IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

FEDERAL TRADE COMMISSION, Plaintiff, v. META PLATFORMS, INC., Defendant.	Case No. 1:20-cv-03590-JEB

RULE 7(H) STATEMENT IN SUPPORT OF
META PLATFORMS, INC.'S MOTION FOR SUMMARY JUDGMENT

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Pursuant to Rule 56 of the Federal Rules of Civil Procedure and Civil Rule 7(h) of the Local Rules of the United States District Court for the District of Columbia, Defendant Meta Platforms, Inc. ("Meta") submits this statement of undisputed material facts as to which it contends there is no genuine issue to be tried in support of its Motion for Summary Judgment.

I. COMPETITION

1. The average U.S. adult smartphone consumer uses dozens of apps each month. *See* Ex. 1 at ¶ 224 (Ghose Rep.) ("Overall, the average U.S. adult smartphone consumer uses 46 different apps in a month, and more than seven 'social media' apps in particular." (footnote omitted)); *see also* Ex. 2 at ¶ 299 (Carlton Rep.) ("in June 2022 Facebook users used an average of 26 different apps per day").

A. Meta's Services and Meta's Business

1. Meta's Services

2. Meta is a company that "build[s] technolog[ies] that help[ ] people connect and share, find communities, and grow businesses." Ex. 325 at 7 (Meta 2023 Form 10-K). Meta's mission is to give "people the power to build community and bring the world closer together." *Id.*

3. Meta works toward that mission, in part, by offering four consumer-facing apps: Facebook, Instagram, Messenger, and WhatsApp. Ex. 325 at 7-8 (Meta 2023 Form 10-K).

4. Meta refers to Facebook, Instagram, Messenger, and WhatsApp as the "Family of Apps" or "FoA." Ex. 325 at 7-8 (Meta 2023 Form 10-K).

5. Consumers do not have to pay Meta to use Facebook, Instagram, Messenger, or WhatsApp. Ex. 279 at ¶ 73 (Hemphill Rep.); Ex. 2 at ¶ 122 (Carlton Rep.); Ex. 139 at 141:16-20 (Zuckerberg IH Tr.). Consumers have never had to pay to use Facebook or Instagram. *See* Ex. 3 at ¶ 40 (List Rep.).

a. Facebook

6. Facebook.com launched in 2004. Ex. 139 at 21:25-22:1 (Zuckerberg IH Tr.). In 2008, the company launched a mobile app so that users could access Facebook from their phones. Ex. 2 at ¶ 294 (Carlton Rep.). Meta herein refers to Facebook.com and the Facebook app together as "Facebook."

7. In the 20 years since its launch, Facebook's offerings and features have evolved. *See* Ex. 1 at ¶¶ 111-117 (Ghose Rep.); Ex. 2 at ¶¶ 76-81 (Carlton Rep.); *see also infra* at ¶¶ 17-50.

8. Facebook is "a place for people to share life's moments and discuss what's happening, nurture and build relationships, discover and connect to interests, and create economic opportunity. They can do this through Feed, Reels, Stories, Groups, Marketplace, and more." Ex. 325 at 7 (Meta 2023 Form 10-K).

9. **Facebook Usage Data.** Facebook monthly active users in the United States increased from more than 158.9 million in 2012 to [redacted]. *See* Ex. 279 at p. 238, Ex. 42 & p. C.26, Ex. C-25 (Hemphill Rep.).

10. Monthly time spent on Facebook in the United States more than doubled from 2012 to 2022, from more than 96.5 billion minutes to [redacted]. *See* Ex. 279 at p. 241, Ex. 45 & p. C.27, Ex. C-26 (Hemphill Rep.).

11. Meta's expert economist, Professor Dennis Carlton, calculated that, as of January 2023, [redacted]. Ex. 2 at ¶ 69 & p. 68, tbl. 10 (Carlton Rep.). Professor Carlton calculated that, [redacted] *Id.* at ¶ 69. In other words, [redacted]

[redacted] *Id.* These results are depicted in the below table:

[redacted]

Id. at p. 68, tbl. 10.

12. Professor C. Scott Hemphill, the FTC's proffered economic expert, and Professor Clifford Lampe, the FTC's proffered industry expert, did not dispute the calculations in Professor Carlton's Table 10. *See* Ex. 280 at ¶ 244 & n.331 (Hemphill Rebuttal Rep.); Ex. 281 at 240:18-241:22 (Lampe Dep. Tr.).

13. Today, users spend [redacted]. Ex. 2 at pp. 76-77, figs. 2 & 3 (Carlton Rep.). [redacted] of all time spent on Facebook is on Videos. *Id.* p. 76, fig. 2.

14. "New video-related features" (except Stories) have "[redacted]" of their content posted by users' friends (where "'friends' indicates a sharing relationship"). Ex. 2 at ¶ 69 & p. 68, tbl. 10 (Carlton Rep.). Instead, that content comes from users with whom the consuming users have no reciprocal sharing relationship. *Id.* at ¶¶ 68, 69, & p. 68, tbl. 10.

15. Meta's expert economist, Professor John List, calculated that, as of June 2023, [redacted] Ex. 3 at ¶ 33 & p. 13, tbl. II-1 (List Rep.). These results are depicted in the below table:

[redacted]

Id. at p. 13, tbl. II-1.

16. Professors Hemphill and Lampe did not dispute the calculations in Professor List's Table II-1.

17. **Facebook Features.** Meta released more than 160 new features on Facebook between September 2011 and July 2023. *See* Ex. 2 at pp. 255-262, tbl. 35 (Carlton Rep.). For

example, Meta introduced Stories in 2017 and Reels in 2021. *See id.* Facebook has offered or currently offers the following features, among others:

i. Profile

18. Profile features have been available on Facebook since it launched. Ex. 324 at 13 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

19. Profile is a place where users can share information about themselves (e.g., interests, photos, videos, current city, and hometown). Ex. 324 at 13 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

ii. Friends

20. Users have been able to add "Friends" on Facebook since it launched. Ex. 324 at 11 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

21. "On Facebook, a user can submit a 'friend' request to another user. That other user has to agree to establish a connection, at which point each user is a 'friend' of the other – a reciprocal relationship is automatically created." Ex. 2 at ¶ 72 (Carlton Rep.).

22. Among other things, friends may see each other's activity in Feed, Stories, and Photos. Ex. 324 at 11 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

iii. Photos and Videos

23. Facebook began enabling users to upload photos and videos to Facebook around October 1, 2005. Ex. 324 at 5 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

iv. Facebook Feed

24. Meta launched Feed (or "News Feed") around September 5, 2006. Ex. 324 at 5 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

25. "When [users] open Facebook and see Feed in [their] Home tab, [users] experience a mix of 'connected content' (e.g., content from the people [they're] friends with or are following, Groups [they've] joined, and Pages [they've] liked) as well as 'recommended content' (e.g., content [Facebook] think[s] [they'll] be interested in from those [they] may want to know)." Ex. 459 (Meta, *Our Approach to Facebook Feed Ranking*); *see also* Ex. 2 at ¶¶ 63-64 (Carlton Rep.).

v. Pages

26. Meta launched Pages around November 6, 2007. Ex. 324 at 5 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

27. Facebook users "can like or follow a Page to get updates from business[es], organizations and public figures. Anyone with a Facebook account can create a Page or help manage one, as long as they have a role on the Page." Ex. 326 at 1 (Facebook, *Pages*, https://perma.cc/W4ZR-BJFP).

vi. Facebook Groups

28. Meta launched Facebook Groups around October 6, 2010. Ex. 324 at 5 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

29. "Groups are a place to connect, learn and share with people who have similar interests. You can create or join a group for anything – stargazing, baking, parenting – with people across the globe or across the street." Ex. 327 (Meta, *Groups*, https://perma.cc/8HD4-X8SJ?type=image). Groups allow users to communicate about shared interests, such as Instant Pot recipes, pop stars, or comedy. *See id.*

vii. Facebook Live

30. Meta introduced Facebook Live for certain public figures around August 5, 2015. Ex. 324 at 6 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)). Meta made Facebook Live more widely available by approximately April 6, 2016. *Id.*

31. Facebook Live is "a mobile video livestreaming service." Ex. 1 at ¶ 50 (Ghose Rep.).

viii. Facebook Marketplace

32. Meta introduced Facebook Marketplace around October 3, 2016. Ex. 324 at 6 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

33. Facebook users "can use Marketplace to buy and sell items with people in [their] community on Facebook." Ex. 328 at 1 (Facebook, *Marketplace*, https://perma.cc/892J-5M9G).

ix. Facebook Stories

34. Meta introduced Facebook Stories around March 28, 2017. Ex. 324 at 6 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

35. Facebook "Stories are full-screen, short-form, ephemeral" forms of content Facebook users share with their friends and followers. Ex. 329 at 1 (Facebook, *Facebook Stories: An Introduction for Content Creators*, https://perma.cc/F8F4-TN7K). Stories can include text, photos, and videos. *Id.* "Photos play for five seconds each, and videos up to 20 seconds are supported." *Id.* "All content posted to Stories lasts only 24 hours." *Id.*

x. Facebook Watch / Facebook Video

36. Meta introduced Facebook Watch around August 9, 2017. Ex. 324 at 6 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)). In July 2023, Meta renamed "Facebook Watch" to "Facebook Video." Ex. 330 at 2 (Facebook Newsroom, *Video on Facebook Keeps Getting Better*, https://perma.cc/L46D-LYHD).

37. Facebook Video is "the one-stop shop for everything video on Facebook, including Reels, long-form and Live content." Ex. 330 at 2 (Facebook Newsroom, *Video on Facebook Keeps Getting Better*, https://perma.cc/L46D-LYHD). The Facebook Video tab enables users to "scroll vertically through a personalized feed that recommends all types of video content." *Id.* The tab also features a "horizontal-scroll reels section that highlight[s] recommended reels." *Id.*

38. As of the fourth quarter of 2023, Meta had "sustained growth in Reels and video overall as daily watch time across all video types grew over 25% year-over-year in Q4, driven by ongoing rankings improvements. In-feed recommendations of posts from accounts that you're not connected to drive incremental engagement as [Meta] increasingly personalize[s] recommendations, and we expect to deliver further improvements this year." Ex. 331 at 7 (Meta Q4 2023 Earnings Call).

xi. Facebook Gaming

39. Meta introduced a dedicated Facebook Gaming tab around March 14, 2019. Ex. 324 at 11 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

40. The Gaming tab contains a feed where users can play games, watch gaming videos, and connect with gaming groups. Ex. 324 at 11 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

xii. Facebook Dating

41. Meta launched Facebook Dating around September 5, 2019. Ex. 324 at 6 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

42. Facebook users interested in meeting new people can create a "Dating profile," which they can use to "send likes and messages to people [they are] interested in." Ex. 332 at 1 (Facebook, *Facebook Dating*, https://perma.cc/QU76-56FN).

xiii. Facebook Reels

43. Meta launched Facebook Reels around September 29, 2021. Ex. 324 at 6 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

44. Facebook Reels are "short videos consisting of music, audio, AR effects, text overlays and more" that Facebook users can "create . . . on the Facebook app on [their] mobile device." Ex. 333 at 1 (Meta, *Unlock Your Creativity with Reels on Facebook*, https://perma.cc/BC5Z-CG46). Users' Reels "are shared directly to [their] fans in [the fans'] core News Feed and to new audiences in a dedicated Reels section in News Feed that gives people who are new to [the users] the opportunity to discover and enjoy [their] creations." *Id.*

xiv. Privacy

45. Meta released dozens of new privacy and user-data controls between 2012 and 2022. *See* Ex. 1 at § IV.C.2 (Ghose Rep.) (collecting updates to Meta privacy tools and features). For example:

46. In 2012, Meta introduced updated Granular Data Permissions, allowing users to see information a third-party app within Facebook was seeking to access and requiring permission for third-party apps to access that information. *See* Ex. 1 at ¶ 296 (Ghose Rep.).

47. Between 2019 and 2020, Meta introduced the Clear History tool that allows users to view, control, and clear data that apps and websites send to Facebook. *See* Ex. 1 at ¶ 313 (Ghose Rep.).

48. Meta has updated its Privacy Checkup tool to educate consumers on how to manage privacy and data settings. *See* Ex. 1 at ¶ 315 (Ghose Rep.).

49. In 2022, Meta released Privacy Center, which is a hub for users to learn about privacy and security options available on Meta's services. *See* Ex. 1 at ¶ 317 (Ghose Rep.).

50. Also in 2022, Meta announced new privacy updates for teenagers on Instagram and Facebook, making it so that users of a certain age have more-private settings by default. *See* Ex. 1 at ¶ 317 (Ghose Rep.).

51. Professor Hemphill testified regarding privacy and data control on Meta's services: "Q. But you don't have an opinion that the quality of privacy or the quality of user control over personal information declined [between June 2018 and June 2022], do you? . . . A. I would agree that I don't have some specific opinion that there was some specific switch that they flipped downward and then suddenly saw this drop." Ex. 283 at 222:1-15 (Hemphill Dep. Tr.); *see also* Ex. 280 at p. 19, Ex. 1 (Hemphill Rebuttal Rep.).

52. Other firms have faced litigation and administrative action related to user privacy, e.g., the FTC has required Snapchat to establish a privacy program for the protection of user data, fined Twitter on multiple occasions for privacy violations, and brought actions against TikTok and Google related to user privacy. *See* Ex. 1 at ¶¶ 287-291 (Ghose Rep.).

53. Other firms have faced incidents of data misuse, e.g., Twitter announced in May 2018 that it discovered a "bug" that saved user passwords unprotected on an internal log; and in August 2020, an unsecured database left users' online profiles exposed, affecting not only Instagram but also TikTok and YouTube. *See* Ex. 1 at ¶ 324 (Ghose Rep.).

54. Professor Lampe testified about a post on Twitter concerning Cambridge Analytica in which he wrote: "Other tech companies should thank their stars that it was Facebook in the hot seat and not them. Facebook is only different in their scope, not in their behaviors." Ex. 281 at 277:14-278:7 (Lampe Dep. Tr.); *see also* Ex. 334 (MetaFTC-DX-1152). He stated, "I would agree that in the specific narrow case of Cambridge Analytica there would be no difference" between Meta and other companies. Ex. 281 at 278:15-279:1 (Lampe Dep. Tr.).

b. Instagram

55. Kevin Systrom and Mike Krieger launched Instagram in October 2010. Ex. 284 at 15:6-8 (Systrom IH Tr.).

56. **Instagram Usage Data.** Professor Carlton calculated that, as of February 2023, [redacted] Ex. 2 at ¶ 73 & p.72, tbl. 12 (Carlton Rep.). In other words, [redacted] *Id.* These results are depicted in the below table:

[redacted]

Id. at p. 72, tbl. 12.

57. Professors Hemphill and Lampe did not dispute the calculations in Professor Carlton's Table 12. *See* Ex. 281 at 240:18-241:22 (Lampe Dep. Tr.).

58. Using Instagram video features – including Reels and Live (which are entirely video) and Stories (which is a mix of video and other content) – now accounts for [redacted] time spent on Instagram. *See* Ex. 2 at ¶ 82 & p. 79, fig. 4 (Carlton Rep.).

59. In February 2023, consuming Instagram Reels accounted for [redacted] time spent on Instagram. *See* Ex. 2 at p. 79, fig. 4 (Carlton Rep.).

60. When Instagram users are consuming Instagram Reels, [redacted] Instead, the Reels come from accounts with whom the consuming users have no reciprocal sharing relationship. *Id.* at ¶ 72 & p. 72, tbl. 12 (rows "Home – Reels" and "Reels").

61. [redacted]

62. [redacted]

63. In February 2023, consuming content on Instagram's Explore surface accounted for [redacted]. Ex. 2 at p. 72, tbl. 12 (Carlton Rep.).

64. When Instagram users are using the Instagram Explore surface, [redacted] Ex. 2 at ¶ 73 & p. 72, tbl. 12 (Carlton Rep.).

65. As of June 2023, [redacted] Ex. 3 at ¶ 33, p. 13, tbl. II-1 (List Rep.). These results are depicted in Professor List's Table II-1, at *supra* ¶ 15.

66. Professor Hemphill did not dispute the calculations in Professor List's Table II-1, *supra* ¶ 15.

67. **Instagram Features.** Instagram has offered or currently offers the following features, among others:

i. Profile

68. Instagram Profiles are where users can find their photos, videos, and settings on Instagram. Ex. 324 at 15 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)). On their Profiles, users can view what they have shared and see a list of the people they are following and who is following them. *Id*. Users can add a biography, profile picture, or website to Instagram Profiles, and they may identify by pseudonyms, instead of a real name. *See* Ex. 281 at 310:5-8 (Lampe Dep. Tr.); Ex. 290 at ¶ 163 (Lampe Rep.).

ii. Follow

69. Users have been able to "Follow" other users on Instagram since Instagram launched. *See* Ex. 284 at 49:22-50:3 (Systrom IH Tr.). "On Instagram, connections are one-way. Whether user A follows user B or not is independent of whether user B follows user A. If user A follows user B, and user B follows user A, then that relationship is referred to as a 'reciprocal follow,' but there is no direct equivalent in Instagram to a 'friend' request in Facebook that will automatically set up a reciprocal relationship." Ex. 2 at ¶ 72 (Carlton Rep.).

iii. Photos and Video

70. Since around the time Instagram launched, users have been able to post photos on Instagram. *See* Ex. 279 at ¶ 116 (Hemphill Rep.). Instagram users originally posted photos via a "Share" button. *Id.*

71. Meta added the ability for users to share videos on Instagram around June 20, 2013. Ex. 2 at ¶ 82 & n.130 (Carlton Rep.).

72. Instagram allows users to share one or multiple photos and videos as a single post to Instagram Feeds; users can also add a caption or location and tag other accounts. Ex. 324 at 14 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

iv. Instagram Feed

73. Instagram's Feed has existed since Instagram's launch. *See* Ex. 284 at 50:11-13 (Systrom IH Tr.). At the time of launch, Instagram's Feed enabled users to post their own photos to the Feed. *See id*. at 51:24-52:6.

74. Instagram's Feed has evolved over time. For example, around March 23, 2022, Meta introduced Favorites and Following, two new ways for users to choose what they see in their Feeds. Ex. 324 at 8 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

75. In addition to allowing users to post and interact with photos, "Instagram Feed is a place where [users] can share and connect with the people and things [they] care about. When [users] open Instagram or refresh [their] feed, the photos and videos [Meta] think[s] [they] care about most will appear towards the top of [their] feed. In addition to seeing content from people and hashtags [they] follow, [the users] may also see suggested accounts that are relevant to [their] interests." Ex. 335 (Instagram, *How Instagram Feed Works*, https://perma.cc/C86D-U9ZV).

v. Explore

76. Instagram introduced the Explore tab around June 25, 2012. Ex. 324 at 14 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)). Meta introduced an updated Explore page and improved search features around June 23, 2015. *Id.*

77. People visit Instagram's Explore tab to discover photos, short-form videos, long-form videos, and stories from accounts or users they do not follow. Ex. 324 at 14 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)). Users may see photos and videos that people they follow have liked, or that have been liked by a large number of other users. *Id.*

78. The Explore tab surfaces trends as they emerge in real time, connecting people to events and conversations both near and around the globe from individuals, groups, or businesses. Ex. 324 at 14 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

vi. Instagram Direct

79. Meta introduced Instagram Direct around December 12, 2013. Ex. 324 at 13 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)). Instagram Direct is the messaging function in Instagram. *Id.*

80. Instagram Direct enables users to exchange threaded messages and share posts they see in Feed and Stories on a one-to-one, one-to-some, or one-to-many basis. Ex. 324 at 13

(Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)); *see also* Ex. 336 (Instagram, *Instagram Group Chat Size Limits*) ("Most group conversations on Instagram can include up to 250 people."). It also allows people to send and receive text, photos, and videos, as well as disappearing content, polls, profiles, and location pages as messages, in addition to video chatting. Ex. 324 at 14 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

81. Around September 30, 2020, Meta updated Instagram Direct to add features including watch together, vanish mode, selfie stickers, chat colors, custom emoji reactions, forwarding, replies, animated message effects, message controls, and enhanced reporting and blocking updates. Ex. 324 at 14 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

vii. Instagram Stories

82. Meta introduced Instagram Stories around August 2, 2016. Ex. 324 at 7 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

83. Instagram Stories enable users "to share moments and experiences." Ex. 337 at 2 (Instagram, *Share Your Everyday Moments*, https://perma.cc/G9UG-HWHB). Stories posted on Instagram last for 24 hours. *Id*. at 3. However, users may also post Stories as Highlights to their Profiles, making them accessible to other viewers for more than 24 hours. *Id*.

viii. Instagram Live

84. Meta announced Live video on Instagram Stories around November 21, 2016. Ex. 324 at 7 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

85. Instagram Live enables users to "start a live broadcast to connect with [their] followers in real time. Once a live broadcast has ended, [users] can share a reply or access it in [their] Live Archive." Ex. 338 (Instagram, *Live*).

ix. Instagram Shop

86. Meta introduced Instagram Shop around July 16, 2020. Ex. 324 at 8 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

87. Instagram Shop enables users to make purchases from Instagram accounts with shops. *See* Ex. 324 at 8 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)); Ex. 339 (Instagram, *Shop*).

x. Instagram Reels

88. Meta launched Instagram Reels around August 5, 2020. Ex. 324 at 8 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

89. Reels allows users to "record and edit short videos" up to 90 seconds in length, and then "share" those videos, or "reels." Ex. 340 at 1 (Instagram, *Reels*).

90. For public Instagram accounts, "[a]nyone on Instagram can see and share [the users'] reels. People may see [the users'] reels on places like Feed, the Reels viewer, Explore and audio, effect and hashtag pages." Ex. 341 (Instagram, *Who Can Share and See Your Reels on Instagram*).

xi. Threads

91. Meta announced the launch of Threads on July 5, 2023. Ex. 342 (Meta, *Introducing Threads: A New Way to Share with Text*).

92. "Threads is an application for text-based updates and public conversations, where communities come together to discuss topics of interest. People can connect directly with their favorite creators and others who love the same things or build a loyal following of their own to share their ideas, opinions, and creativity with the world." Ex. 325 at 8 (Meta 2023 Form 10-K).

c. Messenger

93. Messenger is a "messaging application for people to connect with friends, family, communities, and businesses across platforms and devices through text, audio and video calls." Ex. 325 at 8 (Meta 2023 Form 10-K).

94. Facebook users have been able to message one another since approximately its launch. *See* Ex. 139 at 141:21-142:5 (Zuckerberg IH Tr.) (stating that Facebook Messages was available on Facebook "a few weeks after I started the original service").

95. Around August 2011, Meta launched Messenger as a standalone app. *See* Ex. 324 at 11 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)); Ex. 139 at 141:21-143:1-2 (Zuckerberg IH Tr.). At the time of launch, Messenger enabled users to "send and receive real-time messages with individual friends as well as small groups of friends, send photos, and privately share your location." Ex. 343 at 2 (ZDNET, *Facebook Launches Facebook Messenger App for Android, iPhone*, https://perma.cc/TKN5-HP2Q). Users can send and receive messages from either the Messenger app or the Facebook app. *Id.* at 3.

96. **Messenger Features.** Messenger has offered or currently offers the following features, among others:

i. Messaging

97. Messenger enables users to "send photos, voice messages, GIFs, stickers or AI stickers of up to 25 MB in file size in [their] Messenger chats" to other users. Ex. 344 at 1 (Meta, *Send a Photo, Video, Sticker, or Voice Message on Messenger*, https://perma.cc/2MFA-QQPP?type=image).

98. Messenger allows users to send "Group chats," which are "conversations you have with more than one person on Messenger, such as friends and family." Ex. 345 at 1 (Meta, *Group Chats*, https://perma.cc/AD28-MVNS?type=image).

99. Messenger encrypts messages sent via the app: "End-to-end encryption on Messenger adds extra security and protection to [users'] messages and calls so only [the user] and whoever [the user is] talking to can see, hear or read them. The content of [users'] messages and calls in end-to-end encrypted conversations is protected from the moment it leaves [the user's] device to the moment it reaches the receiver's device." Ex. 346 at 1 (Messenger, *What End-to-End Encryption on Messenger Means and How It Works*, https://perma.cc/8B2J-B6A5?type=image).

100. Messenger's "Secret Conversations" with end-to-end encryption began to roll out around July 8, 2016. Ex. 324 at 9 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

ii. Voice and Video Calls

101. Meta started offering audio calls on Messenger in approximately 2013 and fully rolled out one-to-one audio calls around April 2014. Ex. 324 at 16 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

102. Meta introduced video calling in Messenger around April 27, 2015. Ex. 324 at 16 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

103. Meta began introducing group calling globally around April 20, 2016. Ex. 324 at 16 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

104. Meta introduced Group Video Chat around December 19, 2016. Ex. 324 at 9 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

105. Messenger enables voice calling and video chats with a single person or a group. Ex. 324 at 16 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

106. Messenger offers features such as animated reactions, filters, masks, effects, and the ability to take screenshots during video chats. Ex. 324 at 16 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

iii. Stories

107. Meta introduced Messenger Stories, then called Messenger Day, around March 9, 2017. Ex. 324 at 16 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

108. Messenger Stories are similar to Facebook and Instagram Stories. Ex. 324 at 16 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)). Users can share Stories publicly, with Facebook friends and Messenger connections, with only Facebook friends, or with a custom list of users. *Id.* at 17.

iv. Rooms

109. Meta launched Rooms around May 2020. Ex. 324 at 9 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

110. Rooms allows users to interact with other people via video chat. Ex. 347 (Instagram, *Messenger Rooms*, https://perma.cc/S4E4-NCFC). To use Rooms, users create and share links with up to 50 individuals. *Id.* at 2. Each link recipient – regardless of whether they are a Facebook user – can join the Room to video chat for an unlimited amount of time. *Id.* at 3.

v. Community Chats

111. Meta introduced Community Chats on Messenger around September 2022. Ex. 348 (Meta, *Introducing Community Chats: Connecting Your Community in Real Time on Messenger and Facebook*).

112. "Community Chats let people connect more deeply with communities in real time around the topics they care about in multiple formats, including text, audio and video. The experience seamlessly blends Messenger and Facebook Groups to allow people to connect when,

where and how they want." Ex. 348 at 2 (Meta, *Introducing Community Chats: Connecting Your Community in Real Time on Messenger and Facebook*).

d. WhatsApp

113. Brian Acton and Jan Koum founded WhatsApp in 2009. *See* Ex. 163 at 182:5-16 (Acton Dep. Tr.).

114. **WhatsApp Features.** WhatsApp has offered or currently offers the following features, among others:

i. Messaging

115. WhatsApp allows users to communicate with other individuals utilizing "[users'] phone's Internet connection to send messages," which allows users to "avoid SMS fees." Ex. 349 at 1 (WhatsApp, *WhatsApp Features*, https://perma.cc/92S4-YF8F).

116. WhatsApp allows Group Chats with up to 1,024 users, in addition to enabling users to take and send photos, videos, and voice messages, and providing features to enhance photos and videos, such as adding emojis, as well as messaging encryption. *See infra* Part III.B.4(c)-(d).

ii. Status

117. The WhatsApp app enables users to share their status. Ex. 324 at 15 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

118. Around February 24, 2017, Meta updated WhatsApp's Status feature, allowing people to share photos and videos with their WhatsApp friends and contacts (in addition to simple text status). Ex. 324 at 15-16 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)). Status allows users to share text, photo, video, and GIF updates that are end-to-end encrypted and disappear after 24 hours. *Id.* at 16.

iii. Broadcast Lists

119. WhatsApp launched broadcast lists in approximately December 2013. Ex. 324 at 15 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

120. The broadcast lists feature allows users to send a message to several contacts at once. Ex. 324 at 15 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)). Broadcast lists are saved lists of message recipients to whom users can repeatedly send broadcast messages without having to select them each time. *Id.*

iv. Voice and Video Calls

121. Meta launched Voice Calls on WhatsApp in approximately March 2015. Ex. 324 at 15 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

122. Meta announced Video Calling on WhatsApp around November 14, 2016. Ex. 324 at 9 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)).

123. "WhatsApp voice and video calls use [the user's] phone's Internet connection, instead of [their] cell plan's voice minutes, so [they] don't have to worry about expensive calling charges." Ex. 349 at 2 (WhatsApp, *WhatsApp Features*, https://perma.cc/92S4-YF8F).

v. WhatsApp Business App

124. Meta launched the WhatsApp Business App around January 2018. Ex. 324 at 9 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 2 (Sept. 9, 2022)). The WhatsApp Business App is a standalone app that enables businesses "to communicate one-on-one with [their] customers throughout [the customer's] purchase process." Ex. 350 at 2 (WhatsApp Business, *Built With the Small Business Owner in Mind*, https://perma.cc/GS5T-L9EV).

vi. Channels

125. Meta introduced WhatsApp Channels around June 2023. Ex. 351 at 1 (WhatsApp Blog, *Introducing WhatsApp Channels. A Private Way to Follow What Matters*,

https://perma.cc/XBV5-3E6Q). "Channels are a one-way broadcast tool for admins to send text, photos, videos, stickers, and polls." *Id.* To help users select channels to follow, Meta announced it was "building a searchable directory where [users] can find [their] hobbies, sports teams, updates from local officials, and more." *Id.* Users "can also get to a channel from invite links sent in chats, e-mail, or posted online." *Id.*

e. Meta's Innovation

126. From 2012 through 2022, Meta spent approximately $126.25 billion on research and development, and another $112.1 billion on "net purchases of property and equipment as [Meta] continued to invest in servers, data centers, and network infrastructure." Ex. 2 at ¶ 315 (Carlton Rep.) (citing Form 10-Ks). In both 2022 and 2023 (as of September 26, 2023), Meta had invested 29% of its total revenues into research and development – a ratio that exceeded Alphabet, Microsoft, Amazon, and Apple. *See id.* at p. 226, tbl. 32. Between 2012 and 2017, Meta's annual spending on research and development grew every year, from $1.4 billion in 2012 to $7.75 billion in 2017. *See id.* at p. 225, tbl. 31. Those numbers have continued to increase: Meta spent more than $10 billion on research and development in 2018 and $13.6 billion in 2019. *See* Ex. 352 at 55 (Facebook 2019 Form 10-K). Meta then spent more than $18 billion on research and development in 2020, more than $24 billion in 2021, and more than $35 billion in 2022. *See* Ex. 353 at 69 (Meta 2022 Form 10-K).

127. Professor Hemphill agreed that "innovation . . . include[s] addition of features." Ex. 283 at 229:17-19 (Hemphill Dep. Tr.). For example, when asked, "You would agree with me that the addition of Stories to the Instagram and Facebook apps was a quality improvement, correct?," Professor Hemphill testified: "Yes. I would – I would agree with that and indeed emphasize the introduction of Stories by Facebook and Instagram as a product improving competitive response to the threat posed by Snapchat." *Id.* at 231:10-19. Professor Hemphill

also testified that the addition of Reels was a quality improvement: "Q. . . . And the addition of Reels was a quality improvement, correct? . . . A. It's a quality improvement, I think I would agree with that, albeit one that is less directly improving of the provision of personal social networking services." *Id.* at 231:20-232:4. Professor Hemphill later added: "Q. . . . And just to be clear, you agree that the addition of Reels was an innovation of Facebook and Instagram's personal social networking services, correct? . . . A. It was an innovation bringing the competition to TikTok in the way that we talked about and which I agree serves to, to some degree, improve the personal social networking offering for all users." *Id.* at 263:17-264:4.

128. "Digital economy companies often incorporate features from other popular apps into their own as a strategy to stay competitive by engaging users and holding their attention." Ex. 1 at ¶¶ 46-53 (Ghose Rep.). For example, after Meta introduced News Feed, the Like button, and Live, several other apps introduced similar features; and after Snap introduced Stories and TikTok popularized short-form video content, other apps introduced similar features. *Id.*; *see also* Ex. 2 at ¶ 36 (Carlton Rep.) ("[C]opying of successful features is a commonplace and desirable part of competition, and is actually an indicator of the presence of competition.").

129. Professor Hemphill testified regarding the quality of Meta's services: "Q. . . . It's fair to say that you made no effort to construct any sort of quantitative quality index for Facebook and Instagram, true? . . . A. I don't see how that would – I don't see how that would be done as, you know, it's not something that I have done, I don't see how one would do that." Ex. 283 at 232:16-233:2 (Hemphill Dep. Tr.).

130. Professor Hemphill also testified about quality-adjusted price: "Q. . . . Now, you would agree with me that, all else equal, if quality-adjusted price declines, usage would increase, correct? . . . A. Yes. I think all else equal, one would expect that to be true. Speaking at a high

level of generality and we want to be careful that we're getting it right, but yes, at least – yes, I think as a general matter that's true." Ex. 283 at 233:3-12 (Hemphill Dep. Tr.). He added that "we have a robust finding in economics that as quality improves holding constant price we would expect usage to rise, all else equal, and because we see evidence of usage falling in the face of increases in quality-adjusted price." *Id.* at 233:16-22. Professor Hemphill also testified: "Q. So you'd agree that, all else equal, if the quality of Instagram increases, the quality-adjusted price declines and usage increases, correct? . . . A. Yes. In general terms I would agree that as quality increases, holding price constant, that we would expect usage to increase." *Id.* at 234:7-14; *see also id.* at 234:15-235:1 (agreeing the same as to Facebook).

131. Regarding the relationship between quality and output on Facebook and Instagram, Professor Hemphill testified: "Q. You point to nothing in your report to account for the increase in users and usage other than a reduction in quality-adjusted price? . . . A. I'm not following what you're – it's not – it's not my mission in the reports to observe an increase in usage and then parcel out the sources of that." Ex. 283 at 235:16-236:1 (Hemphill Dep. Tr.); *id.* at 236:7-8 ("The relevant question is what does usage look like relative to a but-for world.").

2. Meta's Business

132. Meta "generate[s] substantially all of [its] revenue from selling advertising placements on [the] family of apps to marketers." Ex. 325 at 7 (Meta 2023 Form 10-K). Specifically, "[m]arketers purchase ads that can appear in multiple places including on Facebook, Instagram, Messenger, and third-party applications and websites." *Id.* "Ads on [Meta's] platforms enable marketers to reach people across a range of marketing objectives, such as generating leads or driving awareness." *Id.*

a. Facebook and Instagram

133. Meta generates most of its revenue by selling advertising on Facebook and Instagram. *See* Ex. 286 at ¶ 13 (Aral Rep.); Ex. 325 at 7 (Meta 2023 Form 10-K).

134. Meta sells [redacted] of its global ad inventory through Meta's Ads Manager. *See* Ex. 286 at ¶ 13 n.5 (Aral Rep.). Meta's Ads Manager is a self-service platform that "allows advertisers to choose the objectives of an advertising campaign (e.g., brand awareness or conversion), to target that campaign at a specified segment of users, and to choose the campaign's visual format and the Facebook and/or Instagram surface(s) on which the campaign will appear." *Id.* at ¶ 13.

135. Advertisers can and typically do advertise on multiple digital ad venues. *See* Ex. 4 at ¶ 12 (Tucker Rep.); Ex. 287 at 34:11-17 (Aral Dep. Tr.); Ex. 286 at ¶ 83 (Aral Rep.). Advertisers' switching costs are low. *See* Ex. 4 at ¶ 14 (Tucker Rep.); *see* Ex. 287 at 100:2-4 (Aral Dep. Tr.).

136. Advertisers will adjust or optimize their ad spend across ad-supported digital platforms based on factors such as how well their ads are performing, the target audience, and "the engagement of the target audience on the various platforms." Ex. 287 at 35:8-18 (Aral Dep. Tr.); *see also* Ex. 4 at ¶ 12 (Tucker Rep.).

137. "[O]ptimization may move dollars back and forth across channels or platforms over time, between different campaigns, or even as [return on investment] waxes and wanes for specific platforms during a given campaign." Ex. 286 at ¶ 83 (Aral Rep.). This "is not a one-time decision, but a constant reallocation of marketing investment based on observed [key performance indicators]." *Id.*

138. In the digital-advertising ecosystem, users are not captured exclusively by any particular ad-supported venue. *See* Ex. 287 at 45:12-47:21 (Aral Dep. Tr.); Ex. 140 at 23:15-18

(Tucker Dep. Tr.). Rather, an advertiser can reach the same users through multiple different ad-supported venues using data the advertiser already possesses – such as consumer email addresses, phone numbers, and browsing activity – that can come from the advertiser's business, such as in-store rewards programs, or from third-party data providers, such as data management platforms. *See* Ex. 4 at ¶ 21 & n.18 (Tucker Rep.).

139. If advertisers have relatively less success advertising to Meta's users, those advertisers will shift to alternative ad-supported venues to reach those users. *See* Ex. 287 at 27:21-28:22 (Aral Dep. Tr.); Ex. 286 at ¶ 83 (Aral Rep.); Ex. 4 at ¶ 21 (Tucker Rep.).

140. Other ad-supported venues have recognized how advertisers optimize their ad spend. For example, [redacted]

141. Competition from other ad-supported venues requires Meta to provide a compelling experience for both its advertisers and users. *See* Ex. 4 at ¶ 21 (Tucker Rep.); Ex. 140 at 90:9-18 (Tucker Dep. Tr.) ("[G]iven intensive competition in advertising, Meta has improved its product for advertisers . . . [and] Meta has worked hard to improve the quality of its ad product for users as well.").

142. As Professor Aral articulated it, "to monetize eyeballs, you have to retain those eyeballs," and "one of the ways that you retain eyeballs . . . is to keep the content on the platform engaging." Ex. 287 at 69:15-70:4 & errata (Aral Dep. Tr.); Ex. 354 at 81 (MetaFTC-DX-1157,

The Hype Machine). Otherwise, Meta could lose revenue. *See* Ex. 4 at ¶ 29 (Tucker Rep.). In other words, "without [user] attention, social media platforms wither and die." Ex. 287 at 66:1-15 & errata (Aral Dep. Tr.); Ex. 354 at 202 (MetaFTC-DX-1157, *The Hype Machine*).

143. Meta has innovated new online advertising formats and improved others, e.g., introducing Videos into Carousel Ads, Search Ads, and others; improving the appearance of ads in Mobile News Feed; and deploying targeting and measurement tools to boost advertising relevance and effectiveness. *See* Ex. 4 at ¶¶ 17-19, 52 (Tucker Rep.); *see also id.* at ¶¶ 96-98 (discussing advertising innovations Meta introduced to Instagram).

