

**GOOGLE'S SUBMISSION IN RESPONSE TO  
SUBCOMMITTEE QUESTIONS FOR THE RECORD  
FOLLOWING June 15, 2021 HEARING**

**The Honorable Jon Ossoff (D-GA)**

**Device tracking on local networks:**

- 1. For Google's Nest Wi-Fi systems and/or any Google devices using wireless communication protocols other than Wi-Fi, such as Zigbee, Z-Wave, or Bluetooth:**
  - a. Do Google, other Alphabet-owned entities, or their devices track the relative location of its own or other mobile devices (whether phones, tablets, wearables, or other connected devices) connected to the same wireless network?**
  - b. If so, do Google's devices keep or transmit records of the location of its own or other connected devices over time? If so, where and how long are such records kept?**
  - c. If a Google device or system assigns identifiers to other individual devices, do these identifiers remain constant? If not, by what means does Google change device identifiers, and how often are they changed?**
  - d. Using any records available to Google of a device's location within the wireless range of a Nest network, or a network on which Nest devices operate, would it be possible to create a map depicting a device's relative physical location within the network's range?**

People who use our services trust us with their data, and it is our responsibility to protect it. We take this responsibility seriously and provide users with transparency, choice, and control over their data (for more information on the information and choices we provide users concerning their data, please see <https://myaccount.google.com/data-and-personalization>). We are proud of our industry-leading protections and innovations in this area, helping people control how their data is used, even in a screenless environment such as Google Assistant (more information is available at <https://myaccount.google.com/yourdata/assistant?pli=1>). Over 1 billion users have reviewed their Google privacy settings. Every day more than 20M people visit their Google Account page, where they can review their privacy settings and choose to delete data stored with their account.

As explained in our Privacy Policy (available at <https://policies.google.com/privacy?hl=en-US#footnote-deliver-services>), we use location information to help us interact directly with users, deliver our services, and ensure our products are secure and reliable. User location information, determined with varying degrees

of accuracy, may come from signals such as a user's IP address or device location, and also past activity on Google sites and services. The types of location data we may collect depend in part on the user's device and account settings. For example, a user may turn an Android device's location on or off using the device's settings app. A user may also turn on Location History to create private maps of places visited with their signed-in devices. For more information on how Google uses location information, please see <https://policies.google.com/technologies/location-data?hl=en-US>.

A user can also use the presence sensing feature with their smart-home devices (see <https://support.google.com/googlenest/answer/10000312?hl=en>) and use their phone location and sensors in supported home devices to help determine whether or not they are home or away. Presence sensing can help a user's home devices adjust to the user's needs when they are home versus away; for example, to change the thermostat temperature settings and shift into energy savings mode when the user is away. More information about presence sensing and Home/Away Assistant on Google's smart-home devices is available at <https://support.google.com/googlenest/answer/10000312?hl=en#zippy=%2Cpresence-sensing-and-how-its-used-for-your-home-away-routines>).

Last, we also believe that products should keep users' information only for as long as it is useful and helpful. That is why last year, we decided to change our data retention practices for Web & App activity and location history, and make auto-delete the default for our core services, including Google Assistant (for more information, please see <https://blog.google/technology/safety-security/keeping-private-information-private/> and <https://blog.google/technology/safety-security/automatically-delete-data/>). For new users, that means that by default, their Assistant activity will be automatically and continuously deleted after 18 months, unless they specify a different retention period. Users can choose to customize their data storage settings to better fit their preferences.

## **Use of audio/video for object or facial recognition**

### **1. When Google obtains audio data by way of a smart home device, whether that data was collected through the device's sensors, transmitted from another device, or generated by the device, how does it use that data?**

When Google obtains audio recordings by way of its smart connected home devices (for a full list of Google's smart connected home devices, please see [https://support.google.com/googlenest/answer/9327662?p=connected-devices&visit\\_id=637592933074162338-3477167050&rd=1](https://support.google.com/googlenest/answer/9327662?p=connected-devices&visit_id=637592933074162338-3477167050&rd=1)), Google uses these audio recordings to provide the services expected by our users, and we do so consistent with the user's permissions and settings, and Google's Privacy Policy. Such uses include those relating to providing features and services, such as allowing the use of Nest Cam or Nest Hello doorbells for home monitoring purposes, voice calling from smart home devices, or interactions with Google

Assistant. For Nest Cams and Nest Hello doorbells, user audio recordings stored in a user's Google Account are only used to provide services and features and not for Google's advertising purposes.

Google Assistant on Google's smart home devices uses audio recognition technologies to process audio recordings to detect when a user wants the Assistant's help and then to respond to the user's request. Audio recordings from Assistant interactions are not saved by default. A Google user can expressly give consent (revocable at any time) to store audio recordings from their interactions with the Google Assistant on smart home devices and allow Google to use their saved audio recordings to develop and improve Google's audio recognition technologies. More details on how Google Assistant uses audio are available at <https://safety.google/assistant/> under "What's the benefit of saving my audio recordings to my Google Account?" Importantly, Google's policies allow users to control when and how Google saves any audio recordings relating to interactions with Google Search, Assistant, and Maps. Details are provided in the Google Account Help Center, available at <https://support.google.com/accounts/answer/6030020>. Google also offers a feature called Voice Match, through which users can teach the Google Assistant to recognize their voice in order to use voice commands to get personalized results with devices such as speakers, Smart Displays, or Smart Clocks (for more information on Voice Match, please see <https://support.google.com/assistant/answer/9071681>).

At all times, a user can review and delete their stored audio recordings collected via Google's smart home devices either through the Nest app (in the case of Nest Cam recordings, see <https://support.google.com/googlenest/answer/9219185?hl=en>) or the My Google Activity site for interactions with the Google Assistant (see <https://myactivity.google.com/myactivity>). The user can also delete their Google Assistant activity with voice commands (for details, please see <https://support.google.com/assistant/answer/7108295>).

