

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

**FOR THE FISCAL YEAR ENDED December 31 , 2022
OR**

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

FOR THE TRANSITION PERIOD FROM _____ to _____



**Registrant; State of Incorporation;
Address and
Telephone Number**

Commission File Number

001-32871

I.R.S. Employer Identification No.

27-00000798

COMCAST CORPORATION

**Pennsylvania
One Comcast Center
Philadelphia , PA 19103-2838
(215) 286-1700**

SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE ACT:

Title of Each Class	Trading symbol(s)	Name of Each Exchange on Which Registered
Class A Common Stock, \$0.01 par value	CMCSA	The Nasdaq Stock Market LLC
0.000% Notes due 2026	CMCS26	The Nasdaq Stock Market LLC
0.250% Notes due 2027	CMCS27	The Nasdaq Stock Market LLC
1.500% Notes due 2029	CMCS29	The Nasdaq Stock Market LLC
0.250% Notes due 2029	CMCS29A	The Nasdaq Stock Market LLC
0.750% Notes due 2032	CMCS32	The Nasdaq Stock Market LLC
1.875% Notes due 2036	CMCS36	The Nasdaq Stock Market LLC
1.250% Notes due 2040	CMCS40	The Nasdaq Stock Market LLC
5.50% Notes due 2029	CCGBP29	New York Stock Exchange
2.0% Exchangeable Subordinated Debentures due 2029	CCZ	New York Stock Exchange

SECURITIES REGISTERED PURSUANT TO SECTION 12(g) OF THE ACT:

NONE

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (\$232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See definition of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act:

<input type="checkbox"/> Large accelerated filer	<input checked="" type="checkbox"/> Accelerated filer	<input type="checkbox"/> Non-accelerated filer	<input type="checkbox"/> Smaller reporting company	<input type="checkbox"/> Emerging growth company
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If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes No

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1 (b).

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No
As of June 30, 2022, the aggregate market value of the Comcast Corporation common stock held by non-affiliates of the registrant was \$ 171.716 billion.

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date:
As of January 15, 2023, there were 4,206,611,953 shares of Comcast Corporation Class A common stock and 9,444,375 shares of Class B common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Comcast Corporation – Part III – The registrant's definitive Proxy Statement for its annual meeting of shareholders.

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Explanatory Note

This Annual Report on Form 10-K is for the year ended December 31, 2022. This Annual Report on Form 10-K modifies and supersedes documents filed before it. The U.S Securities and Exchange Commission ("SEC") allows us to "incorporate by reference" information that we file with it, which means that we can disclose important information to you by referring you directly to those documents. Information incorporated by reference is considered to be part of this Annual Report on Form 10-K. In addition, information that we file with the SEC in the future will automatically update and supersede information contained in this Annual Report on Form 10-K.

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Unless indicated otherwise, throughout this Annual Report on Form 10-K, we refer to Comcast and its consolidated subsidiaries, as "Comcast," "we," "us" and "our;" Comcast Cable Communications, LLC and its consolidated subsidiaries as "Comcast Cable;" Comcast Holdings Corporation as "Comcast Holdings;" NBCUniversal Media, LLC and its consolidated subsidiaries as "NBCUniversal;" and Sky Limited and its consolidated subsidiaries as "Sky."

This Annual Report on Form 10-K contains trademarks, service marks and trade names owned by us, as well as those owned by others.

Numerical information in this report is presented on a rounded basis using actual amounts. Minor differences in totals and percentage calculations may exist due to rounding.

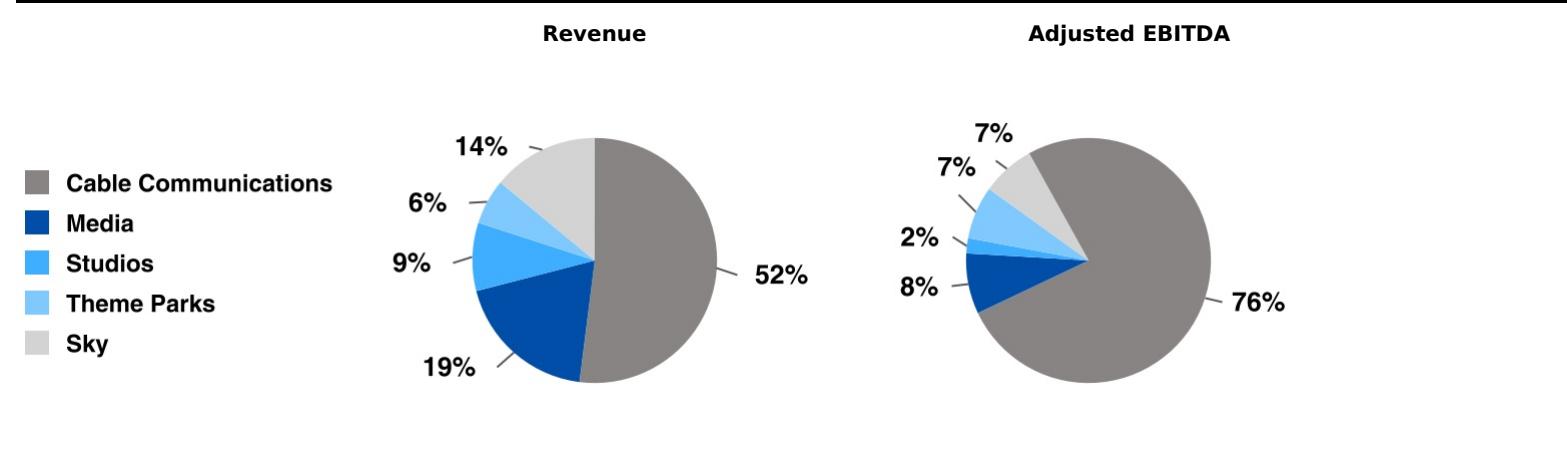
Part I

Item 1: Business

We are a global media and technology company with three primary businesses: Comcast Cable, NBCUniversal and Sky. We were incorporated under the laws of Pennsylvania in December 2001. Through our predecessors, we have developed, managed and operated cable systems since 1963. Through transactions in 2011 and 2013, we acquired NBCUniversal, and in 2018, we acquired Sky.

We present our operations in five reportable business segments: (1) Comcast Cable in one reportable business segment, referred to as Cable Communications; (2) NBCUniversal in three reportable business segments: Media, Studios and Theme Parks (collectively, the “NBCUniversal segments”); and (3) Sky in one reportable business segment.

2022 Consolidated Operating Results^(a)



(a) Charts exclude the results of NBCUniversal Headquarters and Other, Corporate and Other, and eliminations. Refer to our Management's Discussion and Analysis of Financial Condition and Results of Operations for additional information.

- **Cable Communications:** Consists of the operations of Comcast Cable, which is a leading provider of broadband, video, voice, wireless, and other services to residential customers in the United States under the Xfinity brand; we also provide these and other services to business customers and sell advertising.
- **Media:** Consists primarily of NBCUniversal’s television and streaming platforms, including national, regional and international cable networks; the NBC and Telemundo broadcast networks, NBC and Telemundo owned local broadcast television stations; and Peacock, our direct-to-consumer streaming service (“DTC streaming service”).
- **Studios:** Consists primarily of NBCUniversal’s film and television studio production and distribution operations.
- **Theme Parks:** Consists primarily of our Universal theme parks in Orlando, Florida; Hollywood, California; Osaka, Japan; and Beijing, China.
- **Sky:** Consists of the operations of Sky, one of Europe’s leading entertainment companies, which primarily includes a direct-to-consumer business, providing video, broadband, voice and wireless phone services, and a content business, operating entertainment networks, the Sky News broadcast network and Sky Sports networks.

Our other business interests consist primarily of the operations of Comcast Spectacor, which owns the Philadelphia Flyers and the Wells Fargo Center arena in Philadelphia, Pennsylvania, and other business initiatives.

For developments in our business and for financial and other information about our reportable business segments, refer to Item 7: Management’s Discussion and Analysis of Financial Condition and Results of Operations and Note 2 to the consolidated financial statements included in this Annual Report on Form 10-K.

Description of Our Businesses

Cable Communications Segment

Cable Communications offers broadband, video, voice, wireless, and other services in the United States individually and as bundled services at a discounted rate to residential and business customers. Revenue is generated primarily from residential and business customers that subscribe to our services and from the sale of advertising. We aim to meet the needs of various segments of our residential customer base by offering multiple levels of service within each of our stand-alone and bundled services. Our business services offerings are tailored to meet the needs of various segments of our business customer base, ranging from broadband services for small business locations to bundled services and solutions designed to meet the needs of medium-sized customers and larger enterprises.

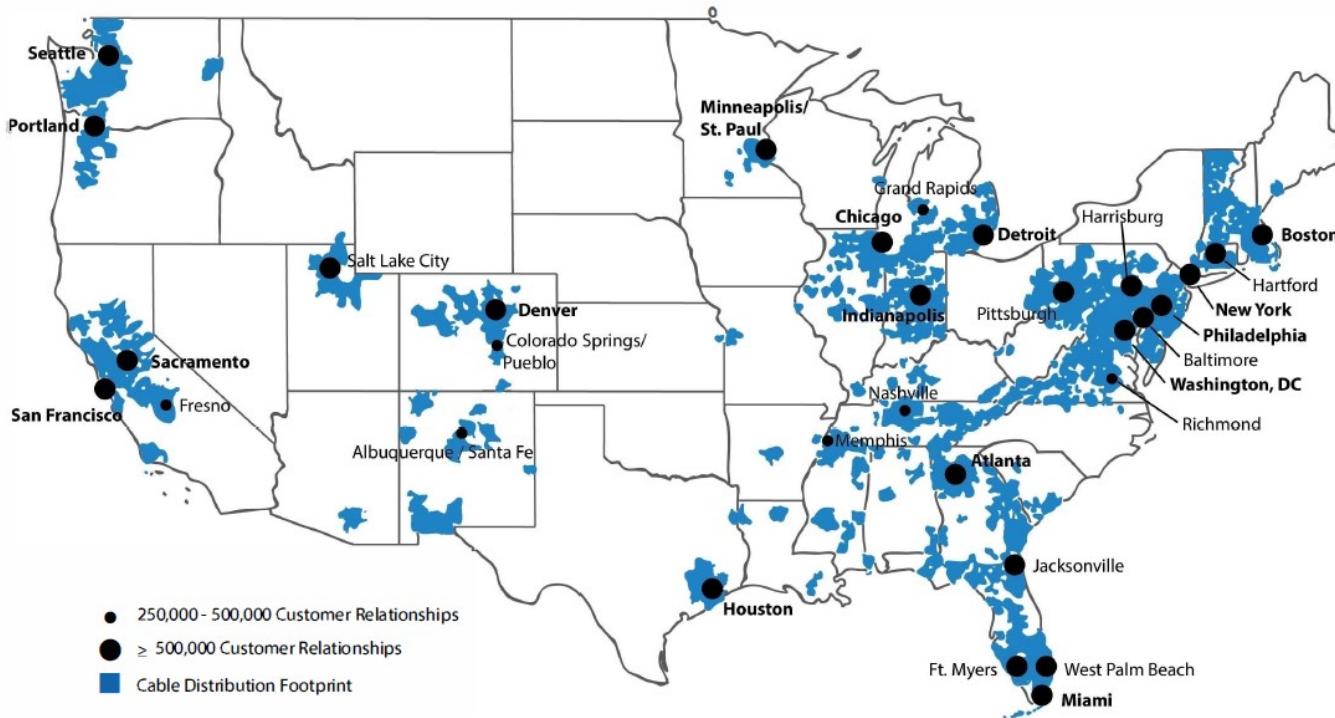
Customer Relationships and the Areas We Serve

All customer metrics included in this section are as of December 31, 2022.

