invested in and demanded is taking
25 advertising budget and move money around between channels to

1 optimize return, you know, with specific language about
2 moving money from underperforming to overperforming channels.

3 Q. What about Google itself, have you seen documents
4 showing whether it uses ROI to make its own ad buying
5 decisions?

6 A. Yes. I mean, Google's an ad buyer, so Google as a
7 seller is moving money around to generate returns. What's on
8 here is actually work that I've done from Google's data,
9 which is just here making the simple point that this is
10 Google advertising for the Play Store. So you can -- they'll
11 say sign up for the Play Store to get music or to use the
12 Play Store for apps or whatever, they advertise that in
13 various ways. And so this is just showing that over time,
14 the proportion of the money they're spending across different
15 channels is varying quite a bit. As the bullets say, it's
16 between zero on search and 55 percent on search; and display,
17 between 25 and 85.

18 Now, again, this is -- Google's doing this for a variety
19 of reasons; to be clear, they're optimizing over time. But
20 it clearly shows that as far as the mix in their budget, it's
21 not like search always get a certain percentage. These are
22 fluid movements across channel.

23 Q. Have you found any other evidence in the record that
24 advertisers shift between search and other forms of
25 advertising?

1 **A.** Yes. So this is an attempt to find in the record
2 where I could find a place to do an empirical study of my
3 own. As I said, there's limited places where I have data on
4 the ROI or the price and the ad movement such that you can
5 actually do econometrics. I don't think plaintiffs' experts
6 have done it. There's limited places where there's
7 sufficient data. What I looked at here was one example. So
8 you may recall in the basically early fall -- late summer,
9 early fall of 2020, there were some advertisers who boycotted
10 Facebook, boycotted Meta in response to some of Meta's
11 policies. Most of those boycotts were very short, so most of
12 them in the data were less than a month, really no time to
13 study.

14 The one example where there was a sustained boycott
15 longer was Nike. So Nike boycotted Facebook, got rid of all
16 spending on Facebook for July, August and September of 2020.
17 So the way that I think about that is it's effectively like
18 Facebook saw a large decrease in the ROI -- or Nike saw a
19 large decrease in the ROI on Facebook, right -- or a decrease
20 in quality, however you want to think about it, a large
21 increase in price, it's equivalent to that, enough that they
22 eliminated all spending on Meta, on Facebook for three
23 months. Now, that's a large decrease at Meta, but what it
24 does is let me see where that money went to.

25 And so what we see -- you know, I did my own empirical

1 work here, but honestly, the clearest statements come from
2 Nike documents themselves. Nike says: "When we paused, we
3 reallocated most of our social investment in display and
4 search." They indicate they looked at other social
5 investment options that they didn't find as attractive, and
6 they reallocated their money to display and search. And then
7 they indicated that after relaunch of the budget allocation,
8 the percentages have generally shifted back. And I'll talk
9 about the empirical work I did and what I have controlled
10 for, but honestly, the cleanest statement of this is Nike's
11 overall summary here. Above the summary, they have some sort
12 of one-week snapshots. Those are just certain weeks during
13 the time period. But their summary, as a whole, is: "We
14 reallocated most of our social investment in display and
15 search."

16 So, again, the way I would think about this is
17 effectively a large price increase on ads at Meta.
18 Advertising flowed out of Facebook, and it went to display
19 and search, showing substitution across channel.

20 Q. Professor Whinston addressed this boycott as well in
21 his testimony, if my memory is right?

22 A. I'm not sure I recall.

23 Q. In his report, okay.

24 A. But I've done some empirical work that I'd be happy
25 to talk about on it.

1 Q. Well, is there anything we should glean from this
2 particular chart?

3 A. So we can -- this is my look at the data. So it's
4 just on the right-hand side of that main slide. So it's a
5 little hard -- it's me actually not just going to the Nike
6 document, but doing some data work where I could. So if you
7 look at the dashed purple line, that's Nike's spending on
8 advertising at Meta. So you see it coming along, coming
9 along, and then for that three-month period, from July of
10 2020 through September of 2020, it goes to zero.

11 And then what you see happen in response, you see three
12 lines spike up. So non Meta social goes up a little bit,
13 display come up a lot for sure, and social -- and search goes
14 up a lot. So you see the money being reallocated, some
15 within the social channel, but obviously a lot of it to
16 search and to display. Given what their options were, they
17 found that re-optimization to be optimal.

18 I also, on the next slide, I think, described --

19 **THE COURT:** I'm sorry to interrupt. So why wouldn't this
20 be an example of the cellophane fallacy? Can you justify or
21 establish that the ROI that they got back from these
22 substitutes was similar? I mean, in other words, just
23 because they stopped and substituted doesn't mean that these
24 were adequate substitutes.

25 **THE WITNESS:** Yeah, I guess I would say two things. One,

1 in the document, it refers to the performance generally being
2 good. Although, I don't want to say I recall they said
3 exactly the same, but that generally being satisfied. But I
4 think what I would say to that is it certainly is a big
5 change for Meta itself. But that was just for Facebook,
6 right. So even -- I don't think it's cellophane, because
7 cellophane would say all the other substitutes that are out
8 there are basically gone because you've monopolized, so you
9 have to find some really distant substitute. This is saying
10 there was a change in just that one platform, just at
11 Facebook. The other substitutes in the market are what they
12 are in the market. So we're seeing where it diverts to given
13 that one particular provider went way down.

14 So where I would see cellophane is if Facebook had
15 successfully squished everybody else. And so you saw
16 something like Facebook went down and so they started
17 advertising on TV or something, right, because the other
18 digital options were all gone. But here, it's one particular
19 digital provider got -- made bad, and we see what other
20 digital options that they went to. And some of it was to
21 other social, but they didn't see those options as attractive
22 in the market as shifting a lot of it to search and to
23 display.

24 **BY MR. SOMMER:**

25 Q. On the next slide in this series, we see three bullet

1 points up at the top --

2 A. Right.

3 Q. -- on slide 86?

4 A. Yes. So that's -- I mean, those bullet points are
5 sort of my summary of what we would take away from this, that
6 there was a big increase in price, effectively a big loss of
7 purchasing at Meta, at one platform. Nike reallocated, they
8 switched a little bit inside the social channel. But they
9 found the options that were available at search and display
10 to be more attractive, and so they switched to search and
11 display in larger portions.

12 Q. Did you do some additional empirical work on this
13 study, this particular study of Nike?

14 A. I also did a regression analysis. The results of the
15 regression analysis are shown here in very simple bar chart
16 form. But basically what the regression analysis did, it's
17 statistical analysis that asked for every penny -- or every
18 dollar, say, that went away in Facebook advertising. So it
19 predicted search advertising as a function of advertising on
20 Facebook. And it says when the Facebook advertising went
21 away during the boycott, how much did the search advertising
22 go up; controlling for seasonality, COVID, things like that
23 in the regression.

24 And there's two results that I got here. My basic result
25 that I did first was to -- was 31 cents. So for every dollar

1 of reduction in Facebook advertising, 31 cents went to
2 search. Then Professor Whinston actually suggested looking
3 at time trends in the data, and whether there were trends
4 that would affect things, so I did that in the second bar.
5 What I did was be careful to control for the time trend that
6 existed before the boycott separately from the time trend
7 after the boycott. So I put in time trends for before, and a
8 time trend that started in the holiday season after. And
9 then I got result of -- with the time trend control, the
10 result went up finding a dollar reduction in Facebook led to
11 47 cents increase in search. But, again, that was
12 controlling for these sort of before and after time trends as
13 an additional check.

14 Q. Dr. Israel, Professor Whinston testified that he
15 believes advertisers do not substitute between different ad
16 formats.

17 Can you explain your understanding of his view, and your
18 reaction to his view?

19 A. Yeah, what I heard him say -- and this is his slide
20 that's up here now. So in his slide, he presented -- I mean,
21 you were here obviously, this is his slide. He presented a
22 number of factors that affect the substitutability of ad
23 products. But then he was clear in his testimony that he
24 thought there were -- the top three were very important, so
25 he focused on what he called the top three factors that

1 affect substitution. So what I've done in slides -- many
2 slides coming after this is really dig into those top three
3 factors, and explain why I think a proper interpretation of
4 them says that there actually is a lot of substitution. In
5 fact, arguably, stronger substitution between Google and
6 other channels than between Google and Bing, for example.

7 So also the three factors that he focused on were: The
8 role in consumers' purchase journeys, the characteristics of
9 the audiences and the degree to which they overlap, and the
10 degree to which ads can be effectively targeted. So what I
11 want to do is go through those three factors and explain why
12 Professor Whinston's factors actually support a lot of
13 substitution.

14 **Q.** Let's go slightly out of order and start with factor
15 number two, and explain to the Court why you're starting with
16 factor two.

17 **A.** So Professor Whinston and I certainly agree on factor
18 number two, and agree -- I mean, this is prominent in the
19 economic literature, that for two ads -- or two ad channels,
20 two ad types to be substitutes for one another, they have to
21 allow the advertiser to reach overlapping audiences. And
22 Professor Whinston talked about this at some length. I think
23 I have a quote from him, and I'll give my own logic on it.

24 But the basic idea is, if we're thinking about
25 substitution, if one ad channel gets worse, what I've lost is

1 the ability to target certain people who were -- I could find
2 through that ad channel. I've lost the ability to get
3 certain consumers who might have been purchasing. So what
4 that's going to make more attractive is other channels that
5 let me reach those same people, right, because suddenly I
6 need a new way to reach those individuals. So that's -- I
7 agree this is a very important factor.

8 As I say next -- I mean, my view is this is the most
9 important factor, although I'll talk about the others. I
10 think that's consistent with the economic literature as well,
11 that audience overlap is a driving force of advertiser
12 substitution. And the reason is, if you think about the
13 other two factors, the role in the purchase journey, where it
14 is in the journey -- I'll talk about that one, and that can
15 matter. But if there's not strong audience overlap, then
16 you're reaching different purchase journeys, the journeys of
17 different people.

18 And effective targeting, if you don't have good audience
19 overlap, you're targeting different people. So really, the
20 kind of meat, the substance of it here is what lets me get to
21 the same individuals. If I lose access or reduce access at
22 one channel, I want a channel that lets me find those same
23 people so I don't miss out on their spending.

24 Q. You mentioned that Professor Whinston testified on
25 this point. Is that what's depicted in slide 90?

1 **A.** Yes. So Professor Whinston -- I mean, I agree with
2 this statement from him. He gave this example of if I want
3 to reach Ms. Smith, if I don't reach her in the New York
4 Times and the price went up, I can go to Sports Illustrated.
5 But if the audiences at the New York Times and Sports
6 Illustrated are separate, then maybe they're attractive to
7 advertise in, maybe they're not, but they're not substitute
8 ways to reach Ms. Smith. And so the fact that I don't use
9 the New York Times -- obviously it would apply to people
10 generally and not just Ms. Smith. But if they don't have
11 overlapping audiences, then the loss of the New York Times
12 wouldn't make the Sports Illustrated more attractive because
13 it wouldn't be reaching the same people.

14 **Q.** And I guess you have an example of that in your next
15 slide?

16 **A.** Yeah, so the cleanest example you would have of this
17 would be advertising in different cities, right. So if I'm
18 advertising in -- thinking about an advertisement in Kansas
19 City and an advertisement in Cleveland, even if it's exactly
20 the same advertisement with all the same other brown shoe
21 factors of market definition, it's the same ad, those are
22 different cities with different people. Those ads aren't
23 substitutes for each other. Whereas if I'm advertising and
24 I'm running two ads inside Cleveland, even if one's a radio
25 ad and one's a newspaper ad, those aren't perfect

1 substitutes, but they're substitutes to some degree because I
2 can reach the same people.

3 In this case, because it's digital targeting and we talk
4 a lot about point in the purchase journey, what's really
5 going to matter the most is what formats let me reach the
6 same people within roughly the same time, right. So if I
7 wasn't going to advertise one, so I miss out on someone who
8 was interested in shoes, how else can I find that same person
9 on the internet. That's really the question.

10 So the punch line ultimately is going to be that there's
11 not much at all audience overlap between Google and Bing. So
12 Google and Bing are kind of like Kansas City and Cleveland,
13 although not that extreme. I'm not saying they're totally
14 separate, but they're really different sets of people. So on
15 this very important, probably most important, dimension,
16 they're not close substitutes. But I'll go through more on
17 that.

18 Q. Let's return to empirical evidence. Have you done
19 some empirical analysis on audience overlaps?

20 A. Yes.

21 Q. Let's go to the next slide. What do we see here?

22 A. So this is -- back to using the Google panels data
23 that we talked about before. Here, in order to get a close
24 time period but somewhat more time, I look at what's called a
25 session in the Google panels data. We talked about visits

1 before. You could look at that here. The numbers would go
2 down some, but the pattern would be similar. But if you look
3 in a session, a session is defined as -- remember, we said
4 visits where you go and then it's a five-minute break. In a
5 session, it's a 30-minute break. So you're putting together
6 a little more activity.

7 So what I ask is for anyone who used Google search during
8 a session, what other platforms were they also found on in
9 that same session. So that's exactly the sort of
10 close-in-time audience overlap question. So if they were
11 found on Google search, where else could you find them. And
12 what you'll see here is that, perhaps probably intuitively,
13 relatively few of them -- very few of them were also on
14 Microsoft Bing or DuckDuckGo, they're not using both general
15 search engines. They sort of don't really have a need to,
16 and I'll talk more about that.

17 Interestingly, I think here a few more of them can be
18 found on Yahoo! search, which starts to go to the intuition.
19 I don't know if you've used Yahoo! search at all lately, but
20 Yahoo! search has a search bar, but it also has kind of a
21 bunch of news and stuff on the page. So there's a little
22 more overlap there, because the person -- they can get search
23 from Yahoo!, but they can get more. So there's more reason
24 for them to overlap.

25 And then if you go to Amazon or Meta, you see enormous

1 overlap. So if you're not -- if you're missing out on
2 somebody on Google search because you're reducing your
3 advertising there, and you want to get this audience overlap
4 so you can hit that same person and hit them with your
5 message, you're just much, much more likely to find them on
6 Amazon or Meta or some non-GSE property than you are to find
7 them on Bing.

8 This is the sense in which I mean Bing and Google are not
9 as extreme as Cleveland and Kansas City. I don't want to say
10 there's none or they're in totally different -- they're in
11 different markets, I'm not saying that. I'm just saying that
12 Amazon and Meta are better places to find that audience
13 overlap.

14 **Q.** Did Professor Whinston address the issue of audience
15 overlap in his testimony?

16 **A.** Yes. I mean, this was one of his points about
17 substitution. And he agreed that there's not much overlap
18 between Google and Bing. Now, he said that's true in the
19 current state, which sort of sets up this question about is
20 that a cellophane issue or something else -- which I want to
21 talk about. But as far as what's true in the data and what's
22 true in economics, it seems that Professor Whinston and I
23 agree that audience overlap is a very important dimension of
24 substitutability. And that as things stand, he even agreed
25 to the statement that the next best alternative -- right, the

1 question was: "If I'm an advertiser, again, and I'm looking
2 for alternatives to reach the people who are on Google, my
3 next best alternative would be to advertise on Facebook or
4 Amazon, not Bing, correct?" And he agreed: "In the current
5 state, that's correct."

6 Q. And -- okay, let's go to the cellophane point for a
7 moment. Do you believe the audience overlap patterns that
8 you have studied in the real world present a cellophane
9 issue?

10 A. No.

11 Q. Can you explain why?

12 A. Yeah, it's on the next slide. So I think it's a good
13 question to ask here, right. I mean, as I said early on, we
14 should -- one thing we should do when we think about
15 cellophane fallacy in this case is test for it, and see if
16 the tests support cellophane fallacy as the issue. And so
17 that's what I've done here, I've tried to test for it, both
18 in terms of economic logic and also whatever ways I can test
19 for it in the data.

20 So does it appear -- and the question, again, is does it
21 appear that this fact -- this fact is: not much overlap
22 between who uses Google and who uses Bing, not much overlap
23 between GSEs, but lots of overlap between Google and Amazon
24 or Facebook. Is that fact driven by the conduct, by the fact
25 that Google has allegedly harmed Bing. And I find no for at

1 least four reasons.

2 Number one is the audience substitution patterns are
3 driven by how people use the internet, right. So -- and we
4 talked about this earlier, and you asked. There's clearly
5 commission between, say, Google and Amazon for queries. But
6 as you said, Amazon also does other stuff, Google also does
7 other stuff. So there's a reason for a user to use both of
8 them. They compete for the queries, but the other stuff they
9 do means there's reason to be on both. So in one session,
10 it's not surprising to find somebody on Google and also find
11 them on Amazon; it's not surprising to find them on Google
12 and also find them on Bing.