**a. Does Google use this or other audio data to develop, train, or test speech recognition technology other than Google Assistant? If so, please elaborate.**

As previously noted, the "Include audio recordings" sub-setting associated with the Web & App Activity control in the user's Google Account (see <https://support.google.com/accounts/answer/6030020?hl=en&co=GENIE.Platform%3DAndroid>) is off unless the user chooses to turn it on. When this audio recording setting is off, voice inputs from interactions with Google Search, Assistant, and Maps are not saved to the user's Google Account, even if the user is signed in. Moreover, the user can change this setting from on to off at any time. Users can also delete their audio recordings manually or set up an auto-delete option in their My Google Activity settings.

As explained above (and in the Google Account Help Center), a user can choose to save audio recordings from their voice interactions with Google Search, Assistant, and Maps to their

Google Account (see <https://support.google.com/accounts/answer/6030020>). This saved audio is used to help Google develop and improve its audio recognition technologies and the Google services that use them, including Assistant, Search, Maps, and other Google services that use speech recognition, including accessibility features like closed captioning for YouTube. As one example of how saved audio helps Google improve speech recognition technologies for all users, Google has improved automatic speech recognition for data-scarce languages by training a single model on audio from data-rich languages, which allowed for real-time multilingual speech recognition. To reiterate the points made above, this saving and/or use of audio for product improvement by Google occurs only with user consent.

Separately, with respect to Nest camera products (Nest Cams and Hello doorbells), as explained in the Nest terms that supplement the Google Terms of Service (see <https://support.google.com/product-documentation/answer/9327735>), Google “only process[es] the Nest Cam Audio/Video Data in accordance with your instructions, which include providing the Nest Cam features and services you have requested.” Nest camera audio recordings are not used to develop or improve Google’s own products and services.

**b. Does Google use this or other audio data to develop biometric identifiers, such as “voiceprints”? If so, please describe any purposes for which Google uses these identifiers other than to enable personalized controls for Google Assistant.**

A Google Nest or Assistant device user can choose to use certain optional features with Google’s connected home devices that involve face or voice detection:

1. Users can choose to use Voice Match or Face Match to personalize their Assistant experience (for more information on Voice Match, see <https://support.google.com/googlenest/answer/7342711>; for more information on Face Match, see <https://support.google.com/googlenest/answer/9320885?hl=en>). As noted above, Voice Match is a feature through which users can teach the Google Assistant to recognize their voice in order to use voice commands to get personalized results with smart home devices such as speakers, Smart Displays, or Smart Clocks.
2. Users can choose to use Familiar Face Alerts with Nest Camera and doorbells (for more information, please see <https://support.google.com/googlenest/answer/9268625>).

These specific features are enabled after express transparency and with clear user choice.

**c. Does Google produce or use transcripts of audio data for any purpose? If so, what are they? Does Google use these transcripts for purposes other than personalized advertising?**

Consistent with our commitments to users in our privacy policy, we produce and use transcripts of audio data from user interactions with Google Assistant for the following

purposes (for additional information as to our collection and use of data, please see our response to Sen. Blumenthal's Question No. 1):

1. To understand and answer questions posed by users to the Assistant, in order to provide the service requested by the user (for more information on how this works, please see <https://developers.google.com/assistant/howassistantworks/responses>);
2. Subject to a user's choices, settings, and preferences (such as whether they have chosen to save their Web & App Activity in their Google Account, and whether they are interacting with the Assistant in Guest Mode, as described below), to personalize the user's experience on Google Assistant and across Google services (for more information on personalized experiences, please see <https://safety.google/assistant/#assistant-easy-privacy-controls> "How does Google Assistant use data to personalize my experience?"). Such personalization can also include personalized ads, subject to the user's Google ads personalization settings; and
3. To improve our services and ensure they are working as intended, and for the other purposes described in our privacy policy (for more information, please see <https://policies.google.com/privacy?hl=en-US#whycollect>). Improving our services includes creating and using audio transcriptions as part of Google's audio review process, which uses saved audio recordings to develop and improve Google's audio recognition technologies (the saving of these audio recordings, as described above, is subject to explicit user opt-in.) During the audio review process, trained reviewers may listen to, transcribe, and annotate saved audio samples, to evaluate how well our technologies interpret the audio, for example, when someone is talking in a noisy environment or in a particular language. Google takes steps to protect users' privacy as part of this audio review process, including disassociating audio from a user's account when reviewers analyze or transcribe it. Transcribed or annotated audio is then used as training data to develop and improve Google's audio recognition technologies, like automated speech recognition. For example, Google improved automatic speech recognition for data-scarce languages by training a single model on audio from data-rich languages, which allowed for real-time multilingual speech recognition.

We believe that products should keep users' information only for as long as users find it useful and helpful to them. That is why last year, we decided to change our data retention practices for Web & App Activity, and make auto-delete the default for all our core services, including Google Assistant. For new users, that means that by default, their Assistant activity will be automatically and continuously deleted after 18 months. Users can also choose to customize their data storage settings to better fit their preferences.

Users can also delete their activity data and manage their activity settings at any time. Users can even ask the Assistant to perform certain privacy-related actions, like “Delete what I just said” or “That wasn’t for you” and the most recent Assistant activity will be deleted. It’s as simple as saying, for example, “delete what I said this week.”

When users choose to delete activity manually or activity is deleted automatically based on their auto-delete setting, we immediately start the process of removing it from the product and our systems. First, we aim to immediately remove it from view and the data may no longer be used to personalize the user’s Google experience. We then begin a process designed to safely and completely delete the data from our storage systems. For more information, please see

<https://support.google.com/accounts/answer/10549751#zippy=%2Chow-deletion-of-activity-works>.

We also recently rolled out Guest Mode, a new way Google Assistant can be used on home devices without having Assistant activity saved into a user’s account or used to personalize their experience (for more information, please see [g.co/assistant/guestmode](https://g.co/assistant/guestmode)). People can activate this mode by simply saying, “Hey Google, turn on Guest Mode” to their smart speaker or Smart Display. While in Guest Mode, Google automatically deletes audio recordings and Google Assistant activity, like things users ask the Assistant, from the device owner’s account. Even if users’ audio recordings and Assistant activity on the device are normally saved to their Google Account, this does not happen in Guest Mode. If users ask the Assistant to interact with another app or service, like their music provider or another Google product, that app or service may still retain their activity history within that app.