(in millions)	December 31, 2022
Customer relationships	
Residential customer relationships	31.8
Business services customer relationships	2.5
Total customer relationships	34.3
Homes and businesses passed	
Total customer relationships penetration of homes and businesses passed	61.4
	56 %

Homes and businesses are considered passed if we can connect them to our cable distribution system without further extending the transmission lines and are estimated based on the best available information.

The map below highlights Cable Communications' cable distribution footprint and the designated market areas ("DMAs") where we have 250,000 or more customer relationships, with bolded locations representing one of the top 25 U.S. television DMAs as of December 31, 2022.



Residential

Broadband - 29.8 million customers

We offer broadband services over our hybrid fiber-optic and coaxial (“HFC”) cable network, featuring gigabit downstream speeds across nearly our entire footprint, as well as other advanced features and functionality. We continue to evolve and enhance the capabilities of our network. During 2022, we began rolling out multigigabit downstream speeds and increasing our upstream speeds by up to 5 to 10 times. We plan to make these speed increases available in the vast majority of our footprint by the end of 2025. We also plan to begin deploying DOCSIS 4.0 in the second half of 2023, which will enable us to deliver to our customers multigigabit symmetrical speeds (i.e. comparable upstream and downstream speeds). We will also continue to deploy fiber-to-the-premises in limited locations.

As part of our broadband service, we also offer our advanced, proprietary wireless gateways to customers that combine an internet modem with a Wi-Fi router to deliver reliable internet speeds and enhanced coverage through an in-and-out-of-home Wi-Fi network and xFi Pod plug-in devices that extend a customer’s in-home Wi-Fi coverage. Customers with wireless gateways may also personalize and manage their Wi-Fi network and connected home, and access advanced security technology and other features, with our xFi whole-home application and online portal. Broadband customers have access to our expanding network of secure residential, outdoor and business Wi-Fi hotspots nationwide. As part of our low-income broadband adoption program, we also offer qualifying customers Internet Essentials and Internet Essentials Plus, high-speed broadband services provided at discounted rates.

Broadband customers that prefer consuming content over the internet rather than via linear cable television are eligible to receive our Flex streaming device for no additional charge, which includes integrated search functionality and a voice-activated remote control. Flex also provides access to and the integration of streaming content from Peacock’s premium tier; certain third-party internet-based apps providing content and music such as DTC streaming services Disney+ and Netflix; and certain pay-per-view and video on demand content available over the internet. We earn commission revenue from the sale of certain third-party DTC streaming services.

Video - 15.6 million customers

We offer a broad variety of video services, primarily through our X1 platform, which provides integrated search functionality and a voice-activated remote control. The integrated features provided by X1 operate across content in customers’ cable video services packages and content from internet-based streaming services that customers may access in a manner similar to our Flex streaming device. Our video packages typically range from a basic cable service with access to between 20 and 65 channels to a full service with access to more than 300 channels. Customers may view programming live, record live programming through our digital video recorder (“DVR”) service or access our video on demand services with extensive programming choices such as television series, movies and special-events programming that are available for free or to rent or own digitally. These viewing options are also available through our mobile app and online portal.

We tailor our video packages based on particular programming preferences, demographics and geographic areas in accordance with applicable local and federal regulatory requirements, with programming generally inclusive of national broadcast networks, local broadcast stations, national and regional cable networks, government and public access programming, and premium channel subscriptions such as HBO and Showtime. We also offer packages with extensive amounts of foreign-language programming and other specialty tiers of programming.

Voice - 7.9 million customers

We offer voice services using interconnected Voice over Internet Protocol (“VoIP”) technology that provide either unlimited or usage-based local and domestic long-distance calling, as well as options for international calling plans, voicemail, readable voicemail, nuisance call blocking tools and various other features.

Wireless - 5.3 million lines

We offer wireless services for handsets, tablets and smart watches using mobile virtual network operator (“MVNO”) rights over Verizon’s wireless network, including its 5G technology and our existing network of secure residential, outdoor and business Wi-Fi hotspots. Wireless services are only offered as part of our bundled service offerings to residential customers that subscribe to our broadband services and to eligible small business customers on similar terms. Customers may activate multiple lines per account and choose to pay for services on an unlimited data plan, on shared data plans or per gigabyte of data used. Customers may either bring their own device or purchase devices from us with the option to pay upfront or finance the purchase interest-free over 24 months.

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Business Services

Business services customers may subscribe to a variety of products and services, including broadband services over our HFC cable network featuring gigabit downstream speeds, as well as fiber-to-the-premises that is capable of delivering speeds that range up to 100 gigabits per second. Our service offerings for small business locations primarily include broadband services, as well as voice and video services, that are similar to those provided to our residential customers; cloud-based cybersecurity services; wireless backup connectivity; advanced Wi-Fi solutions; video monitoring services; and cloud-based services for file sharing, online backup and web conferencing, among other uses. We also offer Ethernet network services, which connect multiple locations and provide higher downstream and upstream speed options to medium-sized customers and larger enterprises, advanced voice services, and video solutions for hotels and other large venues. In addition, we provide cellular backhaul services to mobile network operators to help manage their network bandwidth.

Our business services offerings for medium-sized and enterprise customers also include a software-defined networking product, and larger enterprises may also receive support services related to Wi-Fi networks, router management, network security, business continuity risks and other services. These services are primarily provided to Fortune 1000 companies and other large enterprises with multiple locations both within and outside of our cable distribution footprint, where we provide coverage outside of our service areas through agreements with other companies to use their networks.

Advertising

We generally receive an allocation of scheduled advertising time that our advertising business sells to local, regional and national advertisers as part of our distribution agreements with cable networks, and we also generate revenue from selling advertising on our digital platforms. Our advertising business also represents the advertising sales efforts of other multichannel video providers in some markets and offers additional technology, tools, data-driven services and marketplace solutions to customers in the media industry to facilitate the more effective engagement of advertisers with their target audiences.

Other

Our security and automation services provide home monitoring services and the ability to manage other functions within the home, such as lighting and room temperature, through our online portal, mobile apps and the X1 platform. We also license our technology platforms to other multichannel video providers.

Network and Technology

Our Cable Communications cable distribution system uses a HFC cable network that we believe is sufficiently flexible and scalable to support our future technology requirements and enables us to continue to grow capacity and capabilities over time. This network provides the two-way transmissions that are essential to providing broadband and connectivity services, interactive video and entertainment services, and other interactive services to our residential and business customers. Cable Communications currently deploys broadband services, primarily leveraging DOCSIS 3.1, to offer gigabit downstream speeds to residential and business services customers across nearly our entire footprint. Our network also includes fiber-to-the-premises in limited locations to offer multigigabit symmetrical speeds to certain residential and business services customers.

We continue to evolve and enhance the capabilities of our network. During 2022, leveraging DOCSIS 3.1, we began rolling out multigigabit downstream speeds and increasing our upstream speeds by up to 5 to 10 times. We plan to make these speed increases available in the vast majority of our footprint by the end of 2025. We also plan to begin deploying DOCSIS 4.0 in the second half of 2023, which will enable us to deliver to our customers multigigabit symmetrical speeds over their existing connections. Additionally, as part of our network evolution, we have been virtualizing and automating many core network functions in order to expand capacity and increase operating efficiency and to identify and fix network issues proactively before they affect our customers. We continue to extend our network's reach to new homes and businesses within our existing service areas and into new service areas to expand the number of homes and businesses passed. We also have begun to partner with local, state and federal agencies when possible to provide services to unserved communities leveraging governmental subsidies where available.

Cable Communications continues to focus on technology initiatives to design, develop and deploy next-generation media, content delivery, content aggregation and streaming platforms that support X1 and Flex and our cloud DVR technology. These platforms are based on our global technology platform, which integrates linear television networks, owned and third-party DTC streaming services and other internet-based apps, and on demand content in one unified experience with voice-activated remote control search and interactive features. We also continue to focus on leveraging our own cloud network services to deliver video and advanced search capabilities.

Cable Communications also pursues technology initiatives related to broadband and wireless services that also leverage our global technology platform, providing customers with in-and-out-of-home Wi-Fi, the ability to manage their Wi-Fi network and connected home with our xFi whole-home application and online portal, advanced security technology and other features.

Sources of Supply and Other Operations

To offer video services, Cable Communications licenses substantial amounts of programming from cable and broadcast networks, as well as from local broadcast television stations. The fees associated with these programming distribution agreements are generally based on the number of subscribers who are able to watch the programming and the platforms on which the content is provided. We seek to include in distribution agreements the rights to offer such programming through multiple delivery platforms, such as through our On Demand service, online portal, mobile apps and Flex.

For wireless services, we have an MVNO agreement that allows us to offer services using Verizon's wireless network and we purchase from a limited number of suppliers a significant number of wireless handsets, tablets and smart watches ("wireless devices") that we sell to wireless customers.

Cable Communications purchases from a limited number of suppliers a significant amount of customer premise equipment, including wireless gateways and set-top boxes, network equipment and services to provide services to residential and business customers.

Cable Communications uses two primary vendors to provide customer billing for our residential and business customers.

Cable Communications offers services directly to residential and business customers through customer service teams, retail stores, customer service centers, websites, door-to-door selling, telemarketing and third-party outlets, as well as through advertising via direct mail, television and the internet. Our customer service teams also provide 24/7 call-answering capability and other services. Our technical services group performs various tasks, including installations, plant maintenance and upgrades to our cable distribution system. Customers can use self-service options and can perform self-installations for certain services.

Competition

Competition for Cable Communications' services consists primarily of telecommunications companies with fiber-based wireline networks and/or fixed wireless networks, DTC streaming and other over-the-top ("OTT") service providers, and direct broadcast satellite ("DBS") providers.

Residential

Broadband

Cable Communications competes with a number of companies offering internet services, including:

- wireline telecommunications companies
- wireless telecommunications companies
- municipal broadband networks and power companies
- satellite broadband providers

Certain wireline telecommunications companies such as AT&T, Frontier, Lumen and Verizon have built and are continuing to build fiber-based network infrastructure farther into their networks, which enables them to provide data transmission speeds that exceed those that can be provided with traditional copper digital subscriber line ("DSL") technology, and are offering services with these higher speeds in many of our service areas. Certain companies that offer DSL service have increased data transmission speeds, lowered prices or created bundled services to compete with our broadband services.

Various wireless companies are offering internet services using a variety of technologies, including 4G and 5G wireless broadband services and 5G fixed wireless networks. These networks work with devices such as smartphones, laptops, tablets, and mobile and fixed wireless routers, as well as wireless data cards.

Certain companies have launched fiber-to-the-premises networks that provide broadband services in certain areas in which we operate, and certain municipalities in our service areas are also building fiber-based networks.

Broadband-deployment funding initiatives at the federal and state level may result in other service providers deploying new subsidized internet access networks within our footprint. The availability of these and other offerings could negatively impact the demand for our broadband services.

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Video

Cable Communications competes with a number of different sources in the United States that provide news, sports, information and entertainment programming to consumers, including:

- DTC streaming and other OTT service providers including:
 - subscription-based services, such as Disney+ and Netflix, that offer online services that enable internet streaming and downloading of movies, television shows and other video programming
 - virtual multichannel video providers, such as Hulu + Live TV and YouTube TV, that offer streamed linear programming networks
- DBS providers, including DIRECTV and DISH Network, that transmit satellite signals to substantially all U.S. households to provide video programming and other information similar to our video services
- companies that have built and continue to build fiber-based networks that provide video services similar to ours and provide bundled offerings that include wireless phone services
- other providers that build and operate communications systems and services in the same areas that we serve, including those operating as franchised cable operators
- other companies, such as local broadcast television stations, that provide multiple channels of free over-the-air programming

Many of these competitors also have significant financial resources.

Voice

Cable Communications competes with wireless and wireline telecommunications providers, as well as other internet-based and VoIP service providers. Certain wireless and wireline telecommunications providers, such as AT&T and Verizon, have longstanding customer relationships, and extensive existing facilities and network rights-of-way. Others also have existing local networks and significant financial resources. In addition, we are increasingly competing with other telecommunications service providers as customers replace traditional wireline phone services with wireless and internet-based phone services.

