No. 21-1333

IN THE

Supreme Court of the United States

REYNALDO GONZALEZ, ET AL.,
Petitioners,

v.

GOOGLE LLC,
Respondent.

On Writ of Certiorari to the United States Court of Appeals for the Ninth Circuit

BRIEF FOR THE COMPUTER & COMMUNICATIONS INDUSTRY ASSOCIATION, NETCHOICE, DIGITAL MEDIA ASSOCIATION, THE INFORMATION TECHNOLOGY INDUSTRY COUNCIL, THE INTERACTIVE ADVERTISING BUREAU, AND TECHNET AS AMICI CURIAE SUPPORTING RESPONDENT

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INTEREST OF THE *AMICI CURIAE*[1]

The Computer & Communications Industry Association (CCIA) is an international, not-for-profit association representing a broad cross-section of communications, technology, and Internet industry firms that collectively employ more than 1.6 million workers, invest more than $100 billion in research and development, and contribute trillions of dollars in productivity to the global economy. For more than 50 years, CCIA has promoted open markets, open systems, and open networks. CCIA believes that open, competitive markets and original, independent, and free speech foster innovation.

NetChoice is a national trade association of online businesses that works to protect free expression and promote free enterprise online. Toward those ends, NetChoice is actively engaged in litigation, *amicus curiae* work, and political advocacy. NetChoice currently has four active federal lawsuits over state laws that chill speech or stifle commerce on the Internet. At both the federal and state levels, NetChoice fights to ensure the Internet stays innovative and free.

Digital Media Association (DiMA) is the leading trade association advocating for the digital music innovations that have created unparalleled consumer choice and revolutionized the way music fans and artists connect. Representing the world's leading audio streaming companies for over two decades, DiMA's

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[1] No counsel for a party authored any part of this brief. No party or counsel for a party, and no person other than *amici curiae*, their members, or their counsel, made a monetary contribution intended to fund its preparation or submission.

mission is to promote and protect the ability of music fans to engage with creative content whenever and wherever they want and for artists to more easily reach old fans and make new ones.

The Information Technology Industry Council (ITI) is the premier global advocate for technology, representing the world's leading information and communications technology (ICT) companies. Founded in 1916, ITI is an international trade association with a team of professionals on four continents. ITI promotes public policies and industry standards that advance competition and innovation worldwide, serving as the ICT industry's premier advocate and thought leader in the United States and around the globe. ITI's membership includes leading innovative companies from all corners of the technology sector, including hardware, software, digital services, semiconductor, network equipment, and other internet and technology-enabled companies that rely on ICT to evolve their businesses.

The Interactive Advertising Bureau (IAB) is an advertising industry trade association that develops industry standards, conducts research, and provides legal support for the online advertising industry. Through its public policy advocacy, IAB works to build a sustainable and consumer-centric media and marketing ecosystem and raise the industry's political visibility and profile as a driving force in the global economy through grassroots advocacy, member fly-ins, research, and public affairs campaigns.

TechNet is the national, bipartisan network of technology CEOs and senior executives that promotes the growth of the innovation economy by advocating a targeted policy agenda at the federal and 50-state level.

TechNet's diverse membership includes dynamic American companies ranging from startups to the most iconic companies on the planet, and represents more than five million employees and countless customers in the fields of information technology, e-commerce, the sharing and gig economies, advanced energy, cybersecurity, venture capital, and finance.

Amici and their members have been involved in developing ways of organizing Internet content, including content provided by third parties, since the days of the first websites. *Amici* are interested in the correct application of Section 230 of the Communications Decency Act to today's technology and submit this brief with two objectives: first, to assist the Court in understanding the technology behind the content-organization methods in use today; and second, to demonstrate that Section 230 is valuable to a broad range of companies, including social media websites and applications, advertisers, and streaming and media-sharing services, all of which contribute to today's robust Internet ecosystem.

SUMMARY OF ARGUMENT

Content organization has always been a key part of what makes the Internet usable and useful. The volume of photos, posts, messages, songs, reviews, articles, audiobooks, podcasts, and videos has grown too large to organize by analog means such as alphabetically or chronologically. As people increasingly "rely[] on interactive media for a variety of political, educational, cultural, and entertainment services," 47 U.S.C. § 230(a)(5), digital services increasingly use algorithms to organize content and present it to users in a useful way. That organizing function is at the core of what digital services do, and

what Section 230 protects. Accepting petitioners' view that organizing content amounts to making an unprotected "recommendation" would render Section 230 meaningless and leave many digital services less usable and less useful.