We recognize that privacy is not a one-size-fits-all proposition. Different users want to make different choices about how much information they share and how it is used. That is why we give our users control over their data privacy. To that end, we are continually focused on building tools that enable people to make the privacy choices that are right for them and their families.

## **2. When Google obtains video or image data from a smart home device, whether that data was collected through the device’s sensors, transmitted from another device, or generated by the device, how does it use that data?**

When Google obtains video or image data from Google’s smart home devices, the data is used to provide users features and services. Video footage collected from Google’s connected home devices is not used for Google’s advertising purposes (as clearly expressed in Google’s commitments available here: <https://safety.google/nest/>).

Images and video data from Google’s smart home device are used to provide users the following categories of features and services:

1. **Home monitoring services:** Users can choose to use their Nest Cams and Hello doorbells for home monitoring and other home security purposes. Audio recordings and video footage from users' Nest camera and Nest Hello video doorbell are used to provide the camera features and services users agree to receive, and Google does not use this data for promotions or ad personalization. To review and delete their video history or their individual saved clips, users can follow the instructions available at <https://nest.com/support/article/Can-I-delete-my-Nest-Cam-Video-History>.
2. **General features and integrations:** Users can use first and third party apps and services with their connected home devices which might entail usage of video or images to provide the service, subject to the user's express permissions and settings. For example, users can choose to make or receive video calls using their Google connected home devices through Google services such as using Google Duo or third-party services such as Zoom. For more information on how to make calls on speakers and displays and making video calls, please see [https://support.google.com/googlenest/answer/9905737?hl=en&ref\\_topic=9854800](https://support.google.com/googlenest/answer/9905737?hl=en&ref_topic=9854800).
3. **Personalized device experiences:** Users can use a feature we call "Face Match" with Google's camera-enabled smart-display devices to personalize their home experience using their face. Face Match provides a proactive experience, such that when your device recognizes your face, it can proactively show you your personalized content. This includes things like video messages, reminders, and upcoming calendar events. When you approach your device for the first time each day, you can also choose to view things like the weather, your morning commute, suggestions of music to listen to, and top news headlines of the day. Face Match protects user privacy by implementing strict privacy safeguards. Face Match is off by default, and the user must expressly turn it on, after receiving clear and just-in-time notices about how their data will be processed. The user remains in control at all times and can opt-out and delete their face data at any time. On-device processing provides a further layer of safeguards. The face model is encrypted and stored on the device; following the setup process, all the face matching occurs locally on-device. That means that after setup, Face Match does not send video or images to Google servers.

**a. Does Google use this or other video or image data to develop, test, or train biometric identification or object recognition systems other than the system that powers Google's Familiar Face Alert feature?**

Images and video data collected via Google's smart-display devices or Nest Cams are not used to develop, test, or train biometric identification or object recognition systems.

Details about Google's Familiar Faces Alerts feature are provided in the response to the next question below.

**i. Is the system that powers the Familiar Face Alert feature capable of recognizing objects or physical attributes other than faces? If so, what are they?**

Nest offers camera products as well as video doorbells. The details of these products are available here:

[https://support.google.com/googlenest/topic/9360834?hl=en&ref\\_topic=9299925](https://support.google.com/googlenest/topic/9360834?hl=en&ref_topic=9299925).

All customers of Nest camera products can opt-in to receive intelligent alerts when their camera detects sound, motion, or a person. Our newest cameras can also detect animals. Customers can also view snapshots associated with these events for the preceding three hour period in their app. More information about these features is available at

<https://support.google.com/googlenest/answer/9208447?hl=en> and <https://support.google.com/googlenest/answer/9226382?hl=en>.

In addition to the features described above that are available to all Nest camera users, users can also choose to purchase a subscription service called “Nest Aware” to work alongside their Nest camera or Nest Hello doorbell. Using the Nest Aware service, users can choose to continuously record and store camera footage captured by their doorbell for up to 30 days. Nest Aware also includes various other intelligent camera features, such as the ability to opt-in to additional intelligent alerts (for example, for package detection) and a familiar faces detection feature (explained in more detail below). More information about Nest Aware is available at:

[https://support.google.com/googlenest/answer/9248438?hl=en&ref\\_topic=9360528](https://support.google.com/googlenest/answer/9248438?hl=en&ref_topic=9360528) and <https://support.google.com/googlenest/answer/9242083>.

Importantly, the following privacy protections are put in place for all Nest camera devices (regardless of whether the user is subscribed to the Nest Aware service):

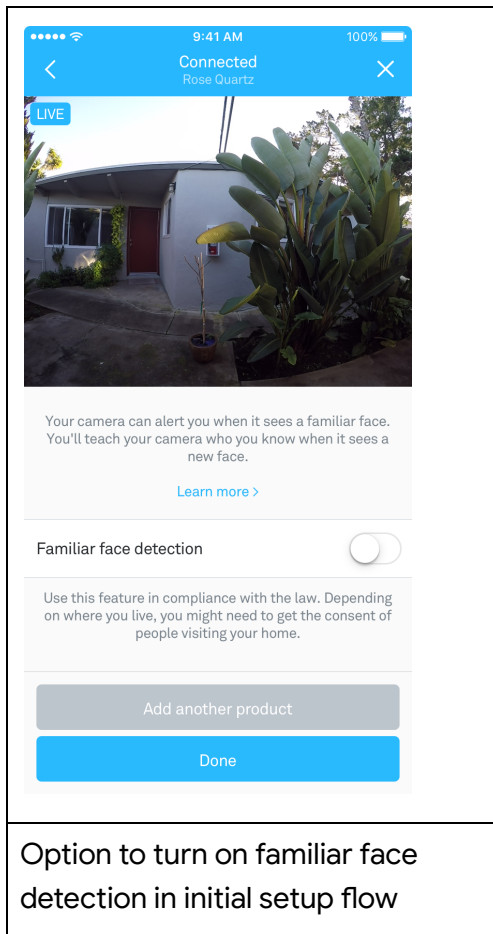
- Google does not store or otherwise process any camera footage unless the user expressly chooses to set up the Nest camera device and pair their device to their account in the app.
- Google puts the user in control, and provides them the ability to access, review, and delete any stored camera footage and associated data at any time.
- The user can turn the camera on and off, and can schedule particular times when the camera is activated and processing footage.
- While Google processes the camera footage for the user’s benefit and on their behalf, we do not use any of the camera footage for our own advertising purposes, but to provide the camera features and services the user requests. Specifically, the camera

footage is not used to develop or improve our own algorithms, nor for product improvements, promotions, or advertising purposes.