Wireless

Cable Communications competes with national wireless service providers in the United States, including AT&T, T-Mobile and Verizon, which offer wireless service on both a stand-alone basis or along with other services as bundled offerings, as well as regional wireless service providers.

Business Services

Cable Communications primarily competes with a variety of wireline telecommunications companies and wide area network managed service providers. These companies either operate their own network infrastructure or use all or part of another carrier's network. We also compete with satellite operators that offer video services to businesses and VoIP companies that target businesses of all sizes.

Advertising

Cable Communications competes for the sale of advertising with other television networks and stations, as well as with all other advertising platforms, such as digital, radio and print media. Similar to the competitive environment in our Media segment, the willingness of advertisers to purchase advertising from us may be adversely affected by declines in audience ratings and television viewership and difficulty in measuring fragmented audiences. Cable Communications advertising is sold to local, regional and national advertisers, and competition is affected by the market conditions in the specific geographies in which we operate.

NBCUniversal Segments

NBCUniversal is one of the world's leading media and entertainment companies that develops, produces and distributes entertainment, news and information, sports, and other content for global audiences, and owns and operates theme parks in the United States and Asia.

Media Segment

NBCUniversal's television and streaming platforms primarily comprise our Media segment, including:

- National, regional and international cable networks
- NBC and Telemundo broadcast networks and owned local broadcast television stations
- Peacock, our DTC streaming service

NBCUniversal distributes a wide variety of content to appeal to consumers with varying preferences across demographics and geographic areas through our portfolio of television networks and streaming platforms. This content includes programming owned by NBCUniversal and by third parties who license it to us for distribution.

Media segment revenue is primarily generated from the sale of advertising on our television networks, Peacock and other digital properties, and from the distribution of our television and streaming platform programming. Media also generates revenue from content licensing and from various digital properties.

Our advertising sales are affected by the prices we charge for each advertising unit, which are generally based on the size and demographics of our viewing audiences, audience ratings on our television networks, the number of advertising units we can place in our programming and on our digital properties, and our ability to sell our advertising across our platforms.

We market and distribute cable network programming in the United States and internationally to multichannel video providers, including both traditional providers of linear programming and virtual providers who provide streaming services for linear programming. We also receive fees from multichannel video providers under NBC and Telemundo retransmission consent agreements and associated fees from NBC-affiliated and Telemundo-affiliated local broadcast television stations. Our programming distribution agreements are generally multiyear agreements with revenue based on the number of subscribers receiving the programming and the fees charged per subscriber. Certain Peacock subscribers are also charged a monthly subscription fee.

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Cable Networks

We operate a diversified portfolio of cable networks that provide a variety of entertainment, news and information, and sports content.

The table below presents a summary of NBCUniversal's national cable networks and their advertising reach to U.S. households.

Cable Network	Approximate U.S. Households as of December 31, 2022 (in millions) ^(a)	Description of Programming
USA Network	75	General entertainment and sports
E!	75	Entertainment and pop culture
Syfy	75	Imagination-based entertainment
Bravo	74	Entertainment, culture and arts
MSNBC	74	News, political commentary and information
CNBC	73	Business and financial news
Oxygen	64	Crime, mystery and suspense for women
Golf Channel	63	Golf competition and golf entertainment
Universal Kids	49	Children's entertainment
Universo	28	Spanish language entertainment
CNBC World	19	Global financial news

(a) Household data is based on information from The Nielsen Company as of December 31, 2022 using its Cable Coverage Universe Estimates report and dynamic ad insertion estimates. The Nielsen estimates include subscribers to both traditional and certain virtual multichannel video providers. The Nielsen estimates are not based on information provided by us and are included solely to enable comparisons between our cable networks and those operated by our peers.

Our regional sports and news networks together serve more than 15 million households across the United States, including in markets such as Boston, Chicago, Philadelphia, Sacramento and San Francisco.

Broadcast

NBC

The NBC network features original entertainment, news and sports programming that reaches viewers in virtually all U.S. television households through more than 200 affiliated stations across the United States, including our 11 owned NBC local broadcast television stations. The NBC owned local broadcast stations include stations in 8 of the top 10 general markets and collectively reached approximately 35 million U.S. television households as of December 31, 2022, representing approximately 28% of U.S. television households. In addition to broadcasting the NBC network's national programming, local broadcast stations deliver local news, weather, and investigative and consumer reporting across multiple platforms.

Telemundo

The Telemundo network, a Spanish-language broadcast network, features original entertainment, news, live specials and sports programming that reaches viewers in over 95% of all U.S. Hispanic television households through 111 affiliated stations, including our 30 owned Telemundo local broadcast television stations, and our national feed. The Telemundo owned local broadcast stations include stations in all of the top 20 U.S. Hispanic markets and collectively reached approximately 72% of U.S. Hispanic television households as of December 31, 2022. In addition to broadcasting the Telemundo network's national programming, local broadcast stations deliver local news, weather, and investigative and consumer reporting across multiple platforms. We also own an independent Telemundo station serving the Puerto Rico television market.

Peacock

Peacock is a premium DTC streaming service, featuring NBCUniversal and third-party content. Content choices include exclusive Peacock originals, current NBC, Bravo and Telemundo shows, news, late-night comedy, live sports and a library of television shows and movies, as well as several live channels. The service is primarily offered through two subscription-based tiers: an ad-supported tier providing customers with access to tens of thousands of hours of programming and a tier featuring the same content ad-free, with certain limited exceptions. This ad-free tier also allows customers to download and watch select content offline and provides customers with a live stream of their local NBC affiliate stations. The Peacock app is available to consumers over the internet directly and included as part of certain cable and other platforms in the United States, including through Cable Communications' X1 and Flex. Certain Peacock programming is also integrated into Sky video services.

Programming

Our television and streaming platforms include content licensed from our Studios segment and from third parties, as well as content produced by Media segment businesses, such as live news and sports programming and certain original programming, including late-night comedy for NBC and original telenovelas for Telemundo.

We have various multiyear contractual commitments for the licensing of programming, including contracts related to broadcast and/or streaming rights for sporting events. We generally seek to include in our sports rights agreements the rights to distribute content on one or more of our television networks and on digital platforms, including Peacock. Our most significant sports rights commitments include the following:

- **NFL:** Agreements to produce and broadcast a specified number of regular season and playoff games, including Sunday Night Football and three remaining Super Bowl games on the NBC network, the next of which is in February 2026, through the 2033-34 season, with a termination right available to the NFL after the 2029-30 season. These agreements also include certain other rights, including streaming rights, additional exclusive games on Peacock and the Spanish-language U.S. broadcast rights for certain NFL games, which are aired on Telemundo
- **Olympics:** U.S. broadcast and streaming rights for the summer and winter Olympic Games through 2032 with programming to be aired on the NBC network, multiple cable networks and Peacock

We also have varying U.S. broadcast and/or streaming rights to the PGA TOUR and other golf events through 2031, Big Ten football and basketball starting with the 2023-24 season through the 2029-30 season, English Premier League soccer through the 2027-28 season, Worldwide Wrestling Entertainment ("WWE") events on television through 2024 and on Peacock through 2026, certain NASCAR events through 2024, and the Spanish-language U.S. broadcast rights to FIFA World Cup soccer games through 2026, as well as local broadcast rights for certain professional sports teams through our regional sports networks with terms ending between 2024 and 2040.

Studios Segment

NBCUniversal's film and television studio production and distribution operations primarily comprise our Studios segment.

Revenue is generated primarily from licensing our owned film and television content in the United States and internationally to cable, broadcast and premium networks and DTC streaming service providers, as well as through video on demand and pay-per-view services provided by multichannel video providers and OTT service providers; from the worldwide distribution of our produced and acquired films for exhibition in movie theaters; and from the sale of owned and acquired content on DVDs/Blu-ray discs and through digital distribution services. We also generate revenue from the production and licensing of live stage plays.

Film Studios

Our film studios develop, produce, acquire, market and distribute filmed entertainment worldwide. Our films are produced primarily under the following names:

- Universal Pictures
- Illumination
- DreamWorks Animation
- Focus Features
- Working Title

The majority of our films are initially distributed for exhibition in movie theaters, while other titles are produced and distributed direct-to-video. After their initial release, we sell and license films globally through various methods. We license films, including recent titles and selections from our film library, which is comprised of more than 6,000 movies in a variety of genres, to television networks and DTC streaming service providers, including our Media segment, and to video on demand and pay-per-view services provided by multichannel video providers, including the Cable Communications and Sky segments. Certain titles are also licensed to our Media segment and made available for viewing on Peacock on the same date as the theatrical release. We also distribute films globally by selling them on DVDs/Blu-ray discs and through digital distribution services.

Theatrical revenue is significantly affected by the timing of each release and the number of films we distribute, their acceptance by audiences, the number of exhibition screens, ticket prices, the percentage of ticket sales retention by the exhibitors and the popularity of competing films at the time our films are released. The success of a film in movie theaters is generally a significant factor in determining the revenue a film is likely to generate in succeeding licensing windows. Revenue from the sale of content on DVDs/Blu-ray discs and through digital distribution services is significantly affected by the timing and number of our theatrical releases and the popularity of our content, as well as the timing of release dates.

We develop and produce films both alone and jointly with other studios or production companies, as well as with other entities. Films are marketed and distributed worldwide primarily through NBCUniversal's marketing and distribution operations. We also acquire distribution rights to films produced by third parties, which may be limited to particular geographic regions, specific forms of media or certain periods of time.

Our film studios have entered into, and may continue to enter into, film cofinancing arrangements with third parties, including both studio and nonstudio entities, to jointly finance or distribute certain of our film productions. These arrangements can take various forms, but in most cases involve the grant of an economic interest in a film to an investor. Investors generally assume the full risks and rewards of ownership proportionate to their ownership in the film.

In connection with studio productions, we typically owe "residuals" payments to individuals hired under collective bargaining agreements to work on productions, which are generally calculated based on post-theatrical or content licensing revenue. We also owe "participations" payments to creative talent, to third parties under cofinancing agreements and to other parties involved in content production, which are generally based on the financial performance of the content.

Television Studios

Our television studios develop and produce original content, including scripted and unscripted television series. NBCUniversal's television studios, branded as the Universal Studio Group, produces content under the following names:

- Universal Television
- Universal Content Productions
- Universal Television Alternative Studio
- Universal International Studios

Our original content is primarily licensed initially to cable, broadcast and premium networks, as well as to DTC streaming service providers, including our Media segment. We also license content after its initial airing and license older television programs from our programming library, as well as sell owned and acquired content globally on DVDs/Blu-ray discs and through digital distribution services. The production and distribution costs related to original television content generally exceed the revenue generated from the initial license, which means that obtaining additional licenses following the initial license is critical to the content's financial success. Similar to our film studios, we typically owe residuals and participations payments in connection with television studio productions.

Theme Parks Segment

The following Universal theme parks primarily comprise the Theme Parks segment:

- *Universal Orlando Resort*: Includes two theme parks, Universal Studios Florida and Islands of Adventure, and our water park, Volcano Bay, all of which are located in Orlando Florida. Universal Orlando also includes Universal CityWalk Orlando, a dining, retail and entertainment complex, and features on-site themed hotels in which we own a noncontrolling interest. We are developing an additional theme park at Universal Orlando named Universal's Epic Universe.
- *Universal Studios Hollywood*: Includes a theme park located in Hollywood, California and Universal CityWalk Hollywood.
- *Universal Studios Japan*: Includes a theme park located in Osaka, Japan.
- *Universal Beijing Resort*: Includes the Universal Studios Beijing theme park, as well as Universal CityWalk Beijing and on-site themed hotels, all of which are located in Beijing, China. Universal Beijing Resort is owned by us and a consortium of Chinese state-owned companies (see Note 8).