13 If we can go to the next slide just for a second. I
14 think Professor Whinston seemed to agree with this -- or at
15 least he --

16 Q. Can I interrupt you for one second?

17 A. Yes.

18 Q. Because I don't know if you misspoke or I misheard
19 you, but you said it wouldn't be surprising to find them both
20 on Google and Amazon, and then you gave another example.
21 What was the second --

22 A. It should have been Google and Facebook.

23 Q. Okay, because I think you said Google and Bing.

24 A. It would be surprising to find them on Google and
25 Bing.

1 Q. It would?

2 A. Yes.

3 Q. Sorry.

4 A. No, I probably misspoke. So Professor Whinston on
5 the next slide seems to agree -- and I want to spend a minute
6 on this point. He seems to agree -- he quotes me and says:
7 "Common-sense that you wouldn't go to both Bing and Google."
8 So we seem to now agree that there's not going to be a lot of
9 audience overlap between Google and Bing, which means they're
10 not going to be close advertising substitutes, right. What
11 he says in his reports and his testimony is -- he does a lot
12 of this in his report. He takes -- he tries to argue this
13 back to the user side -- what we talked about earlier -- and
14 say, well, that's because Google and Bing are so much alike,
15 which means on the user side they must be closest
16 substitutes, right.

17 So his argument is he seems to be agreeing that because
18 they do sort of the same thing, there's not going to be a lot
19 of audience overlap, so you're not going to find the same
20 people on the advertising side. He says aha, I think that
21 makes my point, that they must be closest substitutes on the
22 user side. And I just want to make clear, since this is the
23 time to talk about that, that I very much disagree -- and we
24 had this discussion before.

25 Google -- as I said earlier, Google and Amazon, Google

1 and Expedia, they can compete face up for the query, they
2 both go after queries. They also, as you pointed out, do
3 some different stuff. So you're going to find people on both
4 of them because they do some different stuff. So somebody
5 could search on Google or Amazon, that's straight up
6 competition. But then either way, they could be on Amazon to
7 buy, and you can advertise to them there.

8 So my conclusion on this is that -- the first one is
9 there's no cellophane fallacy. The reason there's not a lot
10 of audience overlap is because Google and Bing only do the
11 same thing. That doesn't contradict my user point, because
12 Google and Amazon also do the same thing for queries, but
13 they both do other stuff, too, which creates a reason for a
14 user to use both.

15 Bottom line, it's not surprising that I see you on Google
16 and Amazon for different purposes. I wouldn't expect to see
17 a user on both Google and Bing. So Google and Bing are more
18 like Cleveland and Kansas City, they have less audience
19 overlap. And that's not a cellophane issue, that's just the
20 way the internet is used.

21 If you can go back up -- could you go back up to my --
22 thank you. So I said there were four answers on cellophane.
23 That was the -- that's sort of the most fundamental one. But
24 I want to make three other points, because I tried to test
25 this every way I could because it's a really important point.

1 Professor Whinston and I agree, audience overlap drives a lot
2 of substitution. And now we seem to be agreeing that there's
3 less between Google and Bing than between Google and other
4 platforms. I really wanted to test this carefully.

5 So the second reason why it doesn't seem to me to be
6 cellophane is that even if you do it in the other direction,
7 if you ask for a Bing user or a DuckDuckGo user, are they
8 more likely to also be found on Google or also to be found on
9 Amazon or Facebook. So Google is very large in the current
10 situation. So if this was cellophane, that it's only
11 happening because Bing is small, you wouldn't see it in the
12 other way. You wouldn't see it -- you would see lots of
13 overlap with Google.

14 But what we actually see, if we can go down two slides,
15 is the same pattern for -- this is for Bing. It's different
16 data, and I'll explain that in a second. First of all, just
17 to highlight what it's showing. On the left-hand side
18 there's desktop, on the right-hand side there's mobile -- if
19 you're down on 96. In each case, it's saying that for people
20 who use Bing, there's more audience overlap on desktop. You
21 find more of them on Amazon than you find them on Google. On
22 mobile, you find more of them on Facebook than you find on
23 Google.

24 As I said, these are different data, because the Google
25 panels data I used before doesn't have -- you can't get a

1 hundred percent of the Bing users from the Google panel's
2 data. So this uses Comscore data. The overlaps are all
3 lower, because Comscore just let's me look at an hour rather
4 than a session. But the pattern stays the same. If I look
5 at everyone who uses Bing and say where else can I find them,
6 where is there audience overlap, it's bigger with Amazon on
7 desktop or Facebook on mobile than it is with Google.

8 If you go down one more, that's just the same story, but
9 for DuckDuckGo. If I take every DuckDuckGo user that I have
10 in the Comscore data, I find more of them on Amazon on
11 desktop or Facebook on mobile. There's more audience overlap
12 with these other channels.

13 Q. Done?

14 A. Yes.

15 Q. Okay. Early in your testimony, I believe you used --
16 you made reference to something called the circle principle.
17 Is that relevant here?

18 A. Yes.

19 Q. Tell us what the circle principle is.

20 **THE COURT:** I'm sorry, can I interrupt. Just to be
21 clear, this analysis relates -- well, let me ask, does it
22 relate only to the search ads market and the search text ads
23 market or does it also include -- I'm sorry, the general
24 search market and then the general search text ads market or
25 does it also extend to the general search market?

1 **THE WITNESS:** I think it -- it should extend to all of
2 them. And again, just to make clear why, the audience
3 overlap we're looking at is among users. I know we kind of
4 jumped back to the user side to make the point.

5 **THE COURT:** Right.

6 **THE WITNESS:** The audience overlap is just saying if
7 you're looking for audience overlap, you're not going to find
8 it between two general search engines as much as you're going
9 to find it between general search engines and Amazon or
10 Facebook.

11 **THE COURT:** I thought -- maybe I'm misunderstanding, but
12 at least the DOJ plaintiffs, one of their ad markets is a
13 search advertising market which would include an Amazon or a
14 Facebook.

15 **THE WITNESS:** Oh, I see.

16 **THE COURT:** So in terms of thinking about different
17 audiences, the fact that a user -- excuse me, that a user is
18 on both, I'm not sure it would help with that market.

19 **THE WITNESS:** So in terms of which one is it responsive
20 to. I mean, it's primarily saying there's substitution with
21 Amazon and Facebook. So in the case of Facebook, I think
22 you're right, that if there was a query done on Facebook,
23 that would be included. Obviously, the overwhelming majority
24 of advertising on Facebook is not search advertising. So if
25 you wanted to get to a user -- if you wanted to take

1 advantage of this audience overlap with Facebook, by far the
2 way you do that is to do social media ads on Facebook. So
3 this would be saying the Facebook social media platform
4 should be in the market because it's a closer substitute.

5 In the case of Amazon, this sort of goes back to the
6 point I made early on in saying they're a strong substitute
7 with Amazon. I agree that at least one of the three markets,
8 one of the DOJ markets, includes search ads on Amazon. As I
9 said early on, it does not include product, when you go to
10 the product listing page. Those are other ways to substitute
11 on Amazon. So I think it's more making the case that all of
12 Amazon should be in. So it certainly would say you need a
13 market that includes those Amazon search ads. I think it's
14 making the case that Amazon product ads are going to be
15 closer than Bing is because they get the audience overlap.
16 And it's very much making the point that social, Facebook
17 should be in the market, because that's got more audience
18 overlap. And almost all Facebook advertising is social media
19 advertising, not search advertising.

20 **THE COURT:** So then what about the theory that non-search
21 ads are reaching a different audience because they are at a
22 different point in the purchase journey? I'm not going to
23 use the word funnel.

24 **THE WITNESS:** Honestly, I don't want to ever put off one
25 of your questions, but there's really a bunch of slides on

1 that coming up.

2 **THE COURT:** Great, okay.

3 **THE WITNESS:** I mean, as I said early on, my response at
4 this point is that they are -- they're really -- I would say
5 it slightly differently from what you said, with respect.
6 They're reaching overlapping audiences, the same people. The
7 question would be are you reaching them at a different time
8 in their journey.

9 **THE COURT:** Right.

10 **THE WITNESS:** And so the first point I would make is even
11 if that were true -- and we'll come to the journey, that's
12 still going to get you more substitution than reaching an
13 entirely different journey, right. So if you reach different
14 people, you're reaching somebody else's journey, you're not
15 substituting for the person. That's kind of like radio and
16 newspaper maybe, at least they're both in Cleveland, they're
17 both getting after the same people.

18 But I'm going to go on at some length about why I also
19 think that that purchase journey logic doesn't hold up.

20 **THE COURT:** Okay.

21 **BY MR. SOMMER:**

22 **Q.** The circle principle?

23 **A.** So the circle principle says -- this is the way it's
24 described in the academic economic literature. Also, it's
25 described in different language in like the horizontal merger

1 guidelines. It says that if you're going to include a
2 product in the market -- basically, I said earlier you
3 shouldn't skip over closer substitutes. So if you're going
4 to include a product in the market, you should also include
5 everything that's a closer substitute.

6 So the circle -- it's really well illustrated on the
7 right-hand side of this picture. Based on audience
8 overlap -- which, again, Professor Whinston and I agree is
9 important, and I would argue is particularly important so
10 that you're reaching the same people. Based on audience
11 overlap, Facebook and Amazon and Instagram -- or Facebook and
12 Amazon at least, from what we saw. Really, Meta -- which is
13 Facebook and Instagram, and Amazon are closer for Google than
14 Bing and Yahoo! on this dimension -- which, again, we agree
15 is very important.

16 So just to make clear, I am not saying that Google and
17 Bing are not in the same advertising market. They're
18 alternative ways to digitally advertise. They have some
19 audience overlap, it's just smaller. So my view would be I
20 agree that Bing should be in this market. But then by the
21 circle principle, so should Facebook and Amazon, because they
22 have better audience overlap.

23 So if you go to the next slide, it just -- it's more
24 circle principle.

25 Q. Yeah, I think I'm there. Ninety-nine?

1 **A.** Oh, I see, yes. My fault. It looks so similar.

2 **Q.** Yes.

3 **A.** Plaintiffs failed to follow this principle. Their
4 definition would include Google and Bing and Yahoo! search,
5 but not Facebook's social media ads, at least not Amazon's
6 product ads. And so based on audience overlap -- which is an
7 important -- you know, we're agreeing is important, they're
8 violating the circle principle. They're jumping over
9 Facebook and Amazon to get to Bing.

10 **Q.** So we've just spent a fair amount of time on number
11 two in Professor Whinston's list. Let's not forget about
12 numbers one and three. Do you address those in your next
13 slide?

14 **A.** Yea, and this was your question where I promised we
15 would come back soon. So his number one and number three,
16 number one was the role in consumer purchase journeys.
17 Number three was the degree to which ads can be effectively
18 targeted. I mean, to give credit, he's saying -- his
19 argument is purchase journeys can matter, as you said, and
20 the degree to which ads can be targeted can matter. My first
21 response was audience overlap determines whether you're even
22 reaching the same people. But I'd like to go on and talk
23 about these other two. The points that I will make are
24 summarized on slide 100.

25 So for purchase journeys -- and you said you won't use

1 the word funnel, I'm using it here. But purchase journeys,
2 the key is there's not a simple funnel, rather the current
3 understanding is there's this complex nonlinear path that
4 consumers go on. Why does that matter? Because of two
5 reasons, really. One is it means all sorts of different ads
6 can be right next to each other in the journey. I might
7 search and then go on social and then go on display, so
8 they're really quite proximate -- they're proximate to each
9 other in time. Different ads can happen at different points
10 in the process.

11 And really, these days, advertisers think about how do I
12 get somebody to buy, just how do I get a return on my
13 investment. It's no longer just push them down to the bottom
14 of the funnel, it's just convince them somewhere along the
15 journey to come buy the product. And so given a nonlinear
16 journey, these ads really all sort of touch each other along
17 the journey, and you don't have this separation that people
18 used to think about in the funnel.

19 So that's my response on the funnel, and I'll go through
20 more slides.

21 **THE COURT:** Sorry to interrupt. I mean, we've had a
22 number of advertisers say that there are -- there is a
23 greater value to those customers who are closest to the
24 purchase point, and so not all customers or target audience
25 members are created equally. Advertisers get the greatest

1 ROI presumably on those users who are closest to wanting to
2 buy something. And at least Professor Whinston's thesis is
3 that certain types of advertising is better at targeting
4 those folks than others.

5 **THE WITNESS:** I'll go through it in some detail. I think
6 I have two basic high level responses. One is once the
7 funnel -- once the journey is complicated and nonlinear, it's
8 very hard to know who is closest to purchasing. Commonly you
9 see somebody search, then stop for a while and go do display,
10 then do some social. And so once you have it nonlinear, this
11 idea that one is close to purchase and one is not is at least
12 quite hazy. And so there -- and advertisers, I think
13 increasingly -- and I'll show documents on this -- think of
14 different ways to be able to get people who are close to
15 purchase, right.

16 Now, you might say, well, that could all be true, but
17 maybe search still seems the closest, maybe there's still
18 some difference. First of all, I'll point to advertisers
19 saying differently. But second of all, that goes back to my
20 point about how prices can adjust. People are focused on
21 ROI. If search is quite likely to lead to a conversion, and
22 a display ad is slightly less likely to lead to a conversion,
23 that's really why you see a price difference between them,
24 search is more expensive. But that doesn't mean they're not
25 substitutes, it means they are. Because you can buy more

1 display ads for your money. And thus, even if it's not quite
2 as effective at getting people to convert, you've got more
3 shots at them. The prices are not perfect, ROIs are not
4 identical, but the prices are generally helping to equate
5 that. It's sort of like you can get a 10 percent shot with
6 search, and if you think you can get a 2 percent shot with
7 display -- you know, one's 1/5th the price of the other, then
8 you can compensate for that.

9 **BY MR. SOMMER:**

10 Q. Did you see evidence from the trial record confirming
11 your view that the consumer journey is nonlinear?

12 A. Yes.

13 Q. What do we see on slide 101?

14 A. And I don't think we need to spend a lot of time
15 here. Multiple people have said -- I think there's a
16 consensus that the funnel is something that's been taught,
17 but it's not a linear, go from the top to the bottom the way
18 a funnel sounds. It is a journey which is this sort of
19 nonlinear winding path. So like Dr. Jerath said consumers
20 can skip stages, in some cases go to one, come back. That's
21 what I was describing, they can jump around. Which means,
22 again, it's not like any of them are right next to purchase
23 and any of them are far away, it's much more winding than
24 that.

25 Q. Those weren't the only two who made that point,

1 right?

2 **A.** Professor Whinston agrees, Mr. Vallez agrees. I
3 don't think this is a controversial point. I also agree we
4 should think more about how advertisers look at it and where
5 they substitute, which I've been trying to do. But it
6 certainly is not a bright line that one is close to purchase
7 and one is not, which creates this ability to substitute,
8 especially if the prices help to equalize the ROI.

9 **Q.** Picking up a little more on your point that
10 advertisers are looking for consumers anywhere along the
11 consumer path in the hope of making a conversion.

12 Did you find some documents from the advertisers
13 themselves that make that point?

14 **A.** Yeah, so the next few slides have some documents from
15 advertisers. And I will note -- and I'm sure you've heard
16 this, advertisers do two things when I've talked to them, and
17 you see it in the documents. They both say the funnel is not
18 tight and it's nonlinear, but a lot of them will still speak
19 in funnel language. It gets taught a lot in MBA programs
20 that I've been part of, is people teach the funnel. But then
21 they say the funnel is nonlinear and not really quite a
22 funnel.

23 So you see in the Wells Fargo document, for example, that
24 they use lower funnel as a phrase still, but they indicate
25 that included in lower funnel is display and social and

1 search and direct mail, for example. Allstate is on the
2 right-hand side here. Allstate also has a full funnel media
3 strategy and language in their document. But when they say
4 acquisition -- which is close to purchase, you know,
5 acquisition is another word that gets used, they say
6 acquisition can include paid search, can include display,
7 aggregators, social and so on.

8 Q. One more slide?

9 A. Yeah. American Airlines on the next slide. American
10 Airlines is interesting, because they explicitly say
11 conversion. American Airlines draws a funnel, and they say
12 conversion includes display, search and social. American
13 also says mid funnel includes display, social and search. So
14 it's not like search is always just at the bottom.

15 I mean, I also -- when you look through the documents --
16 and what I've seen is consistent with the substitution that I
17 measured, I think there's a lot of consensus these days that
18 social, in particular, can be quite a down funnel activity.
19 That's what TikTok and Meta have done over time, is get all
20 of these signals of user intent from what they watch on
21 videos and what they click like on such that they don't have
22 a search query per se, but they have a really good idea of
23 what's on a person's mind at that point in time.

24 The last one here is OMD, which is part of an advertising
25 agency. OMD draws -- I suppose they're drawing a nonlinear

1 consumer journey. And you see over on the active intent
2 side -- which is now how they talk about it, not purchase,
3 but intent, when you have those intent signals, they have
4 social and search over there on that active intent side.

5 Q. All right. You've talked a little bit about social
6 media and signals through social media. We're going to get
7 to an issue that's near and dear to my heart, at least.
8 Because of the change in the season, I couldn't show golf
9 shorts, but because it's now cold out, they're golf pants.