- We do not store or otherwise process any facial recognition data unless the user subscribes to Nest Aware and expressly opts-in to use the “familiar face detection” feature.

### Familiar Face Detection feature:

“Familiar face detection” is a feature Google makes available in certain jurisdictions, as part of the Nest Aware subscription service, to allow users to get intelligent alerts when the camera detects familiar faces the user has added to her in-app faces library using the Nest camera product. A relevant screenshot of the onboarding flow of this feature is added below:



If the user chooses not to turn on familiar face detection during setup, they can turn it on later from their in-app device settings. Google offers this feature to empower the user to take control of their privacy and security, and feel a sense of safety inside their home.

The familiar face alerts feature detects faces and not other physical attributes of the user.

**b. If a customer requests the deletion of video data collected by way of a Google smart home device or system, does Google also delete any data product or model derived from that data, such as a faceprint or other biometric attribute profile?**

For Nest camera products, deleting your video history does not automatically delete the user's familiar faces library. But the user can choose to easily delete their faces library via the app at any time.

For Face Match feature on smart-display devices, if the user turns the feature off, the user's face model on the device is also deleted.

**3. Has Google ever provided audio or video recordings or transcripts of audio recordings collected from smart home systems or devices to law enforcement?**

**i. If so, was this to comply with a court order?**

**ii. If Google has ever provided law enforcement access to audio recordings or transcripts without a court order, what policy, if any, describes the circumstances under which Google provides such access?**

We have a robust law enforcement response process with analysts and lawyers dedicated to ensuring that we appropriately respond to legal processes from law enforcement and make referrals to law enforcement when we identify problematic or illegal activity on our platform. A law enforcement agency may ask Google to preserve specific information while the agency applies for legal process to compel the disclosure of that information. We have a dedicated team that responds to law enforcement around the clock, every day of the year, and we respond to such requests in accordance with applicable law. Legal requests related to ongoing investigations are often subject to non-disclosure or other confidentiality requirements. As such, we are generally unable to comment further on specific matters.

We describe our work and protocols concerning cooperation with law enforcement in our policies (available at <https://policies.google.com/terms/information-requests>) and our publicly available Transparency Reports (available at <https://transparencyreport.google.com/>).

## **Sale of Collected Data**

**1. Please describe Google's policies and procedures for selling, granting access, or otherwise making available any location, image, video, audio, or other data that Google or any other Alphabet company obtains by way of a smart home device to third parties or other Alphabet companies, including any restrictions on the types of data sold,**

accessed, or made available, restrictions on eligible purchasers/receivers of the data, efforts to anonymize or aggregate the data, and any related notices to users.

**2. If Google does not sell, grant access, or otherwise make available data obtained by way of smart home devices, please describe the circumstances in which Google sells, grants access, or otherwise makes available to third parties or other Alphabet companies any data or data products *derived* from smart home data, as well as any policies and procedures relevant to that sale or access.**

Because the answers to these questions are related, we have grouped together our response to Question Nos. 1 and 2.

Google does not sell our users' personal information to anyone. That is not our business model, and we have always made this a touchstone of Google's relationship with our users.

Google's [Privacy Policy](https://policies.google.com/privacy) (available at <https://policies.google.com/privacy>) applies to our connected home devices and services (list available at <https://support.google.com/googlenest/?p=connected-devices>) and explains what information we collect; why we collect it; how and why we share information; and how you can update, manage, export, and delete your information. In addition, we've made specific privacy and security commitments with respect to data collected from our connected home devices and services (available here: <https://safety.google/nest/>), which explain how we limit usage of audio, video, and home environment sensor readings collected from our smart-home devices for Google's advertising purposes. For example:

*"For all our [connected home devices and services](#), we will keep your video footage, audio recordings, and home environment sensor readings separate from advertising, and we won't use this data for ad personalization. When you interact with your Assistant, we may use those interactions to inform your interests for ad personalization. For example, if you ask, "Hey Google, what's the weather in Hawaii in July?" we may use the text of that voice interaction (but not the audio recording itself) to show you personalized ads. You can always review your Google settings to [control the ads you see](#), including opting out of ad personalization completely. Learn more about the Google Assistant and the choices available to you [here](#)."*

At Google, our products use data from your Google connected home devices and services to make them more helpful to you. This means providing Google services and experiences related to the connected home, improving and personalizing them and developing new ones, helping to maintain safety and security across Google services, and keeping you informed of relevant Google products, services, and updates.

With respect to sharing users information obtained from Google’s connected home devices and services:

1. We never sell our users' personal information to anyone.
2. Consistent with the Google Privacy Policy (available at <https://policies.google.com/privacy>), we may share users’ personal information collected from our connected home devices with third parties to provide features, services and integrations users have requested, and with user transparency, choice, and control. For example, users choose to use various apps and services with their smart-home devices (such as making a video call via Zoom on a Google smart-display or playing music via Spotify on a Google speaker). If the user chooses to use a video or calling service such as Zoom, with the user’s permission, their voice or video is shared with the third-party service. In addition, to play music on a service like Spotify, the user may say “Play Madonna on Spotify,” in which case Google will convey the request to Spotify to play music of a particular artist. In all such cases, Google is sharing users information to meet the user intent to enable the feature. Other sharing instances include a user choosing to share their Nest Cam video footage with a home security service provider, or sharing their thermostat data with an energy services provider to save energy such as through the Seasonal Savings program.

For more information on connected home data collection and use, please see <https://support.google.com/googlenest/topic/7173611?hl=en>.

Finally, as explained in our Privacy Policy (available at <https://policies.google.com/privacy?hl=en-US#footnote-deliver-services>), we may share non-personally identifiable information with our partners so they better understand how their services are being used on Assistant.

### **The Honorable Marsha Blackburn (R-TN)**

#### **1. What is Google’s largest source of profit? How much income does Google produce in that business?**

Our quarterly and yearly operating income numbers for all our business units are detailed in our public filings, available at <https://abc.xyz/investor/>. In the year ending December 31, 2020, Google Services operating income totaled \$54.6B, which was our most profitable business.