Revenue is generated primarily from guest spending at our theme parks, including ticket sales and in-park spending on food, beverages and merchandise, and from our consumer products business. Revenue for our theme parks generally depends on the overall environment for travel and tourism, including consumer spending on travel and other recreational activities. We also license the right to use the Universal Studios brand name and other intellectual property and provide other services to third parties, including the party that owns and operates the Universal Studios Singapore theme park on Sentosa Island, Singapore. The themed elements in our rides, attractions, and merchandising are based on intellectual property in our Studios and Media segments and intellectual property licensed from third parties under long-term agreements.

Competition

Media

Our Media segment competes for viewers' attention and audience share with all forms of programming provided to viewers, including cable, broadcast and premium networks; DTC streaming and other OTT service providers; local broadcast television stations; home entertainment products; video on demand and pay-per-view services; online activities, such as social networking and viewing user-generated content; gaming products; and other forms of entertainment, news and information.

Media competes for the sale of advertising with other television networks and stations, digital platforms, including an increasing number of ad-supported DTC streaming services, and all other advertising platforms. The willingness of advertisers to purchase advertising from us may be adversely affected by lower audience ratings and viewership at the related networks, stations, channels, or digital platforms. Declines in audience ratings can be caused by increased competition for the leisure time of viewers and by audience fragmentation resulting from the increasing number of entertainment choices available, including content from DTC streaming and other OTT service providers, online media and other digital sources. Additionally, it is increasingly challenging to accurately measure fragmented audiences.

Our cable networks compete primarily with other cable networks and programming providers for carriage of their programming by multichannel video providers and DTC streaming and other OTT service providers. Our broadcast networks compete with the other broadcast networks in markets across the United States to secure affiliations with independently owned television stations, which are necessary to ensure the effective distribution of broadcast network programming to a nationwide audience. Peacock competes for paid subscribers and other users of the platform, primarily with other DTC streaming and OTT service providers, as well as with traditional providers of linear programming.

Our television and streaming platforms compete for the acquisition of content and for on-air and creative talent primarily with other cable, broadcast and premium networks, DTC streaming and other OTT service providers, and local broadcast television stations. The market for content is very competitive, particularly for sports rights, where the cost is significant.

Studios

Our film and television studios compete for audiences for our film and television content with other major film and television studios, independent film producers and creators of content, as well as with alternative forms of entertainment. The competitive position of our film and television studios primarily depends on the number of films and shows and episodes produced, their distribution and marketing success, and consumer response. Our film and television studios also compete to obtain creative, performing and technical talent, including writers, actors, directors, and producers, as well as scripts for films and television shows, and for the distribution of, and consumer interest in, their content. We also compete with other major film and television studios and other producers of entertainment content for the exhibition of content in theaters, on demand, on premium networks and with DTC streaming and other OTT service providers.

Theme Parks

Theme Parks competes with other multi-park entertainment companies as well as other providers of entertainment, lodging, tourism and recreational activities. To help maintain the competitiveness of our theme parks, we have invested and continue to invest significantly in existing and new theme park attractions, hotels and infrastructure, including Epic Universe in Orlando.

Sky Segment

Sky is one of Europe's leading entertainment companies operating in six territories, including three of the largest pay television markets in Western Europe: the United Kingdom, Italy and Germany. The substantial majority of our revenue is derived from our direct-to-consumer business, which has 23.1 million customer relationships, and primarily involves the distribution of a wide array of video channels to both residential and business customers. We also offer broadband, voice and wireless services individually and as bundled services in select countries. We own a diverse portfolio of pay television channels that feature entertainment, news, sports and movies, which are included in our subscription video services and are also licensed through various distribution partnerships to third-party video providers to reach an additional 3 million households. We also generate revenue from the licensing of owned and licensed programming to third-party video providers and from the sale of advertising.

Direct-to-Consumer

Video

Our direct-to-home ("DTH") video services are delivered primarily through a combination of both satellite transmission and broadband connections that are marketed under the Sky brand in the United Kingdom, Italy, Germany, Ireland and Austria. We also offer a DTC streaming service providing video content over the internet that is marketed as NOW or WOW (formerly Sky Ticket) ("NOW") in these countries, as well as in Switzerland.

We offer a variety of DTH video services, primarily through our Sky Q platform, where customers have access to a diverse selection of our owned channels, channels owned by third parties and local free-to-air public broadcasting channels, as well as certain ad-supported Peacock programming. The Sky Q platform includes integrated search functionality and a voice-activated remote control and offers integrated access to certain third-party internet-based apps providing content and music, such as DTC streaming services Disney+ and Netflix. Our service offerings are tailored by country, with separate packages offered in each market. Basic packages include between 80 and 100 pay television channels in the United Kingdom and Ireland, over 40 channels in Italy, and over 30 channels in Germany and Austria. Specialty tiers for children's, sports, movie and high-definition ("HD") programming are available for additional fees. DTH customers may view programming live, record live programming through our DVR services or access our video on demand services with programming choices such as television series, movies and special-events programming that are available for free or to rent or own digitally. These viewing options are also available through our mobile app and online portal. We also offer video services to customers who purchase Sky Glass smart televisions, which have an operating system that provides a video service similar to Sky Q over a broadband connection, eliminating the need for a satellite dish or set-top box. Refer to Corporate and Other for additional information on Sky Glass.

Our NOW streaming service offers packages ranging from daily to monthly access to entertainment, sports and movies programming. The entertainment package includes our owned entertainment channels and a broad range of on demand programming series, including child-friendly programming, as well as certain Peacock programming. The sports package provides access to our owned sports channels and the movie package includes access to a library of films.

Television Channels

We operate a diversified portfolio of Sky-branded channels. Our owned channels include:

- Entertainment channels featuring premium content, including Sky Atlantic, Sky Max and Sky Showcase
- Premium sports channels under the Sky Sports brand, with a majority of channels dedicated to a specific sport, including European football
- Premium movie channels under the Sky Cinema brand, including family and children's movie channels
- Sky-branded free-to-air channels, including Sky News

Other Services

We offer broadband and voice services in the United Kingdom, Ireland and Italy. We offer fiber-to-the-cabinet ("FTTC"), DSL broadband and fiber-to-the-home ("FTTH") services, with downstream speeds up to 500 megabits per second in the United Kingdom and up to one gigabit per second in Ireland and we offer FTTH and FTTC services in Italy, with downstream speeds up to one gigabit per second. We deploy wireless hubs to customers that combine an internet and voice modem with a Wi-Fi router to deliver reliable internet speeds and enhanced coverage through an in-home Wi-Fi network.

We offer wireless services for handsets and tablets in the United Kingdom using a combination of an arrangement to access network assets from Telefónica and our own mobile core network. Customers may activate multiple lines per account, choose to pay for services on various gigabyte plans, roll data over three years and stream with unlimited data on Sky mobile apps. Customers may either bring their own device or purchase devices from us with the option to pay upfront or finance the purchase interest-free over periods ranging from 24 to 48 months.

Content

In addition to including owned channels as part of our video services, we distribute some of our owned channels on third-party platforms through both wholesale arrangements and arrangements with partners who distribute our owned channels as agents to their respective customer bases. We also license owned and licensed content to other platforms.

Advertising

We sell advertising across our platforms, including our owned television channels, and also represent the sales efforts of third-party channels. We also offer various technology, tools and solutions relating to our advertising business.

Network and Technology

We rely on various telecommunications providers to deliver video, broadband, voice and wireless services to our customers.

For a majority of customers, our DTH video platform is delivered via one-way digital satellite transmission that uses satellites leased from third parties for the distribution of television channels and is augmented by a set-top box with local DVR storage and high-speed, two-way broadband connectivity enabling interactive video services such as integrated search functionality, on demand, DVR and voice services. Our platform incorporates Wi-Fi connectivity for in-home distribution that allows wireless, multiroom consumption. We have also developed a range of back-end and client software applications that provide customers with access to our content across multiple third-party devices.

Under the current regulatory regime in the United Kingdom, Ireland and Italy, we are able to access networks owned by third-party telecommunications providers for a fee to provide our broadband, voice, and wireless services in many cases, on regulated terms. We offer broadband and voice services in the United Kingdom using a combination of our own core fiber network and BT Openreach's core and "last mile" network under a wholesale and fee-based arrangement and in Italy primarily using Open Fiber's network. We offer wireless services to customers in the United Kingdom using a combination of an arrangement to access network assets from Telefónica and our own mobile core network.

We continue to focus on technology initiatives to design, develop and deploy next-generation media and content delivery platforms, including Sky Q, NOW and Sky Glass, that deliver video content, provide advanced search capabilities, including through a voice-activated remote control, and provide access to and integration of certain other DTC streaming services. These platforms leverage our global technology platform.

Sources of Supply and Other Operations

Programming

Our owned television channels and NOW streaming service include content both owned by us and licensed from third parties and NBCUniversal. In some cases, licenses are on an exclusive basis. We have various multiyear contractual commitments for the licensing of programming, primarily sports rights and exclusive entertainment content. Our most significant sports rights commitments include European football broadcast rights for Premier League games through the 2024-25 season in the United Kingdom and Formula One through 2029 in the United Kingdom and through 2027 in Germany and Italy. We also have broadcast rights to Bundesliga games through the 2024-25 season in Germany, to England and Wales Cricket Board cricket games through 2028 in the United Kingdom, and to Union of European Football Associations Champions League ("UCL") through the 2023-24 season in Italy, as well as non-exclusive broadcast rights to certain Serie A games through the 2023-24 season in Italy.

Our most significant commitments for the licensing of film and television entertainment content include exclusive rights with HBO, Paramount, Warner Bros. and NBCUniversal. We also produce and air live news and sports programming and produce original programming through Sky Studios. We are increasingly creating and investing in original drama, comedy and factual content that is broadcast across our territories and sold to other markets. We also opened the first stages of our new film and television studio facility in the United Kingdom in 2022.

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To offer video services, in addition to our owned channels, we license substantial amounts of programming from third parties. The fees associated with these programming distribution agreements are generally based on the number of customers that are able to watch the programming and the platforms on which the content is provided. We seek to include in distribution agreements the rights to offer such programming through multiple delivery platforms, such as through our on demand services, mobile apps and our NOW streaming service.

Other

We purchase from a limited number of suppliers a significant amount of customer premise equipment, including set-top boxes, wireless hubs and network equipment to provide our video and broadband services to residential and business customers. We also purchase from a limited number of suppliers a significant number of wireless handsets and tablets that are sold to customers that receive our wireless services.

We offer direct-to-consumer services to residential and business customers through our customer service teams, customer service centers, websites, telemarketing, and a limited number of retail stores, as well as through advertising via direct mail, television and the internet. Our home service group performs various tasks, including installations, servicing and upgrades of customer premise equipment. Customers can use self-service options and perform self-installations for certain services.

Competition

We compete with a broad range of companies engaged in media, entertainment and communications services in Europe. For video services, we compete with cable operators, providers of both paid-for and free-to-air programming, other satellite television providers, digital terrestrial television providers, content aggregators, home entertainment products companies, and other suppliers and providers of sports, entertainment, news and information that deliver DTC and other OTT streaming services. For broadband and wireless services, we compete with service providers making use of new fiber-optic networks, telecommunications providers, other internet service providers and companies developing new technologies and devices. Our competitive position may be negatively impacted by an increase in the capacity of, or developments in, the means of delivery competitors use to provide their services as well as lowered prices, product innovations, new technologies or different value creation approaches. We also compete with organizations that are publicly funded, in whole or in part, to fulfill a public service broadcasting mandate.

Our owned channels compete for the acquisition of content and for on-air and creative talent with other television networks and with DTC streaming and other OTT service providers. The market for content is very competitive, particularly for sports rights, where the cost for such content is significant.