1. A user cannot benefit from the wealth of information available on the Internet if she cannot find what she is interested in. How to organize content has therefore been a challenge that faced digital-service operators from their earliest days. Some were initially able to rely on simple methods. For instance, web directories, the predecessors to today's search engines, were a sort of Internet Yellow Pages: lists of websites arranged into categories, such as education or law. Users would have to manually select the category that interested them and browse the listed hyperlinks. Other digital-service operators arranged content in strict reverse-chronological order so that the newest content was always first, even if that meant that valuable content was pushed off the front page before anyone had time to see it.

2. These early methods could not keep pace as the amount of content available online soared, so digital-service operators have increased their use of algorithms to meet the challenges of scale and speed. Operators developed more complex algorithms that account for users' preferences and interests. From the universe of available content, digital-service operators use these algorithms to rank the content that is more likely to be relevant to a given user.

3. These methods of organizing content fall within the heartland of Section 230's protection. When organizing content created by third parties, digital-service operators are not adopting it as their own.

Instead, they organize content from third parties to improve users' experiences by, for instance, presenting users with the content that is most relevant to them, instead of an unusable morass of every photograph, video, song, or post available online. But petitioners' theory would treat the simple act of organizing content uploaded by third parties into an affirmative *endorsement* or even adoption of particular content. Accepting this view, and making liable every digital-service operator that helps users efficiently access content from third parties, would render Section 230 meaningless. This Court should reject that interpretation.

ARGUMENT

I. Early methods of content organization were easy to implement but came with scaling problems and internal biases.

Since the creation of the World Wide Web in 1989,[2] the amount of content and data available on the Internet has skyrocketed. More than 500 hours of video are uploaded *every minute* to YouTube alone.[3] Similarly, billions of people have signed up for photo- and video-sharing digital services and applications,[4] sharing over two billion photographs every day.[5]

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[2] CERN, *A short history of the Web*, https://home.cern/science/computing/birth-web/short-history-web (last visited Jan. 18, 2023).

[3] *E.g.*, Matt Halprin & Jennifer Flannery O'Connor, *On Policy Development at YouTube*, YouTube Official Blog (Dec. 1, 2022), https://blog.youtube/inside-youtube/policy-development-at-youtube/.

[4] *E.g.*, Meta, *Press Release: Meta Reports Third Quarter 2022 Results* (Oct. 26, 2022), https://investor.fb.com/investor-news/press-release-details/2022/Meta-Reports-Third-Quarter-2022-Results/default.aspx (explaining that Facebook had 1.98 billion active users

Although initial methods of content organization were relatively simple, as the amount of content grew, users needed more sophisticated methods of organizing and navigating this vast ocean of content. Digital-service operators accordingly revisited their algorithms to develop more complex content-organization methods that could cope with this scale of available content. To understand how the technologies used today developed, it helps to understand the methods from which they evolved.

A. Indexing and web directories

One of the earliest content-organization methods was indexing through the use of web directories. A web directory is just what it sounds like: "a pre-defined list of Web sites" that is "compiled by human editors" and "categorised according to subject/topic." David Green, *The Evolution of Web Searching*, 24:2 Online Info. Rev. 124, 125 (2000). Web directories allowed users to "navigate through the listings" by category or "search across the entire directory." *Id.* Their editors tried to

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in September 2022); Ryan Peterman & Haixia Shi, *Reducing Instagram's basic video compute time by 94 percent*, Engineering at Meta (Nov. 4, 2022), https://engineering.fb.com/2022/11/04/video-engineering/instagram-video-processing-encoding-reduction/ (noting that "Instagram's growing user base [consists] of more than 2 billion monthly active users"); Kevin Systrom, *Welcome to IGTV, our New Video App*, Instagram Blog (June 20, 2018), https://about.instagram.com/blog/announcements/welcome-to-igtv (announcing that "Instagram is now a global community of one billion").

[5] Hermes Pique et al., *Powered by AI: Automatic alt text to help the blind 'see' Facebook*, Tech at Meta (June 20, 2018), https://tech.facebook.com/artificial-intelligence/2018/6/using-artificial-intelligence-to-help-blind-people-see-facebook/ ("Every day, people share more than 2 billion photos across Facebook, Instagram, Messenger and WhatsApp.").

provide for the Internet what the Yellow Pages had provided for businesses in the landline-telephone age.

For example, the WWW Virtual Library's homepage presents users with a list of categories, ranging from "Agriculture" and "Education" to "Law," "Recreation," and "Society." The WWW Virtual Library, http://vlib.org/ (Feb. 21, 2017). A user interested in irrigation would click on the "Agriculture" category, and the WWW Virtual Library would direct the user to an index of agriculture-related webpages, with a hyperlink to each. The WWW Virtual Library, *Agriculture*, http://vlib.org/Agriculture (Feb. 21, 2017).