10 What is depicted on slide 105?

11 A. So slide 105 is an Instagram advertisement. I mean,
12 we sort of switched topics to what I introduced before, which
13 is evidence of various forms that other channels beyond just
14 search allow effective targeting. This is an example --
15 actually, I'm not sure if this is embarrassing or not, but
16 I'm actually a fairly big Instagram user. Instagram, if
17 you -- I mean, I buy things on Instagram all the time.
18 Whenever I talk to people who are younger, they tell me they
19 watch videos, they click like on Instagram, and then it pops
20 up these ads that say "shop now" and you buy them there.

21 One other example for Instagram -- and it's just another
22 example, but it's something that I know. I actually serve on
23 a college board where I help -- actually, independently of
24 this case, help them with their marketing. I can just tell
25 you in that example that they've always tried to find

1 18-years-olds who want to go to college by what are they
2 searching for. They struggle to find 18-year-olds on Google
3 search now, shifting a lot of budget to Instagram. Because
4 people can like a college, they can like a competitor
5 college, and they immediately serve them an ad. And what the
6 performance people are getting is this intent, that these ads
7 are popping up quickly. People are showing what they like,
8 and the ads are popping up.

9 Q. You had a second example of people doing that type of
10 conversion, not just on Instagram. What's that?

11 A. So this is -- I am told this is a TikTok ad. Unlike
12 Instagram, I'm not a big TikTok user. But we did choose a
13 TikTok makeup ad. I mean, TikTok, I think, was the driver --
14 TikTok is growing rapidly. But TikTok's role in all of this
15 is as a driver of this understanding among social media, that
16 if you get people to engage with your content, watch your
17 videos, click like on your stuff, you know what they're doing
18 right then, you know what they're interested in, and TikTok
19 puts buy now ads there. Again, this is not like old school
20 display where you're just popping up a banner. This is
21 showing somebody an ad in the context of the app based on
22 what they've been doing.

23 Q. Can that also be seen on display ads?

24 A. Yes. So, again, I put a lot of emphasis myself on
25 social media as particularly targeted, given sort of the

1 TikTok revolution and how it's done. But there's two ways
2 that display ads can be targeted to people. One is
3 contextual display is what I would call it, which is put a
4 display ad on a display page which is on topic. So this is a
5 tennis site, and there's ads for tennis rackets, right. And
6 if we stick with makeup, if you go to a makeup site, you're
7 going to see ads for makeup. The other way that display ads
8 can be targeted is re-targeting, which is use what you know
9 about the user from other parts of their journey and show
10 them the right display ad. But those are two ways that it
11 can be done.

12 Q. On slide 108, what's depicted here?

13 A. I mean, this is Amazon, and we were talking about
14 Amazon before. As you said, I don't think there's a dispute
15 in the case that Amazon is quite targeted. Amazon can do
16 search ads on the search page. This is an example of what I
17 talked about before. This is an Amazon product page. So I
18 have now searched and then found this Stumptown Coffee
19 Roasters. But when I click on that page, in addition to
20 seeing the product I clicked on, there's multiple ads on the
21 page for other coffee. So this is definitely a person who is
22 close to purchase, very close, but other people are showing
23 this person ads for other types of coffee based on that
24 signal.

25 And as I said, this type of Amazon ad, where it's not on

1 the search page but it's on the product page, is not at any
2 point in this market. In Professor Whinston's data work, he
3 explicitly subtracts all of these ads from Amazon. It's
4 about a third of Amazon's ad business is this type of ad.

5 Q. I want to shift gears slightly here. One of the
6 plaintiffs, as you know, has the claim that search text ads
7 are a distinct market from PLA/shopping ads because they're
8 not substitutable for one another.

9 You're aware of that claim?

10 A. Yes.

11 Q. And have you found evidence in the record to support
12 your view that that's not correct?

13 A. Yes. And I would say -- I mean, this does connect
14 that what we were just looking at for Amazon was obviously a
15 form of PLA. And so one of the pieces of evidence was Amazon
16 itself. So this is testimony from Mr. James at Amazon,
17 deposition testimony, where he was asked about a statement
18 about an intersection of purpose with text ads and shopping
19 ads. And you see here he says that there's a shopping ad
20 that can fulfill the same customer's need. When they're
21 querying, you know, a text ad could also fulfill the same
22 need. I mean, to be clear, he goes on and says there may be
23 advantages in one or the other. So they're not exactly
24 identical, but they're filling this overlapping need for the
25 same person, right. And so that's the sense in which I think

1 he's saying, and I would agree, that they're close
2 substitutes.

3 Q. How about Mr. Booth from Home Depot?

4 A. Mr. Booth is even more clear on the dimension of
5 substitution that you've asked about, right. So the question
6 for him was: "If your team observed today that product
7 listing ads were delivering a higher return on ad spend than
8 a search text ad, you'd expect that within a matter of days
9 spend would be reallocated from the text ads to the product
10 listing ads, right?" And he says: "Yes."

11 **THE COURT:** Does it affect your view that there is no
12 such text ads market, the text ads -- or put differently,
13 product listing ads are limited to only certain types of
14 commercial products, you can't advertise services, you can't
15 advertise non-tangible purchases?

16 **THE WITNESS:** Right, so I would say this relates -- I
17 haven't emphasized it as much on the ads side, but it relates
18 back to what I said on the user side. That if you think
19 that's the concern, then what I would do is not cluster
20 everything together, and break those -- you know, you could
21 use verticals on the ads side as well. So I think the right
22 conclusion would be where a PLA ad can work, like for any
23 product, it's got to be a close substitute. Which means it
24 shouldn't just be left out of the market, it should be in the
25 market for that part that you cluster together.

1 I agree with you, though, there are other types of ad
2 services and so on where you don't show PLAs. Then you would
3 say the social ads may be good substitutes, display ads on
4 the relevant kind of display site. Other SVP ads, so not
5 PLAs on Amazon, but if it's a travel service, then
6 advertising on Expedia. If it's a financial service, then
7 advertising on various financial websites would be
8 substitutes. So I haven't emphasized it as much here, but I
9 think if that's a concern, my answer would always be don't
10 define away the competition. If competitive conditions are
11 different -- maybe it's just physical stuff and not physical
12 stuff, you could think of those as two separate clusters, and
13 in each case you would include the competitors.

14 **BY MR. SOMMER:**

15 Q. One final source on this PLAs and text ads being
16 substitutes. You reviewed Dr. Raghavan's testimony in this
17 regard?

18 A. Yes, and it's on the slide here. I'll just focus on
19 the highlighted parts. It says as PLAs grew in popularity,
20 advertisers started moving more and more of their budgets
21 from text to PLAs. Advertisers will freely move money
22 between PLA and text ads.

23 If I could quickly, just one more comment from the Google
24 point of view. I know there were some questions about
25 they're not in the same auction. There's different auctions

1 for like every query and so on. But I agree that there are
2 distinct auctions. So in sort of the guts of the system,
3 there are different auctions. But again, when an advertiser
4 interfaces with Google Ads, they are setting parameters that
5 let them buy both text ads and PLAs at that level. And
6 Google Ads goes and does the bidding. They're given
7 information to optimize to see how well they're performing
8 next to each other. If they use something like Performance
9 Max, it's freely moving money between them.

10 So I would just say I wouldn't personally focus too much
11 on the auction itself, because that's sort of in the guts of
12 the system. I would say that the tool, like a Google Ads
13 tool that they're able to use, is letting them bid on both
14 and see how both are performing and move money between them.

15 Q. So let me just ask you about your next slide. Very
16 sophisticated question on my part, what's the upshot of this?

17 A. This is really just the summary of what we've been
18 saying, so I won't spend long. This is -- all of these to me
19 are close competitors for targeted ads that can have audience
20 overlap, especially if the other three boxes, aside from
21 GSEs, overlap with GSEs. As you brought up, some of them may
22 have more or less conversion, more or less targeting, but
23 prices can adjust to compensate for that. So in my view,
24 there's all these sort of ways out there, these new and
25 growing ways, to target customers. So it can be GSEs, it can

1 be SVPs, social media, display ads. All of them provide the
2 ability to target, right. They all provide -- you know, we
3 saw they can be up or down, the so-called funnel. They
4 generally all provide closer audience overlap with Google
5 than Bing does. So if you're going to have a market that
6 includes Google and Bing -- as I think it should, these other
7 forms, in my view, need to be in the market as well.

8 Now, again, you might ask would they all be there for
9 every type of ad. Maybe some are better for physical
10 products and some are better for services, and so you could
11 segment that way. But they're all ways to target customers.

12 Q. Let me ask you to take a look at the next slide. Is
13 this a chart that you prepared?

14 A. Yes.

15 Q. And what was the source for this chart?

16 A. This is eMarketer data. So eMarketer is sort of the
17 industry source on all things advertising data.

18 Q. And Your Honor, the underlying eMarketer data is in
19 evidence as DX1228.

20 Dr. Israel, does the chart fairly and accurately reflect
21 the underlying data that you used to make it?

22 A. Yes.

23 MR. SOMMER: Your Honor, we offer this chart. I've
24 marked it DX3243.

25 MR. DINTZER: Your Honor, we don't have any objection to

1 the chart coming in as a demonstrative.

2 **MR. SOMMER:** It's being offered as a 1006 exhibit, Your
3 Honor.

4 **MR. DINTZER:** Your Honor, this -- we would need a chance
5 to review this and to evaluate it, so we would ask the Court
6 to withhold and allow us a time to consider it.

7 **THE COURT:** Okay.

8 **BY MR. SOMMER:**

9 **Q.** Dr. Israel, can you share with the Court what you
10 think is significant about the chart you prepared?

11 **A.** It's just showing you what's happening to advertising
12 revenue shares, digital advertising revenue shares, in the
13 U.S. over time. So I would point out I guess three or four
14 things from it, at least to start. One is that over the last
15 several years, Google's share is declining as a percentage of
16 all digital advertising revenue. So it's declined since 2015
17 or so. That's really been driven sort of in order by three
18 phenomenon -- well, two primarily so far. One is that
19 starting in 2010, here you see the enormous expansion of Meta
20 as an advertiser. And I think if you look at the information
21 about Meta in the record and that you may have heard, this is
22 really the growth of Meta and Facebook as providing targeted
23 advertising where you can measure ROI. They have their own
24 auctions. They have the whole platform set up such that you
25 can go use all of the information they have about users to

1 target them and advertise to them. So that was number one.

2 Number two, starting a bit later, especially after 2017,
3 you see the growth of Amazon. Amazon, obviously an important
4 competitor, I think there's some agreement on that. But
5 what's changed about Amazon is really an increased focus on
6 advertising revenue. Amazon was more about selling products,
7 but they have recognized this ability to sell ads against
8 searches and against products, and they've grown
9 dramatically. And I would say others are copying that,
10 Walmart, other platforms are starting to do similar things.

11 One of the things you see on this chart, it's obviously
12 smaller so far, but it's the more recent growth of TikTok. I
13 mean, to me, that's on the path towards coming -- I mean, I
14 think the numbers -- there's projections of them growing to
15 10 billion and beyond. TikTok is sort of, to me, on the path
16 of being number three in this series. It was Meta, it was
17 Amazon and now it's TikTok.

18 Q. Is there other evidence, Dr. Israel, that you have
19 looked at and considered that shows that the ad market is
20 thriving notwithstanding plaintiffs' claims that Google is
21 somehow constraining competition?

22 A. Well, I've looked at -- just taken a deeper dive into
23 these revenues for the three examples I just listed.
24 Obviously, those are examples of a broader advertising space.
25 But on slide 115, here not using eMarketer data, using Meta's

1 own data that was -- you know, is in the record, I have
2 what's happened to Meta's advertising revenue over time.
3 That's really an exponentially increasing growth path to the
4 point where today Meta is over \$60 billion in revenue, and
5 really roughly equal in size with Google.

6 Q. What about the next slide?

7 A. The next slide is Amazon. So Amazon is, what I said
8 before, a later start. They really turned their attention to
9 advertising a bit later, 2016 and beyond. But you see this
10 exponential path for them as well to where they've grown by
11 2021 to being over -- almost 25 billion, and on a rapid
12 growth path showing their ability to compete.

13 Q. And slide 117 is the TikTok example?

14 A. So TikTok is more recent. Through the eMarketer data
15 through 2021, you see 2 billion. They certainly have been
16 growing. I think there was testimony in this case about them
17 hitting 10 billion, I think that was global. But they're on
18 this -- they seem, to me, to be on the growth path of these
19 other examples.

20 Q. So we've covered the competitors, which was number
21 one. Let's turn to the second of your ads side opinions, and
22 that's monopoly power; is that right?

23 A. Yes.

24 Q. Please take the Court through the general views you
25 have on the monopoly power issue.

1 **A.** So in some ways, the transition here is similar to on
2 the user side. It's my view that there's many more
3 competitors on the advertiser side than are in the alleged
4 markets. And so therefore, my first conclusion is that
5 indirect evidence doesn't support monopoly power. Because
6 indirect evidence, remember, is about market structure, and
7 there's lots and lots of players competing.

8 And then I turn to the second point here is plaintiffs
9 also provide no direct evidence of monopoly power. And this
10 is a similar point. Plaintiffs would need -- you know,
11 direct evidence of monopoly power, in my opinion, would need
12 to be evidence of an output restriction relative to some but
13 for world in which that power was reduced. Plaintiffs
14 haven't defined such a but for world at all or shown an
15 output restriction. In fact, on the advertising side as
16 well, output growth has been explosive. Google's been a part
17 of that, along with Meta, Amazon and others. But what you
18 actually see is an output explosion, especially in recent
19 years, nothing that looks like an output restriction.

20 **Q.** The Court heard from Professor Whinston, his view
21 that direct evidence actually establishes that Google has
22 monopoly power in search advertising. Do you agree with
23 that?

24 **A.** No.

25 **Q.** Can you explain why?

1 **A.** Yeah, so basically the direct evidence -- I think
2 we're going to -- I was going to turn to that in a bit, so I
3 don't know if you want to jump ahead --

4 **Q.** Am I pushing ahead? Let me not push ahead. Let me
5 get back to output. You said explosive output a couple of
6 times. We have that in a chart in 120, correct?

7 **A.** Thanks, so that's where I was looking next.

8 **Q.** I'm just here to facilitate.

9 **A.** Yeah, so the chart on 120 is, again, from eMarketer.
10 It's looking at U.S. digital advertising spend. So you see
11 this rapid growth. You see the sort of turning up, the kind
12 of exponential growth, especially more recently. So again,
13 just from output numbers, you see an industry that looks to
14 be thriving, not to be suffering from monopoly power. The
15 other thing that I can do with eMarketer is eMarketer
16 makes -- every so often they'll make a projection of where
17 they see -- where they think advertising spending is going.
18 So in November of 2010, they would publish their chart on
19 advertising spending and then they would publish a
20 projection.

21 And so I graphed several of these projections. The
22 general pattern is that advertising spending has -- in nearly
23 all cases they publish, has outstripped their projections. I
24 think it's interesting, even around 2010 when there's -- you
25 know, the allegations here -- or at least that's as far back

1 as they go, you still see output beating projections. What I
2 take from this is, at least relative to this industry source,
3 nothing is happening that's caused output to fall below what
4 they expected.

5 I will note, just for completeness, there were a couple
6 times when -- and I don't have every line on here. There
7 were a couple of times when, for a little while, projections
8 were above actual. That was only during COVID, and then it
9 crossed back after that. So it's not like they're always too
10 low. I mean, COVID actually was something that caused output
11 to fall below what they expected. But that's the only case
12 where that's happened. Otherwise, nothing that's happened in
13 the market has done anything except exceed their
14 expectations.

15 Q. Have plaintiffs presented any evidence that you've
16 seen that output would have somehow been higher but for any
17 conduct -- or alleged conduct on the part of Google?

18 A. I haven't seen any discussion of a but for world or a
19 comparison to a benchmark or anything that would show that.

20 Q. Let's go to the next slide, 121. What is shown here,
21 Dr. Israel?

22 A. So this is -- I mean, just as we did on the user
23 side, you can look at output, you can also look at measures
24 of quality. So the way I've tried to measure quality -- and
25 I'll use this a couple of times in the rest of my testimony,

1 is basically the click-through rate. If ads are higher
2 quality, if they're a better match, then more people are
3 going to click on them. So the sort of goal of targeted
4 advertising is to match it to the right user. So this is
5 looking at Google's click ratio. So just to be clear, it's
6 the number of clicks relative to the number of queries that
7 return any ads.

8 So I'm not adding up all of the ads and dividing, I'm
9 saying did this query return an ad at all, and how many of --
10 in how many of those cases do you get a click. So how well
11 are you doing putting an ad on the page which is attractive
12 to the user.

13 **THE COURT:** So this is the ratio of clicks to queries?

14 **THE WITNESS:** Queries with ads.

15 **THE COURT:** Queries with ads, great, okay.