We compete for the sale of advertising with other television networks and stations, digital platforms, and all other advertising platforms. Similar to the competitive environment in our Media segment, the willingness of advertisers to purchase advertising from us may be adversely affected by declines in television viewership and the increasing number of entertainment choices available.

Corporate and Other

Our other business interests consist primarily of the operations of Comcast Spectacor, which owns the Philadelphia Flyers and the Wells Fargo Center arena in Philadelphia, Pennsylvania, and other business initiatives. Other business initiatives primarily include costs associated with Sky Glass smart televisions and the related hardware sales and, following its formation in June 2022, the operations of Xumo, our consolidated streaming platform joint venture with Charter Communications. Xumo is focused on developing and offering a streaming platform on a variety of devices, including XClass TV smart televisions, and also operates the Xumo Play streaming service (previously branded as the Xumo streaming service). Sky Glass and XClass TV are smart televisions with operating systems that leverage our global technology platforms similar to Sky Q, X1 and Flex. We sell Sky Glass televisions in Europe to consumers that also subscribe to Sky's video services. XClass TVs are manufactured and sold by third parties and operate on the XClass TV operating system.

Additionally, we formed the SkyShowtime joint venture with Paramount Global in 2022, which operates a DTC streaming service available in select European markets and is accounted for as an equity method investment. NBCUniversal and Sky license programming to SkyShowtime.

Seasonality and Cyclical

Each of our businesses is typically subject to seasonal and cyclical variations. Cable Communications' results are impacted by the seasonal nature of residential customers receiving our services in college and vacation markets. This generally results in fewer net customer relationship additions in the second quarter of each year.

Revenue and costs and expenses in our Media segment are cyclical as a result of our periodic broadcasts of major sporting events, such as the Olympic Games and the Super Bowl. In particular, advertising revenue increases due to increased demand for advertising time for these events and distribution revenue increases in the period of broadcasts of the Olympic Games. Costs and expenses also increase as a result of our production costs for these broadcasts and the amortization of the related rights fees.

Revenue in Cable Communications, Media and Sky is also subject to cyclical advertising patterns and changes in viewership levels. Advertising revenue in the United States is generally higher in the second and fourth quarters of each year and in even-numbered years due to increases in advertising in the spring and in the period leading up to and including the holiday season, and advertising related to candidates running for political office and issue-oriented advertising, respectively. Revenue in Media also fluctuates depending on the timing of when our programming is aired, which typically results in additional advertising revenue in the second and fourth quarters of each year. Advertising revenue in Sky typically has seasonally higher audience levels in winter months, with lower levels in summer months due to the timing of European football seasons and summer vacations. There is also increased competition for advertising at Sky during major sporting events aired by public service broadcasters, such as the FIFA World Cup™.

Revenue in Studios fluctuates due to the timing, nature and number of films released in movie theaters, on DVDs/Blu-ray discs, and through various other distribution platforms, including viewing on demand, DTC platforms or OTT service providers. Release dates are determined by several factors, including competition and the timing of vacation and holiday periods. As a result, revenue tends to be seasonal, with increases experienced each year during the summer months and around the holiday season. We incur significant marketing expenses before and throughout the release of a film in movie theaters and as a result, we typically incur losses on a film prior to and during the film's exhibition in movie theaters. Content licensing revenue also fluctuates due to the timing of when our film and television content is made available to licensees.

Revenue in Theme Parks fluctuates with changes in theme park attendance that typically result from the seasonal nature of vacation travel and weather variations, local entertainment offerings and the opening of new attractions, as well as with changes in currency exchange rates. Theme Parks generally experiences peak attendance during the spring holiday period, the summer months when schools are closed and the Christmas holiday season.

Sky's results are also impacted by the seasonal nature of residential customers receiving our DTH and NOW streaming services, including the start of the new European football seasons and the Christmas holiday. This generally results in higher net customer relationship additions and higher marketing expenses in the second half of each year to attract new customers.

Exclusive sports rights, such as European football, play a key role within Sky's wider content strategy. In Europe, broadcasting rights for major sports are usually tendered through a competitive auction process, with the winning bidder or bidders acquiring rights over a 3 to 5 year period. This creates some level of cyclicity, although the staggered timing of major sports rights auctions usually gives Sky time to react to any material changes in the competitive dynamics of the prevailing market.

Legislation and Regulation

Our businesses are subject to various federal, state and local laws and regulations, with some also subject to international laws and regulations. In particular, the Communications Act of 1934, as amended (the "Communications Act"), and Federal Communications Commission ("FCC") regulations and policies affect significant aspects of our cable communications and broadcast businesses in the United States.

Beyond the more significant regulations summarized below, legislators and regulators at all levels of government frequently consider changing, and sometimes do change, existing statutes, rules or regulations, or interpretations of existing statutes, rules or regulations, or prescribe new ones, any of which may significantly affect our businesses and ability to effectively compete. These legislators and regulators, along with some state attorneys general and foreign governmental authorities, have been active in conducting inquiries and reviews regarding our services. State legislative and regulatory initiatives can create a patchwork of different and/or conflicting state requirements, such as with respect to privacy and Open Internet/net neutrality regulations, that can affect our businesses and ability to effectively compete.

Legislative and regulatory activity has increased under the Biden Administration, particularly with respect to broadband networks. For example, Congress has approved tens of billions of dollars in new funding for broadband deployment and adoption initiatives, and may consider other proposals that address communications issues, including whether it should rewrite the entire Communications Act to account for changes in the communications marketplace and whether it should enact new, permanent Open Internet/net neutrality requirements. Federal agencies likewise may consider adopting new regulations for communications services, including broadband. States and localities are also increasingly proposing new regulations impacting communications services, including broader regulation of broadband networks. Any of these regulations could significantly affect our business and compliance costs. In addition, United States and foreign regulators and courts could adopt new interpretations of existing competition or antitrust laws or enact new competition or antitrust laws or regulatory tools that could negatively impact our businesses. Any future legislative, judicial, regulatory or administrative actions may increase our costs or impose additional restrictions on our businesses, some of which may be significant. We are unable to predict the outcome or effects of any of these potential actions or any other legislative or regulatory proposals on our businesses.

The following paragraphs summarize the more significant legal and regulatory requirements and risks affecting our businesses.

Communications-Related Regulations in the United States

Broadband

Our broadband services are subject to a number of regulations and commitments. The FCC frequently considers imposing new broadband-related regulations such as those relating to an Open Internet, and from time to time, imposing new regulatory obligations on internet service providers ("ISPs") such as us. States and localities also consider new broadband-related regulations from time to time, including those regarding government-owned broadband networks, net neutrality and broadband affordability. New broadband regulations, if adopted, may have adverse effects on our businesses. We may also be subject to additional broadband-related commitments as a condition of receiving federal or state broadband funding.

Broadband Deployment and Adoption Initiatives

There have been, and may continue to be, substantial broadband-deployment funding initiatives at the federal and state level that could subsidize (i) other service providers building networks within our footprint and (ii) potential expansion of our network to new areas. Federal agencies are adopting rules for recently-enacted federal broadband funding programs. In many cases, states will disburse these federal broadband funds and may adopt additional requirements on providers that are awarded funding, which may impose additional costs, constraints and burdens on our businesses. We cannot predict what requirements will ultimately be adopted, how such funds will be awarded or the impact of these initiatives on our businesses.

In 2021, Congress created the Affordable Connectivity Program ("ACP") to provide a monthly discount toward broadband service for eligible low-income households starting in 2022. This new longer-term program replaced the Emergency Broadband Benefit ("EBB") program established during the COVID-19 pandemic. We participated in EBB and are participating in ACP. We cannot predict the extent to which eligible households will opt to use their ACP benefit towards our broadband services.

Open Internet Regulations

Various forms of Open Internet regulations can significantly affect our broadband services. In 2017, the FCC reversed its prior classification of broadband internet access service as a "telecommunications service" under Title II of the Communications Act and classified it as an "information service" under Title I. In addition, it eliminated its prior "net neutrality" rules prohibiting ISPs from blocking access to lawful content on the internet; impairing or degrading lawful internet traffic on the basis of content, applications or services ("throttling"); prioritizing certain internet traffic in exchange for consideration or in favor of an affiliate ("paid or affiliated prioritization"); and generally prohibiting ISPs from unreasonably interfering with or unreasonably disadvantaging consumers' ability to access and use the lawful internet content, applications, services or devices of their choosing or unreasonably interfering with or disadvantaging edge providers' ability to make lawful content, applications, services, or devices available to consumers ("general conduct standard"). The FCC stated that jurisdiction to regulate ISP conduct would rest at the Federal Trade Commission ("FTC"), and it expressly preempted all state Open Internet laws. In addition, the FCC revised the transparency rule to add a requirement that ISPs disclose any blocking and throttling practices, and any paid or affiliated prioritization practices associated with their broadband offerings. We have disclosed that we do not block, throttle, or engage in paid or affiliated prioritization, and have committed not to block, throttle, or discriminate against lawful content. The FTC has authority to enforce these public commitments, and the FCC has authority to enforce compliance with its transparency rule.

The FCC's 2017 decision was challenged and, in 2019, the U.S. Court of Appeals for the District of Columbia largely upheld the FCC's decision, including the classification of broadband as an "information service" and repeal of its prior rules. However, it vacated the FCC's express preemption of all state Open Internet laws, but noted that state laws may nevertheless conflict with federal law or policy and be preempted on a case-by-case basis.

Several states have passed or introduced legislation, or have adopted executive orders, that impose Open Internet requirements in a variety of ways, and new state legislation may be introduced and adopted in the future. Such attempts by the states to regulate have the potential to create differing and/or conflicting state regulations.

The FCC under the Biden Administration likely will revisit the regulatory classification of broadband internet access service and reclassify it as a "telecommunications service," which would authorize the FCC to subject it to traditional common carriage regulation under Title II of the Communications Act. Under a Title II framework, the FCC could potentially regulate our customer rates, speeds, data usage thresholds or other terms for internet services and could prohibit or seriously restrict arrangements between us and internet content, applications and service providers, including backbone interconnection arrangements. Any FCC action could impact state Open Internet initiatives, and also could prompt further litigation. Congress may also consider legislation addressing these regulations and the regulatory framework for broadband internet access services. We cannot predict whether or how the rules might be changed, the impact of potential new legislation, or the outcome of any litigation.

[Municipally Owned Broadband Networks](#)

A number of local municipalities operate municipally owned broadband networks, and there may be further efforts by local governments to expand or create government-owned networks, particularly in light of federal funding for broadband deployment. Certain states have enacted laws that restrict or prohibit local municipalities from operating municipally owned broadband networks, and there may be efforts in other state legislatures to restrict the development of government-owned networks, although others may choose to ease or facilitate such networks. Much of the federal funding authorized for broadband deployment is conditioned on states agreeing to make it available for potential use by government-owned networks, although the funding prioritizes deployment to unserved areas and locations. We cannot predict how successful any of those efforts will be and how they might affect our businesses.

[Video](#)

The video marketplace continues to become even more competitive, particularly with DTC streaming and other OTT service providers. There are a number of laws and regulations that apply solely to multichannel video programming distributors ("MVPDs") or cable operators such as our Cable Communications business, and to cable networks and local broadcast television stations operated by NBCUniversal. These laws and regulations can constrain our ability to compete, particularly against DTC streaming and other OTT service providers, which are not subject to these same requirements.

[Cable Pricing and Packaging](#)

While our video services are not subject to rate regulation, certain state entities monitor and challenge in court the marketing and advertising of our services, and some have attempted to regulate the service packages we offer and our billing practices. We cannot predict the outcome of any current litigation with state entities or whether other states may pursue similar actions.

[Cable Franchising](#)

Cable operators generally operate their cable systems under nonexclusive franchises granted by local or state franchising authorities. While the terms and conditions of franchises vary materially from jurisdiction to jurisdiction, franchises typically last for a fixed term, obligate the franchisee to pay franchise fees and meet service quality, customer service and other requirements, and are terminable if the franchisee fails to comply with material provisions. Franchising authorities also may require adequate channel capacity, facilities and financial support for public, educational and governmental access programming, and other in-kind contributions.