But as the "relentless growth" of Internet activity continued, humans could no longer index more than a fraction of it, and indexing fell out of use as a method of content organization. Green, *supra*, at 127. Although web directories still exist, many directories rapidly evolved and began "licens[ing] search engine indexes to provide secondary results whenever their human-compiled directory fail[ed] to produce matching results to the user's query." *Id.* at 125.

On top of the difficulty of sheer scale, web directories also inherently contained "qualitative decision[s] concerning the content on each listed Web site," because human editors compiled and categorized the directories. *Id.*; *cf.* Open Directory Project, *Lear[n] All About Our Directory*, http://odp.org/about.html (last visited Jan. 18, 2023) (former DMOZ web directory editors explaining that DMOZ directory was "maintained by volunteer editors who were topical experts who had a personal interest in the categories they edited"). Compilations also sometimes relied on users' participation, such as by submitting websites for potential inclusion in the directory. *See, e.g.*, Jasmine

Directory, https://www.jasminedirectory.com/ (last visited Jan. 18, 2023) (currently active directory instructing users "[t]o submit a website, please select one of the categories listed below and click on the . . . menu 'Submit' link"). And once an editor included a webpage in the directory, that webpage would remain listed unless an editor "manually removed" it. Green, *supra*, at 125. All of that made inclusion, categorization, and description a matter of individual judgment—and sometimes inertia.

This reliance on human editors, especially on anonymous volunteers, made web directories susceptible not only to "poor editing" and "honest editorial mistakes," but also to editorial abuse. *See* DMOZ, Archive of Meta Editor Guidelines, https://web.archive.org/web/20090123062946/http://www.dmoz.org/guidelines/meta/abuse.html (last visited Jan. 18, 2023). For example, editors with a business interest might try "[u]nfairly listing one's own site or affiliated sites" and "[m]anipulating or deleting submissions and listings of competitors." *Id.*

B. Chronological and reverse-chronological content organization

When they first emerged, digital-service operators that offered access to content provided by others tended to organize that content in either chronological or reverse-chronological order. Chris Meserole, *How do recommender systems work on digital platforms?*, Brookings Inst.: TechStream (Sept. 21, 2022), https://www.brookings.edu/techstream/how-do-recommender-systems-work-on-digital-platforms-social-media-recommendation-algorithms/. This organization method had the virtues of simplicity and easy implementation. Many highly popular social media sites adopted it

initially.[6] Indeed, chronological organization was used so widely in the first years of social media websites and applications that social media feeds are still often colloquially called "timelines." Meserole, *supra.*

Although some digital services still allow users to view content organized by time,[7] many have shifted to other content-organization methods because, although the amount of content available on these services "gr[ew] exponentially," users' "free time d[id] not."[8] Meserole, *supra*; *see also* Mosseri, *supra* note 6 ("[A]s more people joined and more was shared, it became impossible for most people to see everything, let alone all the posts they cared about. By 2016, people were missing 70% of all their posts in Feed, including almost half of posts from their close connections."). Not only did it become nearly impossible to read everything in the chronologically organized "timeline," it became harder even to *find* the most relevant content in the stream. Timelines could become "biased to the most

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[6] *See, e.g.*, Adam Mosseri, *Shedding More Light on How Instagram Works*, Instagram Blog (June 8, 2021), https://about.instagram.com/blog/announcements/shedding-more-light-on-how-instagram-works ("When we first launched in 2010, Instagram was a single stream of photos in chronological order.").

[7] Twitter, *About your Home timeline on Twitter*, https://help.twitter.com/en/using-twitter/twitter-timeline (last visited Jan. 18, 2023) (explaining that users may choose to view "the latest Tweets first in [their] timeline"); Ramya Sethuraman, *More Control and Context in News Feed*, Facebook (Mar. 31, 2021), https://about.fb.com/news/2021/03/more-control-and-context-in-news-feed/ (explaining that users may choose to view content "sorted chronologically with the newest posts first").

[8] Meta, *Our approach to ranking* (Dec. 16, 2022), https://transparency.fb.com/features/ranking-and-content/ ("Because most people have more content in their Feed than they could possibly browse in one session, we use an algorithm to determine the order of all of the posts you could see.").

active users rather than the most interesting ones" if active users "flood[ed] the platform with new content in a bid to stay at the top of other users' feeds." Meserole, *supra*.

C. Manually crafted rules to organize recent content based on attributes or categories

In part to address this phenomenon of bias toward the most active users, digital-service operators began manually creating specific prioritization rules. *Id.* These "hand-coded rules" allowed operators "to prioritize among the most recent content," rather than just always displaying the most recent post first. *Id.* For instance, an operator could manually create a rule that users who "like" videos over photographs should be shown video content before other types of content. *Id.* But as with the indexing method, this method's reliance on human developers to write the rules, one by one, created "biase[s] toward developers' assumptions about what users are most interested in viewing." *Id.* The ever-increasing scale of content presented a challenge, too, as it had for indexing and chronological methods: the more content in the stream, the more rules were necessary to sort the most recent posts in any coherent way. And the "more rules are manually added, each incremental new rule will be less effective and make the codebase more difficult to maintain." *Id.*

Thus, as neither indexing nor strict chronology nor manually crafted rules successfully met the challenge of massive volume, developers turned to more sophisticated and scalable methods. As discussed below, these methods relied more heavily on algorithms and machine learning, rather than manual coding, but they use the same computerized tools to respond to the

same organizational problem—ever-growing scale—that dates back to the first web directories.