144. Many other digital platforms generate revenue by selling advertising and compete with Meta to attract advertisers, [redacted]:

a. [redacted]

b. [redacted]

c. [redacted]

d. [redacted]

e. [redacted]

f. [redacted]

g. [redacted]

h. [redacted]

145. Similarly, Meta has recognized that it competes with other venues for the sale of advertising:

a. In a presentation circulated internally on February 28, 2012, titled "Revenue recognition disclosure review," Meta described Google, Yahoo, Microsoft, and other companies as "competitors with similar models" for its advertising "revenue streams." Ex. 184 at -874.002 (FB_FTC_CID_01544873).

b. Since 2019, Meta has maintained "Competition Time" updates for its Global Marketing Solutions team to track advertising innovations and product launches by competitors such as [redacted]. *See*, *e.g.*, Ex. 200 at -831-832 (FB_FTC_CID_10652831); Ex. 179 (FB_FTC_CID_00054152); Ex. 180 (FB_FTC_CID_00054153).

c. An internal Meta post on December 6, 2017, [redacted]

d. David Fischer, formerly Meta's chief revenue officer, wrote in a May 21, 2017 email that [redacted] is "the most serious threat out there on the ads side. Their intent data is second-to-none and in that way they are probably an even bigger threat [redacted] in terms of where they will steal dollars." Ex. 197 at -645 (FB_FTC_CID_06268643); Ex. 141 at 56:2-6 (Fischer IH Tr.).

e. Meta executives testified about advertising competition from [redacted]. *See*, *e.g.*, Ex. 141 at 157:2-17 (Fischer IH Tr.).

146. Professor C. Scott Hemphill, the FTC's proffered economic expert, testified regarding the number of advertisements that consumers see on Facebook and Instagram: "Q. . . . You don't identify any competitive benchmark for Meta's level of ad load, correct? . . . A. I don't know what you mean by a competitive benchmark for ad load, what that would mean or

what purpose that would serve." Ex. 283 at 242:11-18 (Hemphill Dep. Tr.). He also testified: "[A]d load being above competitive levels is not the way that I think about it." *Id.* at 244:2-4.

147. An analysis by Professor Dennis Carlton, Meta's expert economist, shows that Facebook's and Instagram's ad loads are [redacted]

148. Professor Hemphill testified regarding consumer preferences and ads: "Q. You'd agree that individuals vary in their receptivity to ads? . . . A. Yes, I think that's – I think that's right. In the discussion of – yes, I think that there's some evidence in the record about differences in user receptivity to ads, yes." Ex. 283 at 245:7-13 (Hemphill Dep. Tr.). He also testified: "Q. . . . Some individuals have a greater disutility associated with seeing ads than other users; is that fair? . . . A. Yes, I would – I would expect that – the amount of disutility from ads would vary across users." *Id.* at 245:21-246:5.

b. WhatsApp

149. Meta does not show WhatsApp users ads on the app. *See* Ex. 167 at 2 (Meta's Resp. to FTC's Req. for Produc. 68(a) (Dec. 2, 2022)) ("There are no ads on WhatsApp").

150. WhatsApp currently earns revenue from both Paid Messaging (via its Business Application Programming Interface, or "API") and Click-to-WhatsApp ads. *See* Ex. 4 at ¶¶ 112, 118 (Tucker Rep.).

3. Meta's Infrastructure

151. Meta runs its services, including Facebook, Instagram, Messenger, and WhatsApp, on its proprietary technical infrastructure. Globally, as of June 2022, Meta's infrastructure supported [redacted]. *See* Ex. 5 at ¶¶ 41, 43 (Nieh Rep.) ("Meta is one of the world's four largest providers of what is sometimes referred to as 'hyperscale' infrastructure.").

152. "Infrastructure supports the functionality of the product and contributes to the quality of its user experience. The operation of an online product requires orchestrating the functions of numerous different infrastructure components, a complex process that creates risk of unintended incidents and failures." Ex. 288 at ¶ 41 (Bray Rep.).

153. Meta's infrastructure consists of many different components that are shared by Meta's apps, including:

a. **Data Centers.** As of 2023, Meta operates a worldwide system of data centers consisting of [redacted]. *See* Ex. 220 at -089 (FTC-META-012239089). Meta has invested [redacted] in data centers in the United States alone. *See* Ex. 5 at ¶ 40 (Nieh Rep.).

b. **Network Infrastructure.** In addition to its data centers, Meta also operates a [redacted]

[redacted]

c. **Hardware and Software Infrastructure.** Meta's infrastructure organization operates the software and hardware infrastructure that runs inside Meta's data centers, including more than [redacted]. *See* Ex. 5 at ¶¶ 55-57 (Nieh Rep.).

d. **Reliability.** Meta has a separate engineering organization focused on the reliability of Meta's infrastructure and apps. *See* Ex. 5 at ¶ 61 (Nieh Rep.). Meta's reliability organization works "to reduce the likelihood and impact of major outages," and [redacted] *Id.* at ¶ 61 & n.93 (quoting Ex. 258 (FTC-META-012239137)).

154. The FTC has no evidence that Meta has reduced quality below competitive levels by degrading distribution or service speed; Tim Bray, the FTC's proffered infrastructure expert, testified that he had no basis to rule out whether Meta's apps are the fastest, have the highest availability, or have the lowest variability on the planet. *See* Ex. 289 at 41:11-18, 45:10-18, 48:13-19 (Bray Dep. Tr.).

155. Mr. Bray testified: "Q. You haven't offered an opinion that Instagram offers a wors[e] user experience today than it did prior to the acquisition; correct? . . . A. I have not offered an opinion that Instagram offers a worse user experience. I have not offered such an opinion, that's correct." Ex. 289 at 128:11-18 & errata (Bray Dep. Tr.). He also testified: "Q. You haven't offered an opinion that WhatsApp offers a worse user experience today than it did prior to the acquisition; correct? . . . A. That is correct." *Id.* at 130:8-12. He also testified: "Q. And you've offered no opinion in your reports how the speed of Instagram or WhatsApp has compared to other apps or services at any other point in time; correct? . . . A. You know, that was outside the scope of the issues I was addressed to ask by [sic] FTC." *Id.* at 41:2-9.

B. Other Services

1. Other Services Outside Alleged PSNS Market

a. YouTube

i. Background

156. YouTube is a video and audio sharing platform that contains user-generated content and allows users to interact with each other, including by commenting on videos. *See* Ex. 290 at ¶¶ 255-256 (Lampe Rep.); [redacted]

157. YouTube launched in 2005, and Google acquired YouTube in 2006 for $1.65 billion. *See* Ex. 290 at ¶ 255 & n.665 (Lampe Rep.).

158. As of January 2023, YouTube had 2.5 billion monthly active users worldwide. *See* Ex. 290 at ¶ 255 n.665 (Lampe Rep.). Meta's expert economist, Professor Dennis Carlton, found that, [redacted]

[redacted]

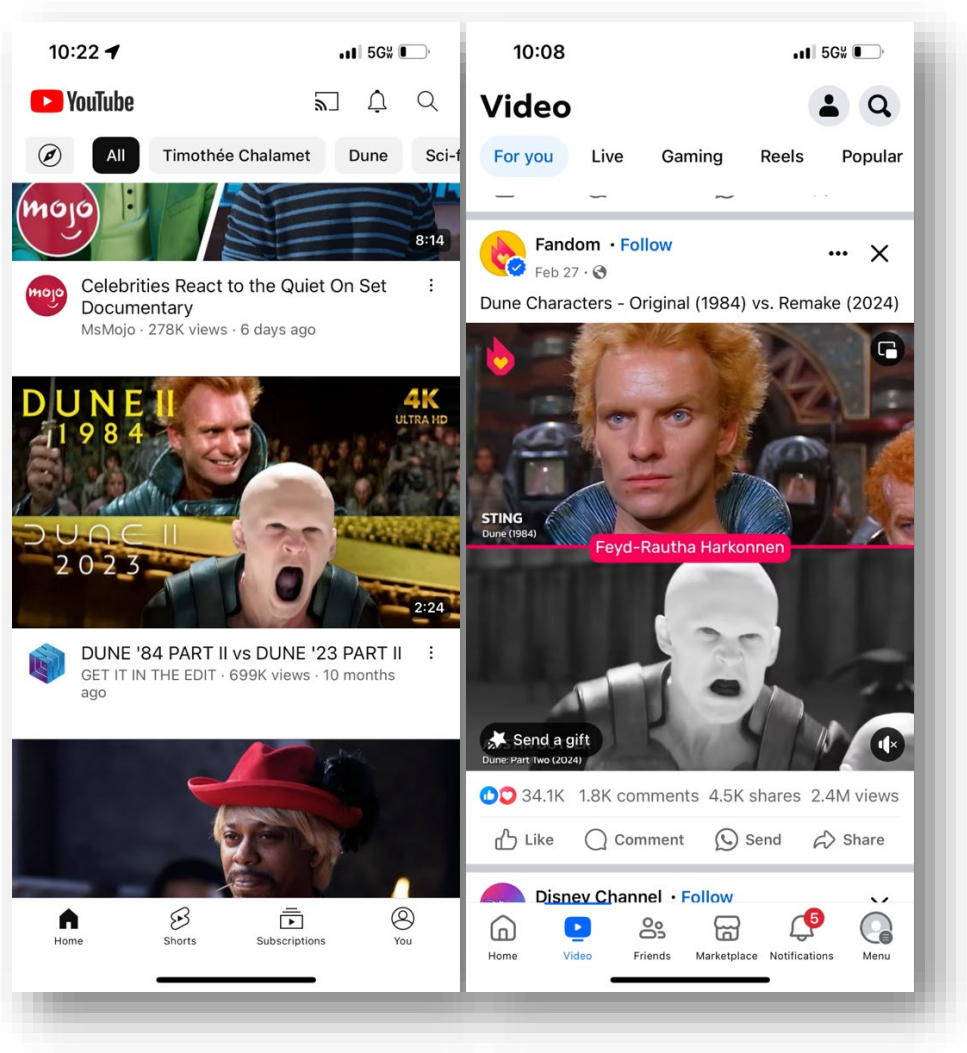
159. [redacted]

160. Individuals can watch videos on YouTube without an account, but users signed into their YouTube account, which is associated with a "channel," have access to greater functionality, including the ability to subscribe to channels and engage with videos via comments. *See* Ex. 290 at ¶ 257 (Lampe Rep.); [redacted] For "most users," accounts on YouTube are linked to their Google accounts. Ex. 290 at ¶ 257 (Lampe Rep.).

ii. Features

161. YouTube has many features that are similar to features on Facebook and Instagram. *See*, *e.g.*, *supra* Part I.A.1(a)(x), (a)(viii) & (b)(iii), (b)(iii).

162. **Watching and Sharing Videos.** When users access YouTube through either the app or its webpage, the first thing they see is YouTube's homepage, [redacted] The below left screenshot is an example of how YouTube users' home feeds appear on the YouTube mobile app. For comparison, the below right screenshot is an example of how Facebook users' video feeds appear on the Facebook mobile app.



163. [redacted]

164. **Finding and Subscribing to Channels.** [redacted]

165. [redacted]

166. [redacted]

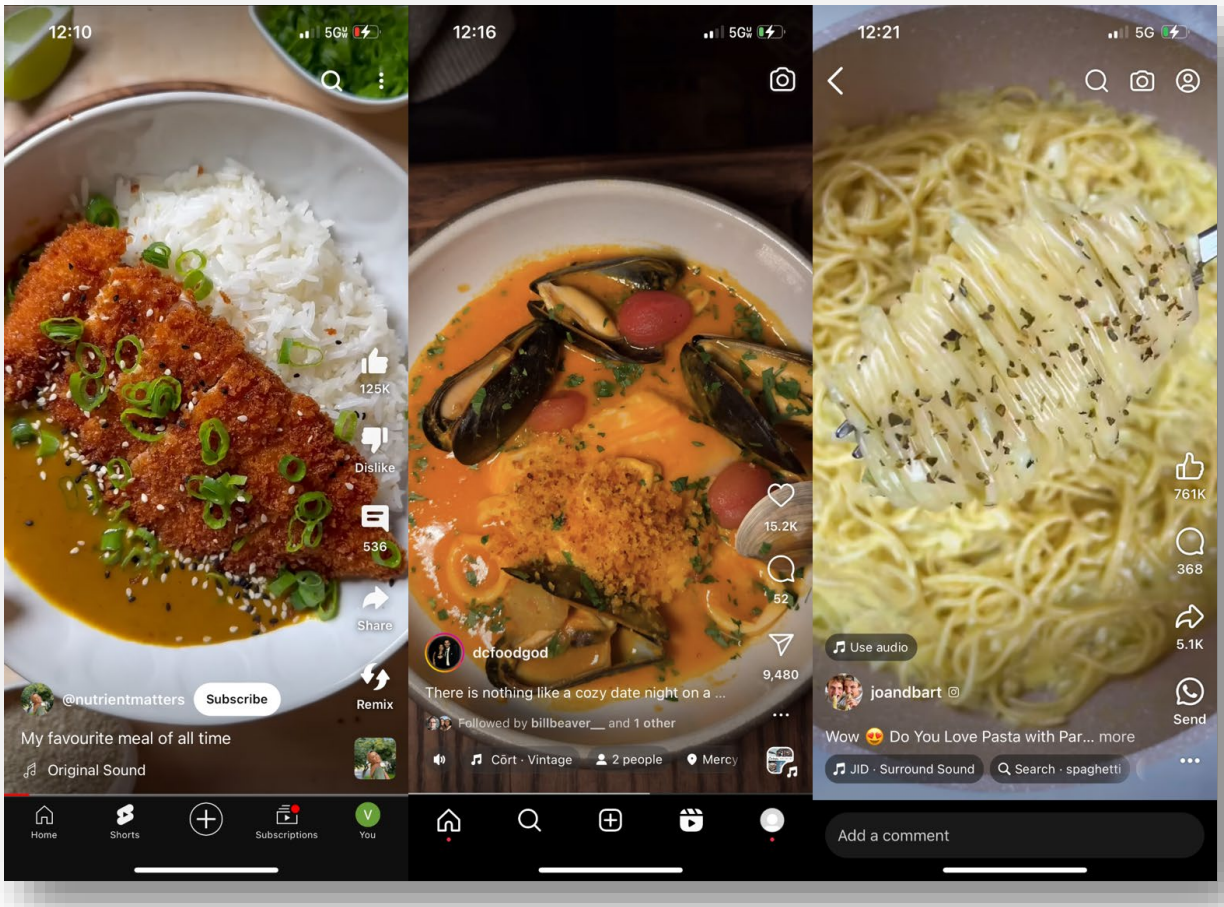
167. **Liking and Disliking Videos.** [redacted]

168. **Commenting on Videos.** If a channel has allowed it for the video, YouTube users can leave comments on a video. *See* Ex. 355 at 1 (YouTube Help, *Post & Interact with Comments*, https://perma.cc/JJU2-4JNK). Comments are public and any user can reply to, like, or dislike previously posted comments. *See id.*

169. **Sharing Video Content.** Users can share a YouTube video through YouTube's sharing button below each video. *See* Ex. 356 at 1 (YouTube Help, *Share Videos and Channels, Computer*, https://perma.cc/YS55-6NDB). *See id.* Clicking that button opens a panel presenting different sharing options, including directly sharing the video on Facebook, WhatsApp, Twitter, Reddit, and LinkedIn, or through email. *See id.* The panel also provides a URL link to the video, which users can copy and send to someone else through other means of communication. *See id.*

170. **YouTube Shorts.** YouTube launched Shorts in the United States in March 2021. *See* Ex. 2 at p. 50, tbl. 6 (Carlton Rep.). [redacted]

171. The screenshot on the below left is an example of how the Shorts surface appears on a mobile device. For comparison, the screenshot in the middle shows Instagram Reels on a mobile device, and the screenshot on the right shows Facebook Reels on a mobile device.



172. [redacted]

[redacted] On Alphabet's July 25, 2023 earnings call, YouTube announced that "YouTube Shorts are now watched by over 2 billion logged-in users every month, up from 1.5 billion just one year ago." Ex. 357 at 4 (Alphabet Q2 2023 Earnings Call). On Alphabet's January 30, 2024 earnings call, YouTube announced that "Shorts remains a top priority" and that it "continue[s] to

grow watch time across YouTube, with strong growth in Shorts and Connected TV." Ex. 358 at 7 (Alphabet Q4 2023 Earnings Call).

173. **Posting Video Content.** YouTube users can upload a video up to 15 minutes long. *See* Ex. 360 (YouTube Help, *Upload Videos Longer Than 15 Minutes*). YouTube users with a verified account can upload and publish videos (except Shorts) up to 256 GB or 12 hours, whichever is less. *See id.* Users can add details to their videos, including giving the video a title and a description and selecting a thumbnail image. *See* Ex. 359 at 1 (YouTube Help, *Upload YouTube Videos, Computer*). If users are using mobile devices, YouTube will upload the video as a Short if it is 60 seconds or less and has a square or vertical aspect ratio. *See* Ex. 361 (YouTube Help, *Upload YouTube Videos, Android*, https://perma.cc/H6RB-AHFV). [redacted]

174. Users uploading Shorts can edit their videos with YouTube's "Short Creations Tools," including by adding text, filters, or audio to their videos. Ex. 363 at 1-2 (YouTube Help, *Shorts Editing Tips*, https://perma.cc/S4JP-KFWZ). Instagram also offers "a variety of creative editing tools" for Reels, including audio and effects. Ex. 362 at 2 (Instagram, *Introducing Instagram Reels*, https://perma.cc/B5VL-UWXW).

175. [redacted]

176. [redacted]

177. [redacted]

178. [redacted]

179. [redacted]

180. On August 18, 2020, Mr. Zuckerberg testified that "YouTube has this basic structure which is that you have creators and you have a follow graph and people subscribe to it, which there is a network structure to it." Ex. 139 at 125:23-126:1 (Zuckerberg IH Tr.).

iii. Competition Between YouTube and Facebook and Instagram

181. **Meta Documents and Testimony.** Meta documents and executives recognize YouTube as one of Facebook's and Instagram's competitors. For example, Meta's 10-K for the fiscal year ending in December 31, 2021 stated: "We face significant competition in every aspect of our business, including, but not limited to, companies that facilitate the ability of users to share, communicate, and discover content and information online or enable marketers to reach their existing or prospective audiences, including, for example, Alphabet (Google and YouTube), Amazon, Apple, ByteDance, (TikTok), Microsoft, Snap (Snapchat), Tencent (WeChat), and Twitter." Ex. 364 at 7-8 (Meta 2021 Form 10-K).

182. [redacted] *infra* at ¶ 248 (Mr. Mosseri's public statement: "[T]here's some really serious competition right now. TikTok is huge, YouTube is even bigger.").

183. [redacted]

[redacted]

184. [redacted]

185. [redacted]

186. As early as July 30, 2011, Justin Osofsky – Meta's head of online sales, operations, and partnerships – emailed Sheryl Sandberg and others: "Youtube presents a significant strategic issue for us. . . . We've been talking about YT for a long time, but need to move faster in deciding what to do and executing." Ex. 233 at -861 (FB_FTC_CID_04470860); Ex. 147 at 59:25-60:3 (Osofsky Dep. Tr.).

187. ¶¶ 36-38 (describing Facebook Watch/Video).

188.

[redacted]

189. [redacted]

190. [redacted]

[redacted]

191. [redacted]

192.

193.

[redacted]

194. [redacted]

195. [redacted]

196. [redacted]

197. The FTC's proffered monetization expert, Professor Aral, wrote in a 2020 book titled, "The Hype Machine: How Social Media Disrupts Our Elections, Our Economy, and Our Health – And How We Must Adapt," that "attention is . . . what powers the business models of all the major social media platforms. It's what they compete for and sell to brands and governments attempting to create behavior change on a global scale. Without attention, social media platforms wither and die . . . . Platforms like Facebook, Twitter, and YouTube provide connections, communication, and content to get consumers' attention." Ex. 354 at 202-203 (MetaFTC-DX-1157, *The Hype Machine*).

iv. Competition Between YouTube and Facebook and Instagram for Sharing and Viewing Short-Form Video Content

198. YouTube provides a reasonable substitute for certain engagement on Facebook and Instagram, including viewing and sharing short-form videos. *See infra* at ¶¶ 199-203.

199. **Meta Documents.** [redacted]

[redacted]

200. [redacted]

201. [redacted]

[redacted]

202. [redacted]

203. [redacted]

b. TikTok

i. Background

204. TikTok is a "software application" that provides a "platform" where users can "create and share content." Ex. 366 at ¶¶ 1, 4, 16 (MetaFTC-Klein-DX-761, Pappas Decl.).

205. [redacted]

206. [redacted]

207. [redacted]

ii. Features

208. TikTok has many features that are similar to features on Instagram and Facebook. *See*, *e.g.*, *supra* Part I.A.1(a)(xiii) & (b)(x).

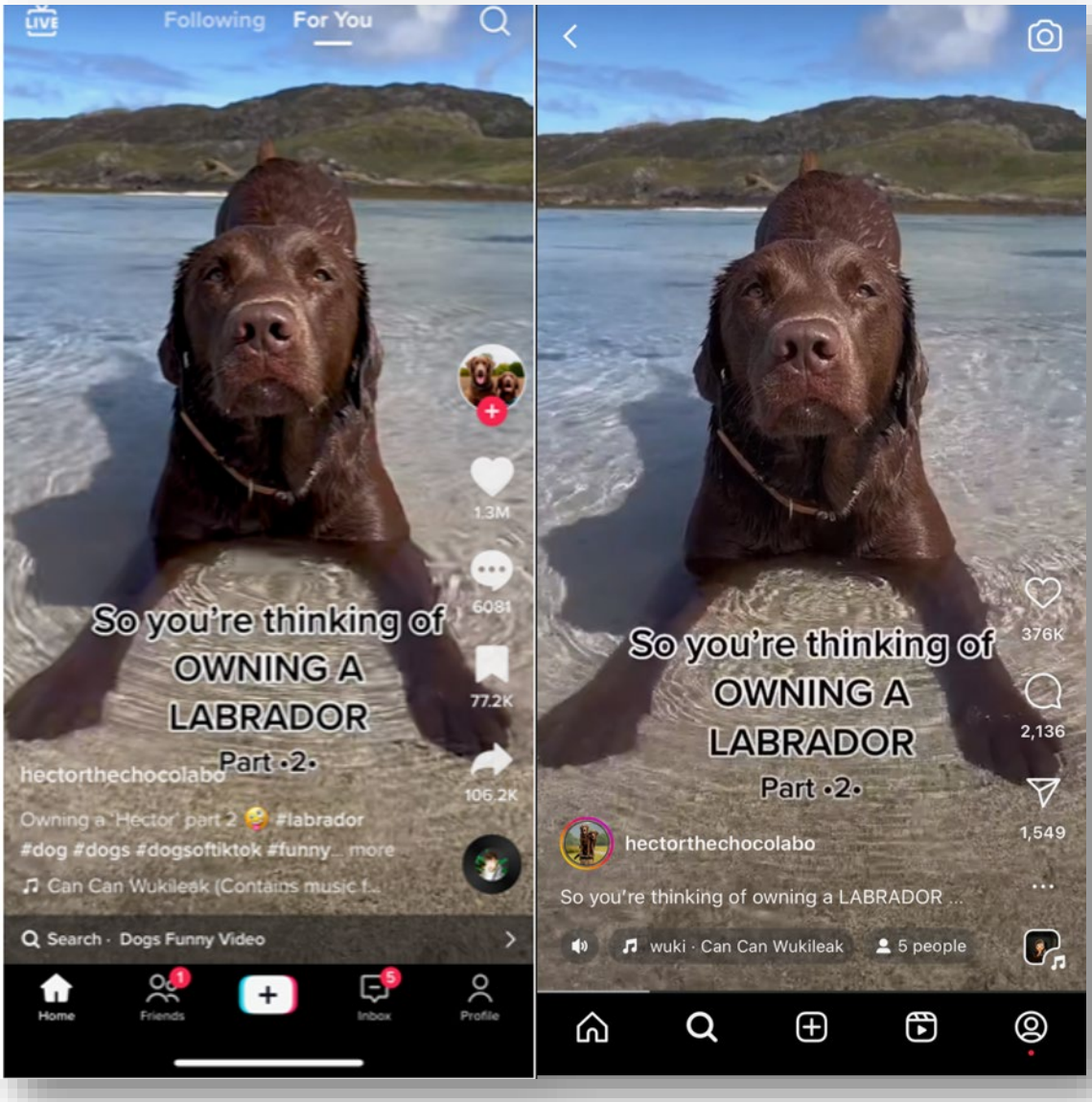
209. Professor Lampe opined that TikTok is a "Social Networking Site" because "it has a basic profile, a traversable network of connections [that is, a social graph], and a stream of user-generated activity to consume and with which to interact [that is, a shared social space]."

Ex. 290 at ¶¶ 46, 85, 109, 226 (Lampe Rep.). Professor Lampe agreed that it is "definitely possible" for users to use TikTok for "personal social networking." Ex. 281 at 334:2-11 (Lampe Dep. Tr.).

210. Professor C. Scott Hemphill, the FTC's proffered economic expert, testified that TikTok "has something of a social graph" and that "one to many communications can be sent and received over that social graph." Ex. 283 at 46:16-47:10 (Hemphill Dep. Tr.). He also testified that TikTok is "a shared social space within which content delivery and interactions occur," albeit "to a quite limited degree" compared to Facebook or Instagram. *Id.* at 47:11-18.

211. Users watch short-form videos on Facebook Reels, Instagram Reels, and TikTok for entertainment purposes. *See* Ex. 283 at 27:7-15 (Hemphill Dep. Tr.) ("[a] user can watch short-form videos on Reels for entertainment purposes much as they do on TikTok"); Ex. 281 at 246:2-9 (Lampe Dep. Tr.) (agreeing that "users that are watching Reels on Facebook or Instagram with a motivation of entertainment or passing time due to boredom . . . could also satisfy those same motivations by watching TikTok"). At least some of the time, users would find TikTok to be "a suitable alternative" to watching a video for entertainment purposes on Instagram Reels. Ex. 283 at 39:12-40:2 (Hemphill Dep. Tr.).

212. **For You.** When users open the TikTok app, the first thing they see is the "For You" feed in the Home screen. *See* Ex. 368 at 1 (TikTok, *For You*, https://perma.cc/NY9U-D9K6). The below left screenshot ("For You Image") is an example of how TikTok users' For You feeds appear on the TikTok mobile app. [redacted] Ex. 367 at 2 (MetaFTC-Klein-DX-116, *TikTok's Response to the ACCC*). For comparison, the below right screenshot is an example of what Instagram users see when they view another user's Reel in the Instagram mobile app.



213. The For You feed displays a "stream" of posts with video or photo content. Ex. 367 at 2 (MetaFTC-Klein-DX-116, *TikTok's Response to the ACCC*). [redacted]

214. [redacted]

[redacted]

215. [redacted]

216. [redacted]

217. [redacted]

[redacted]

218. As seen at the top of the For You Image, users can also view the "Following" feed via the Home screen by tapping on "Following." The "Following" feed displays content from accounts that users "ha[ve] proactively chosen to follow." Ex. 367 at 2 (MetaKlein-FTC-DX-116, *TikTok's Response to the ACCC*); [redacted]

219. [redacted]

220. [redacted]

221. [redacted]

222. TikTok's website states that, "[t]o help you find and follow people you might know on TikTok," TikTok may "[s]uggest accounts to you, by showing you their videos and the Add Friends feature on your profile," and "[s]uggest your account to others on TikTok so they can follow you." Ex. 369 at 1 (TikTok, *Suggested Accounts*, https://perma.cc/28N6-UJQ4).

223. [redacted]

224. [redacted]

225. [redacted]

226. **Posting Video Content.** At the center bottom of the For You Image, there is a button resembling a plus sign. [redacted] TikTok users can also post a Story, a video up to 15 seconds long that disappears after 24 hours. *See* Ex. 370 at 1 (TikTok, *TikTok Stories: What It Is and How to Use It*, https://perma.cc/P99G-46H6).

227. Videos created on the TikTok app can be up to 60 seconds long. Videos uploaded onto the app can be up to three minutes long. *See* Ex. 371 at 1 (TikTok, *Camera Tools*, https://perma.cc/4AYV-JHZE).

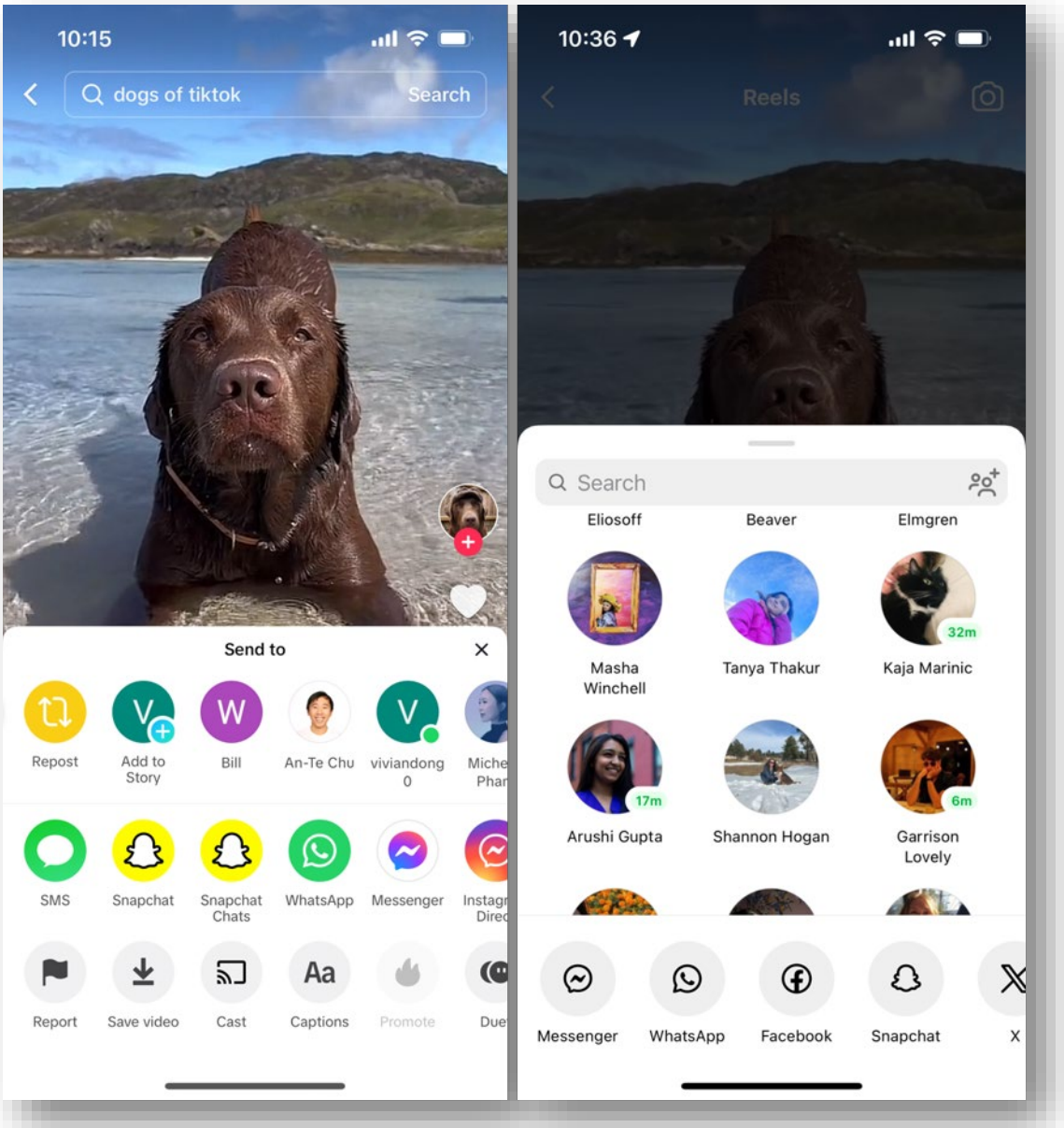
228. Users can edit their videos, photos, and other content with TikTok's editing tools. The below left screenshot shows an effect that users can apply to a video or photo using TikTok's "Effects" library. Many similar effects are available on Instagram. For comparison, the below right screenshot shows a similar preset effect from Instagram Reels' "Effects" library.

229. Users can customize the audience for any post they make. *See* Ex. 372 at 1 (TikTok, *Video Privacy*, https://perma.cc/NTM5-3JUJ). *Id.* If users have a public account, they can make posts visible to everyone, just Friends, or just themselves. *Id.* If users have private accounts, they can make the post visible to just followers, just Friends, or just themselves. *Id.*

230. **Liking Videos.** [redacted]

231. **Comments on Videos.** [redacted]

232. **Sharing Video Content.** Below the comment button in the For You Image is an arrow-shaped button that enables users to share a video. [redacted] The below left screenshot shows some of the sharing options available on the TikTok mobile app. For comparison, the below right screenshot shows some of the sharing options available on Instagram Reels on the Instagram mobile app.

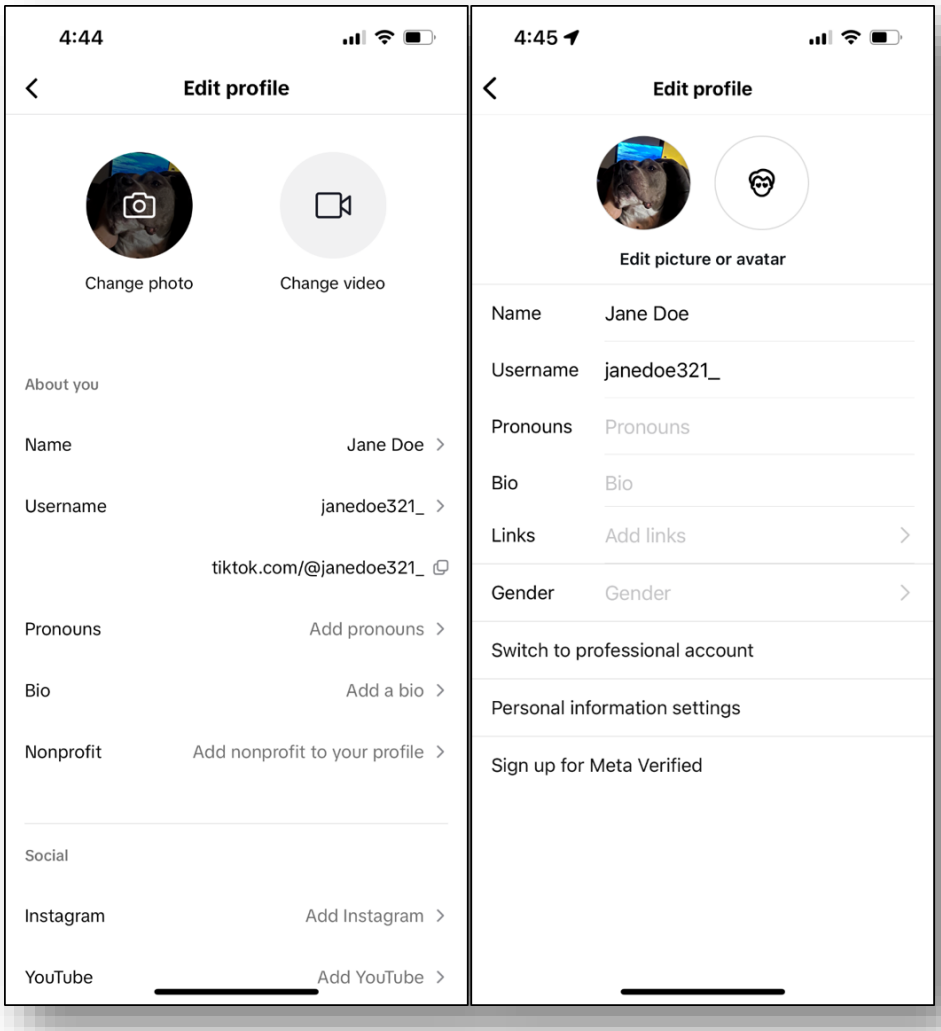


233. **Pictures on TikTok Now.** [redacted]

[redacted]

234. **User Profile.** [redacted]

235. The below left screenshot is an example of the fields TikTok users can populate on their TikTok profile. For comparison, the below right screenshot is an example of the fields Instagram users can populate on their Instagram profile. As with Instagram, users need not use their real name on TikTok. *See* Ex. 373 at 1 (TikTok, *Changing Your Nickname*, https://perma.cc/2DKN-TMV4).



236. Users can make their TikTok account either public or private. *See* Ex. 374 at 1 (TikTok, *Choosing Between a Private or Public Account*, https://perma.cc/9PF8-QAK7). Users with private accounts must approve who can follow them, watch their posted content, see their likes, and see their followers and following lists. *Id.* Anyone can follow, watch the posted content of, and see the likes, followers, and following lists of users with public accounts, though users can customize the privacy settings of individual posts. *Id.* Every account is searchable on TikTok. *Id.*

237. **Messaging.** The button to the right of the plus sign button on the bottom of the For You Image is the Inbox tab. [redacted] Users over the age of 16 can also send messages to other users via the Inbox, a feature TikTok calls "Direct messaging" or "DM." Ex. 375 at 1 (TikTok, *Direct Messages*, https://perma.cc/V8Y2-TB5M). Users can control who they can receive messages from. *Id.* Users can DM other TikTok users messages and TikTok videos without leaving the app. *Id.*

238. [redacted]

239. [redacted]

240. [redacted]

241. By comparison, Professor Hemphill calculated that, . Ex. 279 at ¶ 287 (Hemphill Rep.).

242. Professor Hemphill testified that "conceivably there are individuals" on TikTok who "turn to TikTok for a place to engage in demand for maintaining relationships and sharing experiences with friends, family, and social acquaintances in a shared social space." Ex. 283 at 56:12-57:7 (Hemphill Dep. Tr.); *see also supra* at ¶ 209 (Professor Lampe testimony regarding TikTok's social networking features).

243.

[redacted] Professor Lampe had no [redacted] Ex. 281 at 363:1-364:16 (Lampe Dep. Tr.) (testifying about Ex. 222 at -.047 (FTC-META-005944143)).

iii. Competition Between TikTok and Facebook and Instagram

244. **Meta Documents and Testimony.** [redacted]

245. [redacted] On May 9, 2023, Mr. Zuckerberg testified that [redacted] Mr. Zuckerberg stated that [redacted]

[redacted]

246. Speaking about TikTok, Mr. Mosseri testified at his March 29, 2023 deposition that [redacted] Ex. 143 at 244:4-19 (Mosseri Dep. Tr.). Years earlier, at a September 1, 2020 Investigative Hearing, Ms. Sandberg testified about TikTok: [redacted] Ex. 144 at 210:20-25 (Sandberg IH Tr.).

247. [redacted]. *See supra* at ¶ 185.