The Communications Act also contains provisions governing the franchising process, including renewal procedures designed to protect incumbent franchisees against arbitrary denials of renewal and unreasonable renewal conditions. We believe that our franchise renewal prospects are generally favorable but cannot guarantee the future renewal of any individual franchise. The FCC adopted an order in 2019 that prohibits state and local authorities from imposing duplicative franchise and/or fee requirements on the provision of broadband and other non-cable services, affirming that franchise fees were subject to a federal statutory cap of 5% of cable service revenue and could not include other revenue. The order further required that in-kind contributions (such as courtesy services) generally should be treated as franchise fees subject to that cap. The order was substantially upheld by the U.S. Court of Appeals for the Sixth Circuit. Several localities have attempted, generally unsuccessfully to date, to impose franchise fees on DTC streaming and other OTT service providers.

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Program Carriage

FCC regulations prohibit us from unreasonably restraining the ability of an unaffiliated video programming network to compete fairly by discriminating against the network on the basis of its non-affiliation in the selection, terms or conditions for its carriage. In addition, cable operators and other MVPDs in the United States are prohibited from requiring as a condition of carriage a financial interest in, or exclusive distribution rights for, a video programming network. We have been involved in program carriage disputes at the FCC, as well as in the courts, and may be subject to new complaints in the future.

Program Access

The Communications Act and FCC regulations generally prevent cable networks affiliated with cable operators from favoring affiliated cable operators over competing MVPDs. The FCC and Congress have considered proposals that would require companies that own multiple cable networks to make each of their networks available individually when negotiating distribution agreements with MVPDs and potentially with DTC streaming and other OTT service providers. We currently offer our cable networks on a packaged basis (in "tiers") and, in various cases, individually. We have been involved in program access disputes at the FCC and may be subject to new complaints in the future.

Must-Carry/Retransmission Consent

Cable operators are required to carry, without compensation, programming transmitted by most local commercial and noncommercial broadcast television stations. As an alternative to this "must-carry" requirement, local broadcast television stations may choose to negotiate with the cable operator for "retransmission consent," under which the station gives up its must-carry rights and instead seeks to negotiate a carriage agreement with the cable operator, which frequently will involve payments to the station. We currently pay certain local broadcast television stations in exchange for their required consent for the retransmission of the stations' broadcast programming to our video services customers and expect to continue to be subject to demands for increased payments and other concessions from local broadcast television stations. Failure to reach a retransmission consent agreement with a broadcaster could result in the loss of popular programming on our video services.

Every three years, each local commercial broadcast television station must elect for each cable system either must-carry or retransmission consent. A similar regulatory scheme applies to satellite providers. For the three-year period from January 1, 2021 to December 31, 2023, all of our owned NBC and Telemundo local broadcast television stations elected retransmission consent. Although we have reached retransmission consent agreements with almost all MVPDs in the past, there can be no assurance that we will always be able to renew those agreements under favorable terms or at all.

Broadcast Licensing

Local broadcast television stations may be operated only in accordance with a license issued by the FCC upon a finding that the grant of the license will serve the public interest, convenience and necessity. The FCC grants broadcast television station licenses for 8-year cycles, which may be renewed with or without conditions. The FCC renewed all of our broadcast television station licenses without conditions during the last license renewal cycle; the current television license renewal cycle began in 2020 and some of our licenses have been renewed. Although our licenses have been renewed in prior cycles, there can be no assurance that we will always obtain renewal grants.

Broadcast Ownership Restrictions

The Communications Act and FCC regulations impose certain limitations on local and national television ownership, as well as limits on foreign ownership in a broadcast television station. Some of these limitations currently are under review at the FCC, including the national television ownership limit, the local television ownership limit, and the prohibition on each of the four major broadcast television networks, ABC, CBS, Fox and NBC, from being under common ownership or control with another of the four.

Children's Programming

Under federal regulations, the amount of commercial content that may be shown on cable networks, broadcast networks and local broadcast television stations during programming originally produced and broadcast primarily for an audience of children 12 years of age and under is limited, and certain television station programming must serve the educational and informational needs of children 16 years of age and under.

FCC 5G Spectrum Proceedings

The FCC also has established and is in the process of evaluating and potentially modifying its rules to make available additional spectrum that will likely be used for licensed and unlicensed commercial services, including new 5G services. Because Cable Communications and NBCUniversal use some of this spectrum to provide services, they are transitioning their operations to different frequencies in order to accommodate the reallocation of spectrum for 5G, and they may be required to transition other operations in the future if the FCC reallocates other spectrum bands that Cable Communications and NBCUniversal use, which could disrupt our services and impose additional costs.

Voice

We provide voice services using VoIP technology. The FCC has adopted a number of regulations for providers of nontraditional voice services such as ours, including regulations relating to privacy of customer proprietary network information, local number portability duties and benefits, disability access, E911, law enforcement assistance, outage reporting, Universal Service Fund contribution obligations, rural call completion, customer equipment back-up power, robocall mitigation, service discontinuance and certain regulatory filing requirements. The FCC has not yet ruled on whether VoIP services such as ours should be classified as an “information service” or a “telecommunications service” under the Communications Act. The classification determination is important because telecommunications services are regulated more extensively than information services. The U.S. Court of Appeals for the Eighth Circuit has held that VoIP is an information service and preempted state regulation of VoIP, and the U.S. Supreme Court has declined to review that determination, but that ruling remains limited to the seven states located in that circuit. State regulatory commissions and legislatures in other jurisdictions may continue to consider imposing regulatory requirements on our voice services as long as the regulatory classification of VoIP remains unsettled at the federal level.

Wireless

We offer a wireless voice and data service primarily using our MVNO rights to provide the service over Verizon’s wireless network. MVNOs are subject to many of the same FCC regulations as facilities-based wireless carriers (e.g., E911 services, local number portability, etc.), as well as certain state or local regulations. The FCC or other regulatory authorities may adopt new or different regulations for MVNOs and/or mobile broadband providers in the future, which could adversely affect our wireless phone service offering or our business generally.

International Communications-Related Regulations

Sky and certain NBCUniversal international businesses are subject to telecommunications and media-specific regulation described below in Europe, Latin America and other international jurisdictions, and all of our international businesses are subject to regulation under generally applicable laws, such as competition, consumer protection, data protection and taxation in the jurisdictions where they operate. Our international businesses are currently, and may be in the future, subject to proceedings or investigations from regulatory and antitrust authorities in the jurisdictions in which those businesses operate. In addition, in connection with our acquisition of Sky, we have made certain legally binding commitments with respect to Sky’s operations, including for example, to maintain annual funding for Sky News in an amount no lower than Sky News’ 2017 fiscal year expenditures, as adjusted by inflation, until 2029.

Platform Services

In the United Kingdom, Sky has agreed to provide its electronic program guide (“EPG”) and conditional access (“CA”) services to other programming providers on fair, reasonable and non-discriminatory terms, among other things, so that those providers’ content is available on Sky’s satellite platform via the EPG on set-top boxes. Sky also has voluntarily committed to the United Kingdom’s communications regulator, the Office of Communications (“Ofcom”) to provide access control services to third parties that enable them to provide interactive services. Sky is subject to similar EPG and CA obligations in Germany.

Television Channels and On-Demand Services

Sky and NBCUniversal hold a number of licenses and authorizations for their portfolios of television channels and on-demand services. For example, in the United Kingdom, Sky’s channels are licensed and subject to various codes issued by Ofcom affecting the content and delivery of these channels. Sky and NBCUniversal also hold various broadcast licenses in certain E.U. and other countries. These content-related rules and regulations cover issues such as the acquisition and exploitation of sports rights, media concentration and plurality, television advertising, the protection of children, accessibility, airtime for commercials and teleshopping, sponsorship and ensuring clear distinctions between program content and advertising.

Broadband and Voice

Sky provides broadband and voice services in the United Kingdom, Ireland and Italy pursuant to wholesale distribution agreements that third-party broadband and telecommunications companies either make available commercially or are required to make available under applicable laws in those jurisdictions. Material changes to these regulations could affect Sky's business. As a provider of broadband services, Sky is subject to applicable laws and regulations relating to telecommunications security, including a U.K. law that requires providers to take certain measures with respect to potential security compromises. Sky is also subject to E.U. and other Open Internet/net neutrality regulations, which prohibit the blocking, throttling or discrimination of online content, applications and services and require ISPs to disclose their traffic management, throughput limitations and other practices impacting quality of service in customer contracts.

Other Areas of Regulation

Intellectual Property

Copyright, trademark, unfair competition, patent, trade secret and other proprietary-rights laws of the United States and other countries help protect our intellectual property rights. In particular, unauthorized copying, distribution and piracy of programming and films over the internet, through devices, software and websites, counterfeit DVDs/Blu-rays and through other platforms interfere with the market for copyrighted works and present challenges for our content businesses. We have actively engaged in the enforcement of our intellectual property rights and likely will continue to expend substantial resources to protect our content. Although many legal protections exist to combat such practices, the extent of copyright protection is sometimes ambiguous and the use of technological protections can be controversial. Modifications to existing laws, a weakening of these protections or their enforcement or a failure of existing laws, in the United States or internationally, to adapt to new technologies could have an adverse effect on our ability to license and sell our programming.

U.S. copyright laws establish a cable compulsory copyright license that requires our video distribution business to contribute a specified percentage of revenue to a federal copyright royalty pool in exchange for retransmitting copyrighted material included in broadcast signals. We also pay standard industry licensing fees for the public performance of music in the programs we create or distribute. The cable compulsory copyright license and the royalties we pay are subject to audits and possible regulatory and legislative changes that could impact the royalty fees we pay and our ability to retransmit broadcast signals over cable systems. In addition, the landscape for music licensing is constantly changing, and music fees we pay are subject to new fee demands and negotiations. We cannot predict how changes to the compulsory copyright license and music licensing will impact the fees that we pay.

Privacy and Data Security Regulation

Our businesses are subject to federal, state and foreign laws and regulations that impose various restrictions and obligations related to privacy and the handling of consumers' personal information. In the United States, the Communications Act generally restricts cable operators' nonconsensual collection and disclosure to third parties of cable customers' personally identifiable information, except for rendering service, conducting legitimate business activities related to the service and responding to legal requests. We are also subject to various state and federal regulations that provide privacy protections for customer proprietary network information related to our voice services and other consumer information.

The FTC generally exercises oversight of consumer privacy protections using its enforcement authority over unfair and deceptive acts or practices. For example, the FTC often partners with state attorneys general to enforce transparency requirements regarding the collection and use of consumer information. These enforcement efforts may require ongoing review on our part of new and rapidly evolving technologies and methods for delivering content and advertising to ensure that appropriate notice is given to consumers and consent is obtained where required in connection with the collection, use or sharing of personal information. The FTC has recently initiated a rulemaking proceeding to consider rules relating to the collection, use, sharing, and securing of consumer personal information. We cannot predict whether the FTC ultimately will adopt any rules or, if it does, what requirements, obligations, or restrictions such rules may impose and how such rules would affect our businesses. We are also subject to stringent data security and data minimization requirements, including some requirements that apply to website operators and online services directed to children 12 years of age and under, or that knowingly collect or post personal information from children 12 years of age and under.