II. As content grew rapidly, digital-service operators had to develop more sophisticated ways to organize content.

A. An overview of common content-organization methods

Digital-service operators have begun relying on more complex content-organization methods that better account for users' interests and preferences. These methods tend to rely on algorithms in the software code "to help mitigate information overload"—*i.e.*, to tackle the problem of organizing content at scale. Michael D. Ekstrand et al., *All the Cool Kids, How Do They Fit In?*, 81:1-15 Proc. of Mach. Learning Rsch. 1, 1 (2018), http://proceedings.mlr.press/v81/ekstrand18b/ekstrand18b.pdf. Many content-organization methods today use a mixture of (1) knowledge-based organization, (2) content-based organization, and (3) collaborative-filtering or deep-learning organization. Spandana Singh, *Why Am I Seeing This?*, New Am. (Mar. 25, 2020), https://www.newamerica.org/oti/reports/why-am-i-seeing-this/an-overview-of-algorithmic-recommendation-systems.[9]

[9] *See also* Maxim Naumov & Dheevatsa Mudigere, *DLRM: An Advanced open source deep learning recommendation model*, MetaAI (July 2, 2019), https://ai.facebook.com/blog/dlrm-an-advanced-open-source-deep-learning-recommendation-model/ (explaining that Facebook's deep learning recommendation model "advances on other models by combining principles from both collaborative filtering and predictive analytics-based approaches").

1. Algorithms

Algorithms are ubiquitous in modern life. In part because they help run complex systems and machines, algorithms are sometimes seen as carrying some element of "mystery." *In re Iwahashi*, 888 F.2d 1370, 1374 (Fed. Cir. 1989). But at their core, algorithms are merely "instructions for solving a problem or completing a task." Lee Rainie & Janna Anderson, *Code-Dependent: Pros and Cons of the Algorithm Age*, Pew Rsch. Center (Feb. 8, 2017), https://www.pewresearch.org/internet/2017/02/08/code-dependent-pros-and-cons-of-the-algorithm-age/.

Algorithms serve as the backbone of algorithmic processing, a "wide variety of automated systems that collect and process data." Digital Regulation Cooperation Forum, *The benefits and harms of algorithms* (Sept. 23, 2022), https://www.gov.uk/government/publications/findings-from-the-drcf-algorithmic-processing-workstream-spring-2022/the-benefits-and-harms-of-algorithms-a-shared-perspective-from-the-four-digital-regulators. Algorithmic processing can be used in a wide range of contexts from reducing background noise in hearing aids to translating a foreign news site into English. *Id.* Indeed, algorithmic processing "is already being woven into many digital products and services." *Id.* In other words, the technological tools used to organize Internet content for display can be the same technology that underlies many modern technological innovations.

The improved use of algorithms in digital services has led to "efficiency gains across the public and private sectors." *Id.* To take just one example, in the music industry, streaming has allowed artists and labels to reach listeners around the world just as easily as they

reach local audiences.[10] Algorithms are a key aspect of how users discover new music without having to search or browse for it manually by name or genre.[11] In short, algorithms have become key to unlocking the value of digital services, not just for the consumers who use them but for artists, writers, and other content creators seeking to reach new audiences.

2. Knowledge-based content-organization methods

Knowledge-based content-organization methods "make suggestions based on the attributes of a user and an item." Singh, *supra.* These systems generally "rely on data-mining methods and advanced natural language processing . . . to identify and evaluate an item's attributes" before identifying whether any users have expressed preferences for items with those attributes. *Id.* In other words, this method considers

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[10] *See, e.g.*, Spotify, *Spotify's Top 10 Takeaways on the Economics of Music Streaming and 2021 Royalty Data* (Mar. 24, 2022), https://newsroom.spotify.com/2022-03-24/spotifys-top-10-takeaways-on-the-economics-of-music-streaming-and-2021-royalty-data. ("Streaming has lowered the barriers to entry to music and accelerated the path to finding a global fan base[.]"); Noah Kellman, *Why your YouTube community might just be your greatest artistic muse*, YouTube Official Blog (Nov. 14, 2022), https://blog.youtube/creator-and-artist-stories/noah-kellman-dream-cycles-album-single-debut-community/ ("Because YouTube has provided a platform for fostering a community that already knows and trusts you for your consistent dedication to good content—people will support you, your art and your endeavors." (emphasis omitted)).