16 **THE WITNESS:** So you see in 2011, that was just over
17 10 percent. So about 10 percent of the time that a query had
18 an ad, it was clicked. By 2021, that's over 30 percent. So
19 the ads that are being put are matching to users better in
20 the sense that they're being clicked on more regularly.

21 **BY MR. SOMMER:**

22 **Q.** Did Professor Whinston identify factors that he
23 claimed indicate that Google has substantial market power in
24 the search advertising side?

25 **A.** Yes.

1 Q. Have you collected those on the next slide?

2 A. Yes.

3 Q. Can you describe them to the Court, please.

4 A. So Professor Whinston had -- he went through several
5 factors. He mentioned market share and barriers to entry,
6 which are his indirect factors effectively. And looking at
7 market structure. He described the advantages of --
8 basically the third one that's summarized here. But it's
9 basically that he alleged Google had large advantages over
10 Bing on the mobile side, and those advantages would give
11 Google monopoly power. And then he discussed what he called
12 low advertiser responsiveness allowing Google to raise its
13 text ad prices significantly. So basically pricing knobs is
14 the term that's been used, but basically a claim that Google
15 has had control and been able to raise its prices.

16 Q. Let's just briefly go through each of Professor
17 Whinston's arguments, starting with the market share point
18 which is addressed in slide 123.

19 A. So this is really the same response from on the user
20 side. Market shares are only as good as the market that you
21 define. So the market that Professor Whinston is defining
22 is -- only includes text advertising, or text advertising and
23 PLAs in some cases, and leaves out all the competition from
24 other SVPs, social media and so on. And so the shares here
25 don't reflect the fullness of the competition.

1 Q. How about barriers to entry, as described in slide
2 124?

3 A. It's the same issue as we described last time. He's
4 arguing for barriers to entry to become a new GSE -- this is
5 on slide 124. But he's acknowledged, as I showed before,
6 that it's easier to enter as an SVP, right. So that would be
7 another way to enter as an advertising competitor. Also,
8 particularly relevant in advertising is social media as a
9 competitor for advertising. And here, we have evidence of
10 TikTok has entered recently and growing substantially. So as
11 soon as you acknowledge competition from social media and
12 SVP, the story about entry changes entirely.

13 Q. What about Professor Whinston's argument that Google
14 enjoys monopoly power as a result of its alleged advantages
15 on mobile?

16 A. So yeah, I mean, this, again, relates to stuff I said
17 on the user side in the sense that having a high quality
18 product -- to the extent it's true, it is a high quality
19 product, it's not evidence of monopoly power. But on the
20 advertiser side, I really think there's another really
21 important point to make about mobile. A lot of this case, as
22 I've said, seems to be about mobile. It seems to be focused
23 on what's there or what's been lost in competition between
24 Google and Bing, say, in mobile. But that's missing, to me,
25 the real action in mobile. Mobile is super competitive.

1 That's really where Meta is strong, where TikTok is strong,
2 where apps are strong, where a lot of the focus of Instagram
3 ads and so on are strong.

4 So to me, Google versus Bing is not the issue in mobile
5 advertising especially. The issue in mobile advertising is
6 all of these other ways that people who are using phones are
7 being targeted by other advertising.

8 Q. Let's get to the last of Professor Whinston's four
9 points. This one relates to the so-called pricing knobs.

10 A. Yeah, so this one is fairly long, because I think
11 this is one where a lot of attention has been spent, and so
12 I'm going to spend some attention here. I mean, just to take
13 a step back. As I understand the argument, it's that Google
14 has certain -- the argument is that Google has certain levers
15 it can pull or knobs it can turn, it's been said, to change
16 the price of auctions. The argument would be that ability
17 to -- under the argument, to control prices implies monopoly
18 power.

19 The first comment I would make on that is even if it was
20 all true, that, to me, is not monopoly power. At most, an
21 ability to control prices is evidence of some market power.
22 It doesn't tell you they restricted output, so it goes back
23 to market power versus monopoly power. But the other three
24 points -- the three points I would really focus on are,
25 number one, that these pricing knobs that get all this

1 attention, I think properly understood, actually illustrate
2 Google has limited pricing power, limited ability to even
3 control, affect its own prices; really, a limited ability to
4 prevent its own prices from going down a lot of time. So the
5 first point would be -- and I'll talk about this. I think if
6 you really dig into the pricing knobs and think about what
7 they mean relative to other firms, they indicate a lack of
8 pricing control. Not a complete lack, but less than a lot of
9 firms have.

10 Second would be that focusing just on nominal prices,
11 just on what's happened -- you know, even if a price goes up
12 after a change of any sort, you need to ask what happened to
13 quality. Quality adjusted prices are what matter. And then
14 third, if you do fully all in control for quality, as Google
15 has done in the ordinary course in analyzing its own prices,
16 you see that quality adjusted prices have actually gone down,
17 not up.

18 **Q.** Let's go a little further on the -- on Google's
19 limited pricing power that you mentioned, and look at slide
20 127.

21 **A.** So the basic point here I would make -- and then I'd
22 dive in in a little detail. But the basic point I would make
23 here is that you need to set the context for all this
24 discussion of pricing -- so-called pricing knobs, right.
25 Google's prices are ultimately set by an auction. That

1 doesn't mean that Google has no influence at all or can't do
2 anything. But it certainly means that Google has less
3 ability to set its prices than most firms. Most firms, even
4 those that clearly don't have monopoly power, if they want to
5 change their prices, they change their prices.

6 And you'll see -- as I said, most firms in the market
7 have some market power. So you'll see local restaurants
8 increase the prices on a bottle of wine fairly substantially,
9 they have some market power over the ability to do that.
10 They don't have to run an auction, they just change the
11 price. So if the question is control over prices, all of
12 this discussion about knobs and what do we do about our knobs
13 is actually -- and a lot of documents on those, is actually
14 Google struggling with how can it influence its prices,
15 right. Whether it's a monopoly or not, optimal prices change
16 over time as quality changes, as demand changes. And Google
17 has to try to -- it doesn't get to set them directly, it has
18 to try to influence them through these knobs.

19 And so what -- the way I would -- the second bullet, the
20 way I would understand the discussions in the documents on
21 pricing knobs -- and I've read these documents carefully,
22 there are -- you know, it's really Google trying to deal with
23 two issues that affect its pricing. And I need to get a
24 little technical for a minute, and some of this will stay
25 that way.

1 So there's two issues that affect Google's pricing when
2 you dive into it. Number one is the one I just alluded to,
3 Google -- auctions set prices, Google doesn't. So whatever
4 knob Google tries to turn, if that's the term we're using,
5 whatever it tries to do, all the advertisers react, they
6 change their bidding strategies. So if Google changes a
7 parameter, if it changes semantic matching or some term
8 you've heard, advertisers all see that and experiment. They
9 see it at least by experimenting and seeing what happens, and
10 they change their bidding strategies. So in many cases,
11 Google turns a knob, as it's being called here, and prices
12 don't go up at all. Even if an allegation is being that was
13 the attempt, they go down.

14 And second -- and this is where I need to get technical
15 for a minute. The issue with the Google auctions or the way
16 they work -- and we've been through this some, the way they
17 work is the winner wins, and the winner pays a price based on
18 number two. But it's not exactly number two's bid, it's
19 basically adjusted by the relative predicted click-through
20 rates, right. And so you can think about that as number one.
21 If number one's click-through rate -- predicted click-through
22 rate gets better, number one basically gets a discount. It
23 doesn't have to pay as big a price to match number two
24 because its click-through rate is doing the work.

25 So what you see in a lot of these documents is this group

1 called AQ, this auction quality group, is trying to do things
2 to make those click-through rates better. A better auction
3 has better click-through rates. It's trying to make the
4 click-through rates better for the winner. That's good for
5 everybody. But if you do that and nothing else changes, that
6 means number one gets a discount, because that click-through
7 rate got better.

8 And so the issue that Google is -- a lot of these
9 documents are struggling with is if we try to make our --
10 unlike most other firms I've ever seen, if Google tries to
11 make its auctions better by having a better click-through
12 rate, that's going to cause its price to go down, because
13 that click-through rate is going to create this discount
14 effect. Lots of what's being described in these documents is
15 not how do we raise prices, it's how do we create auction
16 quality while dealing with this other issue; that if we don't
17 do something, auction quality will actually drive our prices
18 down.

19 Q. And do you have a chart that sets forth some of your
20 analysis on this very point?

21 A. Yes.

22 Q. Is it slide 120?

23 **THE COURT:** Before we turn to another, why don't we go
24 ahead and take our afternoon break and just pause here, and
25 then we'll resume at 3:15. Thanks, everyone.

1 (Recess taken at 2:56 p.m.)

2 (Proceedings resumed at 3:17 p.m.)

3 **THE COURT:** Mr. Sommer -- actually, before we -- and
4 maybe you're going to go over it, but could you rewind,
5 Dr. Israel, where you were before the break?

6 **THE WITNESS:** Yes.

7 **THE COURT:** The caffeine is helping.

8 **BY MR. SOMMER:**

9 **Q.** So Dr. Israel, we were talking about your view that
10 Google actually has limited power to control prices. Do you
11 recall that?

12 **A.** Yes.

13 **Q.** And where I was about to go was to ask you whether
14 Professor Whinston presented a chart on this issue to the
15 Court during his testimony?

16 **A.** He did.

17 **Q.** Okay. Let's go to --

18 **A.** Sorry, just to be clear, did you want me to go back
19 over some earlier testimony?

20 **THE COURT:** Are you going to review what we just talked
21 about?

22 **MR. SOMMER:** No, no -- okay, I misunderstood you, Your
23 Honor. How far back do you want me to go?

24 **THE COURT:** I just need him to comment on the pricing
25 knobs.

1 BY MR. SOMMER:

2 Q. Just give us a summary of what you covered in about
3 the last 10 minutes or so on pricing knobs, and then we'll --

4 THE COURT: You don't have to go far, 10 minutes, just
5 the last few.

6 THE WITNESS: So we've seen discussion of pricing knobs.
7 I think of them as parameters of the auction. And the
8 argument from Professor Whinston and plaintiffs, that those
9 indicate that Google has pricing power. My basic point is
10 that what they actually indicate and the sort of struggle
11 with them in the documents is that Google doesn't directly
12 control its prices. It has to try to work through the
13 auction. I don't want to tell you that means it has zero
14 influence at all. But the fact that it has to work
15 indirectly through an auction, and that its bidders can react
16 and ultimately determine the prices, is less pricing control
17 than we see for lots of firms who can just set their prices.

18 Another point that I made that's probably where the
19 caffeine will help is there's two things, I think, that are
20 worth understanding about the pricing knobs and what drives
21 Google to have to use them. One is -- the first one was
22 Google can change the parameters of its auction. Advertisers
23 are constantly experimenting with strategies, and looking at
24 what their other alternatives are to Google and so on. So
25 after Google does that, Google doesn't know what's going to

1 happen to prices. Advertisers can change how they bid, they
2 can go bid -- they can switch to another competitor. That's
3 where the competition comes in. So the prices get determined
4 in auction based on what the bidders do. And so you'll see
5 lots of cases we'll go through where there's a pricing knob,
6 which plaintiffs are claiming was an attempt to increase
7 prices, and prices go down right after it.

8 The second point, which is where I said I had to get a
9 little technical, is there is this fundamental -- I mean, the
10 Google auction was a big innovation. It has lots of good
11 properties as an auction. It has this feature that if you
12 make the click-through rate, the fit for the top bidder
13 better -- which is what the auction quality guys are trying
14 to do, they're trying to really get the top guy to have a
15 really -- be really likely to be clicked on, right, that's a
16 good match. The way that the pricing works is that means
17 that effectively gives a discount to the top guy, because
18 he's got better. And so Google's in this position that I
19 haven't seen in another firm that I've -- or another case
20 that I've looked at where if the auction quality guys make
21 the auction work better, the price goes down because the
22 winning bidder doesn't have to pay as much per click.

23 **THE COURT:** This is the second-price auction?

24 **THE WITNESS:** Well, the second-price auction combined
25 with that it's not -- in the simplest second-price auctions,

1 I just pay what the second price guy bids. But here, I pay
2 it times -- you know, it gets adjusted by the click-through
3 rate. So I don't have to pay exactly his bid, I have to
4 pay -- and I have an example of this. But I have to pay just
5 enough that when you multiply my bid times my predicted
6 click-through rate, it matches his value. So if the first
7 guy starts to look really good on click-through rate, he can
8 win the bid with a lower CPC because he's being bumped up by
9 that click-through rate.

10 So a lot of what the auction quality guys are doing is
11 they're in a separate room making the auction work better,
12 making that number one click-through rate go up. And that's
13 having the effect, without any adjustment, of pushing CPC
14 down. Prices are going down in response to that quality
15 improvement. So lots of discussions you see in Google
16 documents are just grappling with that: We want to improve
17 our quality, but as a profit maximizing firm, we don't want
18 that to drive our prices down, that doesn't make sense to us.
19 So they're trying to deal with that.

20 **THE COURT:** Thank you.

21 **BY MR. SOMMER:**

22 **Q.** I'd asked you about a chart Professor Whinston had
23 prepared?

24 **A.** Yes.

25 **Q.** Did you include that in your deck?

1 **A.** I did.

2 **Q.** That's slide 128. Just like when he presented it,
3 it's redacted here, but can you describe to the Court your
4 view on this slide?

5 **A.** Sure. So there's a couple different points I would
6 make about this slide. So this -- first, I want to focus in
7 on it kind of at a micro level, and then I'll take a step
8 back to the overall pattern. So this slide is Professor
9 Whinston presented what he called the Google search ads price
10 index for PCs and mobile phones, and he put on notable
11 auction changes. So the first thing that I noticed from this
12 slide is there's lots of ups and downs in prices. Overall
13 the index goes up -- and I'll turn to that next, but there's
14 lots of ups and downs. And if you look at some of the quote,
15 unquote knobs that we've heard the most about, you'll see
16 that after that knob was implemented, prices clearly go down.

17 I don't know, can I name some of the text that's on here?

18 **Q.** Yeah, I think we can name the names without going
19 into the numbers. Go ahead.

20 **A.** So if you look at RGSP, almost all the way to the
21 right, that certainly has got attention in here as a knob
22 that is claimed to be increasing price. Price goes down for
23 several months after RGSP. You see the same thing for
24 semantic exact which has been referred to. You see the same
25 thing for butternut squash which has been referred to. So

1 you see that -- the sort of the knob's connection to these
2 prices is uncertain at best. If you go through them all and
3 look in the few months before and after each knob, there's no
4 consistent pattern of the prices going up after the knobs
5 that we've been talking about, right.

6 So that's my point number one, is the connection between
7 these knobs and prices, I don't see it in the chart. What I
8 do see is an overall pattern of the price index going up, not
9 really tied to the knobs. And I'd like to make two comments
10 about that -- or a lot of what I'd like to focus on really is
11 stepping back from the knobs a bit -- and I'll come back to
12 them, you know, what's going on that we see this price index
13 going up. The first thing that I would stress is, based on
14 the Google documents themselves, including the document that
15 this index has been in, I wouldn't put a lot of emphasis on
16 this index. Because Google itself says this is basically a
17 sort of tracking index on a set of queries. They don't
18 intend for it to represent what an -- any advertiser would
19 actually pay. It's a way they're using to track what's
20 happening over time. They explicitly say it is not designed
21 to capture what advertisers are doing for the queries that
22 they're actually buying. So I wouldn't put too much emphasis
23 on it, given how it's used.

24 But that said, we can still look at it and think about if
25 we think that some measure of price was going up, what might

1 that tell us. And we can probably go to the next slide for
2 that.

3 Q. And that one's also redacted, so be a little bit
4 cryptic, but please do describe it to the Court.

5 A. So this is making a point of -- one way I could make
6 it empirically. The point is that nothing about this price
7 index is in any way controlling for quality. So we're not
8 looking at a quality adjusted price at all. We're not asking
9 has the auction gotten better, have characteristics of the
10 auction become more attractive to bidders. We are just
11 asking is this price index -- which, again, is not really
12 tied to advertisers, but is this price index going up.

13 As one way to illustrate that, this chart looks at what's
14 happening over time to the price index versus a measure of
15 the quality of the auction, which is the click-through rate,
16 right. So auctions do better when they get better
17 click-through rates. That means they're better matching ads
18 to queries. That's one measure of quality that's available
19 in the data.

20 The way this chart works is it indexes everything to the
21 end of it. So everything comes up to a hundred at the end.
22 But by looking at it over time, you can see which of the
23 lines are increasing more. And you'll see that the quality
24 line, the ratio of ad clicks line, has started from lower,
25 it's going up by more than the price index.

1 Q. Does this tend to show that Google's ads quality is
2 increasing over time?

3 A. It definitely shows that the ad quality is
4 increasing. I mean, there's many ways to measure quality.
5 But it's saying that by this sort of very basic measure of
6 quality, which is how much of the ad's being clicked on, the
7 quality on that metric is increasing faster than the prices
8 are.