248. Meta has developed strategies and made changes to its products in response to competition from TikTok. For example, Mr. Mosseri posted a public video on his Instagram account, @mosseri, on January 31, 2021, explaining some of these changes: "I want to start by saying we're no longer a photo-sharing app or a square photo-sharing app. The number one reason that people say that they use Instagram in research is to be entertained. So people are looking to us for that. So actually, this past week in our internal all hands, we shared, or I shared a lot about what we're trying to do to lean into that trend – into entertainment and into video. Because let's be honest: there's some really serious competition right now. TikTok is huge, YouTube is even bigger, and there's lots of other upstarts as well. And so people are looking to Instagram to be entertained, there's stiff competition and there's more to do, and we have to embrace that. And that means change. So what you're going to see over the next couple of months really is us start to experiment more in the space of what we call recommendations, so

showing you things in Feed that you may not be following yet. We just started testing an early version of this last week." Ex. 247 at -297-298 (FTC-META-004553295).

249. Among the changes Meta made in response to competition from TikTok is [redacted] For example, [redacted]

250. [redacted]

[redacted]

251. Meta ordinary-course documents observe [redacted]

252. [redacted]

253. Before Meta released Instagram Reels in 2020 and Facebook Reels in 2021, Meta had already observed [redacted]

[redacted]

254. [redacted]

255. [redacted]

256. [redacted]

[redacted]

257. **Walmart Analysis of TikTok Acquisition.** Walmart's September 2020 press release announcing its agreement to acquire a portion of TikTok's US operations described TikTok as a "social network" that "a hundred million Americans . . . love." Ex. 376 (MetaFTC-DX-120). [redacted]

258. [redacted]

[redacted]

iv. Competition Between TikTok and Facebook and Instagram for Sharing and Viewing Short-Form Video Content

259. TikTok provides a reasonable substitute for certain engagement on Facebook and Instagram, including sharing and viewing short-form videos. *See infra* at ¶¶ 260-270.

260. Professor Hemphill testified that, if Meta lowered the quality of its Reels offerings, "there might well be some shift" in usage from Reels to TikTok. Ex. 283 at 59:15-60:21 (Hemphill Dep. Tr.).

261. **Meta Documents and Testimony.** Meta's executives testified that [redacted]

262. Professor Hemphill testified that Meta added Reels to Facebook in order to "bring[ ] the competition to TikTok" and thereby "pursu[e] additional users and usage at the margin." Ex. 283 at 164:11-165:6 (Hemphill Dep. Tr.) ("Q. So you would agree that addition of Reels to Facebook was an example of pursuing additional users and usage at the margin? A. Well, sure. . . . I would agree as a general matter that chasing additional usage through Reels, bringing the competition to TikTok in the manner that we've been discussing is in a sense pursuing users and usage on the margin as I say in paragraph 362.").

263.

264.

[redacted]

265. [redacted]

[redacted]

266. Professor Lampe testified that he "didn't look at if [TikTok's] replacing entertainment functions from other platforms," including Facebook and Instagram, or "whether the quantity of time spent on TikTok that has been rising over the last several years has come at the expense of the quantity of time spent on Facebook and Instagram," because neither issue was "necessary to make [his] opinion about TikTok." Ex. 281 at 104:5-105:8 (Lampe Dep. Tr.).

267. [redacted]

268. [redacted]

[redacted]

269. [redacted]

270. [redacted]

[redacted]

271. In its January 24, 2023 response to Meta Interrogatory Nos. 13 and 14, contending that TikTok does not provide PSNS and that none of the enumerated activities on TikTok constitute PSNS, the FTC cited no documents from after Meta released Reels in August 2020. *See* Ex. 291 at 50-53, FTC's Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)). Similarly, none of the documents the FTC cited in its February 6, 2023 response to Meta Interrogatory No. 15, to purportedly show that Meta recognizes that PSNS is distinct from TikTok, is from after Meta released Reels. *See* Ex. 292 at 6-8, (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Feb. 6, 2023)). In its response to Interrogatory No. 16, on May 3, 2023, the FTC indicated again that it had not addressed substitution between Reels on Facebook or Instagram and TikTok, stating that it had not conducted "an analysis comparing the individual features on TikTok and those currently available on Facebook Blue and Instagram." *See* Ex. 297 at 31, FTC's Resp. to Meta's Interrog. No. 16 (FTC's Objs. & Resps. to Meta's Third Set of Interrogs. (May 3, 2023)).

c. Twitter

i. Background

272. Twitter launched in 2006. *See* Ex. 377 at 91 (Twitter 2013 Form S-1). [redacted]

[redacted]

273. In July 2023, Twitter rebranded to "X." *See* Ex. 379 (New York Times, *From Twitter to X*).

274. [redacted]

275. [redacted]

276. According to Twitter, "[p]eople come to Twitter for many reasons," including: "Sharing Content with the World. Users leverage our platform to express themselves publicly to the world, share with their friends and family and participate in conversations by tweeting messages, photos and videos to their followers in real time." Ex. 377 at 92, 98 (Twitter 2013 Form S-1).

277. "In the three months ended December 31, 2021," Twitter reported having "38 million average mDAU ['Monetizable Daily Active Usage or Users'] in the United States and 179 million average mDAU in the rest of the world." Ex. 380 at 42 (Twitter 2021 Form 10-K).

278. Twitter generates revenue in various ways, including sales of advertising and premium subscriptions for paying consumers. *See* Ex. 380 at 54 (Twitter 2021 Form 10-K) ("We generate the substantial majority of our revenue from the sale of advertising services."); Ex. 290 at ¶ 240 & n.621 (Lampe Rep.).

ii. Features

279. Twitter has many features that are similar to features on Instagram and Facebook. *See*, *e.g.*, *supra* Part I.A.1(a)(v) & (b)(v).

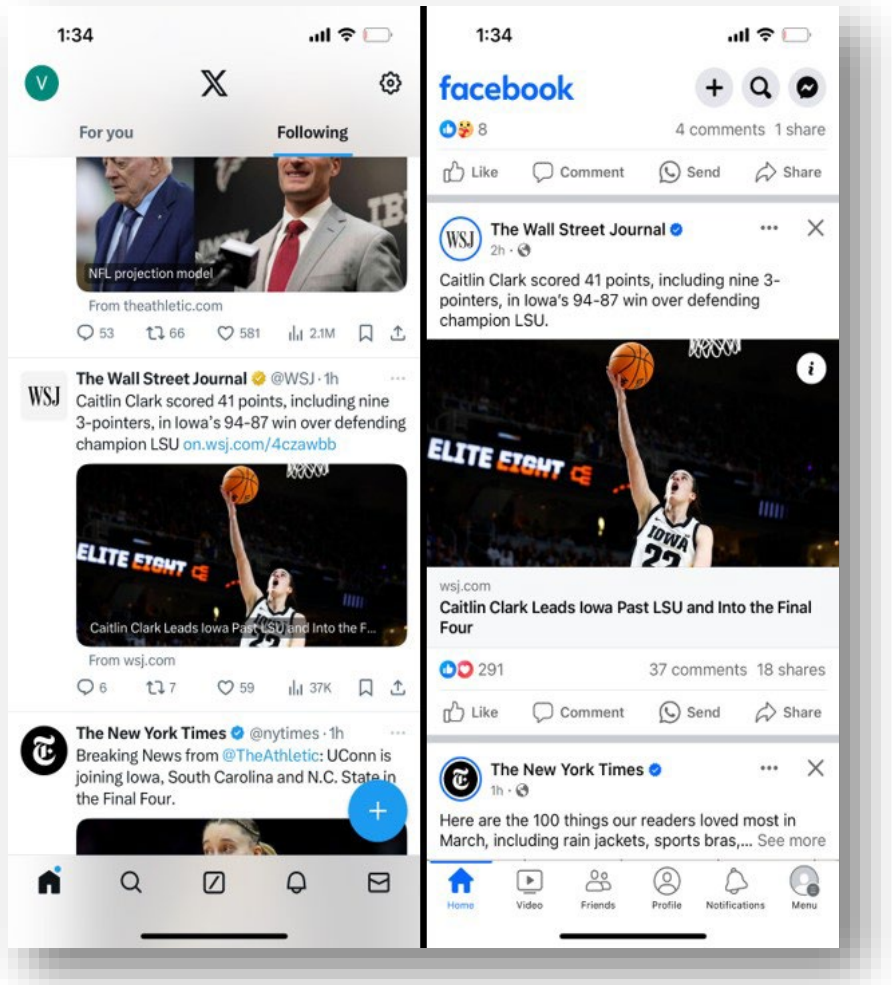
280. Professor Lampe testified that Twitter is "an SNS," Ex. 281 at 314:13 (Lampe Dep. Tr.), or a "social networking site," Ex. 290 at ¶ 49 (Lampe Rep.). According to Professor Lampe, Twitter is a social networking site because it contains (1) user profiles, (2) a social graph (what Professor Lampe calls a "list of connections"), and (3) a feed (what Professor Lampe calls an "activity stream"). *See id.* at ¶¶ 242-249. Professor Lampe stated that Twitter profiles "contain a list of connections" that enables Twitter users to view who other users follow "to find other accounts the user might want to follow." *Id.* at ¶ 246 (Lampe Rep.).

281. According to Professor Lampe, "it's possible that some people use Twitter to maintain personal social networks." Ex. 290 at ¶ 253 (Lampe Rep.). At his deposition, Professor Lampe was asked, "Do you agree that some people use Twitter for personal social networking," and he answered, "I agree that that's a possible use of Twitter that people could have, yes." Ex. 281 at 340:4-8 (Lampe Dep. Tr.).

282. [redacted] He also acknowledged that Twitter "provides the option to connect with contacts in the user's address book," and "sometimes suggests connecting with the accounts of people the user already knows." *Id.*

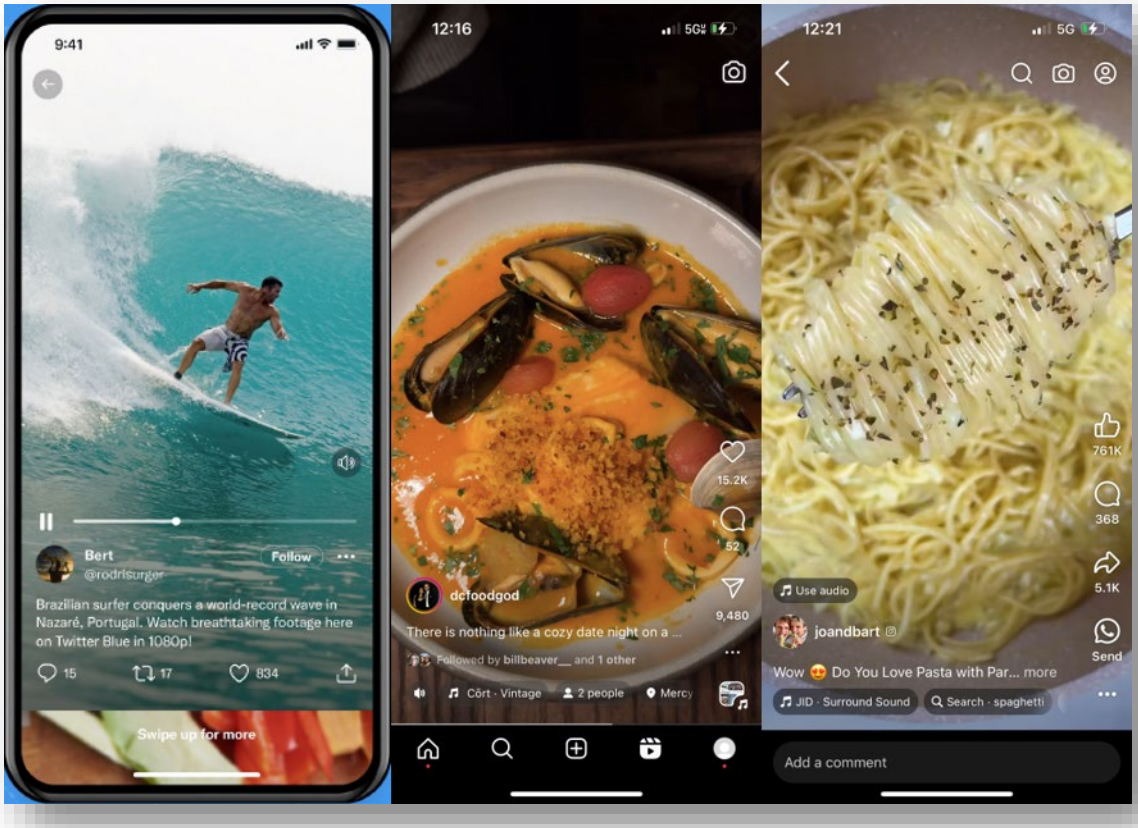
283. **Post on Feed.** [redacted]

[redacted] The below left screenshot is an example of how Twitter users' feeds appear on the Twitter mobile app. For comparison, the below right screenshot is an example of how Facebook users' feeds appear on the Facebook mobile app.



284. **Video Posts in Feed.** On September 29, 2022, Twitter announced that it was "rolling out two new updates to how [users] experiences videos on Twitter," including an "immersive media viewer," which "expands videos to full screen with a single click" and makes "video discovery easier," as users can "[j]ust scroll up to start browsing more engaging video content." Ex. 381 at 1 (MetaFTC-DX-467).

285. The below left screenshot shows how Twitter's immersive media viewer appears on the Twitter mobile app. *See* Ex. 381 at 2 (MetaFTC-DX-467). For comparison, the screenshot in the center shows how Instagram Reels appears on the Instagram mobile app, and the screenshot on the right shows how Facebook Reels appears on the Facebook mobile app.



286. [redacted]

[redacted]

287. A January 8, 2024 post on Twitter's Blog stated "X is now a video-first platform, with video being part of more than 8 in 10 user sessions, and we've seen views increase almost 30% year over year. Plus, now more than 100 million people watch vertical video on X every day." Ex. 382 at 1 (X Blog, *X's Vertical Video Revolution*, https://perma.cc/8WRL-2D8M). And, as of March 29, 2024, Twitter's website stated that "[v]ertical video is the fastest growing surface on X – accounting for ~20% of daily total time spent on the platform." Ex. 383 at 1 (X Business, *Vertical Video Ads*, https://perma.cc/4PP5-9ASE).

288. **Posting Content.** [redacted] Posts appear on users' profiles, can be seen by users' followers, and are searchable on Twitter by default. *See* Ex. 378 at 2-3 (MetaFTC-DX-469).

289. **Replying to Posts.** Twitter users can interact with other users by "replying" to others' posts and by "mentioning" them. Ex. 384 at 1, 2 (X, *About Replies and Mentions*, https://perma.cc/3Q6Q-3SMZ). On Twitter, a "reply" is a response to another user's post. *See id.* A "mention" on Twitter is a post or reply that contains another user's username, preceded by the "@" symbol. *See id*.

290. **Liking Posts.** [redacted]

291. **Reposting.** [redacted]

292. **Following.** Twitter users can follow other accounts on Twitter. *See* Ex. 378 at 3 (MetaFTC-DX-469). "Following" someone "means [users have] chosen to subscribe to their Twitter updates," so that, "every time they post a new message, it will appear on [users'] Twitter Home timeline." *Id.*

293. [redacted]

294. To find accounts to follow, Twitter users "can search for people by name or username," "import friends from other networks," or "invite friends via email." Ex. 378 at 3 (MetaFTC-DX-469).

295. [redacted] "Often the best connections on X are with people [users] already know. In order to help [users] make those connections, we use . . . email address[es] and phone number[s] to make [users] account[s] discoverable to others." Ex. 385 at 1 (X, *About Your Email and Phone Number*, https://perma.cc/7XT2-NT26). "If someone has [a user's] email address or phone number in their contacts, they may find [a user's] account when they upload those contacts to X. [A user's] account may also appear as a

suggestion for others to follow if [a user's] email address or phone number is included in the contacts that others have uploaded." *Id.*

296. [redacted]

297. **Profile.** [redacted]

298. Twitter users' profile information "is always public," but Twitter users "can use either [their] real name or a pseudonym." Ex. 386 at 2 (*X Privacy Policy*, https://perma.cc/X3V9-G5MG (Sept. 29, 2023)).

299. Professor Lampe stated that Twitter's "bio field could potentially be used to give information to help the discovery process for relationship maintenance." Ex. 290 at ¶ 244 (Lampe Rep.). Professor Lampe testified that Twitter profiles provide more discoverability of identity than Snapchat profiles. *See* Ex. 281 at 316:7-11 (Lampe Dep. Tr.) ("Q. . . . So as compared to Facebook, Instagram, Twitter, and TikTok, Snap profiles provide less discoverability; is that fair to say? A. I agree that feature provides less discoverability with less

information."); *id.* at 314:5-15 (agreeing that there "are aspects of Twitter that allow for discoverability of identity").

300. **Messaging.** [redacted]

301. **Calling.** Twitter has an "Audio and Video Calling" feature. *S*ee Ex. 387 at 1 (X, *Audio and Video Calls*, https://perma.cc/4UW7-8XD3). "By default [users are] able to receive calls from accounts [they] follow or have in [their] address book (if [a user has] previously given us access to [their] address book)," but "[t]o be able to call another user they must have sent [the user] a Direct Message at least once before." *Id*.

302. **Live Videos.** Twitter users with public accounts can "create live videos to share what's happening live." Ex. 388 at 1 (X, *How to Create Live Videos*, https://perma.cc/G246-SG7Q). Twitter users "can discover and watch live videos from [their] Home timeline, notifications, search, and trends" and "watch live videos and replays from anyone on X whose account isn't protected." *Id*. at 2.

303. **Lists.** Twitter's "Lists" feature allows users "to customize, organize and prioritize the posts [they] see in [their] timeline." Ex. 390 at 1 (X, *How to Use X Lists*, https://perma.cc/8MQQ-NUEV). Twitter users "can create a List of other X accounts by topic or interest (e.g., a list of friends, coworkers, celebrities, athletes)." Ex. 389 at 2 (X Help Center, *Glossary*, https://perma.cc/PVB7-9D5V).

304. **Communities.** Twitter Communities "give people a dedicated place to connect, share, and get closer to the discussions they care about most." Ex. 391 at 1 (X, *Communities on X*, https://perma.cc/WJP2-G7VK). "Communities are started and managed by people on X," and users "who accept invites to join a Community become members." *Id*. To join a Community on Twitter, users "must have a public account." *Id*. Once users join a Community, users "can post into it," but "Community posts will not be sent to [the users'] followers' Home timelines." *Id*.

305. "Every post, Moment, List, Space, and Community has its own URL that [users] can share with friends." Ex. 392 at 1 (X, *Identifying Information*, https://perma.cc/U7FT-SY9X).

306. **Other "Social" Features.** Twitter describes itself as "a service for friends, family, and coworkers to communicate and stay connected through the exchange of quick, frequent messages." Ex. 378 (MetaFTC-DX-469). [redacted]

307. In response to the question, "Yes or no, would the public-facing statement by Twitter on its Website that it is a service for friends, family, and coworkers to communicate and stay connected through the exchange of quick frequent messages be evidence that supports the notion Twitter is a personal social networking service?," Professor Lampe testified: "To answer very briefly, yes, in the context of all the other evidence I would collect on the same topic." Ex. 281 at 349:4-14 (Lampe Dep. Tr.).

308. [redacted]

309. [redacted]

[redacted]

310. [redacted]

iii. Competition Between Twitter and Facebook and Instagram

311. **Meta Documents and Testimony.** Meta documents and executives recognize Twitter as one of Facebook's and Instagram's competitors. For example, in its annual report for the fiscal year ended December 31, 2021, Meta states: "We face significant competition in every aspect of our business, including, but not limited to, companies that facilitate the ability of users to share, communicate, and discover content and information online or enable marketers to reach their existing or prospective audiences, including, for example, . . . Twitter." Ex. 364 at 7-8 (Meta 2021 Form 10-K). Meta also identified Twitter in other annual reports. *See*, *e.g.*, Ex. 352 at 7 (Facebook 2019 Form 10-K) ("We also compete with . . . [c]ompanies that offer products across broad platforms that replicate capabilities we provide. For example, among other areas, we compete with . . . Twitter in social media.").

312. [redacted]

313. [redacted]. For example, on October 21, 2019, a Director of Product Strategy for Facebook and Instagram, [redacted], published a post titled "Market Landscape: Creation & Sharing [August + September, 2019]," which states that [redacted] Ex. 238 at -400 (FB_FTC_CID_11916400) (brackets in original). The post also states, under the heading "Major comp updates," that [redacted] *Id.* at -404, -407.

314. In March 2015, Instagram's then-Director of Product Marketing, [redacted], in an email thread titled "competitor overview," discussed an upcoming meeting on "how we size up vs. our competitors" and circulated a graphic titled "Instagram vs. Competition – INTERNAL ONLY." Ex. 241 at -825, -827, -828.001 (FTC-META-002479825). That graphic, excerpted below, compares Instagram to [redacted] across various metrics including [redacted] *Id.*

[redacted]

315. In 2013, Mr. Zuckerberg wrote an internal email titled "Public Content vs. Twitter," stating: "My sense is we're just continuing to lose ground to Twitter. . . . I'm very worried that we're actually falling further behind." Ex. 262 at -357 (FB_FTC_CID_05935257). Mr. Zuckerberg also stated that "we can grow at a much faster rate there by taking market share from Twitter and others." *Id.* Mr. Zuckerberg testified that, around the time of the Instagram acquisition, "Twitter was certainly a – an important competitor for us and still is to this day." Ex. 139 at 328:6-10 (Zuckerberg IH Tr.). On March 9, 2023, Dan Rose, Meta's former vice president of partnerships, who worked at the company from 2006 to February 2019, was asked, "During the time you were at Facebook, did you consider Twitter a competitor?," and he answered, "Yes," because "[t]hey were a social product that was competing with us for time and attention. [redacted]

[redacted]

Ex. 148 at 18:13-15, 22:19-23, 256:4-20 & errata (Rose Dep. Tr.).

316. [redacted] Twitter's annual report for the fiscal year ended December 31, 2021 stated, "[w]e compete with the following companies for people's attention and for advertisers' budgets," and then listed "Meta (including Facebook, Instagram and WhatsApp), Alphabet (including Google and YouTube), Microsoft (including LinkedIn), Snapchat, TikTok, Pinterest, and Yahoo," among other companies. Ex. 380 at 8 (Twitter 2021 Form 10-K). Twitter's annual report for the fiscal year ended December 31, 2014 stated: "We compete with the following companies: Companies that offer products that enable everyone to create and share ideas and other information. These offerings include, for example, Facebook and Google, as well as largely regional social media and messaging companies that have strong positions in particular countries." Ex. 393 at 7 (Twitter 2014 Form 10-K). And Twitter's annual report for the fiscal year ended December 31, 2013 stated, "We compete against many companies to attract and engage users, . . . such as Facebook (including Instagram), Google, LinkedIn, Yahoo! And Microsoft." Ex. 394 at 9 (Twitter 2013 Form 10-K). Twitter stated in the same annual report that the "industry is evolving rapidly and is becoming increasingly competitive." *Id.*

317. [redacted]

318.

319.

iv. Competition Between Twitter and Facebook and Instagram for Sharing and Viewing Interest-Based Content

320. Twitter provides a reasonable substitute for certain engagement on Facebook and Instagram, including sharing and viewing interest-based content. *See infra* at ¶¶ 321-326.

321. **Meta Documents and Testimony.** [redacted]

322. [redacted]

323. On July 29, 2020, Fidji Simo, then the head of Facebook, was asked [redacted]

324. [redacted]

[redacted]

325. [redacted]

326. [redacted]

[redacted]

d. Pinterest

i. Background

327. Pinterest was founded in 2009. *See* Ex. 395 at Ex. 10.7 (Pinterest Form S-1 (Mar. 22, 2019)).

328. [redacted]

329. Pinterest's latest annual report stated that it has 498 million monthly active users worldwide. *See* Ex. 396 at 8 (Pinterest 2023 10-K).

ii. Features

330. Pinterest has many features that are similar to features on Instagram and Facebook. *See*, *e.g.*, *supra* Part I.A.1(a)-(b). "Pinterest may check boxes that could classify it as [a social networking site]." Ex. 290 at ¶ 212 (Lampe Rep.).

331. Pinterest has a feed, personal profiles, short-form videos, long-form videos, groups for sharing interests, commerce, photo and video sharing, search functionality, and notifications. *See* Ex. 1 at Ex. E (Ghose Rep.).

332. When users sign up for Pinterest, they can create a profile, which allows users to post a picture of themselves and share details about themselves with other users, including a biography. *See* Ex. 397 at 1-2 (Pinterest, *Edit Your Profile*, https://perma.cc/UJ3M-PLRK).

333. [redacted]

334. [redacted]

335. Unless users choose to set their profile as private, users can view profiles of accounts they do not follow, including friends' profiles. *See* Ex. 398 at 1 (Pinterest, *Make Your Profile Private or Public*, https://perma.cc/2Z8J-SSMK).

336. "When users open the Pinterest mobile application or navigate to www.pinterest.com, they are by default in their Home Feed." Ex. 396 at 8 (Pinterest 2023 Form 10-K). The Home Feed contains "Pins" in a "scrolling format." *Id.*

337. Pins are "images" and "videos" that can be uploaded from a computer or mobile device. Images found online can also be Pins. Ex. 399 at 1 (Pinterest, *Guide to Creating Pins*, https://perma.cc/WM5H-VPZ9).

338. [redacted]

339. [redacted]

340. [redacted]

341. [redacted]

iii. Competition Between Pinterest and Facebook and Instagram

342. Pinterest provides a reasonable substitute for certain engagement on Facebook and Instagram, including sharing and viewing interest-based and inspirational content. *See infra* at ¶¶ 343-358.

343. **Meta Documents and Testimony.** Meta documents and executives recognize Pinterest as of one Facebook's and Instagram's competitors. For example, [redacted] Mr. Rose, Meta's former vice president of partnerships who worked at Meta from 2006 to 2019, testified that he considered Pinterest to be a competitor during his time at Meta. *See* Ex. 148 at 258:20-260:24 (Rose Dep. Tr.).

344. [redacted]

345. [redacted]

346. Meta has made changes to its services to compete with Pinterest. For example, A March 18, 2022 internal email among Instagram employees notes:

347. . According to Pinterest's 2023 annual report, Pinterest "compete[s] to attract, engage and retain users and their time and attention." Ex. 396 at 10 (Pinterest 2023 Form 10-K). Companies Pinterest competes with included "Amazon, Meta (including Facebook and Instagram), Google (including YouTube), Snap, TikTok and X (formerly known as Twitter), that offer users engaging content and commerce opportunities through similar technology or products to ours." *Id.* at 10.

[redacted]

348. [redacted]

349. [redacted]

350. [redacted]

351. [redacted]

[redacted]

352. [redacted]

[redacted]

353. [redacted]

354. [redacted]

[redacted]

355. [redacted]

356. [redacted]

357. [redacted] Professor Lampe opined that [redacted] Professor Lampe also testified that Instagram "could also have a core use of 'lifestyle.'" Ex. 281 at 198:9-22 (Lampe Dep. Tr.).

358. [redacted]

[redacted]

e. Nextdoor

i. Background

359. [redacted]

ii. Features

360. Nextdoor has many features that are similar to features on Facebook and Instagram. *See*, *e.g.*, *supra* Part I.A.1(a)(vi), (viii) & (b)(v), (ix).

361. Nextdoor users have profiles with information about themselves, and they can post and view content from other users who live nearby, which populates users' feeds, along with algorithmically selected content. *See* Ex. 1 at ¶ 205 (Ghose Rep.).

362. [redacted]

363. [redacted]

iii. Competition Between Nextdoor and Facebook and Instagram

364. Nextdoor provides a reasonable substitute for certain engagement on Facebook, including communicating with neighbors in a geographic community, participating in interest-based groups, and buying and selling products. *See infra* at ¶¶ 365-379.

365. **Meta Documents.** Meta documents and testimony recognize Nextdoor as one of Facebook's competitors. For example, Ms. Simo testified that [redacted]

366. A September 26, 2016 internal email among Meta employees circulated an analysis titled "Competitive Update 3: Community-Centric Competitors," which described Nextdoor as a "main competitor" and compared Nextdoor features to Facebook features, including features on Facebook Groups. Ex. 232 at -634-637 (FB_FTC_CID_03548634).

367. [redacted] (FB_FTC_CID_10401702). [redacted]

368. [redacted]

369. [redacted] Nextdoor "most directly compete[s]" with "Meta (including through Facebook and Instagram)" "to attract, engage, and retain users." Ex. 400 at 9 (Nextdoor 2023 Form 10-K). [redacted]

370. [redacted]

371. [redacted]

[redacted]

372. [redacted]

373. [redacted]

374. [redacted]

375. [redacted]

[redacted]

376. Professor Lampe testified that "at a high level that you can fulfill that information – that motivation to seek information about a geographic community on both [Facebook and Nextdoor]," notwithstanding the "differences between those platforms and how that rolls out." Ex. 281 at 261:4-261:15 (Lampe Dep. Tr.).

377. [redacted]

378. [redacted]

379. [redacted]

f. Reddit

i. Background

380. [redacted]

381. [redacted]

382. [redacted]

ii. Features

383. Reddit has many features that are similar to features on Instagram and Facebook. *See*, *e.g.*, *supra* ¶¶ Part I.A.1(a)(vi) & (b)(v).

384. Reddit's user interface is primarily organized by three feeds: Home, Popular, and News. *See* Ex. 1 at ¶ 190 (Ghose Rep.).

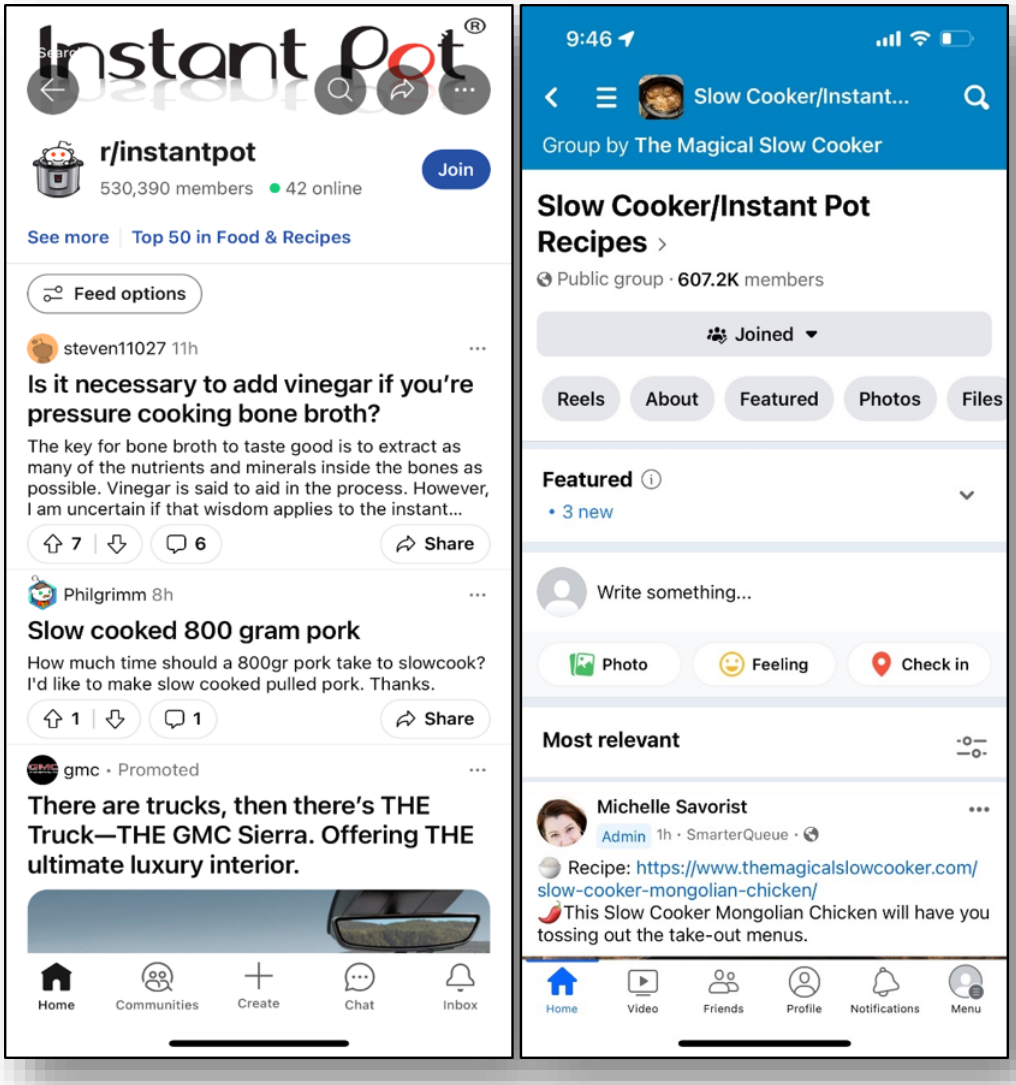
385. Like Facebook and Instagram, Reddit's feeds are populated by photos, videos, and other content shared by other users. *See* Ex. 1 at ¶ 190 (Ghose Rep.); [redacted]

[redacted] In 2023, Reddit added a "Watch" feed focused on short-form video that is comparable to Instagram Reels or TikTok. Ex. 1 at ¶ 190 (Ghose Rep.).

386. [redacted]

387. [redacted]

388. [redacted] The below left screenshot is an example of the "Instant Pot" subreddit on Reddit's mobile app. For comparison, the below right screenshot is an example of the "Slow Cooker/Instant Pot Recipes" Facebook Group on Facebook's mobile app.



389. [redacted]

iii. Competition Between Reddit and Facebook and Instagram

390. Reddit provides a reasonable substitute for certain engagement on Facebook and Instagram, including sharing and viewing interest-based content and viewing various forms of entertaining content. *See infra* at ¶¶ 391-398.

391. Professors Lampe and Hemphill described Facebook Groups and Reddit as being used for similar purposes. When discussing Facebook Groups in his report, Professor Hemphill quotes testimony from Mr. Alison, explaining that Facebook Groups is [redacted] Ex. 279 at ¶ 270 n.504 (Hemphill Rep.) (quoting Ex. 146 at 42:19-24 (Alison Dep. Tr.)). Professor Lampe testified that "the dominant use for [Facebook] groups is around interest-based communities." Ex. 281 at 216:11-20 (Lampe Dep. Tr.) (responding affirmatively to the question whether "it would be unlikely that personal social networking is the motivation basis for using Facebook groups"). Professor Lampe testified "that both Reddit and Facebook groups offer interest-based communities." *Id.* at 217:4-10.

392. **Meta Documents.** [redacted]

393. [redacted]. *See supra* at ¶ 185.

394. Meta documents and executives also recognize that Reddit provides a reasonable substitute for certain engagement on Facebook, including sharing and viewing interest-based content. [redacted]

395. [redacted] The first sentence of the "Findings" states that [redacted]

396. [redacted]

397. [redacted]

[redacted]

398. [redacted]

g. LinkedIn

i. Background

399. [redacted]

400. [redacted]

ii. Features

401. LinkedIn has many features that are similar to features on Instagram and Facebook. Professor Hemphill opined that "LinkedIn has a social graph that in certain respects resembles Facebook's social graph. Like Facebook's process for adding friends, LinkedIn allows a user to send 'connection requests' to other users, who can choose to accept or decline the request." Ex. 279 at ¶ 401 (Hemphill Rep.). Professor Lampe was asked if he "ha[d] any basis to dispute that especially since the pandemic there has been an increase in personal content being shared on LinkedIn." Ex. 281 at 336:19-22 (Lampe Dep. Tr.). He responded: "I don't think in my opinion I say that there's never been any personal content shared on LinkedIn." *Id.* at 337:1-6. Professor Lampe testified that he "ha[d] no basis to dispute" that "since the pandemic sharing with friends and family has been an increasing use case with LinkedIn." *Id.* at 338:6-12.

402. [redacted]

403. [redacted]

404. [redacted]

405. [redacted]

406. [redacted]

407. Meta expert Professor Anindya Ghose described one study as finding that: "Millennials use LinkedIn just as they would any other social media website like Facebook or Instagram," that "Millennials use LinkedIn to form meaningful connections by keeping their networks fresh and active," and that "[u]sing LinkedIn for personal identity and social needs seems to be some of the most significant gratifications among Millennial users." Ex. 1 at ¶ 185 & n.435 (Ghose Rep.).

iii. Competition Between LinkedIn and Facebook and Instagram

408. LinkedIn provides a reasonable substitute for certain engagement on Facebook and Instagram, including for sharing and connecting with others. *See infra* at ¶¶ 409-414.

409. **Meta Documents and Testimony.** Meta documents and executives recognize LinkedIn as one of Facebook's and Instagram's competitors. Ms. Simo testified that . *See* Ex. 150 at 218:23-219:3 (Simo Dep. Tr.)); *see also id.* at 221:14-222:4 & errata).

410. [redacted]. *See supra* at ¶ 185.

411. Other Meta documents recognize competition between Facebook and LinkedIn. *See*, *e.g.*, Ex. 275 at -758 (FB_FTC_CID_03551685) (2014 "Utility Three-Year Plan" slide deck listing "Google" and "LinkedIn" as "Key Competitors" for "[b]ein[g] the best place for finding, learning about, connecting and contacting someone"); [redacted]

412. [redacted]

[redacted]

413. [redacted]

[redacted]

414. [redacted]

h. Strava

i. Background

415. [redacted]

416. [redacted]

ii. Features

417. Strava has many features that are similar to features on Instagram and Facebook. *See*, *e.g.*, *supra* Part I.A.1(a)(iii) & (b)(iii). [redacted]

iii. Competition Between Strava and Facebook and Instagram

418. [redacted]

419. [redacted]

i. Apps That Offer Messaging Functionality

420. Users can communicate on Instagram and Facebook through multiple means, including, among other things, posts that are shared on Feed or Stories and messages to individuals or groups of individuals through Instagram Direct or Facebook Chat/Messages. *See supra* Part I.A.1(b)(vi) & (c)(i).

421. In addition to applications such as TikTok, Twitter, Pinterest, Snapchat, and MeWe that offer messaging – *see supra* at ¶¶ 237-238, 300, 341; *see infra* at ¶¶ 492, 523 –

Apple, Google, and Discord offer applications with messaging functionality in the United States. *See infra* at ¶¶ 423-437.