#### **2. Google produces smart, multi-room speakers, comparable in some respects to those of Sonos. Often, Google’s product appears to be cheaper, how much money does Google make selling smart speakers?**

Google Nest smart speakers are among a range of smart, multi-room speaker products sold by companies including Apple, Amazon, Harman Kardon/JBL, Sonos, Lenovo, and more. The smart home field is competitive and rapidly expanding, and we continue to face competition from around the globe, including offerings from Chinese companies like Alibaba, Baidu, and Xiaomi. This space is characterized by a large number of players, innovation, and significant user choice. Our hardware prices reflect this intensely competitive landscape. As a general matter, our devices and services products earn revenue from sources reflecting a range of business models, including subscriptions, partnerships with first- and third-party service providers, and standalone device sales.

**3. How much does it cost Google to produce a smart speaker and much does an individual smart speaker sell for?**

The current price of Google Nest smart speakers is available on the Google Store at [https://store.google.com/us/product/nest\\_audio](https://store.google.com/us/product/nest_audio). This pricing is driven by the intense competition we face from other companies, and ranges widely by retailer, region, and promotional period.

On cost, we rely on many resources, including personnel and infrastructure, to develop our Nest smart speakers and the digital services used or provided by those speakers (e.g., Google Assistant). The work required to develop and manufacture our devices and services includes research and development for hardware and software, marketing, work with third-party manufacturers and suppliers, and a variety of other tasks. Our resources are deployed across our devices and services portfolio rather than being assigned to a specific device or service.

**4. Google is suspected of predatory pricing enabled by cross-subsidizing their speaker business. Has Google ever sold its speakers below cost, and how often does this occur?**

As noted above, Google Nest smart speakers are among a range of smart, multi-room speaker products sold by companies including Apple, Amazon, Harman Kardon/JBL, Sonos, Lenovo, and more. The smart home sector is rapidly expanding, and we continue to face stiff competition from around the globe. Our hardware prices reflect this intensely competitive landscape, and, as noted above, prices range widely by retailer, region, and promotional period.

**5. The primary purpose of a speaker is sound, therefore a speaker's most important attribute must be sound quality. Would you consider the sound quality of your company's speakers to be generally lower, higher, or the same as comparable speakers produced by Sonos?**

Our high-quality speakers allow users to stream their favorite music from services like Spotify, Pandora, SiriusXM, and others. We constantly innovate and improve the quality of our speakers due to evolving technologies and user expectations in the smart speaker realm and the competition we face.

Consumers have many choices when it comes to speakers, including smart speakers with features like those in the Google Nest products. We believe individual consumers decide which product to buy based on the particular features they most value.

**6. Google harvests and controls an immense amount of data from its search engine users, and users of its other products. Smart home devices and their associated home ecosystems create another source of massive data collection. Google’s largest business is advertising. How does Google use voice and word recognition to collect advertising data? Is it similar to data collection from input into Google’s search engine?**

Google has publicly committed to strict limitations on how data collected from its smart-home devices is used for Google’s own advertising purposes. Specifically, Google has made the following public commitment available at <https://safety.google/nest/>:

*“For all our [connected home devices and services](#), we will keep your video footage, audio recordings, and home environment sensor readings separate from advertising, and we won’t use this data for ad personalization. When you interact with your Assistant, we may use those interactions to inform your interests for ad personalization. For example, if you ask, “Hey Google, what’s the weather in Hawaii in July?” we may use the text of that voice interaction (but not the audio recording itself) to show you personalized ads. You can always review your Google settings to [control the ads you see](#), including opting out of ad personalization completely. Learn more about the Google Assistant and the choices available to you [here](#).”*

As is clear from our public commitment, we have imposed several strict limitations on what smart-home data can inform Google ads. With respect to Google Assistant queries, when it comes to ads, we treat interactions with the Google Assistant similarly to searches, so if a user interacts with the Assistant using a Google connected home device, we may use those interactions to deliver more useful ads. For example, if a user asks, “Hey Google, what’s the weather today?” we may use the text of that voice interaction (but not the audio recording itself) to show ads. Users can always review their Google settings to control the ads they see. However, other audio recordings collected from Google’s connected home devices (such as audio associated with your Nest Cam footage) are not used to inform Google ads at all. Additional detail concerning Google’s commitment to privacy in the home may be found at <https://safety.google/nest/>.

**7. Google would know what kinds of smart appliances are in a user's home through the shared AI assistant network. How does that kind of data inform what advertising Google delivers to its customers?**

We want people to understand how their data is used, make the choices that are right for them, and be assured their data is safe. We work to create a more helpful home, continuing to build devices and services that allow the user's home to take care of the people inside it and the world around it. And in doing so, we live by the same core privacy and security principles that guide all of our work (for more information, please see <https://safety.google/principles/>).

As explained in the Google Privacy Policy, if you use a Google Account, Google may use information you provide, including basic information about the type of devices in your home, to show you relevant ads. Users can always learn more information concerning personalized advertising and controlling the ads they see on Google's support pages (see <https://support.google.com/google-ads/answer/2549116?hl=en> and <https://support.google.com/accounts/answer/2662856>). In addition, users can turn off ad personalization in their Google Account settings, found here: <https://adssettings.google.com/>.

**8. To create user preference for a certain products, Google is incentivized to limit interoperability for devices outside of their respective smart home ecosystems centered around their AI assistants. Sonos has said their speakers have the ability for users to use any partnered AI assistant and switch between them by voice without needing to change software settings or preferences. Amazon is apparently supportive of this idea. Why has google opposed this ability on partnered devices?**

Google supports several efforts to improve interoperability with other providers—whether third-party device makers, other assistants, web services, or apps. Part of why the smart home sector is exciting is that the field involves nascent, highly innovative products and services with ever-emerging form-factors and use cases, and lots of user choices. On Android devices, for example, it is easy for users to set up rival voice assistants, like Alexa, to work with connected devices. A user might have Alexa in the car, a Google Nest in the kitchen, and Siri on a smart watch. In fact, Android consumers have downloaded the Alexa app more than 50 million times from Google Play, and the Qualcomm Voice Assistant app has been downloaded from Google Play more than 10 million times.