In addition, certain states have enacted detailed laws establishing explicit consumer privacy protections and data security requirements in their respective states. For example, the California Consumer Privacy Act, as amended by the California Privacy Rights Act, gives California residents rights to receive certain disclosures regarding the collection, use and sharing of “Personal Information,” as well as rights to access, delete, correct and restrict certain uses, sales, and sharing of certain personal information collected about them. California privacy laws also include new business requirements, including data minimization requirements. Other states with similar laws in effect or coming into effect include Colorado, Connecticut, Utah, and Virginia. Additionally, California has established an entirely new agency, the California Privacy Protection Agency, to implement and enforce its privacy laws. We cannot predict how these new laws or changes to existing laws will affect our businesses, or whether any legislation or proposed rules currently under consideration will be enacted or adopted or what the impact of any such laws or regulations may be on our businesses. Moreover, all 50 states have security breach notification laws that generally require a business to give notice to consumers and government agencies when certain information has been disclosed to an unauthorized party due to a security breach.

Certain of our businesses are subject to the European Union’s General Data Protection Regulation (“GDPR”) and the United Kingdom’s Data Protection Act 2018 (“DPA”), which broadly regulate the processing of personal data collected from individuals in the European Union and United Kingdom, respectively. DPA, GDPR and the E.U. member states’ legislation implementing the GDPR, related rules regulating the privacy of electronic communications services and networks (including “cookie” rules), and various initiatives by regulatory authorities pursuant to these laws affect how we are able to process certain personal data for particular purposes, what we must tell our customers about this processing, and what controls our customers have over such processing.

State and Local Taxes

Some U.S. states and localities have imposed or are considering imposing, through both legislative and administrative channels, new or additional taxes or fees on, or limiting or eliminating incentives or credits earned or monetized by, the businesses operated by our Cable Communications and NBCUniversal segments, or imposing adverse methodologies by which taxes, fees, incentives or credits are computed, earned or monetized. These include combined reporting or other changes to general business taxes, central assessments for property tax and taxes and fees on the businesses operated or services provided by our Cable Communications and NBCUniversal segments. In some situations, DBS providers and other competitors that deliver their services over a broadband connection do not face the same state tax and fee burdens. Congress has also considered, and may consider again, proposals to bar or limit states from imposing taxes on these DBS providers or other competitors that are equivalent to the taxes or fees that we pay. The Internet Tax Freedom Act (“ITFA”) prohibits most states and localities from imposing sales and other taxes on our internet access charges; however, some jurisdictions may challenge the ITFA or the application of the ITFA to our business, or may assert that certain taxes akin to right-of-way fees are not preempted by the ITFA.

U.K. Exit from the European Union

The telecommunications and media regulatory framework applicable to our business in the United Kingdom is subject to greater uncertainty as a result of the United Kingdom’s withdrawal from the European Union. In 2021, the U.K. government signaled its intention of moving away from the European Union’s approach in a number of policy areas, increasing the possibility of greater divergence between the regulation of our U.K. business and our other European businesses over time. We are not able to predict the extent of any such divergence at this point in time.

Other Regulations

U.S. states and localities, and various regulatory authorities, actively regulate other aspects of our businesses, including our Studios and Theme Parks businesses, accessibility to our video and voice services and broadcast television programming for people with disabilities, customer service standards, inside wiring, cable equipment, pole attachments, universal service fees, regulatory fees, public safety, telemarketing, leased access, indecency, loudness of commercial advertisements, advertising, political broadcasting, sponsorship identification, Emergency Alert System, equal employment opportunity and other employment-related laws, environmental-related matters, our equipment supply chain, and technical standards relating to the operation of cable systems and television stations. In addition, our international businesses are subject to various similar regulations, including those that cover television broadcasting, programming and advertising. We are occasionally subject to enforcement actions and investigations at the FCC and other federal, state and local agencies, as well as foreign governments and regulatory authorities, which can result in fines or being subject to sanctions.

Human Capital Resources

As of December 31, 2022, we had approximately 186,000 full-time and part-time employees calculated on a full-time equivalent basis. Of these employees, approximately 73,000, 77,000 and 34,000 were associated with Cable Communications, NBCUniversal and Sky, respectively. Approximately 30% of our employees were located in over 30 countries outside the United States, with larger workforce concentrations in the United Kingdom, Japan, China, Italy, Germany and India. We also use freelance and temporary employees in the normal course of our business. A small overall portion of our full-time U.S. employees are unionized, although many of NBCUniversal's freelance and temporary writers, directors, actors, technical and production personnel, as well as some on-air and creative talent employees, are covered by industry-wide collective bargaining agreements or work councils. Outside the United States, employees in certain countries, particularly in Europe, are represented by an employee representative organization, such as a union, works council or employee association.

Our company has been built on a foundation of respect, integrity and trust, and we are committed to creating and fostering a work environment that promotes those values. As a global media and technology company, we have a wide range of employees, including management professionals, technicians, engineers, call center employees, theme park employees, and media talent and production employees. Some of our key workforce-related programs and initiatives include the following.

Diversity, Equity and Inclusion

- Our commitment to diversity, equity and inclusion is longstanding. We believe that a diverse, equitable and inclusive company helps to foster creativity, innovation and success. We embrace diversity of background, perspective, culture and experience throughout our business.
- We offer a variety of training programs and initiatives focused on creating a more inclusive workplace culture. These efforts include company-wide forums like our diversity, equity and inclusion speaker series which is designed to educate, inspire dialogue and foster employee engagement through a curated experience anchored by scholars, authors, thought leaders and expert speakers focusing on a variety of diversity, equity and inclusion topics.
- We support nine employee resource groups, with 35,000 members in over 240 chapters, including a variety of uniquely tailored mentorship programs across our business.

Employee Engagement

- We seek to create an engaged workforce through proactive listening and constructive dialogue, including through employee engagement surveys, as well as through the employee resource groups described above.
- We have an open door policy and culture so employees can report any questions or concerns, whether involving a workplace issue, a concern about suspected illegal or unethical conduct or any other matter, trusting that we will take their concerns seriously and without fear of retaliation.

Talent Development

- We provide a wide variety of opportunities for professional growth for all employees with in-classroom and online trainings and on-the-job experience.
- We offer education tuition assistance to full-time employees in the United States.
- Our Board of Directors discusses succession planning for our CEO and the remainder of our senior executive management team at least once a year. Throughout the year, our senior executive management team, as well as a broader array of executives throughout our businesses, make presentations to the Board and its committees and interact with our directors informally outside of regularly scheduled Board meetings, which provides directors with meaningful insight into our current pool of talent, what attracts and retains our executives, and our company culture.

Health and Welfare Benefits

- We offer a portfolio of services and tools to support our employees' health and wellbeing, including dedicated health assistants, expert medical opinion services, virtual and telehealth options, diabetes treatment programs, tobacco cessation, and others. We also have a robust Employee Assistance Program and generous portfolio of mental and behavioral health resources.
- In 2022, we expanded our family planning options, including for adoption and surrogacy, and provide specialized support teams to help manage first months of parenthood and all stages in the family planning journey.

Financial Benefits

- We focus on attracting and retaining employees by providing compensation and benefits packages that are competitive within the applicable market, taking into account the job position's location and responsibilities.
- We provide competitive financial benefits such as a 401(k) retirement plan in the United States with a company match and other retirement arrangements internationally.
- We have employee stock purchase plans in the United States, United Kingdom, Ireland and several other European countries where most of our full-time and part-time employees can purchase our stock at a discount.
- We generally grant awards of restricted stock units and stock options on an annual basis to a meaningful portion of our employees, with over 20,000 employees receiving such awards in 2022.
- We offer financial literacy training and counseling to support employees in making their own financial decisions.

Available Information and Websites

Our phone number is (215) 286-1700, and our principal executive offices are located at One Comcast Center, Philadelphia, PA 19103-2838. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to such reports filed with or furnished to the SEC under Sections 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), are available free of charge on the SEC's website at www.sec.gov and on our website at www.comcastcorporation.com as soon as reasonably practicable after such reports are electronically filed with the SEC. The information posted on our websites is not incorporated into our SEC filings.

Caution Concerning Forward-Looking Statements

This Annual Report on Form 10-K includes statements that may constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, and Section 21E of the Securities Exchange Act of 1934. Forward-looking statements are not historical facts or statements of current conditions, but instead represent only our beliefs regarding future events, many of which, by their nature, are inherently uncertain and outside of our control. These may include estimates, projections and statements relating to our business plans, objectives and expected operating results, which are based on current expectations and assumptions that are subject to risks and uncertainties that may cause actual results to differ materially. These forward-looking statements are generally identified by the words "believe," "project," "expect," "anticipate," "estimate," "intend," "potential," "strategy," "future," "opportunity," "commit," "plan," "goal," "may," "should," "could," "will," "would," "will be," "will continue," "will likely result" and similar expressions. In evaluating these statements, you should consider various factors, including the risks and uncertainties we describe in "Risk Factors" and in other reports we file with the SEC.

Any of these factors could cause our actual results to differ materially from those expressed or implied by our forward-looking statements, which could adversely affect our businesses, results of operations or financial condition. Readers are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date they are made. We undertake no obligation to update or revise publicly any forward-looking statements, whether because of new information, future events or otherwise.

Item 1A: Risk Factors

Risks Related to Our Business, Industry and Operations

Our businesses operate in highly competitive and dynamic industries, and our businesses and results of operations could be adversely affected if we do not compete effectively.

All of our businesses operate in intensely competitive, consumer-driven, rapidly changing environments. We compete with a growing number of companies that provide a broad range of communications products and services and entertainment, sports, news and information content to consumers. There can be no assurance that we will be able to compete effectively against our competitors or that competition will not have an adverse effect on our businesses.

Below is a summary of our most significant sources of competition; for a more detailed description of the competition facing our businesses, see Item 1: Business and refer to the "Competition" discussion within that section.

- Cable Communications' and Sky's broadband services compete primarily against wireline telecommunications companies, including many that are increasing deployment of fiber-based networks, wireless telecommunications companies offering internet services (using a variety of technologies, including 4G and 5G wireless broadband services and 5G fixed wireless networks), certain electric cooperatives and municipalities in the United States that own and operate their own broadband networks and DBS and newer satellite broadband providers. Broadband-deployment funding initiatives at the federal and state level, including as part of the America Rescue Plan Act of 2021, may result in other service providers deploying new subsidized internet access networks within our footprint, and in cases where we agree to receive subsidies, may impose constraints on how we conduct our businesses in certain areas. Competition for video services offered by Cable Communications and Sky consists primarily of DTC streaming and other OTT service providers, DBS providers and telecommunications companies. Our voice and wireless services primarily compete with wireless and wireline telecommunications providers. Many of our competitors offer bundled products and services with favorable pricing to customers, which has increased competition.
- NBCUniversal and Sky face substantial and increasing competition from providers of similar types of entertainment, sports, news and information content, as well as from other forms of entertainment and recreational activities. NBCUniversal and Sky must compete to obtain talent, popular content (including sports programming) and other resources required to successfully operate their businesses. This competition has intensified as DTC streaming and other OTT service providers develop high-quality programming and acquire live sports programming rights to attract viewers.

Consolidation of, or cooperation between, our competitors, including suppliers and distributors of content, may increase competition in all of these areas, as may the emergence of additional competitors with significant resources, greater efficiencies of scale, fewer regulatory burdens and more competitive pricing and packaging, that are competing with our businesses in all forms of content distribution and production. For example, such consolidation or cooperation may allow competitors to offer free or lower cost streaming services, potentially on an exclusive basis, through unlimited data-usage plans for internet or wireless phone services.

The ability of our businesses to compete effectively also depends on our perceived image and reputation among our various constituencies, including our customers, consumers, advertisers, business partners, employees, investors and government authorities. In addition, our ability to compete will be negatively affected if we do not provide our customers with a satisfactory customer experience.

Changes in consumer behavior continue to adversely affect our businesses and challenge existing business models.

Distribution platforms for viewing and purchasing content have been, and will likely continue to be, developed that further increase the number of competitors that all our businesses face and challenge existing business models. As consumers increasingly turn to DTC streaming and other OTT services, the number of Cable Communications' video customers and amount of subscriber fees paid to NBCUniversal's television networks decrease, even as Cable Communications' broadband services have become more important to consumers. DTC streaming and other OTT services have driven, and will continue to drive, changes in consumer behavior as consumers seek more control over when, where and how they consume content and access communications services, and how much they pay for such content.