[11] *See, e.g.*, Rishabh Mehrotra, *Algorithmic Balancing of Familiarity, Similarity, & Discovery in Music Recommendations*, Spotify (Nov. 2021), https://research.atspotify.com/publications/algorithmic-balancing-of-familiarity-similarity-discovery-in-music-recommendations/.

whether preferences a user has expressed, such as a preference for watching high-definition (HD) films, overlap with attributes of a certain product, such as a television with HD-functionality, and suggests relevant products based on this overlap. *Id.* At the same time, because this method of content organization seldom considers a user's past behavior, it is more effective when interacting with new users or new items. *Id.*

3. Content-based content-organization methods

In contrast, content-based content-organization methods consider whether the attributes of a specific item are similar to attributes of a different item that previously interested the user. *Id.* These methods consider whether a user has rated an item or otherwise expressed interest in it to create a profile of that user's interests and preferences. *Id.* The methods then compare these profiles to items to determine if users would be interested in a specific item. *Id.* When considering users' preferences, these methods look to the users' previous interactions, not other users' interests or interactions. *Id.*

4. Content-organization methods using machine learning

Collaborative-filtering and deep-learning content-organization methods are similar to content-based methods but use machine learning to consider the interests and activity of other users when organizing content. *Id.*; Meserole, *supra*. Put differently, these methods "make automated predictions" about a given user's interests based on the interests of similar

users.[12] Singh, *supra*. Through machine learning, these methods "'learn[]' what content users will find compelling and [] surface it for them." Meserole, *supra*. This method of content organization accordingly provides a seamless, satisfying user experience.

B. How websites and applications organize third-party content

Making a digital service useful to users generally requires the service to organize and curate the content in some way. Although content-organization methods vary, many digital services use methods that function by (1) creating an inventory; (2) filtering that inventory, including through moderation where appropriate; and (3) ranking and re-ranking content. The result is a presentation of content customized to the user.

1. *Inventory creation.* The first step of many content-organization methods requires digital-service operators to create an inventory of all content that they may show to a user. Meserole, *supra*. On sites and applications that offer licensed content, such as video- or music-streaming sites and applications, the initial inventory may simply be all the content these sites and applications have licensed for the relevant users to see

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[12] *See* Cristos Goodrow, *On YouTube's recommendation system*, YouTube Official Blog (Sept. 15, 2021), https://blog.youtube/inside-youtube/on-youtubes-recommendation-system/ ("Our system [] compares your viewing habits with those that are similar to you and uses that information to suggest other content you may want to watch."); Larry Hardesty, *The history of Amazon's recommendation algorithm*, Amazon Science (Nov. 22, 2019), https://www.amazon.science/the-history-of-amazons-recommendation-algorithm (explaining that collaborative filtering "predicts a given customer's preferences on the basis of other customers' [preferences]").

or hear.[13] This inventory may include more than one hundred million videos, songs, or podcasts.[14] On a social networking site, this content can include posts or uploads (such as videos, songs, or images) from other people in the user's network, or content that other users have "liked" or shared.[15] Meserole, *supra*. That inventory may be large: with the growth of social media and media sharing, hundreds of hours of videos and billions of photographs are shared on websites and applications daily. Pique et al., *supra* n.5; *see also* YouTube, *YouTube for Press*, https://blog.youtube/press/ (last visited Jan. 18, 2023). Creating this inventory is one of the main innovations that separated modern digital services from predecessors such as Myspace and

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[13] *See, e.g.*, Netflix, *Why isn't a TV show or movie available in your country?*, https://help.netflix.com/en/node/125345 (last visited Jan. 18, 2023) (explaining that availability may differ across regions and countries); HBO Max, *Watch HBO Max while traveling*, https://help.hbomax.com/us/Answer/Detail/000001307 (last visited Jan. 18, 2023) (same).

[14] Spotify, *About Spotify*, https://newsroom.spotify.com/company-info/ (last visited Jan. 18, 2023) (noting that there are "over 80 million tracks" and "4.7 million podcasts"); Apple, *Celebrating 100 million songs* (Oct. 3, 2022), https://www.apple.com/newsroom/2022/10/celebrating-100-million-songs/.

[15] *See, e.g.*, Mosseri, *supra* n.6 (Instagram inventory consists largely of posts and may include advertisements); Facebook Help Center, *How Feed Works*, https://www.facebook.com/help/1155510281178725/ (last visited Jan. 18, 2023) (Facebook inventory includes posts from friends, friends' interactions with others' posts, and updates from people and Pages the user follows); *Our approach to ranking*, *supra* n.8 ("The first item the algorithm considers is your inventory, or the total set of posts you could see when you open Facebook. This includes all the posts shared by the people you have connected to as 'friends,' the Pages you follow and the Groups you have joined, interspersed with ads and recommended content we think will be relevant to you based on your Facebook activity.").