9 Q. Did Professor Whinston acknowledge that his analysis
10 did not account for changes in quality?

11 A. Yes. So to be fair, he was asked: "It doesn't
12 improve for Google's search advertising technology?" He says
13 correct. Above that he acknowledges it's a price index. So
14 he's acknowledging that this is not a quality adjusted price,
15 this is, at most, just the price. I would stress, again,
16 it's really a sort of narrow price index. It's not even
17 really a measure of the prices that any advertisers pay. But
18 it's -- as it stands, it definitely does not control for
19 quality.

20 **THE COURT:** So what is your understanding of what it is
21 as a price index? If it is not actually reflecting actual
22 prices paid, what is it measuring?

23 **THE WITNESS:** So it is -- I mean, it's not measuring what
24 any advertiser would actually face. Google chooses a set of
25 queries, not designed to be representative of what any

1 particular advertiser pays, and critically not allowing for
2 the fact that advertisers will optimize queries over time.
3 It fixes a set of queries, and it measures what happens on
4 that set of queries. So the price index, as I understand it,
5 does go up for that set of queries, which is why I don't want
6 to end there, I want to think about what that could be.

7 **THE COURT:** I remember, this was -- Professor Whinston
8 compared this to like a consumer price index.

9 **THE WITNESS:** Right, but it's not even that, because for
10 two reasons. One is a consumer price index is -- a lot of
11 care is taken to make sure that the basket of goods is
12 representative of what consumers are buying. Google, in
13 their documents, overtly doesn't do that. They pick a sort
14 of set of queries to track. So these queries could go up,
15 but there's not an attempt made to make sure they are
16 representative of what advertisers. They explicitly say this
17 is a health of the system thing that Google is doing to check
18 what's happening.

19 Second, they explicitly say advertisers have the ability
20 to re-optimize over what queries they buy, and they're not
21 trying to adjust for that either. They're just taking a set
22 of queries and seeing what happens over time. So the way I
23 would say it is I wouldn't put too much emphasis on it,
24 because it's not designed as a measure of what advertisers
25 pay. That said, I think it's worth us talking about why it's

1 going up -- which I admit I don't want to stop with that, but
2 I don't want to put too much emphasis on it given what it is.

3 **BY MR. SOMMER:**

4 Q. Dr. Israel, what is the significance, if any, of
5 looking for an increase in nominal prices?

6 A. On its own, I would say nominal prices, especially in
7 a situation where we know quality is going up --

8 Q. Let's take that scenario first. Is that depicted in
9 slide 131?

10 A. Yeah. So if we know quality is going up, nominal
11 prices don't tell us much -- or anything, really, they tell
12 us about nominal prices. They don't tell us whether users
13 are better off or advertisers are better off, right, they
14 tell us about nominal prices. And so one thing we know in
15 the context of auctions, again, is that if the quality of the
16 auction improves, if it's a better auction, better queries,
17 the auction is run better, you're going to get -- if you make
18 the auction work better for people to bid on, you're going to
19 get more advertisers attracted to that auction, it's a better
20 auction. And that's going to put upward pressure on prices,
21 because more people are interested in a better auction.
22 That's a quality effect. That means people are getting more
23 quality and therefore they're bidding more.

24 That's also -- and Professor Whinston agreed with this,
25 that's driven by competition. That means there's a better

1 quality auction, more people come in, they compete and the
2 competition between advertisers sets the price. As the --
3 and that's the reason I focus so much on the knobs not being
4 really what seems to drive it. The claim seems to be it's
5 the knobs that drives the price. But if the price goes up,
6 the knobs don't seem to really change things in any
7 consistent pattern. If the price is just going up with
8 quality, that generally would mean it's a better product,
9 more demand, more advertisers are interested in the better
10 product.

11 You've heard the term thicker auctions, that there's more
12 people in the auction. But thicker auctions are a good
13 thing, right. Because what you want to happen in an auction
14 is the advertiser who values that query the most wins, that's
15 the best outcome. Thicker auctions, having more people in
16 the same auction, means we're going to find the best match.
17 He only has to pay the second price, so he's going to get a
18 benefit himself, right, because he only has to pay the number
19 two price. So he's going to capture some of the benefit, and
20 the auction's going to work better because we're matching the
21 highest valued advertiser. Thin auctions mean even if they
22 create lower prices, the problem is they're only thin because
23 there's less competition, you're not finding the right
24 advertiser for the query.

25 Q. There's been a fair amount of testimony about

1 Google's innovations in the ads auction process. Have you
2 considered certain innovations, certain specific innovations
3 in evaluating the knob issues and price issues?

4 **A.** Yeah, I have. The first one is still on this slide
5 on 131. So there's been a lot of discussion about format
6 pricing. Formats in ads are things -- and this may have been
7 covered. Formats in ads are things that get added to your
8 search ads, so like a phone number. And so that's a pretty
9 clear example of you get more for your ad, and therefore
10 there's some charge for that; for getting more, the price
11 goes up. In some cases, that's also because -- in a lot of
12 cases where there's a format, the ad is just bigger so it
13 takes up more of the SERP. And so there's an opportunity
14 cost, taking up more of the space so you can't show something
15 else in that space.

16 So to me, formats are a pretty simple example of what's
17 being sold, the thing that an advertiser is buying changed,
18 right, they're getting -- having their phone number in the ad
19 is helpful to them. And so if there's a higher price for
20 that, that's a quality effect, right, that seems natural.

21 **Q.** On slide 132, do you address some of the other
22 innovations that impacted on the auction?

23 **A.** Yes, so I focus here on three that I've heard
24 discussion of. The first one's pretty simple, the next two
25 are less simple. The first one is semantic matching.

1 Semantic matching is this Google innovation over time that
2 when an advertiser says it wants to bid on a particular
3 keyword, the idea is don't match that based on the specific
4 words, match it based on the meaning. So the example -- it's
5 not really misspellings, it's more like if I say I want to
6 bid on shoes for running and the query is running shoes,
7 those mean the same thing so you should put me into that
8 auction. That has the effect of making the auction thicker,
9 but in the sense that it's actually capturing the people who
10 expressed an interest in that term. I mean, it's just
11 matching it by meaning rather than by syntax.

12 Again, that's an example of a price that could -- it
13 depends on how everybody reacts and what happens, it could
14 cause a price to go up. But that's because you're getting a
15 better performance in the auction, and you're bringing the
16 people into the auction who have the most value on that term.

17 Q. And I take it the user is getting fed with an ad that
18 the user is interested in?

19 A. That's a good point for these things generally that I
20 should have said. There's a lot here. But this is not -- I
21 mean, it's important to keep the user side in mind, right. A
22 reason that it's valuable to have a better match, to have a
23 thicker auction and to get the best match, is because the
24 user gets an ad that's better targeted for them.

25 **THE COURT:** Isn't it evidence of monopoly power that

1 Google is able to make these changes without giving the
2 advertiser the ability to opt out?

3 So use the semantic matching, for example. It was my
4 understanding that one of the effects of it in theory on a
5 particular auction, it could create a thicker auction. That
6 may increase the price, a smaller advertiser may not want to
7 participate in that.

8 **THE WITNESS:** So my understanding -- and I think there
9 was testimony from people who were closer to every detail
10 than I am, is that you can use negative keywords, which I
11 think is a way to opt out, say I don't want to be included in
12 some of these terms. So I'm not going to be included in that
13 case. My general understanding of what I've seen in the
14 record, actually from what I've seen, would tend to go the
15 other way from your smaller advertiser example in that
16 smaller advertisers don't have big teams to go figure out
17 every word they could put into the auction.

18 So if I'm a smaller advertiser and I want to bid on
19 running shoes, I want to be put in the auctions for running
20 shoes, even if somebody spelled that differently or called it
21 shoes for running. From what I've seen in the record -- and
22 this is from memory here. But from what I've seen is it's
23 more larger advertisers who have more ability to be
24 sophisticated about this, who liked the fact that they could
25 be in the thin auction before. They could go bid -- they

1 could bid for various versions of it, and that auction may be
2 thin and they might win on the cheap.

3 But that's really not -- that means they're just not
4 having to face competition from other advertisers who would
5 want that term. So I don't see that as monopoly power
6 that -- I mean, first of all, I understand there to be an opt
7 out option. But second of all, either way, having the
8 auction bring together the full set of bidders who are
9 interested in that is good for users because there will be a
10 better match. It seems to be good for smaller advertisers if
11 it helps them -- you know, helps them match all the terms
12 that they want. And it ultimately creates -- the winner by
13 competition is going to be the guy with the highest value.
14 And that person is still, by the nature of a second-price
15 auction, not going to pay more than it's worth to them.
16 They're going to have surplus leftover or value leftover
17 because they pay something based on the second price. So I
18 don't see it as monopoly power.

19 I guess another -- I'd have to check, but I think -- my
20 recollection is that other auctions are doing similar things,
21 this isn't Google alone, because this is a way to try to get
22 the right people in the auction.

23 **BY MR. SOMMER:**

24 Q. Okay. So let's get to one that's a little more
25 complicated, squashing.

1 **A.** Okay. So squashing, squashing is -- so if we could
2 flip over a slide, it probably will help.

3 **Q.** Okay.

4 **A.** And again, sorry to have to be a little bit
5 technical. We talked about this before. This is an example
6 that illustrates the point of squashing. Basically what
7 squashing is, squashing is really directly going after the
8 point that I raised to you, which is if they improve the
9 quality, if they improve the pCTR, they'll drive their price
10 down. So I think what's worth looking at, just for starters,
11 is forget the rest of the text, just look at the first line
12 of numbers that says initial. So this is just a hypothetical
13 example that was in my report.

14 So this is a situation where advertiser one -- and for
15 this whole hypothetical, just imagine that the query, the
16 person here, would bid on advertiser one's ad, but they
17 wouldn't click on advertiser two's ad. So the initial set up
18 lays out one way the auction might happen, which is
19 advertiser one bids \$2.50. Google's algorithms tell it
20 there's a 70 percent chance of a click. So they're not
21 getting it exactly right, but they're saying there's a
22 70 percent chance of a click.

23 What the mechanism says is the LTV -- and here I'm
24 simplifying from some -- giving you the simplest form. The
25 LTV for advertiser one, their value is \$2.50 if there's a

1 click, times a 70 percent chance of a click, is \$1.75.

2 Advertiser two bids \$3.00. The system tells them there's
3 a -- Google thinks there's a 30 percent chance that will get
4 clicked on. So doing that same multiplication, you get an
5 LTV of 90 cents.

6 So what happens in this auction? Advertiser one wins the
7 auction because they have the higher LTV. The price they
8 have to pay is -- and this is what I was saying earlier about
9 how it depends on the click-through rate as well. They have
10 to pay \$1.30, that's the term, it is \$1.30 times advertiser
11 one's pCTR. So they pay \$1.30 and there's a 70 percent
12 chance of a click, that gives you 91 cents. That's just
13 enough to beat advertiser two's value. So they don't have to
14 pay the full bid, advertiser two, they pay just enough such
15 that when you multiply their bid times what the system says
16 is their click-through rate, they beat advertiser two's
17 value. So basically their winning bid is adjusted down some
18 by the fact that their click-through rate is a bit higher.

19 So now suppose Google improves its -- it invests money,
20 the auction quality guys do more work and they improve the
21 pCTR, they get better at predicting, right. What could
22 happen -- and again, this is all very specific to the case.
23 But what could happen in that case is the pCTR goes -- you
24 know, for advertiser one, it goes up to 80 percent. It's
25 doing a better job of predicting. For advertiser two, it

1 falls to 10 percent. So the system has gotten better -- the
2 right answer here is a hundred percent and zero. It's very
3 hard to figure that out. But the system has gotten better at
4 doing -- at dividing them up. It's now more accurate, right.
5 And that's good, because it's making a better prediction,
6 it's going to create better matches. The effect of that,
7 though, is that the winning price falls to 39 cents. And the
8 reason is advertiser one just now has to beat this lower
9 value for advertiser two, and it gets the benefit of this
10 higher predicted click-through rate to do so.

11 So squashing was entirely designed to -- this is a
12 problem, because the auction quality guys are saying I have a
13 better mousetrap; I can predict click-through rates more
14 accurately; I can create better matches; I can put the right
15 ad on the page; but if I do that, I'm going to crush the --
16 I'm going to drive the price way down potentially.

17 So what squashing did -- and there's academic literature
18 on how this can be efficient, it basically squashes the lower
19 predicted click-through rates up towards the higher one a
20 bit, right. It's true, to be clear, that has the effect of
21 increasing this winning CPC a bit. Not all the way up to
22 130, but a bit. But the reason to do that is because now
23 when the auction quality guys come to the businesspeople and
24 say: I can make the auction better, they don't also have to
25 say: But if we do it, our price is actually going to go way

1 down. That means they can improve the quality without
2 squashing their own revenue.

3 Google is a profit maximizing firm. You want it to have
4 incentives to make its pCTR better. You need some mechanism
5 to deal with this issue, which is the general one I talked
6 about with the knobs. Which is if pCTR gets better, you can
7 end up driving the price way down. They're not raising the
8 price from the \$1.30, they're implementing the better pCTR,
9 but at least offsetting this effect.

10 Q. Okay.

11 A. If you go to the next slide, this is from one of --
12 this is from the document about squashing, so it's one of
13 these pricing knob documents. But the callout here exactly
14 describes what I was saying. The auction quality guys are
15 saying we have this learn UI, which is a better mousetrap.
16 It increased the accuracy of our predictions and added
17 clicks, but it lost CPC and was revenue negative. So they'd
18 be in the position as a business of we can do something that
19 makes the auction work better, helps users, creates a better
20 match, but if we do it, we're going to lose revenue on it.

21 And so the last highlighted sentence says: "Ads quality
22 wants to continue launching such advertiser value creating
23 launches, but needs a mechanism to help Google share in the
24 value that our launches create." That's -- squashing was the
25 way to do that.

1 If you -- and there's an example of what they're doing
2 ultimately raises the final price on that lower line a bit.
3 But that's so that they don't have this, what I'd call,
4 perverse effect of improving the mousetrap. If most firms
5 improve the mousetrap, they get a higher price. This
6 mousetrap gets better, the price goes down, and they're
7 trying to deal with that.

8 **Q.** How about RGSP, Dr. Israel? That's much simpler, I'm
9 sure.

10 **A.** Just one last thing I'd mention on squashing on that
11 previous page. It also illustrates the point that whatever
12 they do, it depends on -- one page up, it depends on how
13 advertisers react. Because in practice, they say prices went
14 up 60 percent of the time and down 40 percent of the time.
15 So even though they implemented squashing, it wasn't like it
16 was a hundred percent price increase, it depended on what the
17 advertisers did.

18 RGSP.

19 **Q.** RGSP.

20 **A.** It actually is a little simpler, at least the way
21 that I'm going to explain it. Because the other issue with
22 these auctions is this stuff is predictive, right. We're
23 trying to figure out who's got the higher value, but that's
24 based on predictive click-through rates. I don't know for
25 sure which -- you know, I don't know for sure. You have

1 situations where one person's value is just one cent higher
2 than another person's value, we're pretty close together. If
3 you don't have any randomization -- which is what the R
4 stands for, the guy with the higher value wins -- even though
5 it's barely higher, he wins always, he's guaranteed to win.

6 Google's fear has been that that creates a
7 winner-takes-all phenomenon; that you never get a chance to
8 see how well that lower option would have performed. So RGSP
9 says if the values are really close together, then with some
10 probability -- or if they're close enough together, to be
11 fair, with some probability, I will reverse the order so that
12 I can give the number two guy a chance to win, if he was just
13 a tiny bit behind. And sometimes I'll put him in first as a
14 discovery mechanism, just to see how well it does. So it
15 doesn't pick the highest rank guy in the moment, but it lets
16 the system learn how that ad would have performed.
17 Otherwise, they wouldn't have ever gotten that information.

18 Q. Did you review the testimony of Jerry Dischler on
19 this point?

20 A. Yes.

21 Q. And was that informative?

22 A. Again, the testimony is consistent with the
23 explanation that I'm giving. He says: "We do this so we
24 don't have biases and winner-takes-all dynamics." That's
25 what I was describing. "What we do is, some percentage of

1 the time, we flip them to see if actually somebody may be
2 better, in order to improve the user experience.

3 Otherwise" -- and his example is Amazon always shows up on
4 top. You never figure out if somebody would perform -- you
5 know, be better than Amazon. And then there was this
6 question and answer about: "Does that mean the winning
7 bidder may not have the highest value or ad rank?" And he's
8 acknowledging: "They wouldn't have the highest value in that
9 particular option." But he's saying, really, that's because
10 we just haven't been able to explore the value of that person
11 unless we let them win sometimes. We have to put them on the
12 page sometimes and see if they get clicked on or we'll never
13 know.

14 Q. Was there another Google document you looked at that
15 was related to this point of prices falling from quality
16 increases?