The question of whether to allow multiple assistants to have simultaneously active hotwords on a given device type raises user experience considerations, privacy and security concerns, and technical challenges in this nascent space. We are striving for more interoperability consistent with our security and privacy commitments, while maintaining an excellent user experience. This includes striking the right balance between giving users choice and protecting their data, and also avoiding confusion on our services.

Many products currently being sold allow users to choose whether to control them using Google Assistant or Alexa, including Philips Hue smart lights, Carro smart ceiling fans, and Whirlpool smart dishwashers, as well as speakers from Bose, TVs from LG and Samsung, and headphones from many brands. Samsung phones support both Bixby and Google Assistant.

We regularly work with device manufacturers to develop interoperable solutions. We recently announced interoperability between Samsung's SmartThings and Google Assistant. We are also supporting industry-wide standards and protocols to ensure consumers can use multiple devices. A primary example of this is Google's participation (with other leading tech companies) in the development of Matter, a new protocol that simplifies smart homes by using one standard across the industry (for more information, please see <https://buildwithmatter.com/>). Google is committed to supporting Matter, and to enhancing interoperability and choice for smart home consumers. We see the new Matter standard under development by the Connectivity Standards Alliance as a positive step forward for the industry (for more information on this initiative, please see <https://csa-iot.org/>). Along with over 180 member companies, we are working together to build technologies that simplify product development and increase choice for consumers. Given input and commitments from such a broad coalition of industry players, we hope these technologies will be broadly adopted.

Any company can utilize Matter's standard in its devices, and as a sign of our commitment to interoperability, Google is invested in integrating Matter as a feature across a range of our products. We have announced plans to update our Google Nest Displays, Speakers, and Wifi devices with Matter to enable them to operate other devices that utilize Matter's unified protocol - regardless of which company markets those devices. We will also provide an easy way for users to onboard Matter devices through Google Play services on Android and the Google Home App, and will update our latest Nest Thermostat to be Matter-compliant so that the user can choose to control it with their preferred smart home systems.

Google aims to enable Matter on our Google Nest Displays, Speakers, and Wifi devices and Android shortly after the 1.0 specification is ratified and the open-source reference implementation is complete. As the Matter specification continues to evolve, we will look to expand Matter compatibility to even more of our devices.

**9. Google collects massive amounts of data through their AI assistants on their smart home devices and partnered products. Much of this data is valuable for selling advertising, general market information, or feedback used to improve products. Recently, Google has been accused by smaller firms who do business with them of using certain privacy rules and regulations as pretext for anticompetitive behavior. These critics often describe the relationship as one-sided with one party monopolizing data that was created through the business partnership. Does Google believe it has the**

## **exclusive right to data collected through its voice activated AI assistant even if it was collected through a partnered company's product?**

Google's collection and use of the data received through provision of our services are governed by 1) Google's contractual agreements with third-party developers, and/or 2) Google's privacy commitments to users (including users of our software - e.g., Google Assistant - on a third-party developer's device).

Google has written policies, created storage and access systems, and designed other processes specifically to restrict our access to third-party data. These policies, systems, and processes have been designed according to commitments we have made to third-party developers, including partnership agreements (the terms of which are often subject to confidentiality obligations). In general, when a third-party developer enables interactions with Google Assistant, the Actions on Google terms of service govern the relationship (for more information, please see <https://developers.google.com/assistant/console/policies/terms-of-service> and <https://developers.google.com/assistant/howassistantworks/developers>). Such third-party developers can receive analytics information about their Actions from Google through the Actions on Google analytics console (<https://developers.google.com/assistant/console/analytics>).

Developers can choose to share certain data with Google to fulfill user requests and enable their integrations with Assistant, including:

- Information for linking to user accounts, so that users can use Assistant to interact with their accounts for third-party features like Actions, media, smart home and productivity services.
- Content and data libraries, to help Assistant fulfill user requests through the developer's service. For example, some media providers allow Google to index their media catalog so that users can play content through Assistant. Providers can also share media playlists of users who have linked their accounts, so that those users can ask Assistant to play their playlists.
- Actions on Google developers share data with Google to enable interactions with their users. For example, developers can specify what data is stored in a per-user or per-household data store, which can be reset by the user, so that their Action can remember the user in subsequent interactions. Developers also provide fulfillment responses to answer user requests.
- Third-party devices where Assistant is built-in, such as speakers and TVs, share users' Assistant queries and related data with Google, so that users can use Assistant through that device.

In addition, Google's Privacy Policy (available at <https://policies.google.com/privacy>) applies to our connected home devices and services and explains what information we collect; why we collect it; how and why we share information; and how users can update, manage, export, and delete their information. In addition, we've made specific privacy and security commitments with respect to data collected from our connected home devices and services (available at <https://safety.google/nest/>), which explain how we limit usage of audio, video, and home environment sensor readings collected from our smart-home devices for Google's advertising purposes.

As with many of our services, interaction between Google Assistant and a smart device inherently necessitates the exchange of some data, and we've crafted our privacy disclosures and policy explanations to provide our users with transparency, choice, and control over their data. For example, operating a smart speaker via Google Assistant requires the speaker to send the recording of a voice command to Google, which then interprets the command, translates it into structure command, and sends it back to the speaker for execution. Users have a number of tools available to them to allow them to control the collection, storage and use of their data by Google. For example, signed-in users can manually delete any activity data associated with their Google Account (<https://myaccount.google.com/data-and-personalization>), set up automatic deletion so that the activity data is deleted after a specified time period, or turn off Web & App Activity so that activity data is not saved to the user's account. Users can view their Google Assistant activity by visiting "Your data in the Assistant" through the Google Assistant app or Google Assistant Activity, which is accessible through Google Home and Google Assistant apps and online (for more information, please see <https://myaccount.google.com/yourdata/assistant?pli=1>). Ultimately, users have control over their data and have the ability to delete activity data at any time.