Friendster, whose users had to hunt down content that their friends posted, individual page by individual page.

2. *Filtering the inventory*. Once the digital-service operators have compiled their inventory, many operators narrow the millions of pieces of content to "a more manageable number" through "candidate generation" or "retrieval." Meserole, *supra*. Because "ranking every piece of content in the inventory would be prohibitively expensive and time intensive, most [services] instead rely on . . . an 'approximate nearest neighbor' (ANN) search." *Id.* ANN searches sift through available content and identify a smaller subset that may interest a user. *Id.*; Philip Sun, *Announcing ScaNN: Efficient Vector Similarity Search*, Google Rsch. Blog (July 28, 2020), https://ai.googleblog.com/2020/07/announcing-scann-efficient-vector.html (explaining that "the nearest neighbor search problem" requires "the system [to] first map the query to the embedding space" and "find, among all database embeddings, the ones closest to the query").[16]

Throughout the inventory creation and filtering process, many digital-service operators check that the inventory's contents do not violate content moderation policies. Meserole, *supra*. Although the application of these moderation policies varies by digital service, they generally prohibit, among other things, violent or dangerous content, spam, bullying, harassment, and

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[16] *See, e.g.*, Hervé Jegou et al., *Faiss: A library for efficient similarity search*, Engineering at Meta (Mar. 29, 2017), https://engineering.fb.com/2017/03/29/data-infrastructure/faiss-a-library-for-efficient-similarity-search/ (explaining Facebook "built nearest-neighbor search implementations for billion-scale data sets" and that Facebook's library allows for "quick[] searches for multimedia documents that are similar to each other").

sensitive or graphic content, which may include content about self-harm or harm to children.[17]

Given the vast amount of content uploaded to websites and applications each day, digital-service operators rely on machine- and human-review procedures, including machine-learning-based systems, to flag content that may violate their moderation policies—for instance, violent or graphic images.[18] The machine-learning systems detect patterns, predict whether certain content violates the service's rules, and can even help digital-service operators remove violative content before users have viewed it.[19] Additionally,

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[17] *See, e.g.*, YouTube, *Community Guidelines*, https://www.youtube.com/howyoutubeworks/policies/community-guidelines/#community-guidelines (last visited Jan. 18, 2023); Meta, *Facebook Community Standards*, https://transparency.fb.com/policies/community-standards/ (last visited Jan. 18, 2023).

[18] *See, e.g.*, YouTube, *Community Guidelines: Enforcing Community Guidelines: Detecting Violations*, https://www.youtube.com/howyoutubeworks/policies/community-guidelines/#detecting-violations (last visited Jan. 18, 2023) (explaining that YouTube "use[s] a combination of people and machine learning to detect problematic content at scale"); Meta, *Detecting violations*, https://transparency.fb.com/enforcement/detecting-violations/ (last visited Jan. 18, 2023) ("Our technology proactively detects and removes the vast majority of violating content before anyone reports it.").

[19] *See, e.g.*, *Community Guidelines: Enforcing Community Guidelines: Detecting Violations*, *supra* n.18 ("Machine learning is well-suited to detect patterns, which helps us to find content similar to other content we've already removed, even before it's viewed."); Meta, *How technology detects violations* (Jan. 19, 2022), https://transparency.fb.com/enforcement/detecting-violations/technology-detects-violations/ (explaining that Meta "remove[s] millions of violating posts and accounts every day on Facebook and Instagram" "often before anyone sees it"); Meta, *How enforcement technology works* (Jan. 19, 2022), https://transparency.fb.com/enforcement/detecting-violations/how-enforcement-technology-works

users who encounter potentially violative content that the machine-learning systems have not flagged may report or flag this content directly to the digital service.[20] Digital services have invested heavily in the human and technological resources needed to accurately and effectively identify content that violates their rules.[21]

3. *Ranking and re-ranking content.* Once they have narrowed the remaining content, many digital-service operators rank it so that content that is likely to be more interesting to a user is displayed more prominently than content that is less interesting.[22]

(explaining that "enforcement technology" examines content that AI models have flagged to "determine[] whether to take an action, such as deleting, demoting or sending the content to a human review team for further review").

[20] *See, e.g.*, *Community Guidelines: Enforcing Community Guidelines: Detecting Violations*, *supra* n.18 ("The YouTube community also plays an important role in flagging content they think is inappropriate."); *How technology detects violations*, *supra* n.19 (noting that Facebook users can report content).