17 A. Yes, so --

18 Q. And I'll just caution you that parts of this are
19 redacted, as you can see in your deck, but go ahead.

20 A. So this is a thing called excess CPC. This is
21 Google's metric that they reported over time. I think they
22 last reported a value in 2020. But it was their attempt to
23 measure -- to balance these effects, to actually measure
24 something like a quality adjusted price. To say on the one
25 hand, advertisers are getting more value from these

1 improvements; on the other hand, CPCs are coming up -- may be
2 coming up over time. But what we want to know is who -- are
3 advertisers getting more value on net or less. So basically
4 they're converting it all into an equivalent price effect.

5 So this metric they had, consistently over time the value
6 is negative. Which means all in, accounting for advertiser
7 value -- Professor Whinston says this in his report, too. If
8 you account for advertiser value and what's happening to
9 price, the quality adjusted price is going down. That's what
10 they found in their last full report in 2018. I think there
11 was another statement that it was still true in 2020. But
12 it's all in when you account for the quality and what the
13 price is, the quality adjusted price is lower.

14 So for everything else I've said, I think the takeaway
15 really can be here they were tracking this. Advertisers are
16 getting more benefit, Google is sharing in that, you know,
17 what's the net effect on advertisers. And the answer was
18 quality adjusted prices are going down.

19 **Q.** Benefitting advertisers?

20 **A.** Yes, and users. All of these things are beneficial
21 to users, because they're trying to improve the quality of
22 the match.

23 **Q.** Let's get to your final opinion on the digital
24 advertising side, and that's number three on your list: A
25 failure to show harm to digital advertising competition or

1 advertisers.

2 Can you describe what we see in slide 139, Dr. Israel.

3 **A.** Yes, so this is, for the first time today, after a
4 long time, not about market definition or monopoly power.
5 I'm turning to this question I raised at the beginning, which
6 is think about competitive effects. As I said, I'm not
7 analyzing the defaults or anything like that. The question
8 I'm asking is straightforward, it's let's suppose something
9 happened to make Bing bigger, have plaintiffs shown that
10 competitive outcomes, that competition would be better.

11 And Professor Whinston had -- what's on this slide is
12 what Professor Whinston said. He gave two conditions under
13 which there would be -- the current system would be adverse
14 to competition.

15 **Q.** This is slide 139; is that right?

16 **A.** Yes. So Professor Whinston's sort of two-step logic
17 was, first of all, scale affects advertiser participation and
18 ad relevance. So his argument is if Bing effectively has
19 less scale, it won't get as much advertiser participation and
20 ad relevance. And then his argument two is, because of that,
21 because of what he's calling Bing's inability to get this
22 participation and relevance, his argument would be Google
23 doesn't face as much competition, and therefore Google has
24 reduced incentives to compete.

25 So he's saying there's a weaker Bing with less

1 advertisers, and therefore Google doesn't have as much
2 incentive to compete, and that's bad for competition.

3 Q. Did Professor Whinston provide any data or empirical
4 evidence to support his views?

5 A. I want to be careful. I would say what Professor
6 Whinston provided was some data, as I recall, about Bing's
7 ability -- how much money Bing makes. So there was evidence
8 in his reports about Bing's monetization, about how much
9 money Bing makes. That's not really the question, right.
10 That's looking at a particular firm or a particular
11 competitor. The question is would competition be better off,
12 would advertisers be better off, and I can't think of
13 anything he did on that topic.

14 Q. Were you able to find some relevant data that
15 informed your views?

16 A. Yes. I tried to dive into each of these two prongs
17 of his argument one at a time.

18 Q. Let's start with the first one. What do we see on
19 slide 140?

20 A. So the first one is focusing on his claim that
21 because of Bing's smaller size, it gets less advertiser
22 participation, just there's fewer advertisers at Bing. There
23 are fewer advertisers at Bing, the punch line's going to be,
24 but Bing, by its own language, has the majority of the large
25 advertisers. And the large advertisers in this industry make

1 up the overwhelming majority of the dollars. So if you want
2 to put a firm -- if you want to put competitive pressure on a
3 firm, you challenge its dollars, you challenge its revenue.

4 And so what the slide on 140 is showing you is this
5 industry is extraordinarily skewed towards the largest
6 advertisers in terms of revenue. In some industries, we talk
7 about an 80/20 rule, that 20 percent of customers make up
8 80 percent of revenue. Here, it's a 2.5/90 rule.

9 **THE COURT:** I'm sorry, 2.5 what?

10 **THE WITNESS:** 90. The top 2.5 percent of Google's
11 advertisers make up 90 percent of the revenue that's spent on
12 Google. So why do I care? Because what this tells me is if
13 Bing is able to attract just the very largest advertisers,
14 it's putting -- it's able to compete, challenge the vast
15 majority of Google's revenue. So it's not -- really, there's
16 a long tail here, but what threatens Google as a competitor
17 is its revenue. And that means if you can challenge for the
18 large advertisers, you can put that Google revenue at risk.

19 **Q.** And there are a couple of redactions on slide 141, so
20 navigate around those percentages. But please explain to the
21 Court what you've found on this slide.

22 **A.** Sure. So this is really just, first, extensions of
23 what I showed you on the chart. So you can see the top
24 2.5 percent -- sorry, I won't give the revenue number then --
25 well, I just did that one on the last page.

1 **THE COURT:** That's fine.

2 **BY MR. SOMMER:**

3 **Q.** That's all right.

4 **A.** You see the percentages here then. These top
5 percentages of Google advertisers make up the vast majority
6 of Google revenue. There's Microsoft testimony in the record
7 saying the vast majority of large advertisers advertise at
8 Bing. There's also a Microsoft document saying 26 percent of
9 the advertisers at Google also advertise at Bing. Putting
10 those together, we would say the vast majority of Google
11 revenue is also advertising at Bing and thus at risk; Bing is
12 competing for that revenue.

13 **Q.** Let's turn to the second of Professor Whinston's
14 points, the profit point.

15 **A.** So yeah, this is -- the second point is really
16 that -- so the first point is Bing is competing for most of
17 the revenue. The second point is, as I mentioned earlier,
18 Professor Whinston is really -- his evidence, his arguments
19 focus on the money Bing makes, not on competition. So what
20 I'm saying on slide 142 is the relevant question to me, as an
21 antitrust person, is not whether Bing would be better off in
22 some alternative world, but whether competition would be
23 enhanced and advertisers would be better off. That's what we
24 want to ask. That's the question that Professor Whinston --
25 that I haven't seen any evidence on.

1 It's true that if you -- if Bing had more queries, right,
2 some queries would move over to Bing. They wouldn't be on
3 Google anymore, they'd be on Bing. There would be an auction
4 run for them on Bing. People would bid on those queries on
5 Bing. But the question is would that change anything about
6 competition, right. We said earlier that different GSEs --
7 different auctions on different GSEs tend not to be the same
8 people, so it's not obvious at all those auctions would
9 compete with each other. We also said earlier that a lot of
10 other platforms are out there competing.

11 I think, based on the evidence in this case, if you took
12 a chunk of queries at Google and moved them over to Bing --
13 say, because the default was different, you just would have
14 the auction run in a different place. But I haven't seen any
15 evidence that would actually increase competitive pressures
16 on those prices. Because there's all this other competition,
17 and the circle principle that I went through said Bing and
18 Google actually aren't each other's closest competitors.

19 So I think what we see is, yes, Bing would make more of
20 the revenue, but I don't see a basis to say that would
21 actually increase competitive pressure on those auctions.

22 **THE COURT:** If you spread the auction participants out
23 over two different general search engines of equal quality,
24 would there not be -- do you think there would be fewer
25 participants in the individual auctions and therefore would

1 have a reduced price pressure?

2 **THE WITNESS:** So I'll try to tie that back to the points
3 that I've been making. So if there was a thinner auction,
4 for whatever reason, the prices in that auction -- not
5 always, but would tend to be lower. I mean, in some sense,
6 that's a -- Bing today says it has thinner auctions, right,
7 which means Bing today has relatively low prices, which might
8 say that's a low price auction that's out there in the market
9 now. But more generally, I also think thinner auctions are
10 getting you lower prices by being less efficient. They're
11 not putting -- they're not going to find you the best match
12 if you don't have the people in there.

13 I guess my most fundamental point I was just making would
14 be, though, most of the dollars are already at both places,
15 so I'm not sure it's a spreading out effect. I think what
16 happens is if you move more of the auctions over to Bing --
17 those queries were attractive to advertisers. If you move
18 them to Bing, they're still going to be attractive to
19 advertisers, they're just going to bid on them at a different
20 place. So I don't -- it doesn't seem to me that you're --
21 you know, what determines how attractive -- especially for
22 the large advertisers who make up most of the dollars. What
23 determines how attractive a given query is to bid on is the
24 query and the person. You move it to Bing, they bid on it at
25 Bing. But I don't see why that auction gets thinner

1 necessarily if that query was attractive.

2 So if you spread them out more, you get a price reduction
3 effect. I think that's not necessarily efficient, but I
4 don't see why you'd get that here when you'd just move the
5 same queries to a different place and the large advertisers
6 are already there.

7 **BY MR. SOMMER:**

8 Q. Dr. Israel, we've come to the end of your advertising
9 side, and we see again the summary of your opinions. But we
10 still have one more topic to cover, and that's SA360.

11 Have you formed opinions relating to SA360?

12 A. Yes.

13 Q. Can you describe to the Court your opinions in that
14 regard?

15 A. So one last change, and then we're almost done. So
16 just to take a step back, for me at least. The allegations,
17 as I understand them, in SA360 are that by not rolling -- the
18 claim is that by not rolling out all of the features to
19 Bing -- particularly so-called auction-time bidding, at the
20 same time that SA360 rolled them out to Google, that in some
21 way foreclosed Bing from competing effectively. So I really
22 have sort of three buckets of opinions. I mean, I disagree
23 with that claim.

24 Number one and two are the first kind of bucket of
25 opinions, and that is if you're thinking about a foreclosure

1 claim, does SA360 really have the power to do that. So SA360
2 faces a lot of competition, and SA360 has a modest share. So
3 the first point is SA360 is not -- doesn't seem to be must
4 have, it faces a lot of competition. There's other options
5 for advertisers. So that's points one and two, and I'll go
6 through those.

7 Point three is I just think if you look at the evidence
8 in the case and what's actually being done, it doesn't
9 support this claim that Google is somehow acting differently
10 or acting on some incentive to harm Bing. It doesn't support
11 a foreclosure claim, just looking at the facts of what Google
12 is doing relative to everyone else. And then the final
13 bucket of claims is really four and five, which is if you
14 just look at what's happened, there's no evidence at all that
15 there's been any foreclosure or that anyone's been harmed.
16 So really, it's the three buckets are SA360 faces
17 competition, evidence doesn't support foreclosure, and the
18 outcomes don't support harm.

19 **Q.** Let's turn to the competition bucket first. Can you
20 take us through slide 146, please.

21 **A.** Yeah. This is a lot simpler than what we were doing
22 before, so I'll try to be quick. SA360 is a tool that you
23 use to bid on search advertising. There are lots of other
24 tools, so-called management tools: Adobe, Kenshoo/Skai and
25 Marin are all out there. Just as an aside, many of them

1 allow you to bid on things like Facebook and Amazon and
2 TikTok as well. But first of all, there's three other major
3 search engine platforms. And then I really think it matters
4 a lot that there are these big native tools, you can bid
5 directly in Google Ads or directly in Microsoft Ads. Tons of
6 people do, large advertisers, small advertisers. Those are
7 the guts of the system. So the new features, that's where
8 it's all happening. The new features roll out there first,
9 and then over time get added to these multi-platforms. So
10 the native tools are large and growing and important in terms
11 of competition.

12 Q. You have a reference to Professor Baker at the bottom
13 of slide 146?

14 A. Yeah, thank you. So Professor Baker acknowledges
15 that he hasn't defined a separate relevant market for SEM
16 tools. So in that sense, he hasn't defined a market that
17 would rule out the native tools. And I don't think you could
18 support one given the strength and the growth of the native
19 tools.

20 Q. Have you prepared some data on a slide in this
21 regard?

22 A. Yes.

23 Q. Okay. Part of it is redacted, the one on the right,
24 but do your best.

25 A. So this is just looking at where our bids -- where is

1 revenue for Google search ads and Bing search ads coming
2 from, like which tools. So the one on the left that I can
3 refer to tells you that on Google, it's almost 60 percent.
4 It's grown over time from 50 to almost 60 percent comes from
5 Google Ads from the native tool. And SA360 has also grown
6 some over time, but makes up only about 20 to 25 percent on
7 Google.

8 Q. Why is that relevant?

9 A. Again, this is this SA360 faces competition, and this
10 is just a market share version of that. SA360's share on
11 Google is about 20 percent, it's not that large. The one
12 that's redacted is the same thing for Bing. So you'll see
13 native tools also large and have grown, not quite as large as
14 on Google, but quite large. SA360 has also grown. It's a
15 little larger on Bing than on Google. I would also -- I
16 think the two points I would take is, one --

17 **THE COURT:** I'm sorry, I just want to make sure I
18 understand it. These are numbers of SA360's revenue and what
19 platform -- advertising platforms are what share of SA360's
20 revenue?

21 **THE WITNESS:** It's a share of all search ad spending on
22 Google. The denominator is all search ad spending on Google.
23 The numerator would be what percentage of that comes from
24 native tools, what percentage of that comes from SA360.

25 **THE COURT:** I see, okay.

1 **THE WITNESS:** So if you want to spend money on Google
2 search ads, where is it happening? It's happening in native
3 tools mostly, and 20 percent from SA360. If you want to
4 spend money on search ads on Bing, where is it coming from?
5 Again, most of it coming from native -- or about half of it
6 coming from native tools. And SA360, you see the number
7 here. So SA360's share in both cases -- you know, it's a
8 competitor, but it's not a dominant share.

9 I also think it's worth noting on this page that SA360
10 makes up a reasonably -- it does make up a reasonably big --
11 you know, modest, but reasonably large share of total
12 spending on Bing ads. If you think about what that means, it
13 means Google has put out and is investing in a tool that
14 generates a lot of revenue for Bing.

15 **THE COURT:** If you take a look at the slide on the left,
16 the chart on the left, if you make the assumption that people
17 who advertise on SA360 are more interested in shifting their
18 ad spend, because it's easier to do it on an SEM tool than it
19 is between native tools, would those numbers not indicate
20 that the amount of advertisers who are actually doing the
21 kind of shifting that you described earlier is not as high
22 you might think?

23 **THE WITNESS:** I think from what I've --

24 **THE COURT:** Or is not as prevalent as you've suggested?

25 **THE WITNESS:** I think from what I've seen in the record,

1 I would say no. I mean, I understand where your assumption
2 started, but the large advertisers very often are present on
3 these native tools. The native tools are where the things
4 roll out first. They are -- I mean, large advertisers are
5 all over Google ads and Microsoft ads, and they're shifting
6 money by using those directly. So one answer to that is I
7 just think that the native tools definitely are where things
8 come out first, and the large advertisers are using them to
9 shift money.

10 The other thing that I'd note there that relates back to
11 what I said --

12 **THE COURT:** And I guess the right chart would support
13 that proposition?

14 **THE WITNESS:** Yeah, that a lot is coming from the native
15 tools.

16 **THE COURT:** Right.

17 **THE WITNESS:** And if a lot of the revenue -- we saw in
18 the earlier charts, in order to have that much of the
19 revenue, you must have the large advertisers. And Bing and
20 Google are both saying the large advertisers are on both, so
21 they must be using native tools on both sides. Recall, also,
22 from a long time ago now that I went through the Smart
23 Campaigns on Microsoft. So even if you're on the Microsoft
24 native tool, it let's you bid into Google and Facebook and
25 Instagram. So even the Microsoft native tool has this

1 multihome -- this ability to shift dollars, it's got an
2 ability to bid in Google auctions.

3 **BY MR. SOMMER:**

4 Q. Let me take you to the next slide. There's a visual
5 there. If you could explain to the Court what the point of
6 this is.

7 A. Yeah, so this turns to this auction-time bidding
8 question in particular. The allegation -- the heart of the
9 allegation, as I understand it, is that Google -- SA360 has
10 rolled out auction-time bidding for Google but not for Bing,
11 and that indicates some sort of foreclosure or some harm. To
12 me, this chart is the most important, I think honestly,
13 response to this. Which is that Google -- SA360 is doing
14 nothing unique, right. If you -- it's true, as was discussed
15 in court, that Skai has rolled out auction-time bidding for
16 Bing. But none of the other three tools have, including two
17 that are independent. They're not owned by Google, they're
18 making independent business decisions.

19 So everyone here has fully rolled out auction-time
20 bidding for Google, right. Three of the four are in the
21 process of developing auction-time bidding for Bing, but none
22 of those three have done so. So if I was going to say what's
23 the test for whether SA360 is acting differently because it's
24 owned by Google, I would say compare it to the independent
25 guys. Two-thirds of them also haven't rolled out

1 auction-time bidding for Bing.

2 Q. Professor Baker testified that Google has an
3 incentive to use SA360 to foreclose competition. Do you
4 agree with his conclusion?