422. Applications with messaging functionality have many features that are similar to features on Instagram and Facebook. *See supra* Part I.A.1(b)(vi) & (c)(i).

i. Apple Messages (iMessage)

423. [redacted]

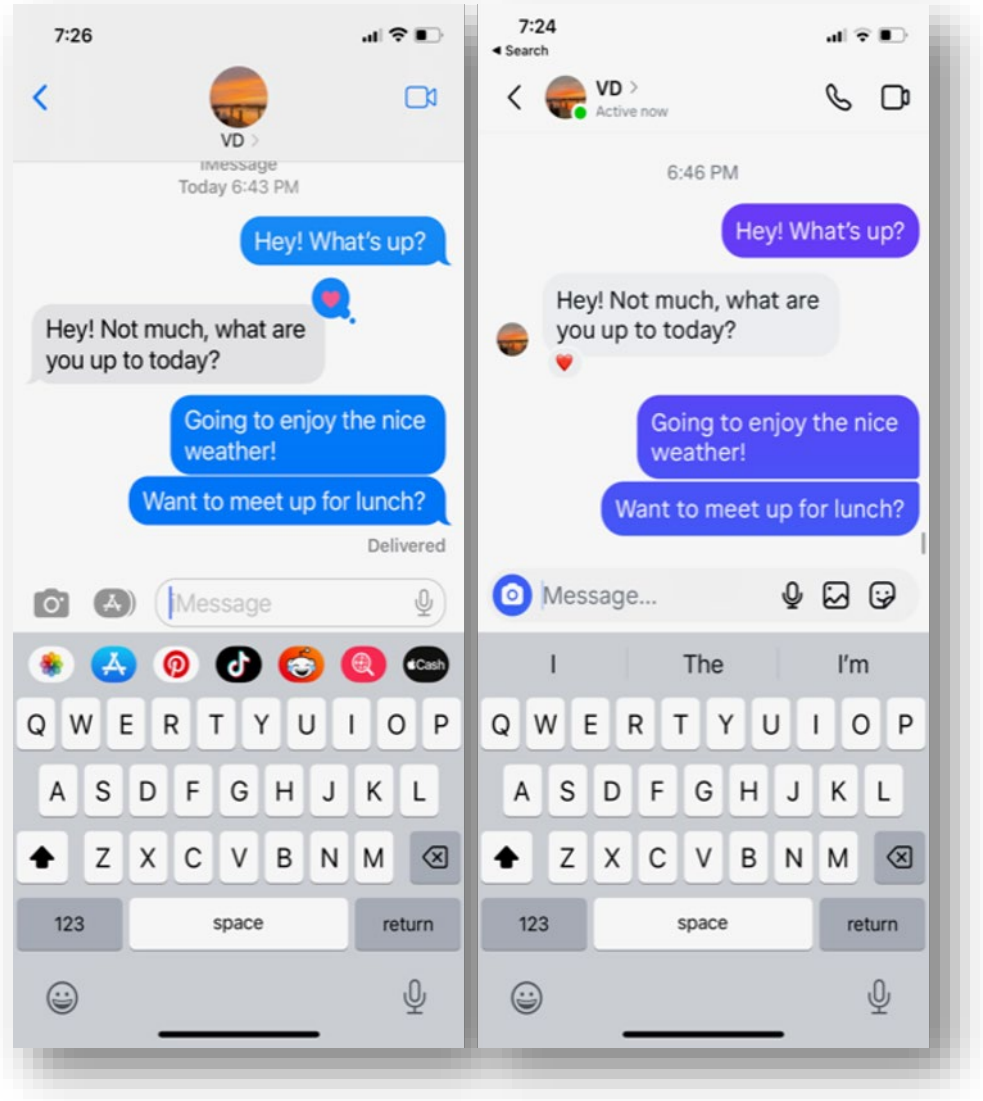
424. [redacted]

425. [redacted]

426. [redacted]

427. Since 2016, Apple's Messages app has enabled users to embellish messages with stickers, as well as confetti and other effects. *See* Ex. 1 at ¶ 178 n.418 (Ghose Rep.). [redacted]

428. The below left screenshot is an example of an iMessage conversation, including a heart icon. For comparison, the below right screenshot is an example of a conversation on Instagram Direct, including a heart icon.



429. [redacted]

430. [redacted]

[redacted]

431. Professor Hemphill testified that iMessage's "network of connections" includes "nodes and connections and these are people that you know in the real world," and he "suppose[s] it could be a social graph of a kind." Ex. 283 at 97:22-98:15 (Hemphill Dep. Tr.).

432. When asked if posts in a group on iMessage "appear in a shared social space," Professor Hemphill testified, "I don't know. . . . [T]here are aspects I think of a shared social space there." Ex. 283 at 98:16-99:3 (Hemphill Dep. Tr.).

ii. Google Messaging Apps

433. [redacted]

434. [redacted]

435. [redacted]

436. [redacted]

iii. Discord

437. [redacted]

iv. Competition Between Meta and Applications Offering Messaging

438. Messaging apps are a reasonable substitute for certain engagement on Facebook and Instagram, including for sharing and communicating with friends and family. *See infra* at ¶¶ 439-456.

439. **Meta Documents and Testimony.** Meta documents and executives recognize messaging apps as Facebook's and Instagram's competitors. For example, in August 2020, Mr. Zuckerberg testified that [redacted] Ex. 139 at 133:10-134:14 (Zuckerberg IH Tr.). At his May 9, 2023 deposition, Mr. Zuckerberg testified that [redacted] Ex. 142 at 18:3-9 (Zuckerberg Dep. Tr.). Mr.

Zuckerberg also noted that, [redacted]. *Id.* at 37:13-14.

440. Other Meta executives testified about the shift from broadcast sharing to messaging. Mr. Mosseri testified: [redacted] Ex. 143 at 145:3-23 (Mosseri Dep. Tr.). Mr. Mosseri further testified that Instagram is [redacted] *Id.* at 206:2-4. Mr. Mosseri also testified that [redacted] *Id.* at 203:15-18.

441. Mr. Alison testified, [redacted] Ex. 146 at 69:22-70:11 (Alison Dep.

Tr.). Ms. Simo, Mr. Alison's predecessor as the head of Facebook, testified that [redacted] Ex. 149 at 227:2-8 (Simo IH Tr.).

442. Documents from Meta reflect the shift from broadcast sharing to messaging and confirm competition between Facebook and Instagram and applications that offer messaging functionality. For example, [redacted]

443. [redacted]

444.

445.

Ex. 222 at -.002, -.009 (FTC-META-005944143).

. *Id.* At his deposition, Professor Hemphill acknowledged that he

Ex. 283 at 117:7-15 (Hemphill Dep. Tr.). Professor Hemphill relied on *See* Ex. 279 at ¶ 284 n.573 (Hemphill Rep.).

446.

Ex. 240 at -082 (FTC-META-002474082).

447. On Meta's January 2021 earnings call, Mr. Zuckerberg stated "we increasingly see Apple as one of our biggest competitors. iMessage is a key linchpin of their ecosystem. It comes pre-installed on every iPhone and they've preferenced it with private APIs and permissions, which is why iMessage is the most used messaging service in the US." Ex. 402 at 3 (Facebook, Inc. Q4 2020 Earnings Call). Mr. Zuckerberg reiterated this point during Meta's October 2021 earnings call, stating that "over the last decade . . . competition [for Meta's services] has also gotten more intense, especially with Apple's iMessage growing in popularity." Ex. 403 at 3 (Facebook, Inc. Q3 2021 Earnings Call).

448. **Nonparty Documents and Testimony.** [redacted]

449. [redacted]

450. [redacted]

[redacted]

451. [redacted]

452. [redacted]

[redacted]

453. [redacted]

454. [redacted]

455. [redacted]

[redacted]

456. [redacted]

v. FTC Expert Opinions Regarding PSNS Activity on Messaging

457. When asked if "an individual wants to share content with friends and family, will they consider the functionality of both public and private sharing as possible ways of sharing?" Professor Hemphill testified, "If they are seeking to satisfy the particularized demand for personal social networking I'd say no, but speaking at a very high level of generality, I would agree that to communicate with real world friends or real world family under particular circumstances messaging is an alternative to which they might turn." Ex. 283 at 109:12-110:1 (Hemphill Dep. Tr.).

458. In one of his published articles, Professor Lampe states that "Facebook is unlikely to be a critical communication for close friends because these stronger ties typically use multiple, redundant channels to communicate, as suggested by media multiplexity." Ex. 404 at 5 (MetaFTC-DX-1136). Professor Lampe agreed in his deposition with the accuracy of that statement, and that "amongst others, messaging apps" would be a communication channel that would be used for communicating with close friends. Ex. 281 at 52:20-53:19 (Lampe Dep. Tr.).

459. When asked if "messaging applications are also a substitute communication channel for communicating with close friends," Professor Lampe testified, "[m]essaging along with other apps can be used for maintaining relationships with close friends, yes." Ex. 281 at 57:17-58:7 (Lampe Dep. Tr.).

460. When users send a message to one reciprocal connection on Instagram, Professor Lampe testified that users would "*not* be . . . personal social networking as we've previously defined it." Ex. 281 at 266:9-267:5 (Lampe Dep. Tr.). Similarly, Professor Lampe testified that when users send a message on Snapchat to another user, that use is not personal social networking. *See id.* at 293:22-294:6 ("Q. Okay. One thing you can do with Snapchat is messaging, right? A. That's correct, as I understand it. Q. You would agree that messaging use of the app is not personal social networking, right? . . . A. I would agree, yes.").

j. Many Other Companies Represent to the Public in Annual Reports That They Compete with Facebook or Instagram

461. At least 184 companies stated that they competed with Meta, Facebook, or Instagram in at least 2012, 2014, or 2021. Ex. 1 at ¶¶ 74-76 & Ex. C (Ghose Rep.) (compiling list of annual reports).

462. Professor Ghose explained that he compiled the list of 184 companies after examining the Form 10-K "for every U.S. public company in each of three years, 2012, 2014, and 2021, that included the words 'Facebook,' 'Meta,' 'Meta Platforms,' or 'Instagram' within 100 words of the keyword 'compet*'." Ex. 1 at ¶¶ 74-76 & Ex. C (Ghose Rep.). There "were 184 companies that stated they compete with Meta, Facebook, or Instagram in at least one of 2012, 2014, and 2021." *Id.* at ¶ 75. Professor Ghose explained that, "[t]his exhibit likely understates the degree of competition because I did not mark cases where a company states, for

instance, that it faces competition with 'social networking companies' or 'news aggregators,' but did not mention Meta or its apps specifically." *Id*. at ¶ 76.

k. There Is No Public Recognition of a PSNS Market Consisting of Facebook, Instagram, Snapchat, and MeWe

i. Non-Parties Consistently Testified That They Were Not Familiar with the FTC's PSNS Market

463. [redacted]

464. [redacted]

[redacted]

465. [redacted]

466. [redacted]

467. [redacted]

468. [redacted]

[redacted]

469. [redacted]

470. [redacted]

471. [redacted]

472. [redacted]

473. [redacted]

474. [redacted]

[redacted]

475. [redacted]

ii. There Is No Evidence of Industry Recognition of the FTC's PSNS Market

476. No contemporaneous ordinary-course document from any party or non-party produced in this case describes Facebook, Instagram, Snapchat, and MeWe all as "personal social networking services."

477. No document produced or testimony provided in this case states or otherwise recognizes that there is a distinct market – by any name – that consists exclusively of Facebook, Instagram, Snapchat, and MeWe.

iii. Terms Like "Social Network" and "Social Media" Are Regularly Used To Describe Services That Are Not in the FTC's PSNS Market

478. No document produced or testimony provided in this case states or otherwise recognizes a commonly understood definition of "social network" or "social media."

479. Industry participants, public sources, and record evidence in this case often describe many companies that the FTC excludes from its market definition as social networks or social media providers. *See* Ex. 1 at ¶¶ 35-100 (Ghose Rep.).

480. The FTC refers to companies it excluded from its market definition as "social media and video streaming" services. In December 2020, the FTC sent orders to file a special report to Amazon, TikTok (ByteDance), Discord, Facebook, Reddit, Snap, Twitter, WhatsApp, and YouTube. [redacted] Each notice defined "social media and video streaming" services as "any product or service that allows users to create and share content with other users (whether a private or group interaction) through an application or website on any device." Ex. 407 at 27 (MetaFTC-DX-1001). On May 22, 2023, the FTC's 30(b)(6) designee testified that [redacted]

481. Professor Lampe opined that TikTok is a "social network site." Ex. 281 at 325:21-326:3 (Lampe Dep. Tr.) ("Q. . . . I want to talk about TikTok for a second. You agree that TikTok has all of the elements of a social networking site; is that fair? A. In my – both reports I do describe TikTok as a social networking site."). He also testified that applications

like Twitter and LinkedIn are social network sites or could be characterized as social networks. *Id.* at 317:20-21 ("As with Twitter, we define LinkedIn – I define LinkedIn as an SNS.").

482. [redacted] *See*, *e.g.*, *supra* at [redacted]; *see also supra* at ¶ 197 (book by FTC expert).

2. Other Alleged PSNS Services

a. Snapchat

i. Background

483. Snapchat, offered by the company Snap Inc., first became available to download in 2011. *See* Ex. 406 at 21-22 (Snap 2022 Form 10-K); Ex. 279 at ¶ 137 (Hemphill Rep.).

484. [redacted]

485. In 2013, Snap added a feature called Stories. *See* Ex. 279 at ¶ 139 (Hemphill Rep.); Ex. 1 at ¶ 51 (Ghose Rep.); [redacted] Stories are collections of Snaps (either photos or videos) that play in the order in which they were taken. *See* Ex. 406 at 6 (Snap 2022 Form 10-K); [redacted]

Stories are ephemeral and available for 24 hours after being posted. *See* Ex. 1 at ¶ 51 (Ghose Rep.); [redacted] All of a user's friends can view Stories in a broadcast format. *See* Ex. 279 at ¶ 139 (Hemphill Rep.). [redacted]

486. [redacted]

487. Snap "generate[s] substantially all of [its] revenue from advertising." Ex. 406 at 3, 15 (Snap 2022 Form 10-K). Snap reported that in 2022, 2021, and 2020, "advertising revenue accounted for approximately 99%, 99%, and 99% of total revenue, respectively." *Id.* at 15.

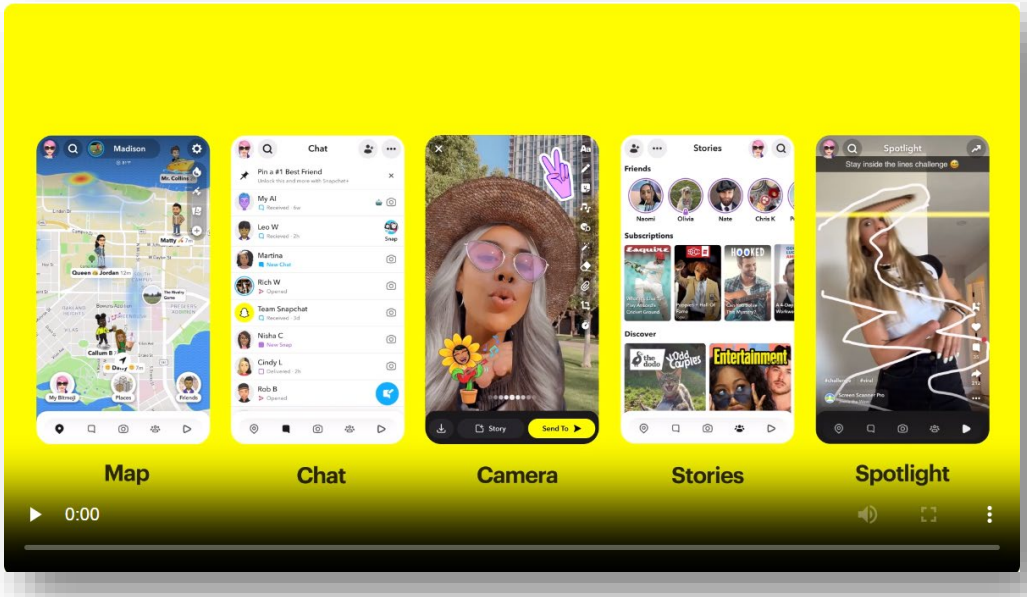
ii. Features

488. Snap has many features that are similar to features on services the FTC excludes from the proposed PSNS market.

489. **Friending.** [redacted]

[redacted]

490. **Five Tabs.** [redacted] An image of each of the five tabs is below. *See* Ex. 408 at 1 (Snapchat, *Snapchat 101*, https://perma.cc/5MFJ-G7FX).



491. **Map.** [redacted]

492. **Chat.** [redacted]

493.

494. **Camera.**

495. **Stories and Discover.**

[redacted] Additionally, users can follow "shows" – longer-form video content that typically spans 3 to 5 minutes. *See* Ex. 410 (Business Insider, *How to Get a Snap Show to Make Money as an Influencer*). [redacted]

496. **Spotlight.** Snapchat's fifth and right-most tab is Spotlight, which Snap launched around November 2020. *See* Ex. 412 (Snapchat Newsroom, *Introducing Spotlight on Snapchat*). [redacted]

497. Multiple news outlets have described Spotlight as Snap's competitive response to TikTok. *See* Ex. 414 (Business Insider, *Snapchat Is Launching a TikTok-Like Tab Called Spotlight*) ("Snapchat is gunning for TikTok with a new app feature called Spotlight, a curated, scrollable feed of short videos generated by users."); Ex. 416 (TechCrunch, *Snapchat Launches a TikTok-Like Feed Called Spotlight*) (describing Spotlight as "Snapchat's biggest attempt at taking on TikTok to date"); Ex. 415 at 1 (The Verge, *Snapchat Officially Launches In-App TikTok Competitor Called Spotlight*, https://perma.cc/W3QQ-6JQ9) ("Imagine, basically, TikTok but in Snapchat."); Ex. 413 (Wall Street Journal, *Snap Counters TikTok with Spotlight Video-Sharing Feature*) ("Snap . . . is launching a video-sharing feature to rival TikTok.").

Professor Hemphill has described Spotlight as a competitive response to TikTok. *See* Ex. 279 at ¶ 1189 (Hemphill Rep.) ("Snap ha[s] responded to TikTok by offering programs to share revenue with short-form video content creators on . . . Snapchat Spotlight.").

iii. Snap Competition with Apps Outside the FTC's PSNS Market

498. [redacted]. Snap's competitors include (among others) YouTube, TikTok, Pinterest, Twitter, Instagram, Facebook, and Apple. *See* Ex. 418 at 20 (Snap 2023 Form 10-K); Ex. 406 at 20 (Snap 2022 Form 10-K); Ex. 417 at 19 (Snap 2021 Form 10-K); Ex. 409 at 18 (Snap 2020 Form 10-K).

499. [redacted]

500. [redacted]

[redacted]

501. [redacted]

502. [redacted]

503.

504.

505.

iv. Snap Competition with Non-PSNS Apps for Activities in the FTC's PSNS Market When Done on Snapchat but Not in the FTC's Market When Done on Other Apps

506. There are reasonable substitutes for Snapchat – with respect to messaging as well as sharing and viewing videos – outside the FTC's alleged PSNS market. *See infra* at ¶¶ 507-520.

507.

508. Professor Lampe, the FTC's proffered industry expert, opined

509. In January 2023, the FTC's Supplemental Response to Meta's Interrogatories 13 and 14 – stated that it "continues to examine the extent to which users view and experience Snapchat as a mobile messaging application, as opposed to or in addition to as a personal social networking service" – highlighted an excerpt in a Meta document from 2014, "listing Snapchat as a 'Top 10 SMS-Replacement App[ ]' "; ; ; and a 2016 Business Insider article titled "Teens Say They're Texting for Snapchat Because It's More Casual." Ex. 291 at 6, 29-30, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

510. **Spotlight.**

[redacted]

511. [redacted]

512. **Friends Stories.** [redacted]

513.

514.

515.

516.

517.

518.

519. [redacted]

[redacted]

520. [redacted]

b. MeWe

i. Background

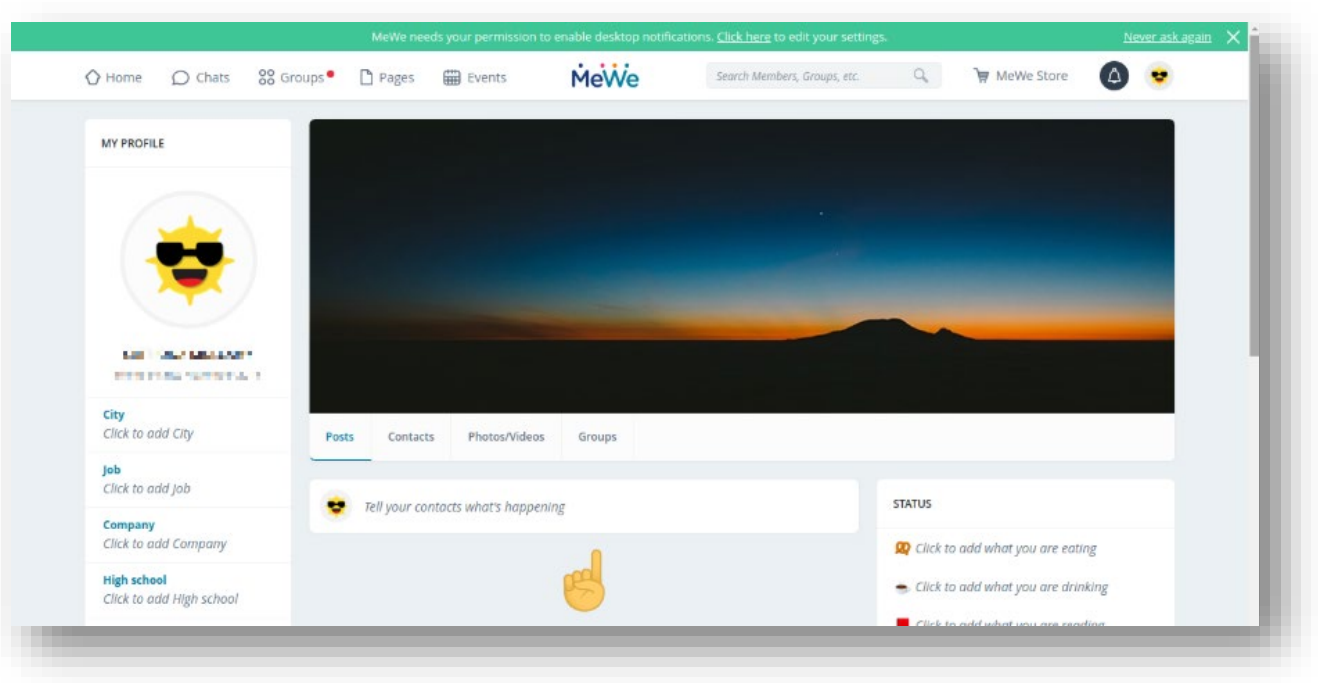
521. The FTC claims that MeWe is a "personal social networking service." Ex. 295 at 3, FTC's Suppl. Resp. to Meta's Interrog. No. 3 (FTC's Suppl. Objs. & Resps. to Meta's First Set of Interrogs. (Nov. 4, 2022)).

522. MeWe "launched for iOS and Android in October 2014" and "sought to differentiate itself from Facebook by providing a privacy-focused service that does not serve ads or track user activities." Ex. 279 at ¶ 148 (Hemphill Rep.). "MeWe instead offers users a 'freemium' model, wherein users can choose between using a no-cost version of the site that provides users with basic social networking functions or subscribing to MeWe and accessing additional features, including data storage." *Id.*

ii. Features

523. MeWe has many features that are similar to features on apps excluded from the FTC's PSNS market. MeWe allows users to, among other things, "post text and images on their timelines, share other member[s'] content, send disappearing messages, join and create groups, and to take part in private or group chats." Ex. 419 at 3 (webwise, *Explained: What is MeWe*).

524. As shown in the screenshot below, MeWe allows users to scustomize their profile with a profile photo and background photo, as well as background information such as their location and job. Ex. 419 at 2 (webwise, *Explained: What is MeWe*).



525. [redacted]

[redacted]

[redacted]

iii. MeWe Competition with Apps Outside the FTC's PSNS Market

526. [redacted]

527. [redacted]

[redacted]

528. [redacted]

[redacted]

529. [redacted]

530. [redacted]

[redacted]

531. [redacted]

[redacted]

532. [redacted]

[redacted]

C. Meta's Experts' Empirical Substitution Data

533. Meta's expert economists Professor John List and Professor Dennis Carlton conducted various empirical analyses to test the FTC's proposed market definition. *See generally* Ex. 3 (List Rep.); Ex. 2 (Carlton Rep.).

534. Professor List undertook three empirical analyses to evaluate the FTC's alleged "Personal Social Networking Services" (or "PSNS") market definition. He described these as: (1) a "Pricing Experiment" – a large-scale experiment that evaluates patterns of diversion from Facebook and Instagram to other apps and activities in response to financial incentives to reduce engagement on Facebook and Instagram, *see infra* at ¶¶ 537-547; (2) a "TikTok Natural Experiment" – an analysis of the impact of India's June 2020 TikTok ban on engagement on Facebook and Instagram, which provides a natural experiment for evaluating substitution between TikTok and Facebook and Instagram, *see infra* at ¶¶ 548-553; and (3) a "Switching

Analysis" – an observational switching analysis of the relationship between changes in the use of Facebook or Instagram and changes in the use of other apps, *see infra* at ¶¶ 554-561.

535. Professor List concluded that "[e]ach of these empirical approaches establishes that Facebook and Instagram face competition from a wide variety of apps and that observed substitution patterns are inconsistent with the FTC's and Prof. Hemphill's claim that PSNS is a relevant economic market for evaluating the competitive impact of Meta's acquisitions of Instagram and WhatsApp." Ex. 3 at ¶ 38 (List Rep.).

536. Professor Carlton analyzed documents and data regarding a Meta service outage in October 2021. *See infra* at ¶¶ 562-566. He "found that when users diverted time away from Facebook and Instagram during the outage, that time went primarily to [redacted]." Ex. 2 at ¶ 25 (Carlton Rep.).

1. Professor John List's "Pricing Experiment"

537. Meta's economic expert, Professor John List, designed and implemented a multi-week field experiment involving approximately 6,000 participants (the "Pricing Experiment") that generated data he used to estimate the extent of economic substitution between Facebook, Instagram, other online services, and off-device activities. *See* Ex. 3 at ¶¶ 17, 39 & App'x F at F-18 (List Rep.).

538. In the Pricing Experiment, "[d]evice monitors were installed on participants' mobile devices to measure baseline engagement on various apps and changes in engagement on apps during the treatment period." Ex. 3 at ¶ 52 (List Rep.).

539. To overcome the problems of analyzing substitution among zero-price goods, the Pricing Experiment presented users with economic incentives to reduce the amount of time they spend on Facebook or Instagram. *See* Ex. 3 at ¶¶ 6, 16, 39 (List Rep.). This is equivalent to introducing a positive price to use Facebook or Instagram. *See id.* at ¶ 16. Professor List

observed how users reallocate their time to other apps and activities in response to economic incentives. *See id.*

540. The experiment divided the treatment group into Facebook and Instagram groups: (1) the Facebook experiment paid users to reduce their usage of Facebook and measured diversion from Facebook; and (2) the Instagram experiment paid Instagram users to reduce their usage of Instagram and measured diversion from Instagram. *See* Ex. 3 at ¶¶ 73-81 (List Rep.).

541. To establish a causal (and not simply correlational) relationship between the economic incentives and changes in engagement, the Pricing Experiment also included "control groups" of Facebook and Instagram users who did not face a price for reducing their use of Facebook or Instagram. *See* Ex. 3 at ¶¶ 16, 55-58 (List Rep.).

542. By comparing changes in the behavior of participants in the treatment and control groups between the baseline and treatment periods, Professor List obtained causal estimates of the impact of financial incentives on (1) engagement on Facebook or Instagram; and (2) economic substitution between Facebook or Instagram and other apps and activities. *See* Ex. 3 at ¶ 55 (List Rep.).

543. "The Pricing Experiment provides direct estimates of diversion from Facebook or Instagram to other apps and off-device activities. The results for both the Facebook and Instagram experiments establish that PSNS account for only a modest fraction of diversion. . . . TikTok and YouTube, combined, account for a larger share of diversion than do PSNS apps. These results contradict the FTC's and Prof. Hemphill's market definition." Ex. 3 at ¶ 94 (List Rep.); *see also id.* at ¶ 21 ("[T]he results of the Pricing Experiment establish that when users reduce engagement on Facebook or Instagram in response to financial incentives, they divert

their time not primarily to other PSNS apps (as defined by the FTC and Prof. Hemphill), but to a wide range of other apps and activities.”).

544. The results of the Facebook experiment were as follows: “[P]SNS apps account for only 6% of time diverted from Facebook – 5% of time is diverted to Instagram and about 1% to Snapchat. [T]ikTok [5%] and YouTube [8%] together account for 13% of time diverted from Facebook. [B]rowsers account for 10% of time diverted from Facebook, and Games account for 14%. [R]oughly 39% of time is diverted from Facebook to off-device activities.” Ex. 3 at ¶ 114 (List Rep.).

545. The results of the Instagram experiment were as follows: “[P]SNS apps account for only 16% of time diverted from Instagram – 13% to Facebook and 2% to Snapchat. [13% diversion to Facebook and 2% diversion to Snapchat do not add up to 16% due to rounding.] [T]ikTok and YouTube together account for 29% of time diverted from Instagram – 19% to YouTube (which is greater than diversion to Facebook) and 10% to TikTok. [B]rowsers account for 18% of time diverted from Instagram, and Games account for 3%.” Ex. 3 at ¶ 117 & n.61 (List Rep.).

546. Professor List summarized “the diversion rates from the Facebook and Instagram experiments graphically” in the below figures. Ex. 3 at ¶ 118 (List Rep.). “The graphs summarize in ascending order the diversion rates for each app and category, with the PSNS apps denoted in orange.” *Id.*

[redacted]

Id. at p. 47, fig. II-5 (List Rep.).

[redacted]

Id. at p. 48, fig. II-6 (List Rep.).

547. Professor List concluded that "the results of the Pricing Experiment contradict the FTC's and Prof. Hemphill's PSNS market definitions." Ex. 3 at ¶ 120 (List Rep.). That is because "[t]he results of the Pricing Experiment establish that when users reduce engagement on Facebook or Instagram in response to financial incentives, they divert their time not primarily to other PSNS apps (as defined by the FTC and Prof. Hemphill), but to a wide range of other apps and activities." *Id.* at ¶ 21.

2. Professor John List's "TikTok Natural Experiment"

548. In 2020, the Indian government banned TikTok and 58 other Chinese apps. *See* Ex. 3 at ¶ 125 (List Rep.). At the time, TikTok had more than 200 million users in India and

accounted for [redacted] of the engagement in India on the banned apps prior to the ban, based on data from data.ai (a third-party firm). *See id.*

549. Meta's expert economist, Professor John List, conducted a statistical analysis to determine whether and how much the ban affected engagement on Facebook and Instagram. *See* Ex. 3 at ¶ 132 (List Rep.). He compared changes in actual engagement on Facebook and Instagram in India after the ban with estimates of but-for changes in engagement based on Facebook and Instagram engagement in other countries that most closely approximated engagement in India prior to the ban. *See id.* at ¶¶ 122, 132.

550. Professor List found that actual engagement on both Facebook and Instagram increased following the ban relative to levels that would have been expected but for the ban. *See* Ex. 3 at ¶ 122 (List Rep.). The effects he found were large and statistically significant. *See id.* at ¶¶ 122, 137.

551. "India's TikTok ban had an immediate and sizeable long-term effect on engagement on both Facebook and Instagram in India. The effects grew over time, which is consistent with the rising importance of TikTok and short-form video content over the same period." Ex. 3 at ¶ 137 (List Rep.).

552. Professor List summarized results from his statistical analysis in the below Figures. *See* Ex. 3 at ¶ 135 (List Rep.). "These results . . . demonstrate that engagement on Facebook and Instagram in India increased rapidly following the ban." *Id.*

[redacted]

Id. at p. 57, fig. II-9 (List Rep.).

[redacted]

Id. at p. 58, fig. II-10 (List Rep.).

553. Professor List concluded that his results "[we]re inconsistent with the FTC's claim that Facebook and Instagram participate in a market that excludes TikTok" and "provid[ed] further empirical support that Facebook and Instagram are substitutes for TikTok." Ex. 3 at ¶¶ 137-138 (List Rep.).

3. Professor John List's "Switching Analysis"

554. Meta's expert economist, Professor John List, analyzed data [redacted] to evaluate how Meta users trade off time spent on Facebook, Instagram, and other apps. *See* Ex. 3 at ¶ 140 (List Rep.). Professor List explained that "[t]his analysis

identifies which apps and activities gain time when users reduce time spent on Facebook or Instagram, and vice versa." *Id.*

555. Professor List analyzed [redacted]

556. [redacted]

557. Professor List found that "users who change their time spent on Facebook distribute that time across a variety of apps, with little time moving to or from the other PSNS apps." Ex. 3 at ¶ 156 (List Rep.). [redacted]

558. [redacted]

[redacted] Professor List explained: "This figure further demonstrates that users who change their time spent on Facebook distribute that time across a variety of apps, with little time moving to or from the other PSNS apps." *Id.*

[redacted]

Id. at p. 67, fig. II-13 (List Rep.).

559. [redacted]

[redacted] Ex. 3 at ¶¶ 157-158 (List Rep.).

560. [redacted] Professor List explained that this figure "demonstrates that users who change their time spent on Instagram distribute that time across a variety of apps, with little time moving to or from the other PSNS apps." *Id.*

[redacted]

Id. at p. 69, fig. II-14 (List Rep.).

561. Professor List concluded that "the results [redacted] indicate[d] that changes in time on Facebook and Instagram are associated with changes in a wide array of apps and that PSNS account for a small share of that time." Ex. 3 at ¶ 160 (List Rep.).

4. Professor Dennis Carlton's Outage Analysis

562. Meta's expert economist, Professor Dennis Carlton, "analyzed substitution patterns in response to the largest outage in Meta's history." Ex. 2 at ¶ 25 (Carlton Rep.). "On October 4, 2021, from roughly 8:40 AM PST to roughly 3 PM PST, all of Meta's apps (including Facebook, Instagram, and WhatsApp) were subject to a global outage." *Id.* at ¶ 26. Professor Carlton [redacted]

563. Professor Carlton also [redacted]

564. Professor Carlton found that [redacted] also experienced larger increases in minutes [redacted]

565. Professor Carlton summarized the results from his analysis in the Table below. *See* Ex. 2 at ¶ 29 (Carlton Rep.). [redacted]

Id. at p. 34, tbl. 1 (Carlton Rep.).

566. Professor Carlton concluded: [redacted] These data from the Meta outage indicate that TikTok, YouTube, built-in messaging apps, and Twitter should also be in Prof. Hemphill's relevant market." Ex. 2 at ¶ 30 (Carlton Rep.).

II. THE FTC'S "PERSONAL SOCIAL NETWORKING SERVICES" MARKET

567. The FTC has alleged that Meta is a monopolist in the provision of "personal social networking" services ("PSN services" or "PSNS"), which are "online services that enable and are used by people to maintain personal relationships and share experiences with friends, family, and other personal connections in a shared social space." Compl. ¶¶ 52, 64 (Dec. 9, 2020), ECF No. 3; *see also infra* Part II.A.

568. The FTC has alleged that the current participants in the PSNS market are Facebook, Instagram, Snapchat, and MeWe. *See* Ex. 295 at 5-6, FTC's Resp. to Meta's Interrog. No. 3 (FTC's Suppl. Objs. & Resps. to Meta's First Set of Interrogs. (Nov. 4, 2022)). The FTC identified five additional providers as formerly offering PSNS in the United States: Google+ ([redacted]), Path ([redacted]), Friendster ([redacted]), Myspace ([redacted]), and Orkut ([redacted]). *Id.*; *see also infra* Part II.B.1.

569. Meta asked the FTC to categorize 250+ activities on Facebook and Instagram as either PSNS or non-PSNS. *See* Ex. 420 (MetaFTC-DX-996, Meta's List of Features or Activities for Classification by the FTC (Aug. 22, 2022)); *see also infra* Part II.B.2. In response, the FTC decided that "all of the features/activities identified by Meta for Facebook and Instagram are part of Meta's personal social networking offering, except Facebook Dating."

Ex. 405 at 2 (MetaFTC-DX-997, FTC's Resp. to Meta's List of Features or Activities (Sept. 12, 2022)); *see also infra* Part II.B.2.

A. Original Definition

570. On December 9, 2020, the FTC filed a complaint alleging that Meta has been a monopolist in the provision of "personal social networking" services since at least 2011. Compl. at ¶ 64 (Dec. 9, 2020), ECF No. 3. The FTC alleged that PSN services are "online services that enable and are used by people to maintain personal relationships and share experiences with friends, family, and other personal connections in a shared social space." *Id.* at ¶ 52.

571. The FTC defined PSNS as having "[t]hree key elements." Compl. at ¶ 52 (Dec. 9, 2020), ECF No. 3. "First, [they] are built on a social graph that maps the connections between users and their friends, family, and other personal connections." *Id.* at ¶ 53. "Second, [they] include features that many users regularly employ to interact with personal connections and share their personal experiences in a shared [virtual] social space, including in a one-to-many 'broadcast' format." *Id.* at ¶ 54. And "[t]hird, [they] include features that allow users to find and connect with other users, to make it easier for each user to build and expand their set of personal connections. The social graph also supports this feature by informing [the users] which [new] connections" might be available based on their existing networks. *Id.* at ¶ 55; *see also* Am. Compl. ¶¶ 167-169 (Sept. 8, 2021), ECF No. 81 (same).

B. Discovery Position

572. In its first set of interrogatories, Meta asked the FTC to clarify its alleged market definition: "For each feature or activity available to users on Facebook, Instagram, WhatsApp, or Facebook Messenger, specify whether the feature or activity is or is not within the definition of 'personal social networking.'" Ex. 296 at 2, Meta's Interrog. No. 10 (FTC's Suppl. Objs. &

Resps. to Meta's First Set of Interrogs. (June 14, 2022)) (quoting Am. Compl. at ¶ 164 (Sept. 8, 2021), ECF No. 82).

573. On June 14, 2022, the FTC served its supplemental responses. *See* Ex. 296 at 4 (FTC's Suppl. Objs. & Resps. to Meta's First Set of Interrogs. (June 14, 2022)). The FTC identified several examples of activities that it decided would qualify as "use of personal social networking services," such as viewing friends' profiles on Facebook or Instagram. *Id.* at 7, 9.