[21] Kent Walker, *Four steps we're taking today to fight terrorism online*, Google: The Keyword (June 18, 2017), https://blog.google/around-the-globe/google-europe/four-steps-were-taking-today-fight-online-terror/ (Google's General Counsel explaining Google and YouTube's commitment to removing extreme content); Mosseri, *supra* n.6 ("If you post something that goes against our [Instagram's] Community Guidelines and we find it, we take it down.").

[22] *Our approach to ranking*, *supra* n.8 (explaining that "the [Facebook] algorithm calculates a relevance score for each post in your inventory based on [] signals and predictions" and that "[p]osts with higher scores are more likely to be interesting to you, so they'll be placed closer to the top of your Feed, and posts with lower scores will be closer to the bottom"); Netflix, *How Netflix's Recommendations System Works*, https://help.netflix.com/en/node/100639 (last visited Jan. 18, 2023) (describing how Netflix

Meserole, *supra*. Digital-service operators estimate how interested a given user will be in specific content based on their previous interactions with other content and the interests and activities of similar users.[23] *See supra* Section II.

"estimate[s] the likelihood that you will watch a particular title in our catalog").

[23] Hulu, *Personalization Features on Hulu* (Jan. 4, 2023), https://help.hulu.com/s/article/personalized-recommendations (explaining that Hulu considers, among other factors, users' "watch history," "likes," and "dislikes"); Facebook, *New Ways to Customize Your Facebook Feed* (Oct. 5, 2022), https://about.fb.com/news/2022/10/new-ways-to-customize-your-facebook-feed/ (allowing users to "select Show more or Show less on posts" to increase or decrease, respectively, "the ranking score for that post and posts like it"); *Our approach to ranking*, *supra* n.8 (explaining that Facebook's "algorithm considers multiple factors such as who posted it; how you have previously interacted with that person; whether it's a photo, a video, a link; and how popular the post is based on things like how many of your Friends liked it, Paged that re-shared it, etc."); Goodrow, *supra* n.12 (explaining that "[YouTube's] system [] compares your viewing habits with those that are similar to you and uses that information to suggest other content you may want to watch" and that YouTube also considers signals such as "clicks, watchtime, survey responses, sharing, likes, and dislikes" to determine what users find interesting); *How Netflix's Recommendations System Works, supra* n.22 (listing factors, including users' "interactions with our service" and "other members with similar tastes and preferences on our service"); Amazon, *Recommendations*, https://www.amazon.com/gp/help/customer/display.html?nodeId=GE4KRSZ4KAZZB4BV (last visited Jan. 18, 2023) (explaining that Amazon determines what may interest users based on "the items [they have] purchased, items [they have] told us [they] own, and items [they have] rated" and by "compar[ing] [their] activity on our site with that of other customers"); HBO Max, *Getting around the HBO Max app*, https://help.hbomax.com/us/Answer/Detail/000001273 (last visited Jan. 18, 2023) (noting that "For You" section displays shows and movies "based on what you've watched in the past"); *cf.* Amazon Ads, *The basics of success: Understanding sponsored ads*, https://ad

Because many content-organization methods "rank individual items on their own rather than the feed overall," for many sites and applications, "the final ranked list may include a particular type of content," such as video content, "too many times in a row" or include content posted by the same user repeatedly. Meserole, *supra.* To "ensure a diversity of content types and authors appear" on a user's feed, many digital-service operators use hand-coded rules to re-rank content. *Id.*[24]

For digital services that moderate content, the re-ranking process can also include demoting "borderline" content that narrowly does not meet the digital-service operator's threshold for removing it, or content that is not helpful, [25] such as sensationalist "clickbait." Most

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vertising.amazon.com/library/guides/basics-of-success-sponsored-ads (last visited Jan. 18, 2023) (noting that sponsored ads "target shopping queries or products" and can "help promote specific products in shopping results and relevant product pages"); T-Mobile Privacy Center, *Personalized Ads and Offers*, https://www.t-mobile.com/privacy-center/education/personalized-ads-offers.html (last visited Jan. 18, 2023) (explaining how T-Mobile "make[s] ads more relevant" for users).

[24] *See, e.g.*, Mosseri, *supra* n.6 (explaining that Instagram "tr[ies] to avoid showing too many posts from the same person in a row").

[25] Susan Wojcicki, *Preserving openness through responsibility*, YouTube Official Blog (Aug. 27, 2019), https://blog.youtube/inside-youtube/preserving-openness-through-responsibility/ (YouTube "reduce[s] the spread of content that brushes right up against our policy line" (capitalization altered)); Google Search Central, *Google Search's helpful content update and your website*, https://developers.google.com/search/updates/helpful-content-update (last visited Jan. 18, 2023) (explaining that, under Google Search's "helpful content update" "content that doesn't meet a visitor's expectations won't perform as well" in Google Search); *Our approach to ranking*, *supra* n.8 ("We also use Feed ranking to reduce the distribution of posts that may contain content that people find objectionable, but don't necessarily meet the bar of removal under our policies. If a

users do not wish to view or interact with borderline or otherwise problematic content, and most pieces of content hosted on digital services' websites or applications are not classified as borderline.[26] On the other hand, borderline content generally receives most of its views from outside of digital services' content-organization methods, meaning that people who view this content generally have actively sought it out.[27]

These three steps of content organization create customized user experiences. The user can then decide for herself what content to engage with.