5 A. No.

6 Q. Can you explain why, please?

7 A. Yeah, so that's the slide on 149. And I just -- I
8 don't see how the evidence supports this argument. Most
9 fundamentally, I mean, Google is supporting and investing in
10 SA360 on which you can bid into Bing. If it wanted to
11 foreclose Bing, an obvious thing to do would be don't support
12 that functionality or don't invest in it -- being able to
13 advertise into Bing at all, right. We know that over time, a
14 large percentage of Bing's revenue is coming through SA360.
15 Google continues to invest in SA360, so Google is investing
16 in a tool that is generating a large amount of revenue for
17 Bing.

18 If I look at those facts, all these facts I've seen, it
19 appears to me the best explanation is Google supports SA360
20 as a tool to support search advertising, and it rolls out
21 features over time in a way that it finds makes business
22 sense. And those decisions don't look different in terms of
23 auction-time bidding from independent players, right. It's
24 got this tool, lots of people are using it for Bing. And
25 Bing continues to have a lot of sales there, and it's not

1 making different decisions in terms of auction-time bidding
2 relative to two of the other three independent players.

3 **THE COURT:** In a sense, is that a fair comparison with
4 respect to, I guess, it's Adobe and Marin? Because the
5 development for auction-time bidding for Google was a
6 fraction of the cost of the overall -- of a company's overall
7 ability to bid. So building auction-time -- you know,
8 bidding, as I understand it, is an expensive, time-consuming
9 proposition. It's even more so for Adobe and Marin than it
10 is for Google, because those are smaller companies. Skai, I
11 think, is number two, and so perhaps it would have more of an
12 incentive than the other three and four.

13 **THE WITNESS:** Although, I think -- I mean, I hear what
14 you're saying. I mean, these are not tiny companies. The
15 way I would think about that, they're all competing for the
16 same pie, right. And so if they're smaller, then they're
17 looking for ways to differentiate themselves and get ahead.
18 What really matters is how much revenue can you capture from
19 doing that. It's not how much revenue do I have today, it's
20 if I make this investment, how much can I go capture. And so
21 if they look and say SA360 is the market leader but they
22 don't have this technology, if I can go build it, I could
23 capture that revenue. So in terms of incremental revenue, I
24 don't really see it that way, because they have the ability
25 to go capture it.

1 I mean, I understand the point you're making. I guess my
2 bottom line would be if I'm trying to evaluate is Google
3 doing something unique because it owns SA360, I would still
4 try to look at all of the other benchmarks and see if it
5 stands out.

6 **BY MR. SOMMER:**

7 Q. Dr. Israel, Professor Baker also claimed that
8 Google's conduct related to SA360 harmed the ability and
9 incentive of SA360 advertisers to multihome, and thereby
10 harmed Bing's ability to expand inexpensively.

11 Do you agree with that conclusion?

12 A. No. I think I would -- I mean, I would rather
13 just -- we've been here a long time -- cut to the chase on
14 slide 151.

15 Q. Okay, let's cut to the chase. Go ahead.

16 A. So this is the other sort of most important bottom
17 line test, is I went and looked in the -- if you think that
18 rolling out auction-time bidding on Google but not Bing was a
19 big disadvantage to Bing, you would expect to see that after
20 that happened, Bing struggled on SA360 because it was at a
21 weaker position. It just didn't happen in the data. So this
22 is total spending on SA360 as the denominator, how much is
23 Google, how much is Bing. You can see the dashed line.
24 That's when auction-time bidding came out on Google. These
25 don't really even wiggle.

1 So is auction-time bidding attractive to advertisers? I
2 think advertisers have said yes. But what matters for
3 competition is did this decision by SA360, this timing, take
4 away Bing's ability to compete for dollars. And it just
5 doesn't show up here, right. Bing is -- among the universe
6 of SA360, Bing is -- nothing happens. Bing is not unable to
7 compete for dollars, even within SA360, after this change.

8 So what I said before was SA360 makes up a lot of Bing's
9 revenue. When auction-time bidding rolled out for Google and
10 not for Bing, that didn't change, those shares didn't even
11 really wiggle.

12 **MR. SOMMER:** Well, Dr. Israel, since we cut to the chase,
13 I have no further questions at this time. Thank you.

14 **THE COURT:** Thank you, Mr. Sommer. So why don't we get
15 started with the --

16 **THE WITNESS:** Is there any chance I could use the
17 restroom?

18 **THE COURT:** Yeah, of course.

19 **MR. DINTZER:** Your Honor, actually, we're happy to make a
20 down payment. It's not going to surprise the Court, I
21 suppose, that we are not going to finish tonight.

22 **THE COURT:** I didn't think you would.

23 **MR. DINTZER:** And so we're happy to start tonight, or if
24 the Court -- if it would be the Court's pleasure, we'd be
25 happy to start up first thing in the morning.

1 **THE COURT:** I take it you're not going to finish tomorrow
2 either?

3 **MR. DINTZER:** Given the girth of data and information, it
4 seems unlikely. And the plaintiffs -- I mean, the defense
5 has given us their schedule for next week, and it seems to
6 have a great deal of space built in. So as far as next week,
7 it doesn't look like we'd be pushing anything aside.

8 **MR. SOMMER:** Judge, let me just inquire gingerly, since I
9 know Dr. Israel has some commitments next week. Any chance
10 the Court has additional time tomorrow? That's a no, okay.
11 Thank you.

12 **THE COURT:** No, I've got -- yeah, I really don't. I've
13 got some criminal matters that have been pending for a while
14 tomorrow afternoon.

15 Well, look, let's go ahead and take a 10-minute break,
16 and we'll at least get started and use the next half hour.
17 So we'll resume at 4:25. Thanks, everyone.

18 (Recess taken at 4:17 p.m.)

19 (Proceedings resumed at 4:27 p.m.)

20 **THE COURT:** Mr. Dintzer.

21 **CROSS-EXAMINATION OF MARK ISRAEL**

22 **BY MR. DINTZER:**

23 Q. Thank you, Your Honor.

24 Dr. Israel, you dispute that the general search services
25 are a relevant antitrust market; is that right?

1 **A.** Yes.

2 **Q.** But you have not defined a relevant market that
3 includes Google search; is that right?

4 **A.** I think what I said, what will be accurate is not the
5 precise metes and bounds, not the borders of one. I've
6 described additional competitors that need to be in that
7 market, but I have not described where the ultimate boundary
8 would be.

9 **Q.** Okay. So you've not indicated this is a search
10 market that would include Google -- any of Google search,
11 right?

12 **A.** I'm not sure how to answer that differently. I have
13 not defined the exact boundaries of the market. I've tried
14 to indicate what competitors would be in there, sufficient
15 competitors that I think belong there, to indicate an absence
16 of monopoly power.

17 **Q.** So you have -- so I just want to make sure that we're
18 on the same page, Doctor. You have not provided the Court
19 with the contours of a complete product market, including
20 Google search; isn't that correct?

21 **A.** I have not provided the ultimate outside boundaries.
22 I've indicated additional competitors that would need to be
23 in it. But there may be more, I have not reached that
24 decision.

25 **Q.** And we're going to talk about query-by-query. But

1 you haven't done a query-by-query analysis for any market; is
2 that right?

3 A. I've analyzed queries. I'm not sure what else you're
4 asking.

5 Q. Well, so you've talked about how queries are
6 necessary to build the market, right?

7 A. I think what I said is the product is an answer to a
8 query, and you should group together those products in a way
9 that makes sense given competition.

10 Q. And you haven't done that, you haven't built a set of
11 queries into a product market; is that right?

12 A. I've described groupings that I think are logical and
13 would make sense.

14 Q. But you haven't done them -- you haven't provided
15 them in a market, you haven't said this is a market and it
16 contains these queries; is that correct?

17 A. I still think it's the same answer. I've described
18 competitors that I think needed to be included. I have not
19 described the precise boundaries.

20 Q. Sir, you testified in the American Airlines-Jet Blue
21 antitrust case?

22 A. Yes.

23 Q. And the case involved an alliance between American
24 Airlines and Jet Blue called, I think, the Northeast
25 Alliance, or the NEA?

1 A. That's correct.

2 Q. And the NEA involved coordination by competitors in
3 an industry that, on a domestic level, is highly
4 concentrated, often volatile, at least as found by the trial
5 court?

6 A. I don't recall, those words may be in the opinion.

7 Q. You've read the opinion?

8 A. Yes. I don't remember all the words, but that may be
9 in the opinion.

10 Q. Of course. You were the defendant's lead expert?

11 A. I was one of three experts.

12 Q. But you were the defendant's lead expert?

13 A. I don't know if that's how I would characterize
14 myself. I was one of three experts.

15 Q. Did the trial court characterize you as one of the
16 defendant's -- as the defendant's lead expert?

17 A. Again, I don't recall, the court may have.

18 Q. You provided lengthy testimony?

19 A. That's correct.

20 Q. And in its opinion the court wrote: "When it comes
21 to Dr. Israel's analysis predicting the NEA's benefits, his
22 projections are contaminated by his reliance on scenarios
23 designed and selected by the defendants"?

24 A. That sounds like what the court wrote.

25 Q. The court rejected all of your opinions?

1 A. That's correct.

2 Q. And at trial, you testified that you remembered
3 conversations with executives and lawyers from two years
4 earlier, although you took no notes; is that correct?

5 A. Yes, I did remember those conversations.

6 Q. And you testified to that; is that right?

7 A. That's right.

8 Q. And the trial court found that this testimony was not
9 credible, right?

10 A. I think there was a footnote saying it was not
11 credible that I had those memories.

12 Q. Well, that you testified about those memories, right?

13 A. I did.

14 Q. The court held that your view of the antitrust market
15 was oversimplistic?

16 A. That may be, I don't recall. I mean, it definitely
17 disagreed with my characterization, I just don't recall if
18 that was the word.

19 Q. The court found that the defense experts, including
20 you, had, quote, the demeanor and tone of an advocate
21 invested in the outcome of the case, unquote?

22 A. That sounds right.

23 Q. The court held that you rendered opinions based on
24 false assumptions?

25 A. I think that's what -- I think that's among the

1 reasons the court disagreed, yes.

2 Q. The opinion states: "In his lengthy testimony,
3 Dr. Israel also demonstrated a misunderstanding and
4 misapplication of antitrust concepts."

5 A. That sounds like language from the opinion.

6 Q. The opinion states: "The Court emphatically rejects
7 this arbitrary, unfounded view."

8 A. That sounds right.

9 Q. And finally, the opinion states: "The Court finds
10 Dr. Israel's opinions rendered in this case are entitled to
11 no weight." Is that correct?

12 A. Yes.

13 Q. Now, you testified here that Google serving results
14 for -- serving results for noncommercial queries, I believe
15 in response to the Judge's question. Do you recall that?

16 A. I'm sorry, could you repeat that?

17 Q. Of course. You discussed Google's serving of results
18 for noncommercial queries. Do you remember discussing that
19 with the Court?

20 A. Yes.

21 Q. And you likened that to free samples for advertising?

22 A. Yes.

23 Q. You know that consumers don't pay for any queries on
24 Google, right, so they're all free, right?

25 A. To consumers there, there's no monetary cost,

1 correct.

2 Q. And you say that Google shows noncommercial queries
3 to build its brand; is that right?

4 A. I believe that's what I said, yeah, that sounds
5 accurate.

6 Q. Google serves 80 percent of queries only to build its
7 brand, that's your theory?

8 A. I think what I said is they show them to -- firms
9 maximize profits. It's not monetizing those in another way.
10 So the benefit is to improve its ability to make money, which
11 is happening on other queries. So the benefit is improving
12 the reputation to do so.

13 Q. Or it's to get people to type in all their queries
14 regardless without knowing whether they're commercial or
15 noncommercial so that Google can answer them, right?

16 A. I think it's trying to encourage people to type their
17 queries in. Whether it's all or more, it's trying to
18 encourage people to find Google to be an attractive place to
19 type queries.

20 Q. Right. But you said that Google's answering the
21 noncommercial queries to build their brand. There are other
22 ways to build a brand, right?

23 A. Yes.

24 Q. In fact, most companies build a brand without
25 creating an enormous index and crawling the web, right?

1 **A.** Certainly most companies don't crawl the web.

2 **Q.** Okay. And so -- and Google invests billions of
3 dollars in building its index and crawling the web, right?

4 **A.** Right, and makes substantial revenue doing so on the
5 queries that it monetizes.

6 **Q.** Exactly. So 80 percent of what it does is not
7 monetized, and it monetizes on the 20 percent -- not to
8 scale, it's late in the day, that it does monetize, right?

9 **A.** That sounds right.

10 **Q.** And but to the user, they just type their query in
11 and Google answers it, right, whether it's a commercial query
12 or noncommercial query?

13 **A.** I mean, the user experience is somewhat different
14 based on whether ads are served and so on. But yes, the bar
15 is the same.

16 **Q.** Right. And have you done any research about whether
17 users -- when they're typing or tapping to put in a query,
18 whether they know that it's going to be a commercial or
19 noncommercial query, whether an ad is going to come up or
20 not? Have you done any research at all about that?

21 **A.** I don't think I specifically studied whether users,
22 no.

23 **Q.** So a user might just think, oh, I've got a query and
24 I'm going to put it in. And the fact that Google can answer
25 this 80 percent gives them a crack at this 20 percent,

1 because Google answers everything, right? From the user's
2 point of view, they don't have that distinction, right?

3 A. I don't know what you mean by a crack at. It makes
4 sense and is consistent with my opinion that the user learns
5 that Google is good at doing this.

6 Q. At answering all queries?

7 A. At answering queries, sure. And I don't know what
8 you mean by all queries. The user doesn't learn that Google
9 is going to be my source for all queries. The user learns
10 that when I type something into Google, I tend to get a good
11 answer.

12 Q. And you haven't seen any documents where Google
13 evaluates if they could build their brand more effectively or
14 more efficiently if they invested their money in some other
15 product or some other avenue, have you?

16 A. I mean, they do advertise in other ways.

17 Q. But that's not my question, sir. My question is you
18 said that Google does this 80 percent for brand building for
19 this. And my question is have you seen any Google documents
20 where they describe it as such; where they say, look, we'll
21 invest this money in building -- in indexing and crawling the
22 web instead of advertising or doing what most companies do,
23 flyers or billboards of whatever? Have you seen anything at
24 Google that says that that's why they're investing?

25 A. I've seen lots of things at Google indicating that

1 they're investing to have a reputation for being good at
2 providing results.

3 Q. Exactly. Now, for your search analysis, we're going
4 to talk -- obviously we're going to go through everything
5 that you've done. But for your search analysis -- and you
6 can tell me if I'm wrong -- and you still have your binder up
7 there for your deck, right?

8 A. Yes.

9 Q. Am I right that you don't cite a single Google or
10 Bing internal document to support your theories?

11 A. I'm sure there were citations to documents in my
12 report.

13 Q. Right, but I'm talking about what you presented in
14 court?

15 A. I just -- I don't recall.

16 Q. You're welcome to look. I saw one document, if I'm
17 right, the BofA document, which actually comes from Professor
18 Whinston's report.

19 But other than that, can you think of any documents --
20 Google-Bing documents that you cite to support your search
21 theories?

22 A. I mean, there's some Google information about my --
23 you mean by search theories, you mean the user side theories?

24 Q. The user side theories, I'm happy to discuss it that
25 way.

1 **A.** Either way is fine, I just wanted to be clear. I
2 mean, the slides will speak for themselves. I don't
3 remember.

4 **Q.** Okay. Didn't you think that -- I mean, here you have
5 the biggest search engine in the world, certainly the biggest
6 in the United States, and you have complete access to all
7 their documents. And you don't cite a single document to
8 support your theory about how Google's -- about Google's
9 search market, not a single internal document that discusses
10 it, shows that somebody at Google thinks the same way that
11 you do?

12 **A.** I mean, I tried to cite what is relevant to each
13 opinion. I don't think -- I mean, in general, it's going to
14 be more data than documents, where I can get it. But in each
15 opinion, I tried to cite what in the record was most
16 relevant.

17 **Q.** Now, you are not addressing whether Google's conduct
18 on the user side is in any way exclusionary or whether it
19 harms competition on the user side of the market, right?

20 **A.** I certainly think some of my opinions speak to that
21 in terms of the extent of competition would be a factor in
22 such an analysis. But I don't do a separate competitive
23 effects analysis the way I do on the advertising side.

24 **Q.** Do you know if Google looked for business documents
25 that support your theory?

1 **A.** I don't really even understand. Who at Google? I
2 don't --

3 **Q.** Do you know if people looked at Google for business
4 documents that support your user side theory?

5 **A.** I don't know what people at Google looked for. I
6 looked with the help of my team for all the documents I could
7 find in the record on all sides to form my opinions.

8 **Q.** And so you tell me if you agree with this statement:
9 "I do not address whether the alleged conduct is in any way
10 exclusionary or whether it harms competition on the user side
11 of the market or harms the users themselves"?

12 **A.** I think that's from my initial report. I just
13 wanted -- the distinction I was drawing was, based on my
14 assignment, I do a competitive effects analysis on the
15 advertising side, but not the user side.