574. On August 1, 2022, the Court granted Meta's motion to compel a more detailed response to its Interrogatory No. 10. *See* Order at 2 (Aug. 1, 2022), ECF No. 165. The Court directed the FTC to categorize features or activities on Facebook, Instagram, WhatsApp, or Facebook Messenger (which Meta would enumerate) "as included or excluded from the definition of 'personal social networking.'" *Id.* The Court also ordered that, "[i]f, at any point in the future, the FTC takes a different position on any such feature or activity, the FTC shall so supplement its response." *Id.*

1. The FTC States That Facebook, Instagram, Snapchat, and MeWe Are the Only Active Providers of PSNS

575. In its November 4, 2022 response to Meta's Interrogatory No. 3, the FTC identified Facebook, Instagram, Snapchat, and MeWe as the only providers currently offering personal social networking services in the United States. *See* Ex. 295 at 5-6, FTC's Resp. to Meta's Interrog. No. 3 (FTC's Suppl. Objs. & Resps. to Meta's First Set of Interrogs. (Nov. 4, 2022)).

576. The FTC stated that Facebook and Instagram offered PSNS [redacted] and continue to offer PSNS today; Snapchat offered PSNS [redacted] and continues to offer PSNS today; and MeWe offered PSNS [redacted] and

continues to offer PSNS today. *See* Ex. 295 at 5-6, FTC's Resp. to Meta's Interrog. No. 3 (FTC's Suppl. Objs. & Resps. to Meta's First Set of Interrogs. (Nov. 4, 2022)).

577. The FTC identified five additional providers as formerly offering PSNS in the United States: Google+ ([redacted]), Path ([redacted]), Friendster ([redacted]), Myspace ([redacted]), and Orkut ([redacted]). *See* Ex. 295 at 5-6, FTC's Resp. to Meta's Interrog. No. 3 (FTC's Suppl. Objs. & Resps. to Meta's First Set of Interrogs. (Nov. 4, 2022)).

2. The FTC States That All Features and Activities on Facebook and Instagram (Other Than Facebook Dating) Are Personal Social Networking

578. On August 22, 2022, Meta provided the FTC with a list of 322 features or activities on Meta's services. *See* Ex. 420 (MetaFTC-DX-996, Meta's List of Features or Activities for Classification by the FTC (Aug. 22, 2022)). Of those, 123 are on Facebook and 146 are on Instagram. *See id.* at 3-21.

579. On September 12, 2022, the FTC responded that "all of the features/activities identified by Meta for Facebook and Instagram are part of Meta's personal social networking offering, except Facebook Dating." Ex. 405 at 2 (MetaFTC-DX-997, FTC's Resp. to Meta's List of Features or Activities (Sept. 12, 2022)).

580. The FTC's September 12, 2022 response stated that *every* listed activity on Facebook on Instagram (save activities occurring on Facebook Dating) is included in "personal social networking." Ex. 405 at 5-37 (MetaFTC-DX-997, FTC's Resp. to Meta's List of Features or Activities (Sept. 12, 2022)).

581. These listed activities included, among other things: viewing Reels, even those posted by public accounts with no connection to the user; sending one-to-one messages on Instagram Direct; watching videos posted by a public account with no connection to the user;

viewing or posting interest-based content in Facebook Groups; and viewing or posting content for sale on Marketplace. *See* Ex. 405 at 5-37 (MetaFTC-DX-997, FTC's Resp. to Meta's List of Features or Activities (Sept. 12, 2022)).

582. Examples of how the FTC classified features/activities on Facebook Watch, Facebook Reels, Instagram Reels, and IGTV are below, excerpted from the FTC's response. *See* Ex. 405 (MetaFTC-DX-997, FTC's Resp. to Meta's List of Features or Activities (Sept. 12, 2022)).

Application	Number	Location	Feature/Activity	Included in "personal social networking"?
Facebook	1	Watch	Viewing publicly accessible video(s) on the "For You," "Live," "Music," "Gaming," "Following," "Saved," or "Shows" Tabs posted by a Page User follows.	Yes
Facebook	5	Watch	Viewing advertisement(s).	Yes
Facebook	12	Reels	Viewing Reel(s) posted by an account that is not a Facebook Friend of User or a person or Page User follows.	Yes
Facebook	65	Feed	Viewing linked content (e.g., a NYT article or 20 minute comedy routine from a famous comedian that was posted on YouTube) from a Group User joined based on User's interests, such as the "Slow Cooker/Instant Pot Recipes" Group.	Yes
Instagram	16	Reels	Viewing Reel(s) posted by an account that User does not follow, and that does not follow User.	Yes
Instagram	59	IGTV	Watching video(s) on IGTV.	Yes

583. Examples of how the FTC classified features/activities on Facebook Groups, Facebook Marketplace, Facebook Messaging / Chat, and Instagram Direct are below:

Application	Number	Location	Feature/Activity	Included in "personal social networking"?
Facebook	6	Marketplace	Viewing content of any form (such as Items for Sale) that was not posted by one of User's Facebook Friends.	Yes
Facebook	20	Groups	Viewing or posting content in a Group User joined based on the User's interests, such as the "Slow Cooker/Instant Pot Recipes" Group.	Yes
Facebook	29	Groups	Viewing or posting content in a Group focused on a geographic community, such as a neighborhood or city.	Yes
Facebook	91	Messaging/ Chat	Sending or viewing message(s) sent to one other Facebook Friend.	Yes
Instagram	128	Instagram Direct	Sending or viewing message(s)to or from an account User follows that does not follow User.	Yes
Instagram	130	Instagram Direct	Sending or viewing message(s)sent to a group of 2-5 other users.	Yes

584. Examples of how the FTC classified features/activities on Facebook and Instagram Stories and Feed are below:

Application	Number	Location	Feature/Activity	Included in "personal social networking"?
Facebook	37	Stories	Viewing Story(ies) [sic] posted by a Public Figure or other Personal Account User follows that is not Facebook Friends with User.	Yes
Facebook	43	Feed	Posting to all of User's Facebook Friends encouraging them to attend an industry-networking event hosted by User's employer.	Yes
Facebook	79	Feed	Viewing Recommended user-generated non-video content that does not originate from User's Facebook Friends, or people or Pages User follows or subscribes to or Groups User has joined.	Yes
Instagram	37	Stories	Viewing Story(ies) [sic] posted by a celebrity or influencer that User follows that does not follow User.	Yes
Instagram	80	Feed	Viewing Original photo(s) posted by a celebrity or influencer that User follows but does not follow User.	Yes
Instagram	102	Feed	Viewing Original video(s) posted by an account that User does not follow, and that does not follow User.	Yes

585. The FTC also stated that all listed activities on WhatsApp and Facebook Messenger were not included within the definition of "personal social networking," except

posting and viewing Stories on Facebook Messenger. *See* Ex. 405 at 3-4, 37-43 (MetaFTC-DX-997, FTC's Resp. to Meta's List of Features or Activities (Sept. 12, 2022)).

3. The FTC States That It Has Not Conducted a Comparison of Features and Activities Available on Alleged PSNS and Non-PSNS Applications and That "Individual Feature Substitution Is Not Relevant to the FTC's Contentions"

586. Meta served two Interrogatories (Nos. 13 and 14) asking the FTC to state "whether use of that feature or activity or similar feature or activity counts as time spent using a 'personal social networking service' when the feature or activity is used or performed on" other applications identified in the Amended Complaint (Strava, LinkedIn, iMessage, Twitter, Reddit, Pinterest, YouTube, Spotify, Nextdoor, Netflix, Hulu, TikTok, Snapchat, Google+, MeWe, Path, Friendster, Myspace, or Orkut), "and explain why or why not." Ex. 421 at 7-8, Meta's Interrog. Nos. 13-14 (Meta's Second Set of Interrogs. the FTC (Oct. 17, 2022)).

587. The parties agreed Meta would provide the FTC a list of 100 features or activities on specific non-Meta apps that the FTC could treat as similar to the features and activities that the FTC classified as PSNS when they occur on Facebook or Instagram. *See* Jt. Status Rep. at 8-13, 13-18 (Dec. 15, 2022), ECF No. 227; *see also id.* at 8 (FTC stating that it has "agreed to identify relevant facts" in its response).

588. Meta provided the FTC with a list of features or activities on December 20, 2022, with pairs of features for the FTC to address in response to Interrogatory Nos. 13 and 14. *See* Ex. 422 (Meta's List of Features or Activities for Explanation by the FTC (Dec. 20, 2022), ECF No. 237-4). For example, the list asked the FTC to explain, with relevant facts, why "[v]iewing Reel(s) [on Instagram] posted by a celebrity" qualifies as using PSNS, when "[v]iewing videos posted on TikTok by a celebrity" does not. *Id.* at 13 (activity No. 60).

589. On January 24, 2023, the FTC provided its supplemental responses. *See* Ex. 291 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)). The FTC stated that it has "not presently conducted such a feature-by-feature analysis comparing the individual features available on these nineteen third-party applications and those available on Facebook Blue, Instagram, and Facebook Messenger." *Id.* at 13. Yet, it stated that its present understanding is that all "features/activities identified by Meta for Friendster, Google+, MeWe, Myspace, Orkut, Path, and Snapchat qualify as part of each application's respective personal social networking offering," that "Hulu, iMessage, LinkedIn, Netflix, Nextdoor, Pinterest, Reddit, Spotify, Strava, TikTok, Twitter, and YouTube do not offer personal social networking services," and that, "[a]s such, all features/activities identified by Meta on these applications do not qualify as being part of personal social networking services." *Id.* at 12-13.

590. For example, the FTC elaborated that "[v]iewing video(s) on Snapchat Spotlight posted by an account that User does not subscribe to" and "[s]ending message(s) to one other Snapchat Friend" count as use of personal social networking services. Ex. 291 at 27, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

591. In contrast, the FTC stated that the following do *not* count as use of personal social networking services, among other activities:

a. **iMessage.** "Sending message(s) to one other friend or family member on iMessage" or "sending message(s) to a group of 21-30 other users on iMessage." Ex. 291 at 32, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

b. **LinkedIn.** "Posting Original photo(s) about a highly personal milestone (such as a health event) on LinkedIn" or "Sending message(s) on LinkedIn to a friend or family member to wish him a happy birthday." Ex. 291 at 35, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

c. **Nextdoor.** "Viewing items for sale posted by one of User's Nextdoor Connections on the 'For Sale and Free' Tab" or "Viewing comments to Original post(s) by a User's Nextdoor Connection." Ex. 291 at 39, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

d. **Pinterest.** "Viewing Original photo(s) on Pinterest posted by User's family member" or "Viewing recommended Idea Pins on Pinterest's Watch Tab that do not originate from people or Boards User follows." Ex. 291 at 41, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

e. **Reddit.** "Posting [or viewing] content in a Community on Reddit User joined based on the User's interests, such as the 'Instant Pot' Community." Ex. 291 at 44, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

f. **Strava.** "Posting Original content on Strava, encouraging User's personal friends that reside in close physical proximity to one another to attend a local social event." Ex. 291 at 48, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-

14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

g. **TikTok.** "Viewing video(s) on TikTok posted by User's TikTok Friend," "Viewing video(s) on TikTok posted by an account that is not a TikTok Friend of User," "Posting TikTok video(s) to an audience limited exclusively to User's TikTok Friends," "Viewing videos posted on TikTok by a celebrity User follows that does not follow User," "Viewing video(s) on TikTok posted by an account that User does not follow, and that does not follow User," "Viewing TikTok Story(ies) [sic] posted by User's personal friend or family member," or "Sending message(s) containing content posted by an account User does not follow on TikTok." Ex. 291 at 50-52, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

h. **Twitter.** "Viewing Original photo(s) on Twitter posted by User's friend or family member," "Viewing live video(s) on Twitter posted by User's friend or family member," "Viewing content on User's Home timeline on Twitter posted by an account that User follows that does not follow User," or "Viewing content (e.g. a NYT article or 20 minute comedy routine from a famous comedian that was posted on YouTube) linked in a Tweet by an individual who User follows and who also follows User on Twitter." Ex. 291 at 54-55, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

i. **YouTube.** "Viewing Original video(s) posted by a User's friend or family member on YouTube showing their child's first steps," "Viewing YouTube Shorts posted by a celebrity User subscribes to who does not subscribe to User," "Commenting on YouTube Shorts posted by an account User subscribes to," "Viewing Suggested video content that does not originate from accounts User subscribes to on YouTube," "Viewing content on YouTube posted by account that User subscribes to that does not subscribe to User," or "Watching live-stream gaming videos on YouTube Live." Ex. 291 at 58-59, FTC's Suppl. Resp. to Meta's Interrog. Nos. 13-14 (FTC's Suppl. Objs. & Resps. to Meta's Second Set of Interrogs. (Jan. 24, 2023)).

592. In February 2023, Meta moved to compel a further response to Interrogatory Nos. 13 and 14, arguing, among other things, that the FTC failed to address or provide a factual basis for its position that the pairs of PSNS and non-PSNS features were not reasonable substitutes. *See* Meta's Mem. in Support of Mot. To Compel Answers to Interrogs. Nos. 13 & 14 (Feb. 24, 2023), ECF No. 244-1.

593. In its opposition brief, the FTC explained that "[i]ndividual [f]eature [s]ubstitution is [n]ot [r]elevant to the FTC's [c]ontentions." FTC's Mem. in Opp. to Mot. To Compel Answers to Interrogs. Nos. 13 &14, at 11 (Mar. 7, 2023), ECF No. 250-1. The FTC stated that it "has not, for example, . . . assessed . . . whether YouTube is a reasonable substitute for Facebook Watch" for the consumption of online videos. *Id.* at 14-15. After the Court denied Meta's motion to compel, Meta served another contention Interrogatory (No. 16), seeking again the factual basis for the FTC's position that use of each Listed Feature on Facebook, Instagram, or Messenger is a PSNS usage while use of the corresponding Listed Feature on the other

products or services is not a PSNS usage. *See* Ex. 297 at 8, FTC's Resp. to Meta's Interrog. No. 16 (FTC's Objs. & Resps. to Meta's Third Set of Interrogs. (May 3, 2023)). The FTC provided a response to Interrogatory No. 16 on May 3, 2023. *See id.* The FTC stated that it had not conducted "an analysis comparing the individual features" on the non-PSNS applications and the alleged PSNS applications. *See*, *e.g.*, *id.* at 11. The FTC later stated that its response was "full and complete." Ex. 423 at 2-3 (Hr'g Tr. (May 15, 2023), ECF No. 297).

4. The FTC's 30(b)(6) Representative Confirms That the FTC Has Not Identified Evidence Addressing Users' Motives for Using Particular Features or Consumer Substitution Behavior

594. On April 3, 2023, Meta served on the FTC a Rule 30(b)(6) deposition notice. *See* Ex. 424 (Meta's Notice of 30(b)(6) Dep. of FTC (Apr. 3, 2023)). Topic 6 required testimony from the FTC on "[t]he facts supporting [the FTC's] Response to Meta's List of Features or Activities (Sept. 12, 2022) and [the FTC's] responses to Meta's Interrogatory Nos. 13, 14, and 16." *Id.* at Topic 6. The FTC agreed to produce a witness for all noticed Topics. *See* Ex. 168 at 1 (Jt. Status Rep., Ex. D (May 31, 2023), ECF No. 302-25)).

595. In the 30(b)(6) deposition of the FTC conducted on the last day of fact discovery, [redacted], the FTC's 30(b)(6) representative, testified that [redacted]

596. When asked, [redacted]

597. Counsel for Meta asked similar questions with respect to specific features. For example, the FTC representative was asked if there are and the FTC's representative testified, The FTC's representative also separately testified, "

598. When the FTC's representative was asked if he could provide a specific factual basis for the FTC's contention the FTC's representative testified,

5. The FTC Confirms Again That Its Market Definition Does Not Rely on Evidence of Dissimilar Features, Dissimilar Motives for Using Features, or Lack of Feature-Level Substitution

599. After the deposition, Meta moved to compel the FTC to provide written responses to five specific questions relevant to the 30(b)(6) deposition:

1. Does the FTC's classification of each specified feature and activity on Facebook and Instagram as personal social networking (except Facebook Dating) rely on any facts regarding the reasons why consumers use those features and activities (for example, to communicate with friends and family or not)? And if so, explain those factual contentions and provide the factual support on which the FTC relies.

2. Do the FTC's classifications of each specified feature and activity on Facebook and Instagram as personal social networking (except Facebook Dating) rely on any facts regarding how consumers actually use those features and activities (for example, to communicate with friends and family or not)? And if so, explain those factual contentions and provide the factual support on which the FTC relies.

3. Does the FTC's different market classifications of specified pairs of features and activities on-and-off Meta's platform (like watching short-form video on Instagram and TikTok) rely on any facts regarding the (dis)similarity of the user experience for those pairs of features and activities? And if so, explain those factual contentions and provide the factual support on which the FTC relies.

4. Does the FTC's different market classifications of specified pairs of features and activities on-and-off Meta's platform (like watching short-form video on Instagram and TikTok) rely on any facts regarding the circumstances under which consumers have switched (or would be willing to switch) between those pairs of features and activities). And if so, explain those factual contentions and provide the factual support on which the FTC relies.

5. Does the FTC's different market classifications of specified pairs of features and activities on-and-off Meta's platform (like watching short-form video on Instagram and TikTok) rely on any facts regarding whether there are impediments to consumers switching between those pairs of features and activities? And if so, explain those factual contentions and provide the factual support on which the FTC relies.

Jt. Status Rep. at 2 (May 31, 2023), ECF No. 302-1.

600. The FTC opposed Meta's request for written responses to 30(b)(6) questions. *See* Jt. Status Rep. at 15 (May 31, 2023), ECF No. 302-1. In that opposition, the FTC stated that "[n]one of the FTC's interrogatory responses address [redacted] or [redacted] [redacted] a particular application or whether applications can [redacted] for certain use cases." *Id.*

601. The Court in part granted Meta's request for written 30(b)(6) responses. The Court directed the FTC to provide a written response to Questions 4 and 5. *See* Order at 1-2

(June 7, 2023), ECF No. 304. As to questions 1-3, the Court ruled that the FTC need not provide further responses. *See id.* at 1. The Court held that those three questions ask about "'contentions' that the FTC does not make and thus need not have 'factual support.'" *Id.* On July 6, 2023, the FTC provided written responses to Questions 4 and 5 of Meta's Requests for Written Responses. *See* Ex. 298 (FTC's Written Suppl. Resps. to Questions 4-5 of Meta's Req. for Written Resps. (July 6, 2023)). In its responses, the FTC reiterated its position that the "FTC does not believe it is necessary to rely on facts regarding the circumstances under which consumers have switched (or would be willing to switch) between alleged pairs of features and activities)" and that the "FTC does not believe it is necessary to rely on facts regarding whether there are impediments to consumers switching between those pairs of features and activities." *Id.* at 5, 12.

C. FTC's Experts' Positions

1. FTC Expert Professor Clifford Lampe's Opinions

602. FTC expert Clifford Lampe purports to be an expert in "the areas of Human-Computer Interactions, Social Computing, and Computer-Mediated Communication" and studied "social media, computer-mediated communication, and social networks for over 20 years." Ex. 290 at ¶ 2 (Lampe Rep.).

603. Professor Lampe opined "that there are distinct platforms whose design, motivations, and norms enable masspersonal, low cost maintenance of broad personal relationship networks that are comprised of real life connections," Ex. 290 at ¶ 13 (Lampe Rep.), which he calls "personal social networking," Ex. 281 at 163:20-164:7 (Lampe Dep. Tr.). He "call[s] this collection of providers Personal Social Network Sites (PSNS)" and states that includes Facebook, Instagram, Snapchat, and MeWe. Ex. 290 at ¶¶ 13-15 (Lampe Rep.); Ex. 282 at ¶ 78 (Lampe Rebuttal Rep.) (classifying MeWe as a PSNS).

604. According to Professor Lampe, uses of Facebook and Instagram are "extremely heterogeneous." Ex. 281 at 165:12-166:4 (Lampe Dep. Tr.) (agreeing that "[f]or some value of use I believe that's true" with respect to "use of Facebook [being] extremely heterogeneous"); *id.* at 169:6-170:2 (same); *id.* at 255:10-256:1 (Instagram); *see also* Ex. 425 at 2323 (MetaFTC-DX-1151, *Computers in Human Behavior*) ("Given the heterogeneous nature of these sites, and the diversity of users of these sites, it is likely that different users come to Facebook for different reasons and that these reasons may be associated with different types of use, such as connecting with strangers or interacting only with close friends.").

605. Professor Lampe testified that both Facebook and Instagram offer "other types of uses than personal social networking." Ex. 281 at 166:22-167:8 (Lampe Dep. Tr.); *id.* at 252:1-8 (agreeing that "some portion of users are there on the Instagram feed for reasons wholly apart from personal social networking"); *id.* at 218:18-219:3 ("[T]hat is common for broad platforms like Facebook and Instagram to have multiple motivations and uses that they meet."); *id.* at 255:10-256:1 ("[I]t's not my opinion that all time on [Facebook and Instagram] is motivated by personal social networking[. T]here are other motivations that bring people to these platforms as well . . . .").

606. According to Professor Lampe, the motivations met by Facebook and Instagram include relaxing entertainment, *see* Ex. 281 at 125:4-9 (Lampe Dep. Tr.); relieving boredom, *see id.* at 132:8-10; and social connection, *see id.* at 181:8-12. Motivations for using Facebook, according to Professor Lampe, also include "expressive information sharing," "escapism," "cool and new trend," "companionship," "professional advancement," and "habitual pass time." *Id.* at 219:16-220:3.

607. Professor Lampe testified the following are uses of Facebook and Instagram:

a. **Watching Videos and Reels.** Professor Lampe testified that watching video on Facebook and Instagram being "largely for entertainment purposes" is "consistent" with his view. Ex. 281 at 238:2-239:4 (Lampe Dep. Tr.) ("I believe that the findings I've seen lead me to believe that video is largely for entertainment purposes. Occasionally it's used for personal social networking, but largely for entertainment."); *see also id.* at 245:8-246:1 (agreeing that "entertainment" and "passing time due to boredom" are motivations for watching Reels).

b. **Viewing Content from Celebrities, Influencers, and Public Figures.** Professor Lampe testified it is "definitely possible" that users "watching stories from celebrities and influencers" on Facebook and Instagram are "not motivated by personal social networking." Ex. 281 at 255:10-256:1 (Lampe Dep. Tr.); *see also id.* at 256:2-9 (same including "public figure[s]").

c. **Viewing Linked Content.** Professor Lampe testified that it is "potentially very likely" that an individual is "motivated by something other than personal social networking" when viewing content on their Facebook Feed "in a linked post such as a New York Times article or a 20-minute comedy routine from a famous comedian that was posted on YouTube." Ex. 281 at 253:18-255:3 (Lampe Dep. Tr.).

d. **Using Instagram Direct.** Professor Lampe testified that "sending messages to one other reciprocal connection on Instagram Direct . . . would not be . . . personal social networking." Ex. 281 at 266:9-267:5 (Lampe Dep. Tr.); *see also id.* at 265:7-13.

e. **Using Facebook Groups.** Professor Lampe testified that "the dominant use for [Facebook] groups is around interest-based communities." Ex. 281 at 216:11-20 (Lampe Dep. Tr.) (responding affirmatively to question whether "it would be unlikely that personal social networking is the motivating basis for using Facebook groups").

f. **Using Facebook Marketplace.** Professor Lampe testified that "it's quite likely that" viewing items for sale on Facebook Marketplace not posted by friends is "not personal social networking, that there's another motivation being fulfilled." Ex. 281 at 264:15-265:2 (Lampe Dep. Tr.).

608. Professor Lampe opined that Instagram has a "core use" of consuming interest-based or "lifestyle" content. Ex. 281 at 126:15-127:7 (Lampe Dep. Tr.) ("[L]ifestyle type of content . . . could be another core use of Instagram."); *see also id.* at 199:1-7 ("lifestyle" use is "people asymmetrically following brands or celebrities to learn more about the content or things that they're interested in"); *id.* at 199:8-14 ("follow[ing] brands, celebrities, or other topics that [consumers are] interested in" is "a big use of Instagram").

609. Professor Lampe offered no opinion regarding the amount of time spent on the different uses of Facebook and Instagram. *See* Ex. 281 at 139:17-140:7 (Lampe Dep. Tr.) ("I have not studied time spent on these platforms for [different] motivations."); *id.* at 209:11-210:3 ("Q. Do you offer any opinion in this case that more than half of the time spent on Instagram is motivated by personal social networking as opposed to other motivations such as seeking entertainment or lifestyle issues or relieving boredom? A. No. . . ."); *id.* at 210:4-14 (similar for Instagram); *id.* at 252:9-17 (Professor Lampe "did not try to answer those questions" about "the specific proportions of people that are there on the Instagram service due to personal social

networking, due to lifestyle interests, due to relaxing entertainment, due to passing the time due to boredom, or due to any other number of motivations why they could be [on] Instagram"); *id.* at 178:3-179:3 (similar for Facebook). Professor Lampe does not dispute Professor Dennis Carlton's analysis that [redacted] of time spent on Facebook and Instagram, respectively, is consumption of content posted by users' friends or family. *See id.* at 240:2-241:22.

610. According to Professor Lampe, the use that makes PSNS distinct from other apps is "weak tie masspersonal relationship maintenance." Ex. 281 at 30:14-31:2 & errata (Lampe Dep. Tr.) (agreeing that "the primary thing that defines PSNS as separate from other types of social networking sites or messaging applications is that PSNS enable, have a motivation of, and have a norm of weak tie masspersonal relationship maintenance behaviors"); *see also id.* at 41:18-42:17; *id.* at 60:8-16 ("weak tie maintenance . . . was the important difference" for Facebook, even though "communicating with close friends" was a more common use); *id.* at 66:6-12 ("Q. And what makes PSNS unique in your view is the ability to – the ability, norm, and motivation to communicate with weak ties that you do not regularly engage with; is that correct? . . . A. I think it's that that distinguishes them from other platforms."); Ex. 290 at ¶ 24 (Lampe Rep.) ("Personal Social Network Sites also serve a distinct purpose than interpersonal sites (*e.g.* messaging) and mass media (*e.g.* Netflix), neither of which enable maintenance of weak ties at scale through networked interactions.").

611. Professor Lampe defined "weak ties" as the "broad set of people that you communicate with less frequently" than close friends or family; "weak ties" include people such as "work colleagues, members of your church, old friends you've lost touch with, and casual acquaintances." Ex. 281 at 21:10-22 (Lampe Dep. Tr.).

612. Professor Lampe opined that other applications can satisfy the following uses of Facebook and Instagram:

a. **Sharing with Close Friends and Family (Not Weak Ties).** Professor Lampe agreed that "messaging applications [are] commonly used for the purpose of maintaining personal relationships and sharing experiences with friends, family, and other personal connections at least with respect to close friends and family." Ex. 281 at 41:3-42:8 (Lampe Dep. Tr.); *see also id.* at 52:20-53:19 (agreeing that Facebook is "unlikely to be a critical communication channel for close friends because these stronger ties typically use multiple redundant channels to communicate," including messaging applications); *id.* at 57:21:58:5 ("Messaging along with other apps can be used for maintaining relationships with close friends, yes."). Messaging applications, according to Professor Lampe, include iMessage, Google's messaging applications, and SMS texting. *See id.* at 23:5-10.

b. **Watching Video.** Professor Lampe testified that consumers "watching [R]eels on Facebook or Instagram with a motivation of entertainment or passing time due to boredom" could "satisfy those same motivations" on TikTok and YouTube. Ex. 281 at 246:2-18 (Lampe Dep. Tr.); *see also* Ex. 290 at ¶¶ 22-23 (Lampe Rep.) (opining that primary motivation of TikTok and YouTube use is watching video).

c. **Relieving Boredom.** Professor Lampe testified that consumers with "a desire to simply relieve boredom, not maintain relationships," can satisfy that with

"either Facebook, Instagram, TikTok, YouTube, Reddit, Twitter, or Pinterest." Ex. 281 at 137:11-21 (Lampe Dep. Tr.).

d. **Sharing or Viewing Interest-Based Content.** Professor Lampe opined that Pinterest "users are motivated to share content in the form of images, largely around lifestyle topics." Ex. 290 at ¶ 21 (Lampe Rep.). He testified that that there could also be a "lifestyle" "core use" of Instagram. Ex. 281 at 198:9-22 (Lampe Dep. Tr.). Professor Lampe testified "that both Reddit and Facebook groups offer interest-based communities," Ex. 281 at 217:2-10 (Lampe Dep. Tr.), and that "at a high level that you can fulfill" the "motivation" of "learn[ing] information about their geographic community" on both Facebook and Nextdoor, *id.* at 261:4-15. Professor Lampe also categorizes use of Twitter as "primarily motivated by the sharing and discovery of information," Ex. 290 at ¶ 19 (Lampe Rep.), and he has found "expressive information sharing" also to be a motivation for using Facebook, Ex. 281 at 219:16-220:8 (Lampe Dep. Tr.).

613. Professor Lampe was aware of no evidence that Meta "identif[ies] specific people using Facebook and Instagram for the purpose of maintaining relationships with weak ties and tries to extract more value from them by charging them a fee or showing them more ads." Ex. 281 at 47:20-48:13 (Lampe Dep. Tr.). He also offered no opinion that "Meta is even able to identify the specific people using Facebook and Instagram for the purpose of maintaining relationships with weak ties as opposed to other reasons like maintaining relationships with close friends and family." *Id.* at 49:3-15. Professor Lampe testified, "I don't feel qualified to determine whether two corporations are actually competitors or not within any kind of economic

situation." Ex. 281 at 160:8-17 (Lampe Dep. Tr.). When asked, "did you in forming your opinions in this matter attempt to determine whether any specific mobile app was in economic competition with another mobile app in this case," Professor Lampe testified: "I did not. My expertise isn't in economic analysis." *Id.* at 163:4-10.

614. Professor Lampe testified that he does not have any opinion regarding the *Brown Shoe* factors. *See* Ex. 281 at 273:5-8 (Lampe Dep. Tr.) ("[Q]. Do you have any opinion regarding the Brown Shoe factors? . . . A. I do not, no. I – no."). Professor Lampe stated in his rebuttal report, "I understand that the '*Brown Shoe* factors' Prof. Ghose utilizes in his report are a legal framework, and I note that they are not a framework that I am aware of being utilized in the academic study of computer mediated technologies. As I discuss below, a more appropriate way to ascertain whether personal relationship maintenance is a core purpose of a social network service from an academic perspective is by analyzing site design, motivations, and norms." Ex. 282 at ¶ 3 (Lampe Rebuttal Rep.). Professor Lampe further opined in his rebuttal report that the *Brown Shoe* factors of "distinct price, distinct customers, sensitivity to price changes, and specialized vendors" are "not informative for my assessment of whether PSNS are a distinct type of platform. Academic research in my field on computer-mediated communication systems does not distinguish different types of platforms based on these factors." *Id.* at ¶ 210.

2. FTC Expert Professor C. Scott Hemphill's Opinions

a. Professor C. Scott Hemphill's Purported Expertise

615. Professor Hemphill is a law professor at New York University, and his "research focuses on the law and economics of competition and innovation." Ex. 279 at ¶ 1 (Hemphill Rep.). The FTC intends to proffer his opinions in this matter in his "capacity as an economist." *Id.* at ¶ 5.

b. The Contours of the PSNS Market

616. Professor Hemphill testified that, in his view, "the underlying market definition is based on functionality and use" and that "PSN services provide a means for communicating with friends and family, [and] other social acquaintances," within "a shared social space." Ex. 283 at 20:6-15 (Hemphill Dep. Tr.).

617. After being asked about the FTC's allegation in its Amended Complaint that personal social networking services "include features that allow users to find and connect with other users to make it easier for each user to build and expand their set of personal connections," Professor Hemphill testified that "[t]he possession or absence" of that "connectivity tool[ ]" is "not essential" to his "analysis of functionality." Ex. 283 at 21:15-22:15 (Hemphill Dep. Tr.).

618. Professor Hemphill opined that "[t]he largest participants in this market are Facebook, Instagram, and Snapchat." Ex. 279 at ¶ 24 (Hemphill Rep.). He opined that MeWe is a participant in the market for personal networking as well. *See id.* at ¶ 148. He also opined that it would be conservative to include "BeReal" as a "market participant" in "assessing Meta's market significance." *Id.* at ¶ 327. According to Professor Hemphill, defunct providers of PSN services include "Friendster, Myspace, Orkut, Path, and Google+." *See id.* at ¶ 330.

619. Professor Hemphill opines that "PSN apps based in other countries appear to have a minimal presence among users in the United States," including KakaoStory, which is owned by Kakao. Ex. 279 at ¶¶ 328, 970 (Hemphill Rep.).

c. All Time on All Activities on Facebook and Instagram Is Time Spent Consuming Personal Networking Services

620. Professor Hemphill testified that he agrees with the FTC's September 12, 2022 Response to Meta's List of Features or Activities that "[a]ll of the features, activities identified by Meta for Facebook and Instagram are part of Meta's personal social networking offering

except Facebook dating," with the caveat that he does not "have a particular view about Facebook Dating." Ex. 283 at 72:1-13 (Hemphill Dep. Tr.); *see also* Ex. 405 at 2 (MetaFTC-DX-997, FTC's Resp. to Meta's List of Features or Activities (Sept. 12, 2022)).

621. Professor Hemphill testified that "[m]y opinion is that everything that's happening on the app is the provision of personal social networking services." Ex. 283 at 80:14-81:21 (Hemphill Dep. Tr.).

622. For example, Professor Hemphill confirmed that his opinion is "100 percent" of the time a user spends on the "Reels tab" "watch[ing] a series of short videos of an otherwise unknown individual dancing" is time spent engaging in "personal social networking," even when the content "was not posted or forwarded by anyone the user knows." Ex. 283 at 80:20-81:21 (Hemphill Dep. Tr.) ("Q. You agree that 100 percent of the time spent engaged in that activity is personal social networking, correct? . . . A. Yeah. My opinion is that everything that's happening on the app is the provision of personal social networking services for the reasons that we've already talked about, and that's true even as the specific moments the user is not, you know, directly engaged with friends and family in that moment.").

623. Professor Hemphill similarly agreed that "watching short-form videos on Reels for entertainment purposes [is] personal social networking," Ex. 283 at 27:16-28:3 (Hemphill Dep. Tr.); *see also id.* at 28:12-19, and that "viewing of unconnected content on Reels" "contribute[s] to the overall satisfaction" of the demand for friends and family sharing, *id.* at 35:20-36:9.

624. Professor Hemphill agreed that, when a user watches two minutes of the Tonight Show on the Watch tab of Facebook, that use is included within "the personal social networking service provision" even "though in the moment the exact thing that they're doing at that moment

may not have a direct engagement with friends and family sharing." Ex. 283 at 76:7-22 (Hemphill Dep. Tr.). He also agreed that such a user is "satisfying [a] demand for personal social networking services" even if the "user . . . never shares [that] video with any part of their social graph," as "[t]hey're still partaking of the integrated PSN service offering." *Id.* at 78:7-18; *see also id.* at 79:16-80:7.

625. Professor Hemphill confirmed his view that Instagram "is providing PSN services" when a user sends a message to a group of 11-20 other users on Instagram Direct. Ex. 283 at 82:6-16 (Hemphill Dep. Tr.).

626. Professor Hemphill testified about users that have different preferences and engage in different activities on Facebook and Instagram: "Q. . . . Let's talk about a user who spends very little time on Feed, very little time in Stories, loves Reels, spends a lot of time on Reels. Another user, same amount of time on the app, lot of time in Feed, lot of time in Stories, very little time in Reels. As I understand it, both of those users are consuming the same amount of personal social networking services, correct? . . . A. Yes. I think the underlying activities are in both cases as to each element in the pair consuming personal social networking services and, as I have discussed, differing parts of the app or differing users in differing contexts maybe to varying degrees satisfying their demand for personal social networking services through their activities." Ex. 283 at 191:10-192:5 (Hemphill Dep. Tr.).

d. Professor Hemphill's Opinion That No Activities on Alleged Non-PSNS Apps Are Personal Social Networking Activities

627. In his deposition, Professor Hemphill testified that no time spent on alleged non-PSNS applications qualifies as PSNS. For example, Professor Hemphill testified that "conceivably there are individuals" on TikTok who "turn to TikTok as a place to engage in that distinct demand for maintaining relationships and sharing experiences with friends, family, and

social acquaintances in a shared social space[.]" Ex. 283 at 56:2-7, 56:22-57:7 (Hemphill Dep. Tr.). Yet, when asked, "[i]s it your opinion that the activity of posting that short video to TikTok where it will be viewed by friends on TikTok is in a different market from the activity of posting it to Instagram where it will be viewed by followers on Instagram," Professor Hemphill testified that was his opinion, because "one is not engaged in the consumption of personal social networking services on the TikTok side." *Id.* at 52:19-53:21.

628. Professor Hemphill opined in his opening report that "[a] user can watch short-form videos on Reels for entertainment purposes, much as they do on TikTok or YouTube." Ex. 279 at ¶ 269 (Hemphill Rep.); *see also* Ex. 283 at 27:4-6 (Hemphill Dep. Tr.) ("I would agree that as a user spends time on [Facebook or Instagram] it's feasible to watch a video for entertainment purposes."). Professor Hemphill testified that "a user that is on the Facebook app watching a video is – is receiving personal social networking services and that context in which it's doing so differentiates the watching of the video from – from watching the same – let's say the exact same content on TikTok." *Id.* at 38:19-39:2.

629. When shown the FTC's proffered industry expert, Professor Clifford Lampe's, testimony agreeing that some people use Twitter for personal social networking, Professor Hemphill testified, "I don't agree that Twitter has core functionality and use for personal social networking that would qualify it as a PSN app. And so I don't think Twitter is engaged in personal social networking." Ex. 283 at 82:18-84:8 (Hemphill Dep. Tr.).

e. [redacted]

630. Professor Hemphill testified regarding substitution: "[T]he right way to think about this is . . . does a single organization that controls all the producers in the candidate market have the capability of monopolizing the market, that is of raising the quality-adjusted price above

the competitive level. . . . And substitution is important in – it's central in understanding that question." Ex. 283 at 139:2-140:11 (Hemphill Dep. Tr.).

631. Professor Hemphill was asked if, "[i]n reaching your opinions in this matter do you know whether TikTok is taking time spent share from Facebook and Instagram." Ex. 283 at 130:10-12 (Hemphill Dep. Tr.). He testified in response: [redacted]

632. When asked, "[s]o what I'm asking you is[,] is TikTok capturing time spent from Facebook and Instagram," Professor Hemphill testified: [redacted]

f. Professor Hemphill Does Not Offer Any Quantitative Evidence of Substitution

633. Professor Hemphill testified that he did not perform a hypothetical monopolist test because "a particular kind of analysis was infeasible to perform and would be misleading if it was performed." Ex. 283 at 140:12-141:8 (Hemphill Dep. Tr.).