III. Section 230 protects the use of these methods of organizing content.

What petitioners call "targeted recommendations" are actually not recommendations in the ordinary

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post is likely to contain misinformation, a sensationalized health claim, or clickbait, for example, it will receive a lower value score and appear lower in Feed as a result.").

[26] *See* Goodrow, *supra* n.12 ("[T]hrough surveys and feedback, we've found that most viewers do not want to be recommended borderline content, and many find it upsetting and off-putting."); The YouTube Team, *The Four Rs of Responsibility, Part 2*, YouTube Official Blog (Dec. 3, 2019), https://blog.youtube/inside-youtube/the-four-rs-of-responsibility-raise-and-reduce/ (noting that borderline content "is a fraction of 1% of what's watched on YouTube in the U.S."); Meta, *Content Borderline to the Community Standards*, https://transparency.fb.com/features/approach-to-ranking/content-distribution-guidelines/content-borderline-to-the-community-standards (last visited Jan. 18, 2023) ("Some types of content, although they do not violate the letter of our Community Standards, are sensationalist or provocative and can bring down the overall quality of discourse on our platform, especially because people have frequently told us that they do not like encountering these forms of content.").

[27] *See* Goodrow, *supra* n.12 ("Today, borderline content [on YouTube] gets most of its views from sources other than non-subscribed recommendations.").

sense. They are merely the results of using dynamic content organization to make digital services more user-friendly. A digital-service operator simply identifying a certain video, photograph, or other form of content as a possible next pick for that user does not amount to that operator's affirmative endorsement of that content as "terrific" (Pet. Br. 31). Nor does this mere identification mean digital-service operators create or develop the third-party content they organize. They instead employ content-organization methods that are just that—ways of organizing vast amounts of third-party content personalized for a particular user or set of users. *See supra* Section II. Petitioners wrongly conflate content organization with content recommendation (Pet. Br. 21–29, 42–47). But digital-service operators simply display to users an arrangement of the available content, with the organization based on a variety of criteria that often depend on how the users have previously engaged with the service. Although organization methods like reverse chronology were previously the norm, more advanced methods, including methods that account for users' preferences, ensure that users see the content that is most relevant to them. It is a question of personalization, not recommendation. In these instances, the results are driven by the users' choices, not the operators'.

Section 230 protects providers of "interactive computer service[s]" from liability "as the publisher or speaker" of content that the services did not develop or create. 47 U.S.C. § 230(c)(1). The statute defines an "interactive computer service" as "any information service, system, or access software provider that provides or enables computer access by multiple users to a computer service" and includes tools that "pick,

choose, analyze, . . . display, forward, cache, search, subset, organize, reorganize, or translate content." *Id.* § 230(f)(2), (4).

This is precisely what digital services' content-organization methods do: they "pick, choose," "search, subset, organize, [and] reorganize" content that third parties provide so that users encounter the pieces of content that are most relevant to the users. *See id.* § 230(f)(4). Displaying and organizing content that is responsive to users' input and relevant to their interests does not transform third-party content into digital-service operators' content. *See, e.g.*, *Gonzalez v. Google LLC*, 2 F.4th 871, 897 (9th Cir. 2021) ("Congress affirmatively immunized interactive computer service providers that publish the speech or content of others."); *Force v. Facebook, Inc.*, 934 F.3d 53, 68 (2d Cir. 2019) (noting that Section 230's "Congressional statements all point to the benefits of interactive media and 'publisher' immunity to interactive computer services when they arrange and transmit information provided by others"). Indeed, a contrary reading would render Section 230(f)(4) superfluous. And accepting petitioners' theory would ignore the realities of content-organization methods and erase the line between mere organization and affirmative endorsement. *See Force*, 934 F.3d at 66 ("Accepting plaintiffs' argument would eviscerate Section 230(c)(1); a defendant interactive computer service would be ineligible for Section 230(c)(1) immunity by virtue of simply organizing and displaying content exclusively provided by third parties."). This Court should reject that interpretation and allow Section 230 to do what Congress intended: "to promote the continued development of . . . interactive computer services" and "preserve the vibrant and competitive free market," 47 U.S.C. § 230(b)(1)–(2).

CONCLUSION

The judgment of the court of appeals should be affirmed.

Respectfully submitted.

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