Users can also choose to link their accounts with various other third-party services and apps to Google Assistant and then use Google Assistant to interact with those services and apps. In order to understand and fulfill a user's Google Assistant queries that relate to those services and apps, Google uses information that the third party makes available as a result of the account linking. For example, Google uses information about a user's playlists in a third-party media service so that it can play those playlists if the user asks it to do so. The user agrees to this data sharing as part of the account linking flow.

Uses of the data that users share include:

- **Providing the Google Assistant service:** Google uses user data to deliver its services. This data is not aggregated or anonymized for this purpose, as delivery of services to the user is specific to the user request. Examples of how Google uses data collected via Google Assistant for the purposes of providing Google Assistant include:

- Google uses the voice commands that a user provides to Google Assistant to fulfill the user’s request, such as turning smart lights on or off;
  - Google uses IP addresses assigned to a user’s device to send the user the data it has requested, such as loading a YouTube video; and
  - Google uses user app preference data to access their preferred services on request (for example, accessing music on Spotify).
- **Maintaining and Improving Google services:** Google uses user data to ensure its services are working as intended, such as tracking outages or troubleshooting issues reported by users. User data can also be used to make improvements to Google Assistant. For example, where a user has chosen to save their audio data, Google can use audio recordings to develop and improve its speech recognition technology. This helps to reduce the number of mistaken activations of Google Assistant where the user did not intend to interact with Google Assistant, and improves the accuracy of Google Assistant’s understanding of user audio data. Google does not save audio recordings and use them to improve speech recognition by default; the user must elect to save their audio data.
  - **Providing relevant services, including content and ads:** Google uses the data it collects to provide users with relevant recommendations and search results. For example, depending on a user’s settings, Google may be aware of the user’s location; if a user searches for “mountain bike stores,” Google can then provide information about stores local to the user.
  - **Communicating with our users:** Google uses data collected from users, such as their email address, to interact with them directly. For example, Google may let users know about upcoming changes or improvements to Google Assistant.
  - **Protecting users and the public:** Google uses user data to help improve the safety and reliability of Google Assistant. This includes detecting, preventing, and responding to fraud, abuse, security risks, and technical issues that could harm Google, Google Assistant users, or the public. For example, Google may notify users in the event suspicious activity is detected on their Google Account, like an attempt to sign in to Google Assistant from an unusual location.

**The Honorable Josh Hawley (R-MO)**

1. **For each of the following dates, please provide a list of Google Nest or Home smart speaker models, or any comparable or predecessor Google-branded smart speaker products, on the market at that point, along with the cost of production of an**

**individual unit of each model as of that date. Do not include costs associated with shipping the device to end users.**

1. **January 1, 2019**
  2. **April 1, 2019**
  3. **July 1, 2019**
  4. **October 1, 2019**
  5. **January 1, 2020**
  6. **April 1, 2020**
  7. **July 1, 2020**
  8. **October 1, 2020**
  9. **January 1, 2021**
  10. **April 1, 2021**
  11. **June 22, 2021**
2. **For each of the following dates, please provide the consumer list price of each Google Nest or Home smart speaker model on the market at that point. Do not include charges for shipping the device to end users.**
1. **January 1, 2019**
  2. **April 1, 2019**
  3. **July 1, 2019**
  4. **October 1, 2019**
  5. **January 1, 2020**
  6. **April 1, 2020**
  7. **July 1, 2020**
  8. **October 1, 2020**
  9. **January 1, 2021**
  10. **April 1, 2021**
  11. **June 22, 2021**

3. **Please indicate whether, at any times between January 1, 2019 and June 22, 2021, any Google Nest or Home smart speaker models were placed on sale by Google, and if so, for how long and what list price was charged to consumers at each relevant point.**

Because the answers to these questions are related, we have grouped together our responses to Question Nos. 1, and 2, and 3.

The current price of Google Nest smart speakers is available on the Google Store at [https://store.google.com/us/product/nest\\_audio](https://store.google.com/us/product/nest_audio). Google Nest smart speakers are among a range of smart, multi-room speaker products sold by companies including Apple, Amazon, Harman Kardon/JBL, Sonos, Lenovo, and more. The smart home field is competitive and rapidly expanding, and we face competition from around the globe, including offerings from Chinese companies like Alibaba, Baidu, and Xiaomi. This space is characterized by a large number of players, innovation, and significant user choice. Our hardware prices have always reflected this intensely competitive landscape, and range widely by retailer, region, and

promotional period. In the chart below, we have provided the manufacturer’s suggested retail pricing for a number of the products for the quarters covering the requested dates. However, the specific prices offered at or around these times may have varied from those listed below based on factors such as retailer, region, and promotional period.

Speakers	Q1'19	Q2'19	Q3'19	Q4'19	Q1'20	Q2'20	Q3'20	Q4'20	Q1'21	Q2'21
Home	\$129.00	\$99.00	\$99.00	\$99.00	\$99.00	\$99.00	\$99.00	\$99.00		
Home Max	\$399.00	\$299.00	\$299.00	\$299.00	\$299.00	\$299.00	\$299.00	\$299.00	\$299.00	\$299.00
Home Mini	\$49.00	\$49.00	\$49.00	\$49.00	\$49.00	\$49.00	\$49.00	\$49.00	\$49.00	\$49.00
Nest Mini				\$49.00	\$49.00	\$49.00	\$49.00	\$49.00	\$49.00	\$49.00
Nest Audio								\$99.99	\$99.99	\$99.99

On cost, we rely on many resources, including personnel and infrastructure, to develop our Nest smart speakers and the digital services used or provided by those speakers (e.g., Google Assistant). The work required to develop and manufacture our devices and services includes research and development for hardware and software, marketing, work with third-party manufacturers and suppliers, and a variety of other tasks. Our resources and costs are deployed across our device and service portfolio rather than being assigned to a specific device or service.

**4. Does Google provide unified access to competitor digital services through its smart home products? If so, which specific competitor digital services do Google’s smart home products support?**

**5. For each of the aforementioned competitor services, please state whether those services—to the extent they offer features comparable to those of Google’s own services being offered in the same markets—currently have levels of functionality equal to those of Google’s own services, when running on Google’s smart home products.**

Because the answers to these questions are related, we have grouped together our response to Question Nos. 4 and 5.