634. When asked, "[i]f I wanted to look in your reports for the best quantitative evidence of substitution, what would I look at," Professor Hemphill testified: "Well, the quantitative evidence that bears on substitutability is the quantitative evidence that we talked about, which includes differences among apps, which includes the direct evidence of the exercise of monopoly power, which bears on this question of implementation of the hypothetical monopolist test. I'm not offering an analysis of substitution in response to an infinite price rise

at the monopolized level . . . because such – such analysis is misleading rather than informative." Ex. 283 at 142:16-143:11 (Hemphill Dep. Tr.).

635. When asked, "if I wanted to find quantitative evidence of substitution in response to any change in quality in your report, where would I look," Professor Hemphill testified, among other things, "I have not done an analysis of that kind." Ex. 283 at 143:12-144:4 (Hemphill Dep. Tr.).

g. Competition for Marginal Users

636. Professor Hemphill testified, regarding a hypothetical monopolist increasing prices, "that small price increases focus our attention to the change in decision-making by marginal customers as opposed to also taking in the changes by inframarginal customers." Ex. 283 at 159:14-18 (Hemphill Dep. Tr.). He also testified: "Q. And that's because what's relevant to a hypothetical monopolist choosing whether to implement a small but significant price change is the impact on marginal customers, correct? . . . A. I would – I would put it differently. I would say it's because we want to understand whether a hypothetical monopolist can profitably impose a small price increase." *Id.* at 159:19-160:5. Professor Hemphill further testified: "We're interested in whether small price changes are chosen by a profit-maximizing monopolist and the changes that we anticipate and are focused on are the changes of marginal customers as opposed to the inframarginal customers as well." *Id.* at 162:10-15.

637. Professor Hemphill agreed that "[t]here is a sense in which competition often occurs at . . . the margin," Ex. 283 at 166:18-20 (Hemphill Dep. Tr.), that "[t]here's certainly an effort to gain users and usage wherever Meta can[,]" *id.* at 165:14-15, and that Meta adding Reels is an example of "pursuing users and usage on the margin," *id.* at 164:11-165:6.

638. Professor Hemphill testified that he "would agree that economic theory posits a tendency toward" consumers equalizing the marginal utility of the last minute spent on YouTube, TikTok, and Reels. Ex. 283 at 168:9-21 (Hemphill Dep. Tr.).

639. Regarding the makeup of marginal content that users might reduce on Facebook Feed in response to a decrease in quality, Professor Hemphill testified that "they would be reducing their consumption of feed content overall" because "they are seeing a consolidated feed." Ex. 283 at 195:4-196:16 (Hemphill Dep. Tr.). Professor Hemphill agreed that users are likely to reduce marginal minutes that "would be coming from stuff relatively bottom feeding which are less effective in satisfying friends and family sharing." *Id.* at 199:12-19. He testified that "might be true in general across users," as he thinks the evidence he relies on "is general" across users. *Id.* at 199:22-200:7.

h. No Evidence of Discrimination Based on Demand for Friend and Family Content

640. When asked, "[s]o it's correct to say that you don't have any claim that Meta discriminates in ad load based directly on a user's demand for friends and family sharing," Professor Hemphill testified, "I've not seen evidence of Meta, for example, internally calculating, you know, some numerical value of inelasticity and responding with a change in ad load." Ex. 283 at 253:8-17 (Hemphill Dep. Tr.).

641. When asked, "with respect to privacy and privacy settings, you don't argue that privacy settings are different for individual users," Professor Hemphill testified: "No. No. I mean, I think it's conceivable that – no. As I understand it, privacy – the privacy protection that is an attribute of quality for Facebook and for Instagram, that that is app wide." Ex. 283 at 173:9-17 (Hemphill Dep. Tr.).

642. With respect to Reels and Stories, Professor Hemphill agreed that they were made available on an app-wide basis for all users. *See* Ex. 283 at 173:18-174:13 (Hemphill Dep. Tr.).

i. Share Calculations

643. Meta's expert economist, Professor Dennis Carlton, calculated Meta's share of time spent including Twitter, TikTok, and YouTube as [redacted] using Professor Hemphill's time-spent data for June 2022, as follows:

[redacted]

Ex. 2 at p. 90, tbl. 14 (Carlton Rep.).

644. Professor Hemphill testified regarding market shares: "Q. You do not contest in your reports that if YouTube and TikTok are included in the market Meta's market shares do not provide a basis for an inference of monopoly power, correct? . . . I'd have to see what the shares look like. The shares if those two are included would certainly go down and I'd have to look to

see what I made of that under those circumstances." Ex. 283 at 266:13-21 (Hemphill Dep. Tr.). He also testified about that share calculation: "Well, if the share was lower, to the extent that we pay attention to market shares as I discuss we do, the indirect evidence arising from market definition would be altered in the expected way because the shares were lower." *Id.* at 267:6-12.

3. FTC Expert Michal Malkiewicz's Opinions

645. The FTC retained Michal Malkiewicz as a purported expert to conduct an online survey "to assess consumers' usage of and attitudes toward Meta's products and other internet services." Ex. 299 at ¶ 25 (Malkiewicz Rep.). Mr. Malkiewicz's survey "ask[ed] respondents" to choose from a list of eleven reasons "the[ir] most important reason for using each internet service that they had identified using in the past 12 months." *Id.* at ¶ 55.

646. Mr. Malkiewicz's survey found that more than 63% of respondents who reported using Instagram did not select "[t]o keep up with [their] friends' and family's lives in one place" as their "most important reason[ ]" for using Instagram. Ex. 299 at p. 36, tbl. 6 (Malkiewicz Rep.). Those respondents instead selected "[t]o enjoy entertainment content," "[t]o follow or interact with public figures," "[t]o obtain and/or share news and information about [their] interests," "[t]o communicate privately with [their] contacts," and other options as their "most important" reasons for using Instagram. *Id.*

647. In his report, Mr. Malkiewicz cited [redacted] that, according to him, "aimed to clarify the role of friends and family and interests on Instagram usage." Ex. 299 at ¶ 127 (Malkiewicz Rep.). [redacted]

[redacted]

648. [redacted]

[redacted]

649. Mr. Malkiewicz's survey [redacted] found that nearly 66% of respondents who reported using Snapchat did not report "[t]o keep up with my friends' and family's lives in one place" as their "most important reason[ ]" for using Snapchat. Ex. 299 at p. 38, tbl. 7 (Malkiewicz Rep.). Those respondents instead chose "[t]o communicate privately with my contacts" and "[t]o enjoy entertainment content," among other options, as their "most important" reasons for using Snapchat. *Id.* Mr. Malkiewicz confirmed that the difference between the two most commonly selected "most important" reasons for using Snapchat – "[t]o communicate privately with my contacts" and "[t]o keep up with my friends' and family's lives in one place" –

"is not statistically significant at the 99% confidence level." Ex. 300 at ¶ 133 (Malkiewicz Rebuttal Rep.).

650. Mr. Malkiewicz also reported that 26.1% of respondents who reported using Instagram, nearly 17% of respondents who reported using Twitter, 27.2% of respondents who reported using Pinterest, and 27.4% of respondents who reported using Reddit selected "[t]o enjoy entertainment content" as their most important reason for using those apps. Ex. 299 at pp. 36, 48, 50, 52, tbls. 6, 12-14 (Malkiewicz Rep.).

651. At least a quarter of respondents who reported using WhatsApp, Facebook Messenger, or text messaging – which Mr. Malkiewicz defined to include iMessage and Android Messaging – identified "[t]o keep up with my friends' and family's lives" as their "most important" reason for using those services. Ex. 299 at ¶¶ 53, 91 & pp. 56-59, tbls. 16-18 (Malkiewicz Rep.).

652. Mr. Malkiewicz reported that he "never set out to measure economic substitution" with his survey, Ex. 300 at ¶ 99 (Malkiewicz Rebuttal Rep.), testifying that measuring "economic substitution . . . was not part of [his] assignment," Ex. 301 at 73:3-10 (Malkiewicz Dep. Tr.). And Mr. Malkiewicz confirmed that he did "not calculate the amount of time spent for each use" by respondents, *id.* at 85:10-20, or "review any datasets" showing how users actually spend their time on Meta's or other apps, *id.* at 93:16-19.

III. META'S ACQUISITIONS

A. Meta's Acquisition of Instagram (2012)

653. Meta served a contention Interrogatory (No. 17) seeking the factual basis for the FTC's position that Meta is engaged in an ongoing violation of Section 2 of the Sherman Act. Ex. 297 at 54-56, FTC's Resp. to Meta Interrog. No. 17 (FTC's Objs. & Resps. to Meta's Third Set of Interrogs. (May 3, 2023)). The FTC responded that "Meta's course of conduct of holding

Instagram and WhatsApp is ongoing," and that "publicly available documents" establish that Meta "continues to operate Instagram and WhatsApp" – identifying no other conduct. *Id.*

1. Instagram Pre-Acquisition

a. Pre-Acquisition Monetization

654. Kevin Systrom – one of the Instagram co-founders, *see* Ex. 284 at 15:9-10 (Systrom IH Tr.) – testified that, before the Meta acquisition, Instagram had essentially "no revenues" and agreed that Instagram "hadn't begun the process of developing an advertising strategy." Ex. 151 at 213:24-214:10, 215:1-4 (Systrom Dep. Tr.). He also testified: "Q. . . . [A]t the time of the Facebook acquisition, Instagram did not have a plan for exactly how it was going to monetize, correct? . . . [A.] That's correct." *Id.* at 325:8-13.

655. [redacted]

656. In March 2012, Amy Cole – who then handled Instagram's business operations, Ex. 152 at 23:21-24:6 (Cole Dep. Tr.) – wrote in an email to a business inquiring about a "media partnership opportunity" that Instagram was "still a very small company (only 11 people), so [it did not] have the capacity to take on partnerships at this time," and was not "promot[ing] specific brands/events/contests on [its] platform." Ex. 323 at -847-848 (PX10556, FTC-META-000018842).

b. Pre-Acquisition Growth

657. Just before the acquisition, Instagram had 13 employees. *See* Ex. 284 at 99:20-21 (Systrom IH Tr.). Mike Krieger – the other Instagram co-founder, *see* Ex. 302 at 12:6-21

(Krieger IH Tr.) – testified that "we had more work than we had the capacity to do" and "our recruiting efforts thus far had been – had yielded great people but at a slow pace." Ex. 153 at 305:16-19 (Krieger Dep. Tr.).

658. As of March 2012, Instagram had approximately 3.9 million U.S. monthly active users. *See* Ex. 279 at p. 238, Ex. 42 (Hemphill Rep.). Instagram users in the United States spent 391 million minutes on the service in March 2012. *See id.* at p. 241, Ex. 45.

659. Cross-posting from Instagram to Facebook was "a significant form of distribution and exposure for Instagram content" before the acquisition. Ex. 280 at ¶ 158 (Hemphill Rebuttal Rep.).

660. Mr. Systrom testified that Instagram "focused heavily on rebroadcasting onto other platforms," "which allowed us to get more attention." Ex. 284 at 144:13-15 (Systrom IH Tr.). He also testified: "Q. . . . Before Facebook's acquisition, Instagram obtained a significant amount of distribution through Facebook; is that fair? A. I would say that's true." Ex. 151 at 221:23-222:1 (Systrom Dep. Tr.).

661. [redacted]

662. For example, Mr. Systrom testified that Instagram grew using Facebook's Find Friends API, or Application Programming Interface. *See* Ex. 151 at 225:9-25 (Systrom Dep. Tr.); Ex. 284 at 117:18-20 (Systrom IH Tr.) (testifying that, "if I was a Facebook user, I could find all of my friends on Facebook who currently used Instagram"). He also testified that "likely one of the top ways" Instagram gained new users at the time was discovery on Facebook, which

was "certainly a big driver of growth," along with distribution on Twitter. Ex. 151 at 227:2-14 (Systrom Dep. Tr.).

663. Mr. Systrom testified that, for Instagram pre-acquisition, distribution on platforms like Facebook was "essential" and that Instagram "would not have grown nearly as quickly" otherwise. Ex. 284 at 120:8-121:3 (Systrom IH Tr.). He wrote in an October 21, 2012, email, "the traffic we get from [Facebook] links in feed are pretty high quality" and "are, after all what got us to where we are today." Ex. 223 at -832 (MetaFTC-DX-685, FB_FTC_CID_06209832). He testified about the email: "The awareness that you get from being on third parties – call it advertising. Call it awareness – is enormously helpful for driving downloads and new user sign ups." Ex. 151 at 233:12-16 (Systrom Dep. Tr.); *see also id.* at 236:18-24 (stating that "Facebook was one of the main drivers of distribution in terms of awareness, and were that to go away because [Facebook] found us either too competitive or unfriendly or just didn't like us, that would cause us to have issues with growth").

664. Mr. Krieger testified: "Q. . . . [I]nitially what was Instagram's plan for acquiring users when it launched? A. We thought the best way would be for people to take the photos that they shared out to other platforms, like Twitter and Facebook, which were, you know, in our launch set, and, therefore, generate interest in how those photos were created through linking back to Instagram. And that would be – what we call the flywheel of what the user acquisition pipeline would be." Ex. 302 at 98:14-99:4 (Krieger IH Tr.).

665. Mr. Krieger testified that, before the acquisition, "both Facebook and Twitter was a significant source of our growth." Ex. 153 at 205:24-206:12 (Krieger Dep. Tr.). He also testified: "Q. And Facebook didn't – or Meta didn't have to adopt the Open Graph protocol to allow cross-posting by Instagram, correct? . . . [A.] It was a product offering that they made,

presumably, for their own strategic reasons. Q. . . . So you would agree that that was something they could have taken away, correct? . . . [A.] Yes. And, in fact, they later deprecated it maybe a year or two after acquisition." *Id.* at 206:13-25.

666. Mr. Systrom testified: "Q. . . . Did Instagram use Facebook's Open Graph to share photos to Facebook? A. I believe so, yes. Q. And was this preacquisition? A. I believe so, yes. Q. So what was Facebook's Open Graph? A. The portion that we used allowed us to mechanically call specific parts of their API to perform user actions on behalf of the user. So if I were a Facebook user and I used Instagram and I wanted to post my Instagram photo over to Facebook, I could do that, and we used – Open Graph was the API we used behind the scenes to automate that action on behalf of the user. Q. Okay. And was Instagram able to acquire users through – through the Open Graph? A. Open Graph itself did not acquire users; however, posting photos to Facebook certainly advertised the Instagram platform on Facebook. Its – its sole purpose is to – you know, its primary purpose was to distribute the photo on Facebook. But the secondary effect was that people were seeing more about Instagram on Facebook in their feeds because there was also a link, along with a photo, to come back to the Instagram site to learn more about what Instagram was. The second way Open Graph supported – if I was a Facebook user, I could find all my friends on Facebook who currently used Instagram, and that was part of the Open Graph API as well." Ex. 284 at 116:14-117:21 (Systrom IH Tr.).

667. Regarding distribution on Facebook, Mr. Systrom testified that, if "Facebook [were] to decide to cut off those links, you would be in a situation where you had to find your growth elsewhere on other platforms," which "would certainly cut off a significant portion of growth, and you would have to figure out other ways of doing it." Ex. 151 at 233:17-25 (Systrom Dep. Tr.). He also testified that, "had [Instagram] been independent," Meta "likely

would not have let us simply just post free-form links onto the site and have attribution to Instagram." Ex. 284 at 241:11-14 (Systrom IH Tr.).

668. Mr. Systrom also testified: "Q. Okay. Before Facebook bought Instagram, do you remember being concerned that you didn't want to upset Facebook? . . . [A.] Just in general? Q. . . . Yeah. A. Yes? Yeah, of course. Q. Why? A. A multibillion-dollar company against a start-up with very little venture capital funding and at the time probably five or six employees with little or no experience running a start-up – in general, I would say you should be cautious when dealing with large corporations. On top of that, like you've mentioned a couple times, Facebook was one of the main growth drivers. And were we to somehow sever[ ] that relationship, those growth drivers could have been compromised as they were with, you know, Twitter eventually along the way." Ex. 151 at 232:12-233:7 (Systrom Dep. Tr.). He testified: "Q. You believed that if Facebook had never bought Instagram, Facebook likely would have stopped helping Instagram with distribution. . . . [A.] I don't remember exactly what I thought at the time. But sitting here today, yeah, I would agree with that." *Id.* at 234:1-7.

669. Mr. Systrom further testified about Facebook distribution: "Q. I know you mentioned Instagram using Facebook as distribution. Were there other things that Instagram stood to lose if you, quote/unquote, poked Facebook? A. So I think – I think our relationship with Twitter and how that progressed is a good example of – of what might have and/or would have happened with Facebook. It became clear to Twitter that – that we would be less partners with them once we were part of Facebook because I think of their previous relationship with Facebook, less about their judgment about how we felt about them. And they decided to remove certain functionality – or the ability for us to use certain parts of their API that helped our – our community connect with their friends. . . . Were the world different and Instagram remained –

remained independent or part of some other company . . . I think the same thing would have happened, but Facebook would have been the actor in that case. They would not have allowed us to use those API endpoints. And the reason why I think that is because they have done that to other companies. So it's not – I'm not guessing here. I'm – I'm extrapolating based on previous behavior, and that would have made it relatively hard for people to find their friends." Ex. 284 at 166:11-167:22 (Systrom IH Tr.).

670. Professor Steven Kaplan, one of Meta's experts, described a quantitative study, which he co-authored, of venture-capital investment in startups that found "about half of VC holdings end up being worthless, or with very low value," while "[r]oughly 60% of investments lose money." Ex. 6 at ¶¶ 76-78 (Kaplan Rep.). Professor Kaplan also examined every startup company in the United States that received venture capital funding between 2008 and 2014 in which its Series B round valued the company at between $250 million and $5 billion (Instagram's 2012 Series B funding valued it at $500 million). *See id.* at ¶¶ 82-88. Of these 82 companies, excluding Instagram and WhatsApp, only two (Uber and Airbnb) have achieved a market capitalization of more than $50 billion. *See id.* at ¶¶ 82-88, Ex. B, Ex. C-1, Ex. C-2, & Ex. C-3. [redacted]

c. Pre-Acquisition Features

671. Mr. Systrom testified that pre-acquisition Instagram was "focused" on "sharing photos." Ex. 284 at 82:21-22 (Systrom IH Tr.). He also testified, "we were pretty clear we were focused on photos at the time" and not "general social network ambitions." *Id.* at 149:25-150:6. Mr. Systrom testified: "Q. . . . Were users able to share photos within the Instagram app? . . .

Share their own photos, like post their own photos to the feed? A. Yeah, I mean, that's the only thing we supported." *Id.* at 51:24-52:6.

672. Mr. Krieger testified: "Q. Can you describe what the features on Instagram were when it first launched? A. The primary feature was posting photos. You could either take a photo with a camera inside the application or upload something from your – your library or gallery. You could filter those photos. I think we had – I'm going to guess – 16 filters that were available that each had a sort of different color treatment on your photos. You could add a caption to the photo before you posted and add an optional geotag and location. You could share that photo to your Instagram followers, but you can also choose to cross-post it to – I think @launchfacebook [and] Twitter. . . . On the consumer side of the photos, you could view the photos. You could follow people, view the photos they posted. Like, you know, perform a like action on the photos, comment on the photos, view the comments and likes on your own photos." Ex. 302 at 37:1-38:1 (Krieger IH Tr.).

673. Mr. Krieger also testified: "Q. . . . [W]ho were people sharing with on Instagram? Who were they connected to? A. I think the first – so one feature we had is you could import your contacts from Facebook or your phone or your followees, I guess the people you followed on Twitter. And I would characterize the initial sort of social graph as a combining of those two. So some friends. They could be friends who had joined. But also, you know, especially people who [were] Twitter users at the time had built this network of people that they might not have known in real life but were – sort of shared some interest where – whether it was graphic design or software engineering or something else. And sort of Instagram brought those both together. So your friends plus people who shared interests." Ex. 302 at 42:14-43:7 (Krieger IH Tr.).

674. Pre-acquisition Instagram user accounts were public by default. *See* Ex. 302 at 43:25-45:2 (Krieger IH Tr.). The "popular" or "explore" tab on Instagram pre-acquisition showed photos that were popular on Instagram, not based on who an individual user followed or that user's interests. *See id.* at 38:1-4; *see also* Ex. 153 at 212:10-19 (Krieger Dep. Tr.); Ex. 284 at 70:21-71:19 (Systrom IH Tr.).

675. On March 20, 2012, Mr. Systrom wrote to Mark Zuckerberg, Meta's chief executive officer, stating: "Most of the photos on Instagram are not social photos, but instead tend towards photos of the world around us. Our graphs are significantly different as well. For one, we have an asymmetric visual interest graph – one which I'm sure differs from most peoples' [Facebook] graphs." Ex. 181 at -883 (FB_FTC_CID_01527881).

676. Also in 2012, the United Kingdom Office of Fair Trading or "OFT" wrote of Instagram and Facebook: "While Facebook is predominantly used by off-line friends using their real identities to connect online and share experiences (including photos), Instagram is predominantly used to share artful images by individuals often using pseudonyms. The information posted on Facebook is generally shared amongst friends only. By contrast, on Instagram the default position is that photos are available to all other users of the service." Ex. 426 at ¶ 22 (OFT, *Anticipated Acquisition by Facebook Inc. of Instagram Inc.*).

677. Mr. Systrom testified: "I don't know of many people who signed up and started using Instagram who said, wow, this replaces my behavior of posting photos on Facebook, because the photos you post on Facebook are so different in nature and character than the photos you post on Instagram. That does not mean the companies don't compete at some point in the future or in some nature, but I think people use them for different things." Ex. 284 at 164:1-9 (Systrom IH Tr.).

678. Professor C. Scott Hemphill, the FTC's proffered expert economist, stated that, when Instagram launched, it "was an iOS-only application with an intentionally narrow feature set" that focused on photo sharing. Ex. 279 at ¶ 115 (Hemphill Rep.).

d. Pre-Acquisition Integrity

679. On August 1, 2012, Dan Toffey – then, a member of the Instagram team responsible for content moderation, *see* Ex. 154 at 18:20-19:22 (Toffey Dep. Tr.) – wrote in an email: "I think we've reached a critical point with SPAM. It is no longer possible to tell which accounts are spam simply from the User Flag page. We are being hit with what looks like 5 to 7 different types of spam, each with their own characteristics. . . . It is now basically necessary to open every profile page to see whether they are legitimate [or] spammers, which increases the amount of time necessary to review by 3 or 4 times." Ex. 224 at -533-534 (PX10020, FB_FTC_CID_12203533).

680. Mr. Toffey testified that bad actors "were rapidly adjusting their techniques" to target Instagram with different types of spam. Ex. 154 at 117:4-9, 120:12-122:8 (Toffey Dep. Tr.). He also testified that he could recall "seeing spam content overrun [Instagram's] Explore tab" pre-acquisition. *Id.* at 117:13-16. Mr. Toffey further testified that users' reports of objectionable content on Instagram had grown almost tenfold by early 2012. *See id.* at 97:4-6 ("the number of flagged photos grew eight to ten X").

681. Nick Shortway – an engineer at Instagram pre-acquisition, *see* Ex. 156 at 9:4-21 (Shortway Dep. Tr.) – testified: "At the time when I started, spam was so bad on the platform, deactivating really bad accounts and all of that type of activity that it was incredibly difficult for even users to operate." *Id.* at 22:18-21 & errata. Patrick Bozeman – formerly the director of engineering at Instagram, *see* Ex. 155 at 18:8-11 (Bozeman Dep. Tr.) – testified "[t]here was a

lot of bad stuff going on preacquisition," including "a lot of inauthentic activity and spam," which could have "crushed" Instagram. *Id.* at 137:4-7.

682. An October 16, 2015 Meta document, titled "The evolution of spam fighting at Instagram," states that, before the acquisition, Instagram had an "ad-hoc method of creating one-off policies to fight spam" that "simply wouldn't scale." Ex. 214 at -836 (FTC-META-005087836). The document also states that Instagram's "spam-fighting code was messy," and its response time to address spam "was incredibly slow," including because updating "spam policies necessitated a full rollout of [Instagram's] site." *Id.*

683. Mr. Krieger testified that pre-acquisition Instagram had "rudimentary defenses" to address these issues. Ex. 302 at 232:4-10 (Krieger IH Tr.); *see also* Ex. 153 at 253:7-12 (Krieger Dep. Tr.). According to Mr. Krieger, no one on the Instagram "team had any expertise in site integrity or spam." Ex. 153 at 143:3-4 (Krieger Dep. Tr.). Mr. Shortway testified that it was "incredibly difficult" for pre-acquisition Instagram to detect spam or other objectionable content, and it was not "really good at either of them." Ex. 156 at 23:18-24:7 (Shortway Dep. Tr.). He also testified, regarding objectionable content, that Instagram's approach was "somewhat shoddy" and lacked "a real professional solution." *Id.* at 23:12-15. Mr. Shortway further testified that Instagram relied on "hacked-together solutions that [it was] struggling to make work." *Id.* at 22:10-12.

684. Jay Parikh – former head of infrastructure at Meta, Ex. 157 at 25:22-24 (Parikh Dep. Tr.) – testified: "[Instagram was] struggling to manage the spam, so basically the safety of the users on Instagram at the time, and they were struggling to keep up with the different types of and the magnitude or the complexity of the attacks that spammers and phishers were targeting Instagram for. And their systems weren't designed or built for scaling to handle this rapidly

escalating set of attacks, and I guess they were a target, and that was one of the first things they asked us for our help on after the acquisition closed." Ex. 158 at 110:7-22 (Parikh IH Tr.).

e. Pre-Acquisition Infrastructure

685. Before the Meta acquisition, Instagram operated on Amazon Web Services ("AWS"). *See* Ex. 153 at 43:12-44:11 (Krieger Dep. Tr.). Mr. Shortway testified regarding Instagram's infrastructure that "our packet rates became unmanageable and slow, and we couldn't provide the performance to our users." Ex. 156 at 114:17-24 (Shortway Dep. Tr.). He also testified this required "a very large hack" in which AWS would troubleshoot the infrastructure with Instagram on a nightly basis. *Id.* at 114:25-115:10.

686. Regarding the pre-acquisition Instagram infrastructure, Mr. Systrom testified: "[W]e were spending 95 percent of our waking hours making sure that the service was running." Ex. 151 at 216:9-11 (Systrom Dep. Tr.). Mr. Systrom also testified: "I would say every week or so we had a – an instance where we had to figure out how to keep the servers running." *Id.* at 215:24-216:1.

687. Mr. Systrom testified: "Q. Okay. Do you remember saying that 'Instagram's infrastructure was duct-taped along the way'? A. Yes. Q. Okay. What did you mean by that? A. We were growing so quickly that in order to keep up with the growth, we made a lot of quality of code tradeoffs where we would be okay with things not being perfect just to stay up with the constant demand." Ex. 151 at 219:1-10 (Systrom Dep. Tr.); *see also* Ex. 153 at 222:19-223:24 (Krieger Dep. Tr.).

688. Mr. Krieger testified that Instagram was "under water from an engineering perspective" and it was "very hard to scale [Instagram] with just the small team we had." Ex. 153 at 269:20-270:8 (Krieger Dep. Tr.); Ex. 302 at 159:15-17 (Krieger IH Tr.). He also testified that Instagram was not able to "break out of that cycle of being in the primarily

firefighting mode." Ex. 153 at 269:2-11 (Krieger Dep. Tr.); *see also* Ex. 156 at 10:15-23 (Shortway Dep. Tr.) (testifying that Instagram was "in firefighting mode" when he joined the company in August 2012). Mr. Krieger stated in a publicly available interview that "every weekend [Instagram] survived was an accomplishment." Ex. 427 at 8:55-9:05 (InfoQ, *How a Small Team Scales Instagram*, https://perma.cc/P2AZ-RTVL).

689. Mr. Shortway testified that pre-acquisition Instagram's engineers "were essentially on call 24/7" and "spent just countless days" fixing infrastructure problems. Ex. 156 at 72:9-16 (Shortway Dep. Tr.). He also testified that they would "always carry our laptop and a MiFi with us at all times" to fix problems, such that engineers were fixing Instagram from "almost a Dr. Seuss book of places." *Id.* at 72:9-25 & errata.

690. Mr. Systrom stated in a 2012 interview: "I missed birthdays, dinners, weekends with family visiting. Honestly there wasn't much of a choice – either we worked on Instagram or it came crumbling down and it wouldn't work. For a while it was a race against the clock, and only recently have we figured out [how] to keep it from being a constant firefight." Ex. 213 at -513 (FTC-META-003352513). He said in another interview: "Weekends didn't exist. Mike [Krieger] and I set up an alarm on our phones if the servers were overloaded and went down, and that went off every four or five hours. Then as we grew, it went off every hour, or every 15 minutes. To this day, I have a Pavlovian response to that alarm: simultaneous nausea and anxiety." Ex. 428 at 3 (MetaFTC-DX-684).

691. On March 30, 2011, Mr. Systrom wrote an email to AWS, stating that Instagram's "main database box lives on the largest memory instance you guys offer . . . and about every week or so it spontaneously decides to hard restart thus throwing our service into a fit." Ex. 207 at -872 (FB_FTC_CID_12209872). He wrote in the same email that this is "really hard to

recover from" and "this one issue makes it really hard for us to have a reliable experience for our users." *Id.*

692. Instagram sustained multiple outages before the acquisition, e.g., in June 2012 and in early September 2012. Ex. 5 at ¶¶ 101 n.204 (Nieh Rep.); *see also* Ex. 212 at -324 (FTC-META-003313324) (September 5, 2012, email in which Mr. Krieger reports "another" outage, "the second time we've had a network outage w/ Amazon in 2 days").

693. Mr. Parikh testified: "Instagram only ran out of one AWS data center at the time and they didn't have . . . an easy way to expand. So that if that AWS data center had a bad day, if it went down or something happened to it, the Instagram service would be down for all of the users." Ex. 158 at 114:12-17 (Parikh IH Tr.). Mr. Krieger testified that AWS "was quite slow relative to our needs in terms of being able to read user data sort of in real time." Ex. 153 at 225:22-226:3 (Krieger Dep. Tr.).

694. Mr. Systrom testified: "I wish I had more time to spend on the product at that time, but . . . Mike [Krieger] and I were spending most of our time keeping the servers running." Ex. 151 at 219:20-23 (Systrom Dep. Tr.). Mr. Systrom agreed they "[l]ikely" had to "prioritize building infrastructure readiness and strength over feature development." *Id.* at 220:7-10.

2. Instagram Acquisition Discussions

695. On February 12, 2012, Mr. Zuckerberg sent a message to Matthew Cohler at Benchmark Capital – an Instagram investor, [redacted] – stating that Meta acquiring Instagram could "make sense since photos by themselves aren't a great business," noting that Facebook users posting Instagram content to Facebook "drives a lot of activity." Ex. 228 at -940-941 (PX1135, FB_FTC_CID_01543939).

696. On February 13, 2012, Mr. Cohler messaged Instagram co-founder Kevin Systrom about a possible acquisition. *See* Ex. 230 at -020 (PX2759, FB_FTC_CID_08721020). Mr. Systrom responded to ask whether Mr. Zuckerberg would "go into destroy mode if I say no." *Id.* Mr. Systrom testified that "destroy mode" referred to the possibility that Meta might "cut off" Instagram from distribution on Facebook, among other actions. Ex. 151 at 236:25-237:12 (Systrom Dep. Tr.).

697. On March 12, 2012, Mr. Zuckerberg emailed Mr. Systrom to express interest in "making an offer to acquire Instagram," requesting that Mr. Systrom "send along" a "deck" about Instagram for the two to "start discussing the offer." Ex. 182 at -967 (FB_FTC_CID_01543967). Mr. Systrom emailed Mr. Zuckerberg a presentation about Instagram the next day. *See* Ex. 205 at -562 (FB_FTC_CID_12185562).

698. On March 14, 2012, Mr. Zuckerberg emailed Mr. Systrom about "Instagram joining Facebook," stating that he was "really excited about what [Meta] can do to grow Instagram as an independent brand and product." Ex. 181 at -885 (FB_FTC_CID_01527881). Mr. Zuckerberg added that Instagram could "do some amazing things" with the "infrastructure [Meta] built . . . around storing and serving photos, querying them, etc." *Id.* (referencing "the value of using all of the infrastructure that we've built up rather than having to build everything from scratch").

699. On April 3, 2012, Mr. Zuckerberg emailed Mr. Cohler, referring to the idea of Meta acquiring Instagram for $500 million with the Instagram founders having "complete freedom to keep running Instagram." Ex. 196 at -535 (FB_FTC_CID_06251535).

700. On April 5, 2012, Mr. Systrom and Mr. Zuckerberg emailed about the possibility of an acquisition, with Mr. Systrom stating that $2 billion was Instagram's "yes absolutely

number" for an acquisition, but that Instagram would discuss "less." Ex. 183 at -981 (FB_FTC_CID_01543981); Ex. 151 at 241:14-242:3 (Systrom Dep. Tr.).

701. On April 8, 2012, Mr. Zuckerberg and Mr. Systrom agreed that Meta would acquire Instagram at a purchase price of $1 billion. *See* Ex. 284 at 178:20-179:13 (Systrom IH Tr.).

3. Instagram Pre-Clearance Review

702. On April 16, 2012, Meta submitted to the FTC a Hart-Scott-Rodino Act Premerger Notification Form for the Instagram transaction. *See* Ex. 304 (Facebook Hart-Scott-Rodino Act Submission, FTC-PROD-00012904). The submission includes a production of documents, e.g., a message in which Mr. Zuckerberg wrote: "One business questions [sic] I've been thinking about recently is how much we should be willing to pay to acquire mobile app companies like Instagram and Path that are building networks that are competitive with our own." Ex. 303 at -821 (Attachment 4(c)-9, FTC-PROD-00013821); *see also* Am. Compl. ¶¶ 89-91 (Sept. 8, 2021), ECF No. 82 (quoting this document from Meta's production in 2012).

703. Meta and Instagram produced additional documents to the FTC as part of the Hart-Scott-Rodino Act Submission and in response to subsequent FTC requests for information. *See*, *e.g.*, Ex. 304 (FTC-PROD-00012904); Ex. 305 (FTC-PROD-00013396).

704. On May 16, 2012, the FTC issued a request for "additional information and documentary materials" concerning the proposed transaction (i.e., a "Second Request"). *See* Ex. 306 at 1 (FTC, Second Request Letter, FTC-PROD-00013736).

705. In response to the Second Request, Meta produced more than 9,000 documents – collected from several custodians, including Mr. Zuckerberg – and Instagram produced more than 10,000 documents. *See* Hansen Decl. ¶ 8; *see also*, *e.g.*, Ex. 307 at -921 (FTC-PROD-

00012921) (concerning Meta's production); Ex. 293 at -038 (FTC-PROD-00016037) (concerning Instagram's production).

706. During its investigation, the FTC interviewed Meta executives, including Meta's chief executive officer, as well as 49 individuals [redacted]. *See* Ex. 309 at 9-10 (FTC's Suppl. Objs. & Resps. to Meta's First Set of Interrogs. (Oct. 7, 2022)). [redacted] *See* Ex. 308 at -426 (FTC-PROD-00013425).

707. On August 22, 2012, the FTC notified Meta and Instagram: "The Commission has been conducting an investigation to determine whether the proposed acquisition of Instagram, Inc. by Facebook, Inc. may violate Section 7 of the Clayton Act or Section 5 of the Federal Trade Commission Act." Ex. 429 (FTC, Closing Letter). The correspondence continued: "Upon further review of this matter, it now appears that no further action is warranted by the Commission at this time. Accordingly, the investigation has been closed." *Id.*

708. In response to Meta's First Set of Requests for Admission, "the FTC admits that its investigation of Facebook, Inc.'s proposed acquisition of Instagram was 'competent.'" Ex. 430 at 3, FTC's Resp. to Meta's Req. for Admis. No. 1 (FTC's Objs. & Resps. to Meta's First Set of Reqs. for Admis. (May 4, 2023)).

709. On August 22, 2012, the United Kingdom Office of Fair Trading or OFT closed its investigation of the proposed Instagram acquisition, writing: "In the social networking space, the OFT has no reason to believe that Instagram would be uniquely placed to compete against Facebook, either as a potential social network or as a provider of advertising space." Ex. 426 at ¶ 44 (OFT, *Anticipated Acquisition by Facebook Inc. of Instagram Inc.*).

4. Post-Acquisition Instagram

710. Since the Instagram acquisition closed on September 6, 2012, *see* Ex. 6 at ¶ 8 & n.7 (Kaplan Rep.), Meta has invested more than a billion dollars in Instagram. *See* Ex. 169 at 12 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 6 (Sept. 22, 2022)). In 2022, alone, Meta spent more than $35 billion on research and development across its business. Ex. 353 at 69 (Meta 2022 Form-10K).

711. An academic study prepared in 2023 independent of any litigation determined that Instagram generates between $62,514,362,880 and $78,142,953,600 in annual consumer surplus, while Facebook generates between $128,190,562,200 and $156,677,353,800 in annual consumer surplus. *See* Ex. 2 at ¶ 229 & tbl. 28 (Carlton Rep.). The study "used incentivized choice experiments involving 39,717 users in 13 countries to estimate consumer welfare," as well as "surveys to estimate the relative value of other apps to Facebook." *Id*. at ¶ 347. The study found that a U.S. consumer's "willingness-to-accept" value – i.e., what the median consumer in the experiment would accept to stop using the service – was "roughly $30 per month" for Instagram and "around $50 per month" for Facebook. *Id*.

712. Another academic study prepared in 2019 independent of any litigation determined that, following the Instagram acquisition, Facebook generates between $113,947,166,400 and $190,861,503,720 in annual consumer surplus. *See* Ex. 2 at ¶ 229 & tbl. 28 (Carlton Rep.). The study, which involved 1,769 users at a U.S. university, found that Facebook had a median value of $40 per week. *Id.* at ¶ 350.

713. Another academic study prepared in 2020 independent of any litigation determined that, following the Instagram acquisition, Facebook generates between $244,986,407,760 and $578,281,869,480 in annual consumer surplus. *See* Ex. 2 at ¶ 229 & tbl. 28 (Carlton Rep.). The study, which "used an incentivized experiment" involving 2,743

users who were paid to deactivate Facebook, found a mean willingness-to-accept value of $180 per month. *Id.* at ¶ 349.

714. Professor Jihoon Rim – one of the FTC's proffered experts – declined to name any app or acquisition when asked, "Defining 'consumer benefit' however you like, can you name a start-up acquisition in the United States that has generated more consumer benefit than the Instagram acquisition?" Ex. 310 at 120:18-121:4 (Rim Dep. Tr.).