16 **Q.** So you do not offer any opinion on the user side
17 regarding exclusionary conduct or harm to competition, right?

18 **A.** I mean, again, I think the clearest answer would be
19 my opinions are relevant, but I don't separately go on to
20 analyze the competitive effects.

21 **Q.** Is the statement from your report still accurate?

22 **A.** I mean, it's in the context of several paragraphs
23 describing what I do and don't do, and it was in my opinions
24 today. There's not a separate competitive effects analysis
25 on the user side. I just don't want to say that opinions

1 about market definition and monopoly power on the user side
2 have no bearing on such a thing.

3 Q. But you did, you said it in your report, right? So
4 I'm just asking you do you -- are you saying right here now
5 that you are going beyond what you've said in your report or
6 not? Do you want me to read it to you again or do you know
7 it?

8 A. I know it. I'm offering the opinions that are in my
9 report. So I think the accurate statement, just to make sure
10 we're all clear, is I'm offering opinions on market
11 definition and monopoly power which may be useful to the
12 Court in analyzing those questions. But I'm not separately
13 analyzing the competitive effects on the user side.

14 Q. You're not offering an opinion about whether a
15 general search services market would have significant
16 barriers to entry, right, on the user side? We're going to
17 get to the ad side.

18 A. I'm thinking. If, by a general search services
19 market, you mean a market that only includes general search
20 engines?

21 Q. Sure.

22 A. Then I'm not analyzing that market, because I don't
23 think it's the correct market. I'm analyzing it insofar as
24 determining that it doesn't include the relevant competition.

25 Q. I didn't quite track that, so I just want to make

1 sure. To the extent that the Court finds a general search
2 services market, you don't have an opinion about whether
3 there would be significant barriers to entry; is that right?

4 A. If, by that market, you mean it only includes general
5 search services, then I haven't offered an opinion about
6 those factors in that market.

7 Q. Now, whether products should be included in markets
8 depend on the degree of substitution at competitive prices,
9 right?

10 A. As long as we agree -- and we could discuss more on
11 the definition of competitive prices, then I agree with that
12 statement.

13 Q. The purpose of market definition is to figure out the
14 competitive products?

15 A. That's a little narrower than I would probably say.
16 I would probably say the purpose is to figure out competitive
17 constraints, but competitive products is close.

18 Q. Market definition is meant to be a useful tool in
19 antitrust cases?

20 A. That sounds right.

21 Q. And you don't perform a horizontal merger test,
22 right?

23 A. You mean a hypothetical monopolist --

24 Q. I'm sorry, it is late in the day.

25 A. It's got the same letters.

1 **THE COURT:** Wrong case.

2 **BY MR. DINTZER:**

3 **Q.** You know, I made the mistake of writing the initials
4 here instead of writing it out, Your Honor.

5 So a hypothetical monopolist test?

6 **A.** Yeah, it's what I described to the Court. I don't
7 perform a formal test, I use the concepts as guides.

8 **Q.** Now, General Motors has a website, right?

9 **A.** That sounds right.

10 **Q.** And on that website, it has one of those magnifying
11 glasses to enter queries, right?

12 **A.** I think you showed me this at my deposition, so I
13 presume it still does.

14 **Q.** Can we bring it up. Yes, we did talk about it at
15 your deposition. If somebody went to General Motors, hit
16 that magnifying glass and searched for what kind of car to
17 buy, you conclude that that would be competition for Google,
18 right?

19 **A.** I think I said a very little bit. Any query -- as I
20 said this to the Court, any query that Google could have
21 gotten and doesn't get -- doesn't get takes a little bit away
22 from Google. I certainly wouldn't say that needs to be in
23 the market, but I agree that an issue that Google faces is
24 there's a lot of ways to do queries. I named the ones that I
25 think probably need to be in the market. But there are other

1 ways to do queries, and those are queries that Google doesn't
2 get.

3 Q. In your deposition, I asked you to name three major
4 corporations that do not compete against Google for queries.
5 Do you remember that?

6 A. I think it was the very first thing you asked me.

7 Q. Okay. Do you remember what your answer was?

8 A. I think I said General Motors, Pepsi and Coke.

9 Q. Well, to be clear, you said you couldn't name any
10 major corporation that doesn't compete, right?

11 A. No, I don't think I said that. I think I said off
12 the top -- it was the first question of the deposition, so I
13 just said off the top of my head I'm not thinking of any, and
14 then I gave you three.

15 Q. The three that you gave me -- let's work with that,
16 Pepsi, Coke and GM. You believe that each of them and their
17 little query bar on their websites where they answer queries,
18 that they compete with Google to some extent in answering
19 queries, right?

20 A. I mean, a tiny bit. Google's trying to answer as
21 many queries as it can, and that took one away out of
22 80 billion.

23 Q. Okay. And can you name any corporation in the United
24 States that doesn't compete with Google for queries?

25 A. I mean, I wouldn't say those corporations compete

1 with Google in any meaningful way. There are some queries
2 that move away. So I don't know off the top of my head if
3 there are corporations that have never gotten a query. We're
4 not talking about anyone who should be in the market. But
5 Google's trying to answer queries, and there's lots of ways
6 to do it, and Google has to deal with that competitively.

7 Q. And you keep talking about the market, and I'm just
8 asking, any entity that has one of those little boxes that
9 answer queries is in competition with Google for the queries
10 that go in that box, under your theory, right?

11 A. A tiny bit for one query. I mean, this is like
12 saying anything I could do with my time competes with
13 anything else I could do with my time. A tiny bit. But
14 that's not how we analyze antitrust.

15 Q. Well, sir, but you're the one that came up with the
16 query-by-query analysis, right?

17 A. No.

18 Q. You believe that the market analysis is
19 query-by-query, right?

20 A. I mean, I think I was clear on this. I think the
21 product is an answer to a query, and we should group together
22 queries that are reasonably grouped together.

23 Q. So that would be query-by-query, right?

24 A. I don't really agree with that description. I think
25 you build it up by looking at queries. But I tried to be

1 clear that you should aggregate as far as you can, but not go
2 beyond that to where you're missing competitors.

3 Q. Just about every website on the internet has a search
4 bar somewhere, right?

5 A. That sounds right.

6 Q. So like the DOJ website has a search bar?

7 A. Probably.

8 Q. And does the Department of Justice compete with
9 Google for queries?

10 A. Again, in this extremely remote way, if somebody
11 types something in there they might have typed for Google,
12 then 1/80 billionth of Google's queries might go there.

13 Q. And the same for the website for U.S. District Court
14 for the District of Columbia?

15 **THE COURT:** For the record, we do not compete.

16 **MR. DINTZER:** But you do have a little search bar. In
17 fact, we've got it up on the screen there. We would agree
18 with Your Honor. We're certainly not trying to create --
19 anyway.

20 **MR. SCHMIDTLEIN:** We'll stipulate to that, Your Honor.

21 **THE COURT:** Good. I don't want there to be a conflict.

22 **BY MR. DINTZER:**

23 Q. Not at all. But you do believe that any query like
24 that is one that Google potentially could get and so is
25 potentially in competition for it?

1 **A.** If it doesn't go to Google, then Google lost that one
2 query. Again, I don't contend that's constraining Google in
3 the definition you gave before or that Google's focused on
4 that. I think what we should do is look at queries and see
5 who is getting a significant number of them.

6 **Q.** And I want to make sure that I get you right. You
7 believe search competition happens query-by-query, right?

8 **A.** I believe users make -- I think the demand side --
9 the product is a query, and the demand side substitution
10 happens on the product that consumers choose.

11 **Q.** So the idea --

12 **A.** Every time a -- like in any market, every time a
13 consumer makes a choice between two products, that's a piece
14 of competition.

15 **Q.** So search competition happens query-by-query, right?

16 **A.** In terms of the competition for each user, I think
17 that's right. Now, again, I've never said analyze each query
18 as a market or something, you aggregate as much as you can.

19 **Q.** You keep saying that, aggregate as much as you can.
20 But how are you going to aggregate the queries if you're not
21 going to look at the queries? You need to look at them to
22 aggregate as much as you can, right?

23 **A.** There's ordinary course definitions, there's
24 verticals. I mean, our job is to try to look -- all I want
25 us to do is look where the competition is happening, look

1 who's in the market. So if there's different products, then
2 we need to think about how competition plays out for those
3 different products.

4 Q. Well, sir, but the market can -- well, let's take --
5 whether Amazon is a competitive constraint on Google varies
6 by query?

7 A. When Amazon is a competitive constraint for a large
8 class of queries and not for others. My standard is
9 aggregate enough up that you don't leave Amazon out. Don't
10 aggregate to the point where you decide Amazon is not
11 competition.

12 Q. So I need you to answer my question, sir. Whether
13 Amazon is a competitive constraint on Google varies by query;
14 there are some queries that you believe Amazon is, and
15 some queries you believe that they're not, right?

16 A. Yes, Amazon is a competitor for shopping queries.
17 That's a well-defined category that we can analyze.

18 Q. But there are some queries that Amazon gets that it
19 doesn't compete with Google, even under your theory, right?

20 A. Sorry, I didn't understand that question.

21 Q. Google gets some queries that it doesn't compete with
22 Amazon for, you'll agree with that?

23 A. I agree with that.

24 Q. Okay. And are there queries that Amazon gets that
25 Google doesn't compete for?

1 A. Not obviously to me.

2 Q. But the query-by-query analysis is just the starting
3 point, and then figuring out how meaningful groupings of
4 those queries, that's the next step, right?

5 A. I would agree that the product is an answer to a
6 query, and what we ought to do is try to find reasonable
7 groupings of them. You don't need to look at 80 billion of
8 them to do that, you need to just break them down enough that
9 we see who the competitors are.

10 Q. So let's go to, in your first report, table 13.

11 A. Do I have it? I don't have it.

12 Q. No, we're going to get it to you.

13 **THE COURT:** Can I ask a question. In your view, the fact
14 that hypothetically we could define smaller vertical search
15 markets, sub markets, does that then foreclose the definition
16 of a general search market that would subsume not only those
17 verticals, but noncommercial verticals?

18 **THE WITNESS:** Again, I think the right standard is not to
19 group together products where competitive conditions are
20 different, because you effectively average over different
21 sets of competitors. So going with my view, which is that
22 market definition is a tool to be useful, I think it's most
23 useful if we have categories in which the competitive sets
24 are more equal. That said, if the Court wanted to sort of
25 roll things up in some way, what really would matter to me is

1 don't leave Amazon and Expedia and these guys out of it,
2 right, because they are competing for large swaths of it. So
3 don't say a competitor has to do everything to do anything.

4 **THE COURT:** And I think you said that -- you said
5 something about different competitive conditions for each
6 vertical. Can you describe what you mean by that?

7 **THE WITNESS:** Well, it's basically just different firms
8 are competing for them.

9 **THE COURT:** It's just different competitors?

10 **THE WITNESS:** Yeah, different competitors. I mean,
11 another just an example, you know, we were just talking about
12 an airlines case. So when the DOJ -- one thing we've always
13 agreed on about airlines is you define markets route by
14 route; and you break it down, you don't roll it all up into
15 one. And one reason you do that is because there's different
16 airlines competing on different routes and you can assess
17 that. If you rolled it all up, you might say Jet Blue
18 doesn't compete with American because they're not everywhere.
19 I'm just saying break it down enough so that you can analyze
20 who the competitors are in a meaningful way.

21 **BY MR. DINTZER:**

22 **Q.** Now, you'll agree that no browsers default to search
23 verticals, right?

24 **A.** That's a very short, general question. Can you ask
25 it one more time?

1 Q. Sure. You know what a browser is?

2 A. Yes.

3 Q. And you know what a search -- is that the term you
4 used, search vertical?

5 A. I think I borrowed the term that the States had used
6 which was specialized vertical provider.

7 Q. So let's just use SVP.

8 A. Yes.

9 Q. So we've got our browser and we've got our URL bar or
10 our search bar. You can choose the browser, but none of them
11 default to anything other than a general search engine,
12 right? And we can go through them, Chrome and the like. But
13 they all default to a search engine, right?

14 A. I'm just struggling a little with default, for what
15 purpose. Because there's been testimony here that they do
16 attempt to answer a lot of questions by looking at SVPs.

17 Q. So you know what a default is, right?

18 A. Well, I mean, it can mean various things. If you
19 mean there's sort of a default search engine that they put on
20 the browser, and that's what we're talking about --

21 Q. That's what the case is about, sir. The default
22 search engine that they put on the browser, that that -- any
23 of them default to anything other than --

24 A. I would agree the default browser, in the way you're
25 using it, is a general search engine, we talked about that.

1 Q. You can't name any that default to an SVP, right?

2 A. That fill this role of the search engine, no. We
3 talked about this, right, because they need something that
4 could cover any case.

5 Q. Cover any case. That's a general search engine,
6 right?

7 A. Yeah, that sounds right. I mean, as we've been
8 discussing, general search engines will answer any query, and
9 they compete for categories of queries with SVPs.

10 Q. And SVPs, in reverse, they do not cover any query by
11 nature, right?

12 A. Yeah, they cover the set of queries that they cover.

13 **MR. DINTZER:** And with that, Your Honor, I can crack his
14 report, but it might be a good time to wrap up, if that's
15 okay with the Court.

16 **THE COURT:** Okay. So why don't we conclude for the day.
17 It's a little bit before 5:00 o'clock. Dr. Israel, I'll ask
18 you to step down and step out. I just want to talk about
19 scheduling. I'll just ask counsel for Google to let you know
20 what time to return tomorrow.

21 **THE WITNESS:** Okay.

22 **THE COURT:** Thank you, Dr. Israel. Have a nice night.

23 (Witness not present)

24 **THE COURT:** Mr. Dintzer, do you have a ballpark sense of
25 what we're looking at in terms of length of your

1 cross-examination? It can be a large ballpark, I'm not
2 asking for specified time, but I understand.

3 **MR. DINTZER:** It's pretty lengthy, Your Honor. We need
4 to go everything that he went through -- I mean, except for
5 SA360, which our friends will be taking care of. So at a
6 very minimum, two and a half hours. It is --

7 **THE COURT:** That seems --

8 **MR. DINTZER:** It's lengthy.

9 **THE COURT:** No, I was going to say an underestimate.

10 **MR. DINTZER:** And to be fair to my team, one of the
11 things I need to do is talk to them. I mean, we've seen a
12 lot here today, they covered a lot of ground. I mean, I'm
13 giving the Court an estimate --

14 **THE COURT:** No, no, what I'm trying to figure out is
15 whether if we tweaked the schedule tomorrow we could finish
16 with Dr. Israel, but that doesn't seem realistic.

17 Let me ask, Mr. Schmidtlein, what is your current
18 thinking about Monday, and do you have folks coming in from
19 out of town? What's the thinking about fact witnesses early
20 next week?

21 **MR. SCHMIDTLEIN:** We have two Google employees, fact
22 witnesses, who are -- who will be here ready to testify on
23 Monday. Obviously, if the second of those needs to get
24 pushed back, they can be pushed back by a day. We have that
25 flexibility, I suppose. But we do have two fact witnesses

1 who will be here testifying on Monday.

2 **THE COURT:** And do both of those -- one or more of those
3 witnesses have flexibility in terms of when they can be here?

4 **MR. SCHMIDTLEIN:** I believe so. I believe so, yes.

5 **THE COURT:** See what you can figure out this evening.
6 Look, if you've got say, for example, a fact witness who is
7 scheduled to come Monday and says I can only be here Monday,
8 then we'll break up Dr. Israel's testimony as needed to
9 accommodate the fact witnesses. But if they have some
10 flexibility, I'd like to finish him all at once. It doesn't
11 seem to me that he's likely to be done, at the earliest,
12 by -- I think realistically, with redirect, I suspect it's
13 probably not going to be until after lunch on Monday, if I
14 were to guess. Maybe Monday morning, but I think it's
15 probably -- Monday morning is probably I think an optimistic
16 estimate.

17 **MR. SCHMIDTLEIN:** Okay. I will check this evening, and
18 I'll be able to report back first thing in the morning.

19 **THE COURT:** Just, again, my concern is accommodating the
20 schedules of fact witnesses first, and then we can worry
21 about Dr. Israel's schedule second.

22 **MR. SCHMIDTLEIN:** Thank you.

23 **THE COURT:** That's all I had for the evening.
24 Anybody else want to raise anything?

25 **MR. DINTZER:** Not from the DOJ plaintiffs, Your Honor.

1 **MR. CAVANAUGH:** No, Your Honor.

2 **MR. SCHMIDTLEIN:** No, Your Honor.

3 **THE COURT:** So we'll see everybody tomorrow morning, and
4 we'll just get started at 9:30 per usual. Thanks, everyone.
5 Have a good night.

6 (Proceedings adjourned at 4:59 p.m.)

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I, **Jeff M. Hook, Official Court Reporter,**
certify that the foregoing is a true and correct transcript
of the record of proceedings in the above-entitled matter.

November 2, 2023

DATE



Jeff M. Hook

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