Google supports several efforts to improve interoperability with other providers—whether third-party device makers, other assistants, web services, or apps. Part of why the smart home sector is exciting is that the field involves nascent, highly innovative products and services with ever-emerging form-factors and use cases, and lots of user choices. On Android devices, for example, it is easy for users to set up rival voice assistants, like Alexa, to work with connected devices. A user might have Alexa in the car, a Google Nest in the Kitchen, and Siri on a smart watch. In fact, Android consumers have downloaded the Alexa app more than 50 million times from Google Play, and the Qualcomm Voice Assistant app has been downloaded from Google Play more than 10 million times.

Here are a few other examples of how we currently support interoperability:

- Thousands of applications are already compatible with Android Auto, and our goal is to allow even more developers to make their apps available over time. Android Auto supports rival apps such as Sygic GPS Navigation and TomTom AmiGo, which are Google Maps rivals. As one third-party recently noted “[b]y opening up Android Auto for third-party developers, Google essentially allowed software makers to release alternatives even to its own apps, including Google Maps[.]”
- On Fitbit devices, depending on the model, a user can choose to use Amazon Alexa or the Google Assistant.
- Android device makers can easily include apps for their wearable devices and services, or those of their rivals. Apps for competing wearable devices and services can also be distributed through Google Play, or competing Android app stores like Samsung Galaxy Store.
- We support rival media services like Spotify, Pandora, Apple Music and Netflix through integrations with Google Assistant and our Google Nest hardware. We also support Zoom video calling—a direct competitor to Google Meet—on Nest Hub Max smart displays.

To make third-party applications interoperable on a variety of devices, we have developed our “Actions on Google” platform (see <https://developers.google.com/assistant>). It allows developers to easily deliver their content to users without having to build countless original equipment manufacturer (“OEM”) and device-specific solutions. Developers incur lower costs because they do not have to develop different apps and users benefit from the sheer endless choice of apps available. In fact, there are over one million Actions on Google available now. In addition, millions of Android app developers can make App Actions for users to launch and control their apps using Google Assistant (see <https://developers.google.com/assistant/app/overview>).

Google and other leading tech companies are also working together to develop Matter, a new open source protocol that simplifies smart homes by using one standard across the industry (for more information, please see <https://buildwithmatter.com/>). Google is committed to supporting Matter, and to improving interoperability and choice for smart home consumers. We see the new Matter standard under development by the Connectivity Standards Alliance as a positive step forward for the industry (for more information about this alliance, please see <https://csa-iot.org/>). Along with over 180 member companies, we are working together to build technologies that simplify product development and increase choice for consumers. Given input and commitments from such a broad coalition of industry players, we hope these technologies will be broadly adopted.

Any company can utilize Matter’s standard in its devices, and as a sign of our commitment to interoperability, Google is invested in integrating Matter as a feature across many of our

products. We have announced plans to update our Google Nest Displays, Speakers, and Wifi devices with Matter to enable them to operate other devices that utilize Matter's unified protocol - regardless of which company markets those devices. We will also provide an easy way for users to on-board Matter devices through Google Play services on Android and the Google Home App, and will update our latest Nest Thermostat to be Matter-compliant so that the user can choose to control it with their preferred smart home systems.

Google aims to enable Matter on our Google Nest Displays, Speakers, and Wifi devices and Android shortly after the 1.0 specification is ratified and the open-source reference implementation is complete. As the Matter specification continues to evolve, we will look to expand Matter compatibility to even more of our devices.

### **The Honorable Richard Blumenthal (D-CT)**

**1. At the Antitrust Subcommittee's App Store hearing, you testified that it was your understanding that Google has "data access controls in place that govern how data from our third-party services are used." At the Subcommittee's Internet of Things hearing, I asked you whether Google has a firewall between its Internet of Things platforms and its product development teams. You stated that Google has "data access and controls in place" and "internal policies in place that govern how [it] use[s] data." You further stated that you could not say whether there was an impenetrable firewall that prevents any exchange of information, but that you could "get more specifics on that."**

**a. When does Google share data collected from third-party software developers with Google's own product developers? What data is shared? What limitations are placed on the use of the data for competitive purposes?**

**b. When does Google share data collected from third-party software developers with Google employees other than its own product developers? What data is shared? What limitations are placed on the use of the data for competitive purposes?**

**c. How does Google use data collected from third-party software developers to inform its own product development?**

**d. What are Google's policies on the use of data collected from third-party software developers?**

**e. Where are the Google's policies on the use of data collected from third-party software developers located?**

**f. Do third-party software developers have the ability to challenge or appeal Google's use of their data for its own competitive purposes?**

Google's collection and use of data collected from third-party software developers through provision of our services are governed by 1) Google's contractual agreements with third-party developers, and/or 2) Google's privacy commitments to users (including users of our software - e.g., Google Assistant - on a third-party developer's device).

Google has written policies, created storage and access systems, and designed other processes specifically to restrict our access to third-party data. These policies, systems, and processes have been designed according to commitments we have made to third-party developers, including partnership agreements (the terms of which are often subject to confidentiality obligations). In general, when a third-party developer enables interactions with Google Assistant, the Actions on Google terms of service govern the relationship (for more information, please see <https://developers.google.com/assistant/console/policies/terms-of-service> and <https://developers.google.com/assistant/howassistantworks/developers>). Such third-party developers can receive analytics information about their Actions from Google through the Actions on Google analytics console (<https://developers.google.com/assistant/console/analytics>).

Developers can choose to share certain data with Google to fulfill user requests and enable their integrations with Assistant, including:

- Information for linking to user accounts, so that users can use Assistant to interact with their accounts for third-party features like Actions, media, smart home and productivity services.
- Content and data libraries, to help Assistant fulfill user requests through the developer's service. For example, some media providers allow Google to index their media catalog so that users can play content through Assistant. Providers can also share media playlists of users who have linked their accounts, so that those users can ask Assistant to play their playlists.
- Actions on Google developers share data with Google to enable interactions with their users. For example, developers can specify what data is stored in a per-user or per-household data store, which can be reset by the user, so that their Action can remember the user in subsequent interactions. Developers also provide fulfillment responses to answer user requests.
- Third-party devices where Assistant is built-in, such as speakers and TVs, share users' Assistant queries and related data with Google, so that users can use Assistant through that device.