715. Professor C. Scott Hemphill – the FTC's proffered expert economist – testified: "Q. . . . Now, turning to the question of anticompetitive effects, you agree that the proper standard for judging effects here is consumer welfare, correct? . . . A. Yes. I would broadly agree that consumer welfare compared to the but-for world in which the acquisitions did not take place, you know, as – it's an important caveat as experienced by users of personal social networking services is the right way to think about competitive effects." Ex. 283 at 267:14-268:2 (Hemphill Dep. Tr.). He also testified: "Q. . . . If consumer welfare is higher in the actual world than it would have been in the but-for world, then you would agree that the conduct in question is not anticompetitive, correct? . . . A. I would – I would agree that if consumer welfare for personal social networking users is higher in the actual world than in the but-for world, that, you know, that would be adverse to a conclusion about competitive effects. Q. And that would be true irrespective of the number of competitors, correct? . . . A. I would agree that numerosity of competitors, though highly relevant to a prediction about consumer welfare, is not the end of the analysis." *Id.* at 268:21-269:19. Professor Hemphill also testified: "The relevant question is what does usage look like relative to a but-for world." *Id.* at 236:7-8; *see also id.* at 229:21-230:1 (recognizing that "the relevant question here is the actual world that we live in compared to the but-for world").

a. Post-Acquisition Monetization

716. Meta introduced advertising on Instagram in November 2013. *See* Ex. 4 at ¶ 87 & n.173 (Tucker Rep.); Ex. 286 at ¶ 14 (Aral Rep.). Since then, Meta has released new advertising tools and formats on Instagram, such as new layout options and photo sizes in August 2015. *See* Ex. 4 at ¶ 93 (Tucker Rep.).

717. In September 2015, Meta enabled Facebook's marketing partners to advertise on Instagram using Facebook tools. *See* Ex. 4 at ¶ 89 & n.179 (Tucker Rep.). On September 21, 2018, Ime Archibong – then Meta's vice president of product partnerships, *see* Ex. 159 at 32:6-21 (Archibong IH Tr.) – wrote in an email: "Instagram pivoted to use the FB ads stack rather than building a separate product – this decision enabled rapid growth of IG's monetization efforts." Ex. 191 at -548 (FB_FTC_CID_03360548).

718. In September 2015, Meta launched direct-response advertising on Instagram. *See* Ex. 4 at at ¶ 93 & n.186 (Tucker Rep.).

719. In September 2015, Meta also made the Facebook self-service advertising tool available to advertisers on Instagram. *See* Ex. 2 at ¶ 257 & n.374 (Carlton Rep.). Following this launch, self-serve advertisements came to comprise [redacted] of Instagram advertising revenue. *See id.* at p. 190, fig. 18 (Carlton Rep.). This can be represented graphically:

[redacted]

Id.

720. On January 9, 2017, Instagram co-founder Kevin Systrom wrote in an email: "Our financial success was, in large part, an outcome of Facebook's extraordinary ad ecosystem. Our turnaround in content production was in large part due to the adoption of an existing format. Our increase in time spent was largely derived from an existing playbook of feed ranking developed at [Facebook]." Ex. 188 at -304 (FB_FTC_CID_02985304).

721. Instagram generated advertising revenues of $11.3 billion in 2018, $17.9 billion in 2019, $22 billion in 2020, $32.4 billion in 2021, and $16.5 billion in the first half of 2022. *See* Ex. 279 at p. 25, Ex. 7 (Hemphill Rep.). Some publicly reported estimates of Instagram's standalone valuation as of 2018 were between $80 billion and $100 billion. *See* Ex. 2 at ¶ 260 & n.377 (Carlton Rep.). [redacted]

[redacted]

722. Professor Sinan Aral – the FTC's proffered monetization expert, Ex. 286 at ¶ 1 (Aral Rep.) – opined on "Meta's claimed monetization benefits related to acquiring Instagram and WhatsApp" and "whether Meta's acquisitions of Instagram or WhatsApp were necessary to achieve the claimed benefits." *Id.* at ¶ 8. He testified: "Q. So it's your opinion that [Instagram] could have monetized more successfully, but not that it would have monetized more successfully? . . . A. I don't state a particular opinion in either report about whether it could have or would have monetized more successfully." Ex. 287 at 167:1-7 (Aral Dep. Tr.). Professor Aral also testified: "I was not tasked with answering the question that you asked, which is, could Instagram have been better without the acquisition of Meta. And so I didn't offer an opinion on that specifically." *Id.* at 180:18-22 & errata.

b. Post-Acquisition Growth

723. Following the Instagram acquisition, Meta provided Instagram with several resources for growing and increasing user engagement on Instagram, e.g.:

a. As of November 2012, Meta used app-install ads (called "Neko ads") on Facebook to promote Instagram. Ex. 210 at -793-796 (FTC-META-002733793); *see also* Ex. 201 at -.001, -.002 (FB_FTC_CID_11435712) (row 7, "Instagram leverages Neko as a channel to drive Installs and/or App Opens").

b. As of 2014, Meta also used Network Ego ads on Facebook to promote Instagram. *See* Ex. 217 at -752 (FTC-META-011737752). Javier Olivan – Meta's chief operating officer – testified that [redacted]

[redacted]

Ex. 160 at 63:8-10, 148:14-149:5 (Olivan Dep. Tr.).

c. In 2015, Meta launched an Instagram Bookmark on the Facebook mobile app. *See* Ex. 193 at -267 (FB_FTC_CID_05304266); Ex. 161 at 257:8-20 (Schultz IH Tr.). On May 15, 2015, Alex Schultz – then Meta's vice president of analytics and currently Meta's chief marketing officer, *see* Ex. 162 at 10:10-16 (Schultz Dep. Tr.) – wrote in an email: "Instagram growth continues to accelerate due to a bunch of huge wins over the past couple weeks, driven by bookmarks (+200K), Neko fix/refresh (+30K) and NetEgo update (+7.5K)." Ex. 185 at -558 (FB_FTC_CID_02387556). Mr. Krieger testified: "as we integrated more deeply with Facebook, a lot of the collaborations happened between our growth team and Facebook's growth team, you know, the bookmark as an example, and a few of these other things. Those would, of course, not have been available to us had we remained independent." Ex. 302 at 177:9-15 (Krieger IH Tr.).

d. In 2016, Meta completed its rollout of web registrations for Instagram, which enabled new users to "sign up for Instagram from instagram.com." Ex. 208 at -280 (FTC-META-000111278). On March 28, 2016, Mr. Systrom wrote in an email that "we are expected to generate roughly 200K/day from web registration which should be a big win for overall growth." Ex. 218 at -264 (FTC-META-011883264).

e. Also as of 2016, Meta implemented notifications on Facebook to alert Instagram users of new followers on Instagram. *See* Ex. 216 at 464-465

(FTC-META-008614464) ("Top wins" for "Growth" include "FB jewel notif to churned IG users with new follows"). Meta also used notifications on Facebook to invite Facebook users to join Instagram and to notify Instagram users of unseen activity and follower activity on Instagram. *See* Ex. 201 at -.001, -.004, -.005 (FB_FTC_CID_11435712).

f. Meta allowed Instagram to use the Facebook Open Graph to allow users to find their friends on Instagram. *See* Ex. 151 at 115:3-14, 132:16-18 (Systrom Dep. Tr.).

g. Meta also allowed cross-posting of Instagram content on Facebook. *See* Ex. 201 at -.001, -.002, -.004, -.005 (FB_FTC_CID_11435712) (row 13, "Pivot Chaining" initiative shows a "user who clicked like-comment-share button or clicked the photo itself" on Facebook "an eligible IG photo in FB news feed").

724. Instagram averaged more than 110.7 million U.S. monthly active users in the fourth quarter of 2016, and [redacted] U.S. monthly active users in the first half of 2022. *See* Ex. 279 at p. C.26, Ex. C-25 (Hemphill Rep.). U.S. time spent on Instagram averaged [redacted] per month in the first half of 2022. *See id.* at p. C.27, Ex. C-26.

725. Facebook averaged more than 158.9 million U.S. monthly active users in March 2012, and [redacted] U.S. monthly active users in the first half of 2022. *See* Ex. 279 at p. 238, Ex. 42, & p. C.26, Ex. C-25 (Hemphill Rep.). U.S. time spent on Facebook was more than 96.5 billion minutes in March 2012, and averaged [redacted] per month in the first half of 2022. *See id.* at p. 241, Ex. 45, & p. C.27, Ex. C-26.

726. Mr. Krieger testified that Instagram worked "with the Facebook growth team," and "[t]he decisions that they made in collaboration with us had positive effects on our growth." Ex. 153 at 343:25-344:24 (Krieger Dep. Tr.). He also testified: "By being able to build out our growth team, we were able to staff projects to experiment with whether certain changes in the product might help with growth, whether they were . . . machine-learning changes" or "changes to the sign-up experience, or changes to our push notifications and how those were used for reengagement. So having a larger team meant we could take more swings at . . . lifting growth." *Id.* at 348:10-19.

727. Mr. Systrom testified: "Q. . . . Do you believe that prior to the time Facebook bought Instagram, it could have gone either way? Meaning it could have succeeded, or it could have failed? A. I do believe, yeah. Q. And why do you believe that? A. It's very hard to know, in alternate universes, what would have happened. Q. Okay. Would you agree that being part of Facebook allowed Instagram to skip several years of development? A. I do, yes." Ex. 151 at 251:9-21 (Systrom Dep. Tr.).

728. Professor Rim testified: "Q. Okay. Can you identify a start-up acquisition in the United States of a mobile app that resulted in more user growth than the Instagram acquisition? . . . A. So I don't have a specific company right now in my mind, and I do not know how many number of users have grown even for Instagram." Ex. 310 at 130:20-131:9 (Rim Dep. Tr.).

729. Other firms that the FTC labels "personal social networking services" entered and grew following the Instagram acquisition, e.g.:

a. **MeWe.** The FTC contends that MeWe offered a "personal social networking" app [redacted]. Ex. 295 at 8, FTC's Suppl. Resp. to Meta's Interrog.

No. 3 (FTC's Suppl. Objs. & Resps. to Meta's First Set of Interrogs. (Nov. 4, 2022)); *see also* Ex. 279 at ¶ 148 (Hemphill Rep.). [redacted]

b. **Snapchat.** The FTC contends that Snapchat became a "personal social networking service" [redacted]. Ex. 295 at 7, FTC's Suppl. Resp. to Meta's Interrog. No. 3 (FTC's Suppl. Objs. & Resps. to Meta's First Set of Interrogs. (Nov. 4, 2022)). [redacted]

730. Professor Hemphill calculated shares of U.S. "personal social networking services" based on six "PSN Services" with U.S. users in March 2012. Ex. 279 at p. 238, Ex. 42, & p. 241, Ex. 45 (Hemphill Rep.) (listing Facebook, Instagram, Myspace, Google+, Orkut, and Path). Professor Hemphill calculated shares of U.S. "personal social networking services" based on seven "PSN Services" with U.S. users in the first half of 2022, as well as an "Other" category comprised of a further five "PSN Services." *Id.* at p. C.25, Ex. C-24 (listing Facebook, Instagram, Snapchat, MeWe, BeReal, Myspace, LINE, and an "other" category that includes LiveJournal, Qzon, Renren, VKontakte, and Weibo).

731. Professor Hemphill found that the aggregate number of U.S. monthly active users on all "personal social networks" [redacted]

[redacted] He also found that the aggregate number of U.S. monthly active users on "personal social networks" that Meta does not own [redacted]

732. Professor Hemphill determined that the aggregate U.S. time spent on "personal social networks" [redacted] He also found that the aggregate U.S. time spent on "personal social networks" that Meta does not own [redacted]

733. Professor Rim testified: "Q. Okay. You have not simulated how personal social networking consumers would have fared but for the Instagram acquisition, have you? A. . . . That was not the scope of my report." Ex. 310 at 121:6-19 (Rim Dep. Tr.). Professor Rim also testified: "Q. . . . Do you know one way or the other whether there's any evidence in the record simulating how personal social networking consumers would have been in the counterfactual without Meta acquiring Instagram? . . . A. . . . I do not know if there is any kind of evidence what you're mentioning." *Id.* at 122:16-123:10. He further testified: "Q. Which paragraph number in your report offers the opinion that Instagram would have grown to be bigger than it is today had Meta not acquired it? . . . A. I have not predicted the number of users of Instagram in the counterfactual world that was not acquired by Meta." *Id.* at 113:13-21.

734. Professor Hemphill testified: "Q. . . . You nowhere give the opinion in your reports that in the but-for world market-wide output in the market for PSNS would have been higher than in the actual world, correct? . . . A. . . . No, I can't, as I sit here, think of a specific place where I offer the view that out – output would be even higher in the but-for world, no. . . . I'm not offering a bottomline view that it would have been even higher." Ex. 283 at 281:10-282:4 (Hemphill Dep. Tr.).

735. Professor Hemphill opined that, [redacted] Ex. 279 at ¶¶ 1084-1085 (Hemphill Rep.). He found that, [redacted] U.S. monthly active users on Instagram, and [redacted] U.S. monthly active users on Facebook. *See id.* at p. C.26, Ex. C-25.

736. [redacted]

737. The number of U.S. monthly active users on Instagram grew from more than [redacted] in 2017 to more than [redacted] in 2018, more than [redacted] in 2019, more than [redacted]

[redacted] in 2020, and more than [redacted] in 2021 (ultimately reaching more than [redacted] by June 2022). *See* Ex. 279 at p. C.26, Ex. C-25 (Hemphill Rep.).

738. Meta propounded the following Request for Admission on the FTC: "Admit that if Meta had terminated Instagram's access to the Find Friends API in 2012 instead of acquiring Instagram, Instagram's growth would have 'slowed significantly' (*see* Am. Compl. ¶ 155)." Ex. 430 at 5, FTC's Resp. to Meta's Req. for Admis. No. 4 (FTC's Objs. & Resps. to Meta's First Set of Reqs. for Admis. (May 4, 2023)). In response, the FTC denied this Request for Admission, also stating: "The FTC further objects because the FTC has not assessed a hypothetical situation in which Meta terminated Instagram's access to the Find Friends API in 2012 instead of acquiring Instagram." *Id.*

c. Post-Acquisition Features

739. Between May 2013 and March 2021, Meta publicly announced the release of more than 30 new features and services on Instagram. *See* Ex. 170 at 16-18, 45, Meta's Suppl. Resp. to FTC's Suppl. Interrog. No. 10 (Meta's Suppl. Objs. & Resps. to FTC's Interrogs. Nos. 10 & 12 (May 31, 2023)); *see also* Ex. 2 at p. 253, tbl. 33 (Carlton Rep.).

740. Around June 2013, Meta released Video on Instagram, allowing users to create, post, and edit videos on Instagram. *See* Ex. 2 at ¶ 82 & n.130 (Carlton Rep.). Mr. Krieger wrote an internal Meta post the same day stating: "There is no way this project would have gone as well as it had without the support from Infra." Ex. 219 at -298 (FTC-META-012220298). [redacted] *See* Ex. 171 at 7 & Ex. 3(a)-03 (Facebook, Inc. Resp. to FTC Civil Investigative Demand Spec. 1(a) & 3(a) (Jan. 17, 2020)).

741. Around December 2013, Meta released Instagram Direct, allowing users to send and receive text, photo, and video messages with other Instagram users. *See* Ex. 431 (Instagram,

Introducing Instagram Direct Message, https://perma.cc/G25M-EUAH). In September 2015, Instagram announced publicly that Instagram Direct had more than 85 million monthly users. *See* Ex. 432 (Instagram Blog, *Introducing Improvements to Instagram Direct*). Instagram users sent approximately [redacted], which grew to approximately [redacted]. *See* Ex. 171 at 7 & Ex. 3(a)-03 (Facebook, Inc. Resp. to FTC Civil Investigative Demand Spec. 1(a) & 3(a) (Jan. 17, 2020)). Meta has subsequently updated the Instagram Direct feature, e.g., adding the ability to send content from a user's Feed via Direct Message and displaying Direct Messages in threads in September 2015. *See*, *e.g.*, Ex. 432 (Instagram Blog, *Introducing Improvements to Instagram Direct*). Around July 2018, Meta added video chatting to Instagram Direct, and by October 2018, Instagram users could host video calls with up to six participants over Instagram Direct. *See* Ex. 2 at p. 253, tbl. 33 (Carlton Rep.). [redacted] *See* Ex. 171 at 7 & Ex. 3(a)-03 (Facebook, Inc. Resp. to FTC Civil Investigative Demand Spec. 1(a) & 3(a) (Jan. 17, 2020)).

742. Around March 2016, Meta announced that it would replace chronological Feed on Instagram with an algorithmic ranked Feed "based on the likelihood [the user will] be interested in the content, [the user's] relationship with the person posting and the timeliness of the post." Ex. 433 (Instagram Blog, *See Posts You Care about First in Your Feed*); *see also* Ex. 151 at 267:18-22 (Systrom Dep. Tr.). Mr. Krieger testified: "Ranked feed was primarily helpful in contributing to an increase in time spent on Instagram." Ex. 153 at 383:16-384:2 (Krieger Dep. Tr.). Mr. Systrom testified that ranked Feed "was successful in increasing engagement on Instagram." Ex. 151 at 369:10-13 (Systrom Dep. Tr.).

743. Around August 2016, Meta released Stories on Instagram. *See* Ex. 435 at 1 (Instagram Blog, *Introducing Instagram Stories*, https://perma.cc/P4WV-K3FT). Stories allows Instagram users to post and share disappearing photo, text, and video content. *See id.* Meta released Stories on Instagram before releasing it on Facebook. *Cf.* Ex. 434 at 5 (Meta, *More Ways To Share with the Facebook Camera*, https://perma.cc/76CG-7DDF) (announcing the release of Stories on Facebook in March 2017). Meta has continued to update Stories on Instagram, e.g., adding a feature for users to curate a list of Instagram users who can view new Stories in November 2018. *See* Ex. 437 (Instagram, *Curate Instagram Stories for Close Friends Only*). Instagram announced that Stories had more than 100 million daily users within three months of its launch. *See* Ex. 436 (MetaFTC-DX-923, Instagram, *Engineering the Instagram Stories Team*). As of December 2017, Stories had more than 250 million worldwide monthly active users. *See* Ex. 438 (MetaFTC-DX-922). [redacted] *See* Ex. 171 at 7 & Ex. 3(a)-03 (Facebook, Inc. Resp. to FTC Civil Investigative Demand Spec. 1(a) & 3(a) (Jan. 17, 2020)). And as of February 2023, [redacted] of all time spent on Instagram was spent on Stories. *See* Ex. 2 at p. 72, tbl. 12 (Carlton Rep.); *see also id.* at p. 79, fig. 4.

744. Around November 2016, Meta added a feature to Stories on Instagram called Instagram Live, which allows users to stream live video that other Instagram users can watch and react to (including with comments) in real time. *See* Ex. 441 at 1-2 (TechCrunch, *Instagram Launches Disappearing Live Video and Messages*, https://perma.cc/8ZH7-UZQ5). Meta has continued to update Instagram Live, e.g., adding the ability to save live videos after a broadcast in March 2017. *See* Ex. 440 (Instagram, *New: Save Your Live Video to Your Phone*). Around October 2017, Meta added the ability to create and host an Instagram Live video stream with

another user. *See* Ex. 442 (Instagram, *Go Live on Instagram with a Friend*). And around March 2021, Meta added Live Rooms to Instagram Live, allowing for group live streaming. *See* Ex. 439 (Instagram, *Doubling Up on Instagram Live with Live Rooms*).

745. Around August 2020, Meta released Reels on Instagram, allowing users to create, post, edit, and view short-form videos on Instagram. *See* Ex. 362 at 1 (Instagram, *Introducing Instagram Reels*, https://perma.cc/B5VL-UWXW). Meta released Reels on Instagram before releasing Reels on Facebook. *Cf.* Ex. 443 at 1 (Meta, *Launching Reels on Facebook in the US*, https://perma.cc/Y5DU-G4MG) (announcing the release of Reels on Facebook in September 2021). When Meta launched Reels, Meta also added a custom vertical feed to the Instagram Explore tab to enable users to discover and watch Reels on Instagram. *See* Ex. 362 at 3 (Instagram, *Introducing Instagram Reels*, https://perma.cc/B5VL-UWXW). As of June 2023, more than [redacted] of all time spent on Instagram was using Reels. *See* Ex. 3 at p. 13, tbl. II-1 (List Rep.). In 2023, a Meta study found that [redacted]. *See* Ex. 2 at ¶ 83 (Carlton Rep.). Professor Hemphill testified: "Q. . . . And just to be clear, you agree that the addition of Reels was an innovation of Facebook and Instagram's personal social networking services, correct? . . . A. It was an innovation bringing the competition to TikTok in the way that we talked about and which I agree serves to, to some degree, improve the personal social networking offering for all users." Ex. 283 at 263:17-264:4 (Hemphill Dep. Tr.).

746. As of February 2023, [redacted] of all U.S. time spent on Instagram was using features – including Reels, Stories, and Instagram Live – that Meta introduced to Instagram following the acquisition (and that did not exist when Meta acquired Instagram). *See* Ex. 2

at p. 79, fig. 4 (Carlton Rep.). The share of U.S. time spent by feature on Instagram as of February 2023 can be represented graphically:

[redacted]

Ex. 2 at p. 79, fig. 4 (Carlton Rep.).

747. Mr. Systrom testified: "You know, the more features that we launched, whether it was videos or eventually, like I said, Stories or Chat in the form of Instagram direct, those types of features always increased engagement over time. The things that increased engagement the most, by far, was the algorithmic feed that came many, many years later." Ex. 284 at 138:24-139:5 (Systrom IH Tr.). Mr. Systrom also testified: "Q. . . . Did Facebook pay for Instagram to develop new features? . . . [A.] Of course. Q. . . . And did that drive user growth? A. Of course." Ex. 151 at 304:12-18 (Systrom Dep. Tr.).

d. Post-Acquisition Integrity

748. [redacted] Ex. 189 at -173 (FB_FTC_CID_03265173) (stating that "Comment spam has gotten much better on Instagram"). He testified that integrating Instagram into Meta's integrity systems "was one of the first sort of orders of business" following the acquisition. Ex. 153 at 154:5-9 (Krieger Dep. Tr.). Mr. Krieger also testified that this happened "[a]lmost instantly" once the acquisition had closed. Ex. 302 at 234:20-22 (Krieger IH Tr.).

749. Mr. Krieger testified: "Q. . . . How did the actions that Instagram undertook on its own compare to the antispam program that Facebook had? A. They were radically more sophisticated on the Facebook side. So their systems used better pattern recognition, machine learning, clustering of behaviors so that if, you know, a bunch of suspicious-looking things all came from the same place, that probably means that place is – or, you know, that machine is compromised, like, just a whole host of improved technology." Ex. 302 at 233:17-234:2 (Krieger IH Tr.).

750. Mr. Shortway – an engineer at Instagram pre-acquisition – testified that "detecting spam and objectionable content is one of . . . the hardest problems in all of computing," and "it takes years and years of expertise and hard engineering work to be able to develop something even remotely successful at . . . actually blocking this content and classifying this content, a lot of machine learning that no one in the [pre-acquisition Instagram] team had experience in and Meta had a team . . . that was very skilled in this and had years of experience behind them." Ex. 156 at 26:3-17 (Shortway Dep. Tr.).

751. Ms. Cole, who handled Instagram's business operations before the acquisition, testified: "Q. Did Meta also assist Instagram with controlling spam or undesirable content? . . .

A. Yes. When we joined – before we joined Meta, the – it was initially one of the responsibilities of the community team. We had two people when I joined the team, and then four by the time we joined Meta, who were responsible for reviewing the content that was reported, essentially, on the platform. Before we joined Meta it had gotten to a scale that they needed to outsource some support in managing that volume of content that needed to be reviewed. And after joining Meta we were able to move over to Meta's systems and infrastructure for integrity, which helped from a cost and a scaling perspective." Ex. 152 at 198:23-199:15 & errata (Cole Dep. Tr.).

752. Since the acquisition, Meta has launched several tools, systems, and AI models on Instagram to benefit its integrity, including:

a. Meta's spam-fighting systems, which include:

i. [redacted]

ii. Sigma, a rule engine that can run anti-abuse rules on large quantities of data to proactively block malicious actions. *See* Ex. 444 (Engineering at Meta, *Fighting Spam with Haskell*, https://perma.cc/A3T6-XKNJ);

iii. [redacted]

iv. [redacted] and

v. [redacted]

b. [redacted]

c. [redacted]

d. Deep Entity Classification or "DEC", a machine-learning framework "that detects abusive accounts in [online social networks]" by extracting features "of accounts by aggregating properties and behavioral features from their direct and indirect neighbors in the social graph." Ex. 445 (Xu, et al., *Deep Entity Classification: Abusive Account Detection for Online Social Networks*); Ex. 215 at -349 (FTC-META-005437348).

753. Mr. Systrom testified: "Q. . . . When Instagram joined Facebook, was Instagram able to scale its response to problematic content by relying on Facebook's site integrity team? . . . [A.] I believe so, yes." Ex. 151 at 362:17-22 (Systrom Dep. Tr.). He also testified: "Q. If Instagram had not been part of Facebook, it wouldn't have been able to use Facebook's site integrity team, correct? . . . [A.] Correct." *Id.* at 363:2-6. Mr. Systrom further testified: "Q. . . . And if Instagram had remained independent, it wouldn't have been able to plug into Facebook's spam fighting systems, correct? . . . A. Not Facebook's, no." *Id.* at 366:11-16.

754. Professor Damon McCoy – the FTC's proffered integrity expert – opined regarding "Meta's claimed integrity-related benefits related to acquiring Instagram and

WhatsApp." Ex. 312 at ¶ 13 (McCoy Rep.). He testified: "Q. . . . Is it your conclusion that it is at least possible that Instagram's integrity today is superior to what Instagram's integrity would have been had it remained independent? . . . A. If you pose a hypothetical of that saying is something possible, then it's possible that I fall through this floor because of our understanding of quantum mechanics within there. So yes, I would say that it's possible." Ex. 313 at 176:1-11 (McCoy Dep. Tr.). Professor McCoy also testified: "Q. Sitting here today, you don't know what systems an . . . independent Instagram would be using to combat integrity, correct? A. That's correct. I don't know what specific systems they would have built. Q. And you don't know how many average monthly users an independent Instagram would have today, correct? A. That is correct. . . . Q. And you don't have any opinion as to how many . . . integrity engineers an independent Instagram would employ today, correct? A. That's correct." *Id.* at 192:22-193:16.

e. Post-Acquisition Infrastructure

755. In June 2014, Instagram publicly announced that, in April 2013, it had started migrating its computing infrastructure from AWS to Meta's data centers. *See* Ex. 446 at 1 (Medium, *Migrating From AWS to FB*, https://perma.cc/HBX3-TUBR). Mr. Systrom testified: "Q. And after the Facebook acquisition, Instagram ultimately switched over to Facebook's infrastructure? A. Correct." Ex. 151 at 353:13-16 (Systrom Dep. Tr.).

756. Tim Bray, the FTC's proffered infrastructure expert, opined that "[u]sers' perceptions of how quickly an online product responds to requests is an important component of the quality of their experience," and that the delay between a user request and an online product's response is commonly referred to as latency. Ex. 288 at ¶ 98 (Bray Rep.). Mr. Krieger testified that Instagram saw a "significant latency reduction post-Instagration," a term referring to Instagram's migration to Meta's data servers. Ex. 153 at 76:24-77:5, 287:3-20 (Krieger Dep. Tr.). He prepared a presentation in 2014 stating that there was a "75% latency reduction in our

core 'hot path' in rendering feeds" after the integration. Ex. 226 at -917 (PX10881, FB_FTC_CID_02613734).

757. Following the transition to Meta's infrastructure, the average time taken to fetch data for Instagram's Feed fell from approximately 40 milliseconds (before the transition) to approximately 20 milliseconds (after the transition). *See* Ex. 2 at p. 181, fig. 14 (Carlton Rep.). This can be shown graphically:

[redacted]

Id. at p. 181, fig. 14.

758. In 2014, an internal Meta email reported that the "benchmark for [Instagram] data fetching went from a very noisy ~100ms in Amazon Classic down to a very consistent 20ms in [Meta's infrastructure]." Ex. 227 at -521 (PX11060, FTC-META-003102521).

759. Instagram also migrated to Meta's [redacted], *see* Ex. 5 at ¶¶ 177-178 (Nieh Rep.), [redacted]. *See* Ex. 172 at 4-5, Meta's Resp. to Topic 5, Question 1 (Meta's Resp. to Topic 5 of FTC's Rule 30(b)(6) Notice Concerning Data Topics (Jan. 27, 2023)).

760. During the migration to this Meta system, Instagram wrote user "likes" to both Meta's infrastructure and Instagram's pre-acquisition legacy system (which used Postgres), the latter of which had a higher failure rate than Meta's system. *See* Ex. 2 at ¶ 251 & fig. 15 (Carlton Rep.). This can be shown graphically:

[redacted]

Id. at p. 182, fig. 15.

761. Mr. Krieger testified regarding the Instagram migration onto Meta's infrastructure: "Q. Now, did Instagram's stability increase as – as a product of the migration? A. Not immediately, but we were able to adopt services that Facebook had over time that did increase the stability. The one quick example would be search. So we had switched from using Solr. At the time, we had moved on to another search system. But then we were able to move on to Facebook's search infrastructure. And that increased reliability really significantly." Ex. 302 at 231:15-24 (Krieger IH Tr.).

762. Mr. Bray testified: "Q. But you haven't offered an opinion that at a holistic level the performance or functionality of Instagram is worse today than it was prior to the acquisition; correct? . . . [A.] I think you will struggle to find holistic opinions in my report. There's a large number of claims, and the technology and benefit requirements are highly specific to them." Ex. 289 at 129:16-130:3 (Bray Dep. Tr.). He also testified: "Q. You don't provide an opinion that Meta's infrastructure lacks a specific functionality or capability that would benefit Instagram or WhatsApp and that one of the leading three cloud providers offers; do you? . . . [A.] So, first of all, that was outside the scope of the questions I was asked to address, which are whether the claimed benefits were verifiable and whether attractive alternatives were available for each of the claimed benefits. I can't say. There are big reports. I do not recall calling out any specific shortfalls on the Meta front." *Id.* at 286:3-17. Mr. Bray also testified: "Q. . . . Nothing in your report discusses whether Instagram meets or exceeds an industry standard for speed; correct? . . . [A.] The discussion I included that specifically mentions industry – Instagram's speed is a citation from Meta management, but it is not co[u]ched in the form of an industry standard." *Id.* at 37:2-12.

B. Meta's Acquisition of WhatsApp (2014)

1. WhatsApp Pre-Acquisition

a. Pre-Acquisition Monetization

763. Before the Meta acquisition, WhatsApp charged U.S. consumers a one-time download fee of $1.00 to use the WhatsApp app on the iOS mobile operating system. *See* Ex. 314 at 218:17-25, 220:12-14 (Acton IH Tr.); *see also id.* at 221:15-17 (testifying that the fee was imposed on U.S. users). For users on the Android mobile operating system, WhatsApp was free to download and use for one year, with a $0.99 annual subscription fee thereafter. *See id.* at 219:1-10.

764. Regarding the WhatsApp subscription fee, Brian Acton – one of WhatsApp's co-founders, *see* Ex. 314 at 17:22-25 (Acton IH Tr.) – testified: "Q. If Facebook had not owned WhatsApp, could WhatsApp have ended the subscription fee? A. No. Q. And why not? A. We had operating costs that we had to cover." *Id.* at 222:15-20; *see also id.* at 87:12-15 ("Our general operating thesis was free for the first year, some paid amount per year, a dollar per year, we'll say. That was sort of our long-term goal to get to.").

765. [redacted]

766. [redacted]

[redacted]

767. [redacted]

768. [redacted]

769. Mr. Acton testified regarding pre-acquisition monetization for WhatsApp: "Q. And you certainly had no plans to replace your subscription model with an ad-supported model, correct? A. Absolutely not. Q. There was never on the map? A. Never." Ex. 163 at 227:7-12 (Acton Dep. Tr.).

770.

771.

[redacted] WhatsApp lost $138 million in 2013, the year before it was acquired by Meta. *See* Ex. 4 at ¶ 105 (Tucker Rep.).

b. Pre-Acquisition Growth

772. [redacted]

773. [redacted]

774. As of September 2013, Meta's internal data estimated that about 7% of U.S. iPhone owners had installed WhatsApp. *See* Ex. 192 at -921.003-921.004 (FB_FTC_CID_03802920).

775. On November 15, 2013, a WhatsApp employee emailed Mr. Acton and Mr. Koum an October 16, 2013 presentation called "WhatsApp: Growth & Competition Update." Ex. 221 at -912-913 (MetaFTC-DX-404, FB_FTC_CID_02584912). That presentation includes a slide titled "Daily growth rate varies dramatically as a percentage of smartphone users" showing that the daily growth rate for WhatsApp was 0.009% in the United States. *Id.* at -929.

776. [redacted]

[redacted]

777. [redacted]

778. [redacted]

779. Mr. Acton testified: "Q. And is it true that the United States has never been a core market of WhatsApp? . . . A. In my time from 2009 to 2014 – to 2017, the United States was – was never a core market from a user and growth perspective." Ex. 163 at 204:18-24

(Acton Dep. Tr.). He also testified that WhatsApp was "so small and we had such limited penetration in the U.S. market that we – we ourselves, were not competitive." *Id.* at 203:18-21; *see also* Ex. 314 at 99:13-16 (Acton IH Tr.) ("Q. So thinking about the U.S. in particular, what did growth in the U.S. of WhatsApp look like during that time period? A. Growth in the United States was slow.").

780. Regarding usage in the United States, Mr. Acton testified: "Q. In February 2014 time frame, why did people in the United States use WhatsApp? A. I'd say at that time we were getting more anecdotal evidence that they were using it to talk to friends and family that were overseas and abroad. I wouldn't say that we had a ton of day-to-day – if anything, the U.S. market was a hard market for us because people were using adjacent messaging products. They were using iMessage. They were using Facebook Messenger. And so our growth in the U.S. was quite slow." Ex. 314 at 147:7-17 (Acton IH Tr.). He also testified that "it was fairly common that people had unlimited SMS" and WhatsApp "would frequently get feedback from people in the United States . . . like, 'Why would I bother? I get unlimited texting.'" Ex. 163 at 198:6-24 (Acton Dep. Tr.).

781. Mr. Acton also testified: "Q. You did not take any actions specifically to target growth in the United States before you were acquired? A. No." Ex. 163 at 213:8-11 (Acton Dep. Tr.). Mr. Acton testified: "Q. So could WhatsApp have taken actions to target growth in the U.S.? A. I suppose you can always take money, flush it down the toilet, and market with television and radio ads. I wouldn't do it." *Id.* at 146:2-6.

782. Mr. Acton testified that, in the United States prior to the acquisition, there were "a number of alternative systems of communication that were realtime, instant messaging based." Ex. 163 at 204:11-17 (Acton Dep. Tr.). These included:

a. **Apple's iMessage.** *See* Ex. 314 at 147:13-16 (Acton IH Tr.); Ex. 2 at ¶ 289 (Carlton Rep.). [redacted]

b. **Google Hangouts.** [redacted]

c. **Facebook Messenger.** *See* Ex. 163 at 204:1-4 (Acton Dep. Tr.); Ex. 314 at 147:13-16 (Acton IH Tr.).

d. **Kik Messenger.** *See* Ex. 192 at -.003-.004 (FB_FTC_CID_03802920) (Meta's internal data estimating that approximately 6% of U.S. iPhone owners had installed Kik as of September 2013).

e. **Viber.** *See* Ex. 192 at -.003-.004 (FB_FTC_CID_03802920) (Meta's internal data estimating that approximately 5% of U.S. iPhone owners had installed Viber as of September 2013); Ex. 163 at 206:5-6 (Acton Dep. Tr.) ("Viber and WeChat were also then – available then, as well.").

f. **WeChat.** *See* Ex. 192 at -.003-.004 (FB_FTC_CID_03802920) (Meta's internal data estimating that approximately 2% of U.S. iPhone owners had installed WeChat as of September 2013); Ex. 163 at 206:5-6 (Acton Dep. Tr.) ("Viber and WeChat were also then – available then, as well.").

g. **Blackberry Messenger.** *See* Ex. 163 at 204:5-10 (Acton Dep. Tr.).

h. **Telegram.** *See* Ex. 314 at 143:21-144:3 (Acton IH Tr.).

783. Professor Jihoon Rim – one of the FTC's proffered experts and formerly the chief executive officer of Kakao, *see* Ex. 315 at ¶ 17 (Rim Rebuttal Rep.) – opined that "adding a social networking offering to a mobile messaging application" is "an example of a natural evolution of a messenger company which seeks to monetize by adding features that are better suited to recognize advertising revenue." *Id.* at ¶ 129. In 2010, Kakao launched an app called KakaoTalk in 2010, *see* Ex. 447 at 3 (MetaFTC-DX-1174), which Professor Rim identified as a "messenger application," Ex. 315 at ¶ 14 (Rim Rebuttal Rep.). In 2012, Kakao launched a separate app called KakaoStory, *see* Ex. 447 at 3 (MetaFTC-DX-1174), which Professor Rim identified as "a friends and family-focused social networking service," Ex. 315 at ¶ 14 (Rim Rebuttal Rep.). In 2015, Kakao purchased Path, *see* Ex. 447 at 3 (MetaFTC-DX-1174), which Professor Rim identified as a personal social networking service, *see* Ex. 310 at 260:6-15 (Rim Dep. Tr.).

784. Regarding the Kakao acquisition of Path, Professor Rim testified: "So my understanding of acquisition of Path was that Kakao wanted to enter the Indonesia market and Path – I did not know the numbers, but Path at that time was quite popular in Indonesia. That is my understanding why Kakao acquired Path." Ex. 310 at 261:6-11 (Rim Dep. Tr.). He further testified: "Q. Why couldn't Kakao just introduce KakaoStory into Indonesia and compete that way? . . . A. There could be many reasons that I can just think right now beginning with, first, my understanding is that in Indonesia Facebook and Instagram were both popular. So from Kakao to become a latecomer and launch a social network, it's not an easy game." *Id.* at 261:12-21. Professor Rim also testified: "[I]f we had a very strong position in Indonesia as a

messenger, for example, we could have launched our own personal social network in Indonesia, but, again, as I said, . . . KakaoTalk as a messenger didn't really have a presence in Indonesia. So if you want to do something in Indonesia, especially when it comes to a social network, I guess at that time the executives, the CEO, the board thought that acquiring Path, which was quite popular in Indonesia, would have been a good decision." *Id.* at 262:1-14.

c. Pre-Acquisition Features

785. Before the Meta acquisition, WhatsApp offered messaging as an SMS alternative. *See* Ex. 314 at 31:3-32:3 (Acton IH Tr.); *see also id.* at 50:4-22 (stating that between 2009 and early 2014, WhatsApp offered messaging for "[p]hoto, audio, video sending, privacy blocking," as well as "[g]roup chat" and "smaller features" like "backup and restore"), 76:21-25 ("Q. So during your conversations with the investors, how did you describe WhatsApp as a product? A. As an alternative to SMS using the data network.").

786. WhatsApp had [redacted] "Prior to the acquisition, [WhatsApp] was primarily a messaging product, as [it] had not yet added voice and video features." Ex. 163 at 179:23-25 (Acton Dep. Tr.).

787. Mr. Acton testified: "Q. The FTC has, in its lawsuit against Meta, made the allegation that if WhatsApp had not been acquired by Meta, then Facebook, it would have pivoted to become a Facebook direct competitor, something more like Facebook. Do you agree? A. No. . . . Q. Is there any doubt in your mind about that? A. No. Q. Would WhatsApp have continued on the trajectory it had been on if you had stayed managing it? . . . A. Yes." Ex. 163 at 232:23-234:13 (Acton Dep. Tr.).

788. Mr. Acton also testified, "Facebook Blue had a bevy of features that we were never going to implement." Ex. 314 at 138:25-139:1 (Acton IH Tr.).

789. Regarding the possibility of adding a feature similar to "People You May Know" from the Facebook app to WhatsApp, Mr. Acton testified: "We also felt that it was an inferior product experience to suggest – to suggest people that are outside your established social network. Q. Why did you feel that it was an inferior product experience to suggest people that were outside a user's established social network? A. Because we felt that the telephone number address book was sufficient at making that establishment. We had never felt a need to go beyond the telephone address book at that time." Ex. 163 at 50:5-14 (Acton Dep. Tr.); *see also* Ex. 314 at 111:1-9 (Acton IH Tr.) ("Q. Did WhatsApp use the Facebook's Find My Friends feature? A. No. Q. And why not? A. We didn't think it was an appropriate thing to do for our product. Q. And why wasn't it appropriate? A. Facebook is ID-based and WhatsApp is telephone-number based. Apples and oranges.").

790. Before the Meta acquisition, Mr. Acton gave Mr. Koum a handwritten note stating, "No Ads! No Games! No Gimmicks!" Ex. 448 (MetaFTC-DX-420). Mr. Acton testified that those declarations were "important guiding principles for us in terms of how we thought about what we were building and what we would choose to do and what we would choose not to do. And we didn't want to have any ads in our product. We didn't want to put games into our product. We really focused a lot on building utility, and we didn't even want to have gimmicks." Ex. 163 at 177:5-6, 177:25-178:7 (Acton Dep. Tr.).

791. [redacted]

792. On April 24, 2013, Mr. Koum emailed Mr. Acton: "i also will never understand why a more cluttered product with ads and less privacy and more gimmicky stuff appeals more in Asia. the product i want to build and to be proud of is simple and utilitarian and clean." Ex. 186 at -309-310 (FB_FTC_CID_02588309). Mr. Acton responded, "As both Line and Kakao continue to branch out with games and media, they are going to kill the fundamental experience," which "gives us an opportunity to keep people focused on what really matters: the conversation," and "our focus may be our biggest strategic advantage." *Id.* at -309.

793. On May 20, 2013, a Spanish-language newspaper called El País published an article online (in English) quoting Mr. Koum as stating: "We want messaging to be as simple and easy as possible. We don't want our application to be a social network or a gaming network, but a messaging network. . . . . We want to be purely about messaging." Ex. 449 at 5 (MetaFTC-DX-423).

794.

795. Meta propounded the following Interrogatory No. 19 on the FTC: "Identify all relevant facts supporting Your allegation that WhatsApp in 2014, prior to the acquisition by Meta, was likely to provide PSNS in the United States. *See*, *e.g.*, Am. Compl. ¶ 127." Ex. 297 at 60, FTC's Resp. to Meta's Interrog. No. 19 (FTC's Objs. & Resps. to Meta's Third Set of Interrogs. (May 3, 2023)). The FTC's response [redacted]. *See id.*

796. Meta propounded the following Interrogatory No. 21 on the FTC: "Identify all relevant facts supporting Your allegation that, if Meta had not acquired WhatsApp, consumers would have products or services that are better tha[n] those available today. *See* Am. Compl. ¶¶ 220-222." Ex. 311 at 35, FTC's Suppl. Resp. to Meta's Interrog. No. 21 (FTC's Suppl. Objs. & Resps. to Meta's Third Set of Interrogs. (May 31, 2023)). The FTC's supplemental response [redacted]. *See id.*

797. According to Professor Rim, "several market players predicted that[,] in order to monetize[,] WhatsApp would develop adjacent features, which typically included a social network component." Ex. 315 at ¶¶ 111-118 (Rim Rebuttal Rep.). But Professor Rim could not identify any evidence indicating that [redacted] thought, before the WhatsApp acquisition, that WhatsApp was a potential entrant into personal social networking. *See* Ex. 310 at 234:19-239:21 (Rim Dep. Tr.). Nor could Professor Rim identify any document cited in his report from any [redacted] company stating that it perceived WhatsApp as the only potential entrant into personal social networking. *See id.* at 234:4-17.

798. Professor Rim relied upon [redacted] *See* Ex. 315 at ¶ 108 n.152 (Rim Rebuttal Rep.); *see also* Ex. 310 at 240:12-241:1 (Rim Dep. Tr.). As Professor Rim acknowledged – *see* Ex. 310 at 241:8-242:9 (Rim Dep. Tr.) – [redacted]

[redacted]

799. Professor Hemphill testified: "Q. And you've not offered an opinion as to when WhatsApp would have become a PSN in the but-for world, correct? . . . A. That's – that's – that's correct." Ex. 283 at 283:8-12 (Hemphill Dep. Tr.).

d. Pre-Acquisition Privacy

800. Mr. Acton testified regarding privacy features on WhatsApp before the Meta acquisition: "Q. What privacy features were added prior to the acquisition by Facebook? A. Most importantly and notably was the privacy blocking, so that if someone was annoying you[,] you could stop receiving messages from them. I think prior to the acquisition we also had this idea of your last-seen timestamp and we had privacy on that. There was Read Receipts, and we had privacy on Read Receipts, that you could turn them off." Ex. 314 at 59:20-60:7 (Acton IH Tr.); *see also id.* at 63:3-6 (testifying that WhatsApp added "transport encryption" in late 2011 or early 2012).

e. Pre-Acquisition Infrastructure

801. Before the Meta acquisition, WhatsApp distributed content over a physical infrastructure that it leased from a company called SoftLayer. *See* Ex. 163 at 103:18-104:7 (Acton Dep. Tr.); Ex. 314 at 183:5-8 (Acton IH Tr.) ("So we were getting machines, leasing them, on a 30-day basis, changing machine architecture, experimenting and optimizing the machine architecture in SoftLayer."); [redacted]

WhatsApp did not use a content delivery network prior to the acquisition. *See* Ex. 164 at 44:17-20, 48:10-11, 48:15-22 (Gupta Dep. Tr.).

802. Nitin Gupta – head of engineering at WhatsApp, *see* Ex. 164 at 12:20-22 (Gupta Dep. Tr.) – testified: "The infrastructure that [WhatsApp] had in SoftLayer was highly fragile. And the performance wasn't that great." *Id.* at 41:3-5. He further testified that WhatsApp "just had one region in East Coast, and we had a cold data center in Dallas, which we had never tested before. What that means is if that region got hit in eastern U.S. and we are in Washington, we would be down for days and weeks together without any ability to bring ourselves back up again." *Id.* at 42:1-8.

803. "WhatsApp did experience outages in its early days." Ex. 288 at ¶ 382 (Bray Rep.). According to Mr. Acton, "by 2013 I think we were averaging one or two outages per year. Even after we got acquired, we had one to – one – you know, half to one outage per year. So were on a steady decline of managing our outages." Ex. 314 at 187:20-24 (Acton IH Tr.).

[redacted]

804. For example, on November 4, 2012, Mr. Koum emailed that WhatsApp was experiencing "[a]bysmal private network performance" that "caus[ed] lots of grief and outages." Ex. 202 at -447 (FB_FTC_CID_11760445). On February 22, 2014, Mr. Acton emailed that WhatsApp "went down" for approximately four hours "because of a softlayer router." Ex. 195 at -775 (FB_FTC_CID_06072775). On August 19, 2014, another WhatsApp employee emailed SoftLayer: "Every one of these crashes is . . . causing media messages to be substantially

delayed in sending to our users; at this point there have been enough incidents that we are likely talking about millions of messages that have been delayed or our users have been forced to use bytes from their data plan to re-upload these to a different server." Ex. 203 at -450 (FB_FTC_CID_11760449).

f. Pre-Acquisition Spam

805. Mr. Acton testified regarding spam on WhatsApp before the Meta acquisition: "Q. To what extent was WhatsApp's spam system helping to reduce spam on WhatsApp prior to its acquisition by Facebook? A. I would say to a limited extent. Q. Why was it limited? A. The system was fairly immature and naively built." Ex. 163 at 119:7-13 (Acton Dep. Tr.). Mr. Acton also testified that "at the time of the acquisition, [WhatsApp] did not have the expertise in-house and would have had to hire people . . . to help us [build a second-generation system to fight spam]." *Id*. at 120:4-6.

2. WhatsApp Acquisition Discussions

806. [redacted]

807. WhatsApp co-founder Brian Acton testified regarding potential acquisitions in 2014, "we were not seeking acquisitions and we were not soliciting acquisitions." Ex. 314 at 160:7-10 (Acton IH Tr.). He also testified: "Q. In 2014, were you and Mr. Koum looking to be acquired? A. No. Q. What was your plan: to be acquired, go public, or continue to run

WhatsApp yourself as independent? . . . A. Continue to run as independent." Ex. 163 at 234:11-20 (Acton Dep. Tr.). [redacted]

808. [redacted]

809. Mr. Acton testified: "Q. If WhatsApp were acquired by Google, would you have been able to dictate the development of the WhatsApp product after the acquisition? . . . A. If the acquisition had been performed, we would have stipulated a similar control model that we had with Facebook." Ex. 163 at 275:5-12 (Acton Dep. Tr.). [redacted]

[redacted]

810. Regarding the possibility of a Tencent acquisition, Mr. Acton testified: "Q. Did Tencent ever offer to acquire WhatsApp? A. Fake news. No." Ex. 314 at 181:18-19 (Acton IH Tr.). [redacted] *see also* Ex. 314 at 121:23-122:4 (Acton IH Tr.) ("Tencent actually tried to engage with us a number of different ways, partnerships and investments, but we were never very receptive. So they went their own direction and built WeChat, and, you know, it had basic features of messaging and communications based on the telephone number and address book."). Regarding the possibility of a Microsoft acquisition, Mr. Acton testified: "Q. Did Microsoft ever offer to acquire WhatsApp. A. No." Ex. 314 at 181:24-182:1 (Acton IH Tr.).

811. Regarding the possibility of any acquisition in 2014, [redacted]

812. On February 15, 2014, Sheryl Sandberg – then Meta's chief operating officer – emailed Meta's board of directors: "Earlier tonight, WhatsApp agreed in principle to be acquired by Facebook, at a price of $16 billion, with an additional $3 billion in RSU-based retention packages." Ex. 175 at -450 (FB_FTC_CID_00003450).

813. On February 17, 2014, Meta's board of directors met to discuss the proposed WhatsApp acquisition. *See* Ex. 178 at -385 (FB_FTC_CID_00049384). Minutes from that

board meeting describe Meta's rationales for the transaction, including that the proposed transaction would "mak[e] it more difficult for operating system providers to exclude [Meta's] mobile applications from their mobile operating system platforms." *Id.* at -386; *see also* Ex. 174 at -298 (FB_FTC_CID_00002297) (stating the same rationale); Ex. 276 at -596.005 (PX10858, FB_FTC_CID_10650595) (noting "[t]he mobile ecosystem is characterized by extremely high concentration by Android [Google] and iOS [Apple]"). A slide deck presented to Meta's board of directors regarding the transaction also identifies as a rationale for the transaction that WhatsApp could "help Facebook grow by exposing Facebook to people who are not yet part of" Facebook. Ex. 276 at -596.005 (PX10858, FB_FTC_CID_10650595).

814. On February 19, 2014, Meta announced publicly: "Facebook will acquire WhatsApp for approximately $16 billion, consisting of $4 billion in cash, plus 184 million shares or approximately $12 billion worth of our stock. In addition, we will grant 46 million RSUs worth approximately $3 billion to the WhatsApp employees, including their founders, that will vest over four years subsequent to closing." Ex. 194 at -892 (FB_FTC_CID_05809887).

3. WhatsApp Pre-Clearance Review

815. On March 13, 2014, Meta submitted to the Federal Trade Commission and Department of Justice a Hart-Scott-Rodino Act Premerger Notification Form for the WhatsApp transaction. *See* Ex. 173 (FB_FTC_CID_00002091). Before that, the FTC had sent both Meta and WhatsApp requests for voluntary productions of documents relating to the publicly announced transaction. *See* Ex. 316 (FTC-PROD-00016226) (requesting materials from Meta); Ex. 317 (FTC-PROD-00016227) (requesting materials from WhatsApp). The FTC also conducted pre-submission interviews. *See* Ex. 318 (FTC-PROD-00016381).

816. Between March 13, 2014 and April 3, 2014, Meta and WhatsApp produced to the FTC more than 1,000 pages of documents and data, including emails collected from the custodial

files of Mark Zuckerberg (Meta's chief executive officer), Sheryl Sandberg (then Meta's chief operating officer), Javier Olivan (then Meta's vice president of growth and analytics; currently its chief operating officer), Amin Zoufonoun (then Meta's director of corporate development), and others. *See* Ex. 173 (FB_FTC_CID_00002091); Ex. 176 (FB_FTC_CID_00003790); Ex. 319 (FTC-PROD-00015377) (WhatsApp document production); Ex. 320 (FTC-PROD-00015458) (WhatsApp data production); Ex. 321 at -230 (FTC-PROD-00016230) (providing WhatsApp "ordinary course of business documents relating to (i) discussions with actual or potential investors, (ii) any potential acquisition of WhatsApp, (iii) any potential acquisition by WhatsApp, and (iv) communications between WhatsApp's founders and Mark Zuckerberg").

817. During its review of the WhatsApp transaction, the FTC interviewed 16 individuals from [redacted]. *See* Ex. 309 at 10, Appx. A (FTC's Suppl. Objs. & Resps. to Meta's First Set of Interrogs. (Oct. 7, 2022)). The FTC also collected documents from [redacted]

818. On April 10, 2014, it was publicly reported that the FTC had closed its investigation; the FTC did not issue a "Second Request" for the proposed transaction upon the expiration of the mandatory 30-day waiting period. *See* Ex. 2 at ¶ 207 (Carlton Rep.).

819. The FTC's public description of "Premerger Notification and the Merger Review Process" states: "If the waiting period expires or is terminated, the parties are free to close their deal." Ex. 450 at 2 (FTC, *Premerger Notification and the Merger Review Process*).

820. In response to Meta's First Set of Requests for Admission, "the FTC admits that its investigation of Facebook, Inc.'s proposed acquisition of WhatsApp was 'competent.'" Ex. 430 at 4, FTC's Resp. to Meta's Req. for Admis. No. 2 (FTC's Objs. & Resps. to Meta's First Set of Reqs. for Admis. (May 4, 2023)).

821. The European Commission continued to investigate the proposed transaction after April 2014; on October 3, 2014, it published an Article 6(1)(b) Non-Opposition, concluding that "the European Commission has decided not to oppose the Transaction," Ex. 451 at ¶ 191 (MetaFTC-DX-1082), and stating:

a. "If consumer communications apps were included in the potential market for social networking services, the number of alternative providers would expand substantially. In particular, it would encompass such market players as WhatsApp, LINE, WeChat, iMessage, Skype, Snapchat, Viber, and Hangouts. The market would also potentially include other non-consumer communications services providers which enable interaction and exchange of content between users, such as YouTube." Ex. 451 at ¶ 150 (MetaFTC-DX-1082).

b. "Consequently, if the potential market for social networking services includes consumer communications apps such as WhatsApp, there are a significant number of alternative service providers, which are used by consumers interchangeably." Ex. 451 at ¶ 152 (MetaFTC-DX-1082).

c. "During the market investigation, several third parties argued that (i) absent the Transaction WhatsApp would become a provider of social networking services in competition with Facebook. . . . As regards the first claim

> concerning potential competition, the Commission collected and assessed relevant evidence. . . . No indication was found of WhatsApp's plans to become a social network which would compete with Facebook absent the merger. Indeed, the focus of WhatsApp has traditionally been on offering a light and simple communications service on smartphones only." Ex. 451 at ¶¶ 144-145 (MetaFTC-DX-1082).

822. On October 6, 2014, Meta completed its acquisition of WhatsApp. *See* Ex. 452 (Facebook, Inc. Form 8-K (Oct. 6, 2014)).

4. Post-Acquisition WhatsApp

823. Since the acquisition, Meta has invested more than a billion dollars in WhatsApp. *See* Ex. 169 at 13-14 (Meta's Suppl. Objs. & Resps. to FTC's Interrog. No. 6 (Sept. 22, 2022)); *see also* Ex. 170 at 21-25, Meta's Resp. to FTC's Interrog. No. 10 (Meta's Suppl. Objs. & Resps. to FTC's Interrogs. Nos. 10 & 12 (May 31, 2023)). In 2022 alone, Meta spent more than $35 billion on research and development across its business. Ex. 353 at 71 (Meta 2022 Form 10-K).

824. An academic study prepared in 2023 independent of any litigation determined that WhatsApp generates between $25,605,661,848 and $31,514,660,736 in annual consumer surplus. *See* Ex. 2 at ¶ 229 & tbl. 28 (Carlton Rep.). The study "used incentivized choice experiments involving 39,717 users in 13 countries to estimate consumer welfare," as well as "surveys to estimate the relative value of other apps to Facebook." *Id*. at ¶ 347. The study found that the median consumer's "willingness-to-accept" value for WhatsApp was "roughly $30 per month." *Id*.

a. Post-Acquisition Monetization

825. After acquiring WhatsApp, Meta eliminated the WhatsApp subscription fee. [redacted] WhatsApp co-founder Brian Acton testified: "Q. And why

did WhatsApp end the annual subscription fee? A. Mark Zuckerberg wanted it. Q. Did he say why he wanted to end the subscription fee? A. I think the product could grow faster if it was free effectively, so we took it out." Ex. 314 at 222:5-11 (Acton IH Tr.).

826. WhatsApp remains free to use at zero price ($0.00) in any amount without display advertising. *See* Ex. 279 at ¶ 49 (Hemphill Rep.) (stating that "Meta has offered the WhatsApp service for free, without advertising"); *see also id.* at ¶ 1103 (same), ¶ 1113 (same); Ex. 314 at 231:11-14 (Acton IH Tr.) ("Q. So I think you might have answered this, but did Facebook implement any of these ads on WhatsApp while you were still at Facebook? A. No.").

827. Meta "monetize[s] WhatsApp in two ways" – both developed by Meta after the WhatsApp acquisition – "(i) Paid Messaging and (ii) Click-to-WhatsApp ads." Ex. 265 at -300 (FTC-META-012554300).

828. Paid Messaging, which operates via the WhatsApp Business API, is a way for businesses to "communicat[e] with customers at scale through programmatic access." Ex. 4 at ¶ 109 & n.225 (Tucker Rep.). Businesses may, for example, "initiate conversations related to marketing, utility, and authentication, as well as to respond to customers' service requests." Ex. 4 at ¶ 109 (Tucker Rep.) (summarizing Paid Messaging functionalities). These services "generated over [redacted]" Ex. 4 at ¶ 112 (Tucker Rep.) (summarizing revenue data).

829. [redacted]

[redacted]

830. "Click-to-WhatsApp ads are ads on Facebook News Feed, Stories, and Marketplace or Instagram News Feed, Stories, and Explore that have a 'Send Message' button the user can click on that takes them to WhatsApp to start a conversation with the advertiser." Ex. 4 at ¶ 114 (Tucker Rep.); *see also* Ex. 314 at 227:12-19 (Acton IH Tr.) ("[S]o the ad may have some had call out, like 'Click here to get more info.' And then, you know, you would click on the – click somewhere or tap on your phone and it would launch WhatsApp. It would go straight to a conversation with the business and then you could ask the business something. You could say 'Can I have more info?' and the person would respond.").

831. Global revenue from Click-to-WhatsApp has grown from [redacted]. *See* Ex. 4 at ¶ 118 (Tucker Rep.) (summarizing Meta revenue data). As of 2022, Click-to-WhatsApp had "passed a $1.5 billion run rate" and was "growing more than 80% year-over-year." Ex. 453 at 3 (Meta Q3 2022 Earnings Call Tr.).

832. The FTC's proffered monetization expert, Professor Sinan Aral, testified: "Q. Can you name any stand-alone messaging app that has monetized more successfully than WhatsApp? . . . A. I don't know." Ex. 287 at 139:20-140:2 (Aral Dep. Tr.); *see also id.* at 315:2-6 ("Q. Do you know how successful any of those other [business messaging] products have been compared to WhatsApp's? . . . A. I don't recall, sitting here today."); Ex. 286 at ¶¶ 280, 289-291 (Aral Rep.) (not identifying any stand-alone messaging app that has monetized as or more successfully than WhatsApp).

b. Post-Acquisition Growth

833. In June 2022, WhatsApp had [redacted]. *See* Ex. 2 at ¶ 228 & tbl. 27 (Carlton Rep.) (citing Professor Hemphill's data reporting that [redacted] in June 2022).

834. As of June 2022, WhatsApp had [redacted]. *See* Ex. 2 at ¶ 214 (Carlton Rep.).

835. Global time spent on WhatsApp increased from [redacted]; U.S. time spent on WhatsApp increased from [redacted]. *See* Ex. 170 at 64-65, Meta's Resp. to FTC's Interrog. No. 10(b)(ii) (Meta's Suppl. Objs. & Resps. to FTC's Interrogs. Nos. 10 & 12 (May 31, 2023)).

836. Other messaging services grew following the WhatsApp acquisition, e.g., [redacted]. *See* Ex. 2 at ¶ 304 (Carlton Rep.) (citing Professor Hemphill's backup data).

837. New services with over-the-top messaging – i.e., services "using internet technology as your underlying backbone" "instead of using traditional telephone technology," Ex. 279 at ¶ 943 (Hemphill Rep.); *see also* Ex. 314 at 32:8-22 (Acton IH Tr.) (describing an "over-the-top messaging product") – emerged following the WhatsApp acquisition, including:

a. **Discord (May 2015).** The "About" page of Discord's website reports: "Discord is a voice, video and text communication service used by over a

hundred million people to hang out and talk with their friends and communities." Ex. 454 at 1 (*About Discord*, https://perma.cc/XW3T-4H7Q).

b. **Signal Messenger (November 2015).** [redacted]

c. **Microsoft Teams (March 2017).** [redacted]

838. Other services with over-the-top messaging released new features following the WhatsApp acquisition, e.g., in November 2022, Signal Messenger released Signal Stories, which allows users to create and share images, videos, and texts that automatically disappear after 24 hours. *See* Ex. 2 at p. 42, tbl. 3 (Carlton Rep.).

c. Post-Acquisition Features

839. Neeraj Arora – WhatsApp's former chief business officer, *see* Ex. 165 at 16:21-17:1 (Arora Tr.) – testified that WhatsApp's "speed of execution went up" after being acquired by Meta because "[a]s a startup you have to be very careful about how much you spend and how

fast you spend, and being a part of [Facebook] made it easier for us to have more resources cheaply, cheaper than what we could do . . . ourselves and faster as well. . . . We had more engineers to work on things that we wanted to work on . . . ." *Id.* at 162:2-23.

840. Between January 2015 and February 2023, Meta released more than a dozen new WhatsApp features. *See* Ex. 170 at 23-24, Meta's Resp. to FTC's Interrog. No. 10 (Meta's Suppl. Objs. & Resps. to FTC's Interrogs. Nos. 10 & 12 (May 31, 2023)). For example:

a. In January 2015, Meta released "WhatsApp Web," allowing users the ability to use WhatsApp on mobile web browsers. *See* Ex. 2 at p. 254, tbl. 34 (Carlton Rep.).

b. In May 2016, Meta released a WhatsApp desktop app, allowing users the ability to use WhatsApp on computers. *See* Ex. 2 at p. 254, tbl. 34 (Carlton Rep.).

c. In November 2022, Meta announced a suite of new features supporting "Communities on WhatsApp," including in-chat "polls," "32-person video calls," and support for groups with "up to 1024 users and . . . end-to-end encryption." Ex. 277 at -056, -059 (FTC-META-012355056).

d. In December 2022, Meta introduced new improvements to video and audio calling on WhatsApp, including the ability to share call links, to call up to 32 people at once, and to message or mute other call participants. *See* Ex. 455 (WhatsApp Blog, *Improved Calling on WhatsApp*).

See also Ex. 170 (Meta's Suppl. Objs. & Resps. to FTC's Interrogs. Nos. 10 & 12 (May 31, 2023)).

841. In March and April 2015, Meta released free voice calling on WhatsApp for Android and iOS users, respectively. *See* Ex. 5 at ¶ 262 (Nieh Rep.).

842. Before that (and before Meta closed the WhatsApp acquisition), in June 2014, Mr. Acton wrote in an email that he "found [his] experience" with a test version of WhatsApp voice calling to be "tremendously disappointing." Ex. 187 at -602 (FB_FTC_CID_02595602).

843. On October 10, 2014, a Meta employee wrote in an email that WhatsApp co-founder Jan Koum "asked for help on VoIP [voice calling], and we will provide that." Ex. 177 at -126 (FB_FTC_CID_00021125).

844. Mr. Acton testified, "[Meta's] network infrastructure that enabled us to roll out our voice and video calling were two areas of improvement for WhatsApp that were the quick wins that I had talked about." Ex. 163 at 249:6-9 (Acton Dep. Tr.). On October 26, 2015, the publication Wired published an article attributing to Mr. Acton the statement that the "biggest change" to WhatsApp's infrastructure to support voice calling "was the addition of voice relay infrastructure. The nice part of that is that we were able to build and deploy this inside of Facebook's global network and, as such, did not have to make significant changes to our own core infrastructure." Ex. 278 at -242 (FB_FTC_CID_11464238). Mr. Acton confirmed in his deposition that this statement was true. *See* Ex. 163 at 254:11-22 (Acton Dep. Tr.).

845. On December 15, 2015, Jay Parikh – then head of infrastructure at Meta, *see* Ex. 157 at 17:23-18:1, 25:22-24 (Parikh Dep. Tr.) – wrote in an email to Ms. Sandberg – then Meta's chief operating officer – that WhatsApp "would have taken much longer to [launch] VOIP without being able to use our infrastructure." Ex. 204 at -135 (FB_FTC_CID_11761135).

846. After launching WhatsApp voice calling, in November 2016, Meta also released free video calling on WhatsApp. *See* Ex. 2 at ¶ 279 & n.414 (Carlton Rep.).

847. In February 2017, Meta released WhatsApp Status, a feature allowing users to share content overlaid with drawings, emojis, and captions that disappears after 24 hours. *See* Ex. 2 at p. 42, tbl. 3 (Carlton Rep.); *see also* Ex. 163 at 245:3-23 (Acton Dep. Tr.) (testifying that Mr. Zuckerberg encouraged WhatsApp to adopt the Status feature but that he "hesitated" to do so; ultimately, the feature was "positive in engagement" and a "positive addition[ ] to the product").

848. Meta has subsequently updated WhatsApp Status, releasing new features in February 2023, including voice status and additional ways to react to another user's Status post. *See* Ex. 2 at p. 254, tbl. 34 (Carlton Rep.). On July 25, 2018, Ms. Sandberg stated on an earnings call that 450 million global WhatsApp users had shared content using WhatsApp Status. *See* Ex. 199 at -389 (FB_FTC_CID_10433307).

849. Mr. Acton testified: "Q. Did anyone at Facebook play a role in the feature development at WhatsApp? A. Mark Zuckerberg. Q. And can you describe his role in feature development at WhatsApp? A. He asked for some specific things and we had a hard time saying no. So we did them. Q. And what specific things did he ask for? A. Well, at one point he asked us to improve our camera features. There was a big push on cameras, they called it, or lockdown on camera. He very much wanted us to build a timeline story feature which became our Status – or an iteration of our Status feature." Ex. 314 at 207:7-21 (Acton IH Tr.); *see also id.* at 209:8-12 ("Q. Did WhatsApp benefit from the improved camera features? A. Probably, yes. Q. And how do you think it benefited? A. I think it improved engagement.").

850. [redacted]

[redacted]

d. Post-Acquisition Privacy

851. Following the acquisition, Meta released several new privacy features on WhatsApp. *See* Ex. 170 at 24, Meta's Resp. to FTC's Interrog. No. 10 (Meta's Suppl. Objs. & Resps. to FTC's Interrogs. Nos. 10 & 12 (May 31, 2023)).

852. For example, in April 2016, Meta released full end-to-end encryption for every WhatsApp message, call, photo, video, file, and voice message. *See* Ex. 2 at p. 254, tbl. 34 (Carlton Rep.). "Encryption was also either nonexistent or substantially weaker in SMS, which opened the door for user privacy to be compromised." Ex. 279 at ¶ 949 (Hemphill Rep.).

853. Mr. Acton testified: "Q. So did OTT messaging apps also provide benefits with regards to encryption that SMS couldn't offer? A. Absolutely, yes." Ex. 314 at 41:19-22 (Acton IH Tr.). Mr. Acton also testified regarding the release of full end-to-end encryption: "It was a huge marketing win for us to be a population of a billion users having end-to-end encrypted conversations. So we established a leadership position, I believe, in terms of protecting communication privacy, which helped both retention engagement and monthly actives." *Id.* at 212:5-14.

854. Other post-acquisition privacy features that Meta released for WhatsApp include:

a. In February 2019, Meta released face and fingerprint identification protection for WhatsApp on the iOS mobile operating system. *See* Ex. 2 at p. 254, tbl. 34 (Carlton Rep.).

b. In April 2019, Meta released new privacy settings for WhatsApp groups, including a new invitation system for users to decide who can add them to WhatsApp groups. *See* Ex. 2 at p. 254, tbl. 34 (Carlton Rep.).

c. In March 2021, Meta released private and secure one-to-one voice and video calling for the WhatsApp Desktop app. *See* Ex. 2 at p. 254, tbl. 34 (Carlton Rep.).

d. In August 2021, Meta released ephemeral messaging on WhatsApp, allowing users to send photos and videos that disappear once the recipient has viewed the content. *See* Ex. 2 at p. 254, tbl. 34 (Carlton Rep.).

e. In August 2022, Meta released new privacy features including an option to prevent users from taking screenshots of "View Once" photos or videos shared on WhatsApp. *See* Ex. 456 at 2 (WhatsApp Blog, *New Features for More Privacy, More Protection, More Control*, https://perma.cc/Z62R-CLZ9).

f. In April 2023, Meta released new security features including verification tools to protect users from mobile device malware, to verify a user's identity when her account is moved to a new device, and to automatically verify that the user has a secure connection. *See* Ex. 457 at 1, 2 (WhatsApp Blog, *New Security Features: Account Protect, Device Verification, Automatic Security Codes*, https://perma.cc/T4PA-T5WK).

g. In May 2023, Meta released a WhatsApp feature called "Chat Lock," which allows users to require a password or fingerprint to access selected WhatsApp conversations. *See* Ex. 458 (WhatsApp Blog, *Chat Lock: Making Your Most Intimate Conversations Even More Private*).

See Ex. 170 (Meta's Suppl. Objs. & Resps. to FTC's Interrogs. Nos. 10 & 12 (May 31, 2023)); *see also* Ex. 2 at p. 254, tbl. 34 (Carlton Rep.).

e. Post-Acquisition Infrastructure

855. Following the acquisition, WhatsApp began migrating onto Meta's infrastructure. *See* Ex. 225 at PX10101-003 (PX10101, FB_FTC_CID_10150357); Ex. 158 at 209:5-9 (Parikh IH Tr.) ("By the end of 2018, the WhatsApp team had transitioned off of SoftLayer and was running in Facebook infrastructure.").

856. Regarding the decision to migrate, Mr. Acton testified that WhatsApp migrated onto Meta's infrastructure "predominantly for cost and operability reasons." Ex. 163 at 118:13-18 (Acton Dep. Tr.). Mr. Acton also was quoted as stating publicly, after the acquisition, that Meta "has made significant investments in infrastructure that as a small company we were never able to make." Ex. 6 at ¶ 154 (Kaplan Rep.).

857. [redacted]

858. In May 2017, following the migration of WhatsApp onto Meta's content delivery network, a WhatsApp employee emailed a presentation, which states, "30% improvements due to CDN," and reports that median download time on Meta's content delivery network ("P50") was 34% faster compared to SoftLayer, while median upload time was 32% faster. Ex. 225 at PX10101-005 (PX10101, FB_FTC_CID_10150357).

859. In 2018, WhatsApp prepared a presentation called "WhatsApp Migration: the journey," which states: "We are in a better position," listing the following benefits from the

migration: "[1] Multi-region[; 2] Automation to reduce operational cost[; 3] Direct access to all FB services[; 4] Trained tons of people in our code base, troubleshooting and operation[; 5] Improved message delivery time thanks to FB point of presence[; 6] More in common with FB stack, easier to recruit." Ex. 198 at -256.027 (FB_FTC_CID_07025255).

860. In May 2021, Nitin Gupta – head of engineering at WhatsApp – wrote an email listing the following "multiple wins" from migrating WhatsApp onto Meta's infrastructure: "1. Messaging has become more performant & reliable. Before Fb infra, we had 1 active region and 1 cold region. We never did a DR [disaster recovery] exercise. Now we are [redacted]. This has allowed for better load balancing across regions leading to lower messaging latency, higher reliability especially being able to handle NYE spikes. 2. FB CDN has reduced our user perceived media upload/download latencies by [redacted] besides improving reliability. . . . 3. WhatsApp Status (aka Stories) has scaled seamlessly by relying on FB infra especially CDNs. . . . 4. We have built numerous features/capabilities faster and better by relying solely on FB infra," including "VoIP," "integrity systems, various business features such as SMB catalog, Shops, discovery (Click-To-WA-Ads), API access, [and] payments." Ex. 209 at -938-939 (FTC-META-002530938).

861. In May 2021, Will Cathcart – the head of WhatsApp, *see* Ex. 166 at 16:5-6 & errata (Cathcart Dep. Tr.) – wrote in an email: "The launches of voice calling and video calling were made possible by the FB network infrastructure and would have been much harder / impossible to do without it. We now serve [redacted]." Ex. 209 at -939 (FTC-META-002530938). Mr. Cathcart added that WhatsApp "[redacted] in about a week in March 2020. We wouldn't have been able to stay up and reliable through the

unprecedented surges in usage at the start of the pandemic if it weren't for the scale and nimbleness of FB Infra." *Id.*

862. Mr. Acton testified regarding the Meta infrastructure: "Q. So why was WhatsApp moving to Facebook's internal infrastructure? A. There were two immediate wins that I can talk about. One was the global content delivery network that Facebook had built. . . . SoftLayer didn't really have one. And so there was a clear win that if we set up our voice and video relay servers in the global network, we could reduce latency in establishing voice and video communications and improve the quality. So that was a big win for us, that, you know – that was a case of, like, Facebook had already done the investment and we had not yet done it. If we had done it with SoftLayer, we would have had a global network, but it probably would have existed in, say, 10 parts of the world instead of the 100 parts of the world that Facebook had. So that's one aspect, is the global delivery network." Ex. 314 at 190:7-25 (Acton IH Tr.).

863. He added that a "second" benefit was that WhatsApp "moved all the media into Everstore, which was [Meta's] large-scale media storage system, and that improved media delivery for us. And it also outsourced the operations of the media storage. And that was really the benefit for us. Because we were small, we didn't have the operational staff to deal with – to deal with what was happening. So those were the two media benefits to adopting Facebook infrastructure. Quick wins. We did those straightaway in 2014, 2015." Ex. 314 at 191:1-25 (Acton IH Tr.).

864. Mr. Acton also testified regarding migrating WhatsApp onto the Meta infrastructure: "Q. Did EverStore help you deliver media efficiently and globally? A. Yes. . . . But more importantly, EverStore was scaleably and cost effectively [sic]." Ex. 163 at 250:7-12 (Acton Dep. Tr.); *see also id.* at 249:4-9 ("I think earlier today you heard me mention EverStore

as a technological step forward for us, and the Face – Facebook network infrastructure that enabled us to roll out our voice and video calling were two areas of improvement for WhatsApp that were the quick wins that I had talked about.”).

865. Regarding moving WhatsApp’s media to Meta’s content delivery network (CDN), Mr. Acton testified: “Q. [D]id the moving to the content delivery network reduce latency for WhatsApp? A. Yes.” Ex. 163 at 250:2-4 Acton Dep. Tr.). He also testified that, “[t]he CDN, as you mentioned, lowers latency, which improves the deliverability of the objects, so there’s – there’s a user experience improvement, yes. Q. And that would improve the quality? A. Yes.” *Id*. at 250:17-23.

f. Post-Acquisition Spam

866. Regarding “spam” on WhatsApp, Mr. Acton testified it was a “reasonably sized” problem prior to the acquisition. Ex. 314 at 235:15-25 (Acton IH Tr.); *see also id.* at 236:1-2 (calling spam on WhatsApp a “low-to-medium-sized problem” before the Meta acquisition).

867. Mr. Acton also testified: “Q. And when WhatsApp joined Facebook, did Facebook change the way that WhatsApp was dealing with spam? A. Facebook, yes. Q. And how did it do that? A. Facebook had a system for fighting spam. Q. And did Facebook’s system improve the way that WhatsApp dealt with spam? A. Yes. Q. And how did it improve the issue of dealing with spam? A. There [are] generally two measurables: precision and recall. And we saw the precision improve and we saw the recall improve.” Ex. 314 at 236:7-20 (Acton IH Tr.).

868. [redacted]

869. An internal retrospective from 2018 discussing WhatsApp's migration to Meta's infrastructure observed that, in "2014," "WhatsApp didn't have" a "[s]pam fighting infrastructure," but that by 2016, WhatsApp was leveraging Meta's

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Respectfully submitted,

/s/ Mark C. Hansen

Mark C. Hansen (D.C. Bar No. 425930)
KELLOGG, HANSEN, TODD,
FIGEL & FREDERICK, P.L.L.C.
1615 M Street, N.W., Suite 400
Washington, D.C. 20036
Tel: (202) 326-7900
mhansen@kellogghansen.com

Counsel for Defendant Meta Platforms, Inc.