Cable Communications continues to experience accelerated net losses in its video and voice customers. For example, in Europe, more of Sky's new video customers have recently subscribed, and may continue to subscribe, to NOW, Sky's DTC streaming service, instead of its traditional DTH video service. Although we have attempted to adapt our video service offerings, enhance our broadband services for changing consumer behaviors, and offer new programming, such as Peacock, the continuing trend of content owners delivering their content directly to consumers rather than through, or in addition to, traditional video distribution channels continues to disrupt traditional distribution business models.

The increase in DTC streaming and other OTT service providers, as well as in gaming and virtual reality products and services, also has significantly increased the number of entertainment choices available to consumers, which has intensified audience fragmentation and disaggregated the way that content traditionally has been distributed and viewed by consumers. The use of DTC streaming and other OTT services reduces traditional television viewership, coupled with time-shifting technologies, such as DVR and on demand services, has caused and likely will continue to cause audience ratings declines for our television programming channels. In addition, as more programming providers offer their content directly to consumers through their own apps or platforms, they may reduce the quantity and quality of the programming they license to NBCUniversal or Sky's television channels or to Peacock. Our results of operations may be impacted as we license our own content exclusively on our content platforms, including Peacock, rather than receiving license revenue from third parties for rights to such content.

Our failure to effectively anticipate or adapt to emerging competitors or changes in consumer behavior, including among younger consumers, and shifting business models could have an adverse effect on our competitive position, businesses and results of operations.

A decline in advertisers' expenditures or changes in advertising markets could negatively impact our businesses.

We compete for the sale of advertising time with digital media distributors, websites and search engines, other television networks and stations, as well as with all other advertising platforms, such as radio and print. We derive substantial revenue from the sale of advertising, and a decline in expenditures by advertisers, including through traditional linear television distribution models, could negatively impact our results of operations. Declines can be caused by the economic prospects of specific advertisers or industries, increased competition for the leisure time of viewers, such as from social media and video games, audience fragmentation, increased viewing of content through DTC streaming and other OTT service providers, increased use of time-shifting and advertising-blocking technologies, regulatory intervention regarding where and when advertising may be placed, or economic conditions generally. In addition, advertisers have shifted a portion of their total expenditures to digital media, and this trend may continue or accelerate. Their willingness to purchase advertising from us may be adversely affected by lower audience ratings and reduced viewership, which many of NBCUniversal's networks and some of Sky's television channels have experienced and likely will continue to experience, or from the level of popularity or perceived acceptance of Peacock. Advertising sales and rates also are dependent on the methodology used for audience measurement and could be negatively affected if methodologies do not accurately reflect actual viewership levels.

Programming expenses for our video services are increasing on a per subscriber basis, which could adversely affect Cable Communications' video businesses.

We expect programming expenses for our video services to continue to be the largest single expense item for our Cable Communications segment and to continue to increase on a per subscriber basis. Part of Cable Communications' programming expenses include payments to certain local broadcast television stations in exchange for their required consent for the retransmission of broadcast network programming to video services customers; we expect to continue to be subject to increasing demands for payment and other concessions from local broadcast television stations. These market factors may be exacerbated by increased consolidation in the media industry, which may further increase our programming expenses. If we are unable to offset programming cost increases through rate increases, the sale of additional services, cost management or other initiatives, the increasing cost of programming could have an adverse effect on our Cable Communications segment's results of operations.

Moreover, as our contracts with content providers expire, there can be no assurance that they will be renewed on acceptable terms, or at all, in which case we may be unable to provide such content as part of Cable Communications' video services, and our businesses and results of operations could be adversely affected.

NBCUniversal's and Sky's success depends on consumer acceptance of their content, and their businesses may be adversely affected if their content fails to achieve sufficient consumer acceptance.

NBCUniversal and Sky create and acquire media and entertainment content, the success of which depends substantially on consumer tastes and preferences that often change in unpredictable ways. The success of these businesses depends on our ability to consistently create, acquire, market and distribute television programming, filmed entertainment, theme park attractions and other content that meet the changing preferences of the broad domestic and international consumer markets. We have invested, and will continue to invest, substantial amounts in our content, including in the production of original content for NBCUniversal, including Peacock, and Sky, in our films and for new theme parks and theme park attractions, before learning the extent to which they will earn consumer acceptance. In addition, there can be no assurance that Peacock will continue to grow or sustain its revenue or user base or successfully compete as a standalone DTC streaming service.

NBCUniversal and Sky also obtain a significant portion of their content from third parties, such as movie studios, television production companies, sports organizations and other suppliers, sometimes on an exclusive basis. Competition for popular content, particularly for sports programming, is intense, and at times, we may increase the price we are willing to pay or be outbid by our competitors for popular content. We also may be unable to license popular third-party content for NBCUniversal's and Sky's television programming channels if media companies determine that licensing the content to us is not in their strategic best interests. For example, content creators have launched and may continue to launch their own DTC streaming or other OTT services, forgoing license fees from us to provide their content directly to consumers, or they may license their content to our competitors on an exclusive basis.

Entering into or renewing contracts for such programming rights or acquiring additional rights has in the past resulted, and may result in the future, in significantly increased costs. Particularly with respect to long-term contracts for sports programming rights for NBCUniversal and Sky, our results of operations and cash flows over the term of a contract depend on a number of factors, including the strength of the advertising market, audience size, the timing and amount of rights payments, and the ability to secure distribution from, impose surcharges on, or obtain carriage on multichannel video providers or to grow and retain subscribers to our own DTC services. There can be no assurance that revenue from these contracts will exceed our costs for the rights, as well as the other costs of producing and distributing the programming. If our content does not achieve sufficient consumer acceptance, or if we cannot obtain or retain rights to popular content on acceptable terms, or at all, NBCUniversal's and Sky's businesses may be adversely affected.

The loss of programming distribution and licensing agreements, or the renewal of these agreements on less favorable terms, could adversely affect our businesses.

NBCUniversal's cable television networks depend on their ability to secure and maintain distribution agreements with traditional and virtual multichannel video providers. The number of subscribers to NBCUniversal's cable television networks has been, and likely will continue to be, reduced as a result of fewer subscribers to multichannel video providers. In addition, NBCUniversal's broadcast television networks depend on their ability to secure and maintain network affiliation agreements with third-party local broadcast television stations in the markets where we do not own the affiliated local broadcast television station. Our owned local broadcast television stations must elect, with respect to retransmission by certain multichannel video providers, either "must-carry" status, in which we require the provider to carry the station without paying any compensation to us, or "retransmission consent," in which we give up our right to mandatory carriage and instead seek to negotiate the terms and conditions of carriage, including the amount of compensation, if any, paid to us by such provider. Sky also depends on its ability to secure and maintain wholesale distribution agreements for its television channels with multichannel video providers.

For all of these types of arrangements, NBCUniversal's and Sky's ability to renew agreements on favorable terms may be affected by industry consolidation and new participants entering the market for distribution of content on digital platforms. There can be no assurance that any of these agreements will be entered into or renewed in the future on acceptable terms. The inability to enter into or renew these agreements could reduce our revenues and the reach of our programming, which could adversely affect NBCUniversal's and Sky's businesses.

Less favorable European telecommunications access regulations, the loss of Sky's transmission access agreements with satellite or telecommunications providers or the renewal of these agreements on less favorable terms could adversely affect Sky's businesses.

Sky relies on various third-party telecommunications providers to deliver its video, broadband, voice and wireless phone services to its customers. For example, Sky relies on satellite transponder capacity leased from third parties to provide most of its video services. In addition, under the current regulatory regimes in the United Kingdom, Ireland and Italy, Sky accesses networks owned by third-party telecommunications providers to offer its broadband and phone services, in many cases, on regulated terms, including price. If there is a change in regulation in these markets, the regulated terms could become less favorable. Moreover, specific pricing terms of Sky's wholesale fiber access are not regulated. As a result, if Sky is only able to enter into or renew its transmission agreements with satellite or telecommunications operators on less favorable terms, it would adversely affect Sky's ability to compete, and if it is ultimately unable to do so on commercially viable terms or if these operators were to terminate their agreements, Sky may be unable to deliver certain of its services to customers in one or more of the markets in which it operates, which would adversely affect Sky's businesses and results of operations.

Our businesses depend on using and protecting certain intellectual property rights and on not infringing the intellectual property rights of others.

We rely on our intellectual property, such as patents, copyrights, trademarks and trade secrets, as well as licenses and other agreements with our vendors and other third parties, to use various technologies, conduct our business operations and sell our products and services. Legal challenges to our intellectual property rights and claims of intellectual property infringement by third parties could require that we enter into royalty or licensing agreements on unfavorable terms, incur substantial monetary liability, or be enjoined preliminarily or permanently from further use of the intellectual property in question, from importing into the United States or other jurisdictions in which we operate hardware or software that uses such intellectual property or from the continuation of our businesses as currently conducted. We may need to change our business practices if any of these events occur, which may limit our ability to compete effectively and could have an adverse effect on our results of operations. Even if we believe any such challenges or claims are without merit, they can be time-consuming, costly to defend and may divert management's attention and resources away from our businesses. Moreover, if we are unable to obtain or continue to obtain licenses from our vendors and other third parties on reasonable terms, our businesses could be adversely affected.

In addition, intellectual property constitutes a significant part of the value of NBCUniversal's and Sky's businesses, and their success is highly dependent on protecting the intellectual property rights of the content they create or acquire against third-party misappropriation, reproduction or infringement. The unauthorized reproduction, distribution or display of copyrighted material negatively affects our ability to generate revenue from the legitimate sale of our content, as well as from the sale of advertising in connection with our content, and increases our costs due to our active enforcement of our intellectual property rights.

Piracy and other unauthorized uses of content are made easier, and the enforcement of intellectual property rights more challenging, by technological advances that allow the conversion of programming, films and other content into digital formats, which facilitates the creation, transmission and sharing of high-quality unauthorized copies. In particular, piracy of programming and films through unauthorized distribution platforms continues to present challenges for NBCUniversal's businesses, and certain entities may stream our broadcast television content illegally online without our consent and without paying us any compensation. It also presents similar challenges for Sky's businesses, including as a result of illegal retransmission of sports events. While piracy is a challenge in the United States, it is particularly prevalent in many parts of the world that lack developed copyright laws, effective enforcement of copyright laws and technical protective measures like those in effect in the United States. If any U.S. or international laws intended to combat piracy and protect intellectual property rights are repealed or weakened or are not adequately enforced, or if the legal system fails to adapt to new technologies that facilitate piracy, we may be unable to effectively protect our rights, the value of our intellectual property may be negatively impacted and our costs of enforcing our rights may increase.

We may be unable to obtain necessary hardware, software and operational support.

We depend on third-party vendors to supply us with a significant amount of the hardware, software and operational support necessary to provide certain of our products and services. Some of these vendors represent our primary source of supply or grant us the right to incorporate their intellectual property into some of our hardware and software products. While we monitor the operations and financial condition of key vendors in an attempt to detect any potential difficulties, there can be no assurance that we would timely identify any operating or financial difficulties associated with these vendors or that we could effectively mitigate our risks with respect to any such difficulties. If any of these vendors experience operating or financial difficulties or any other supply chain compliance-related issues, if our demand exceeds their capacity or if they breach or terminate their agreements with us or are otherwise unable to meet our specifications or provide the equipment, products or services we need in a timely manner (or at all), or at reasonable prices, our ability to provide some products or services may be adversely affected and we may incur additional costs.

Our businesses depend on keeping pace with technological developments.

Our success is, to a large extent, dependent on our ability to acquire, develop, adopt and leverage new and existing technologies, and our competitors' use of certain types of technology and equipment may provide them with a competitive advantage. New technologies can materially impact our businesses in a number of ways, including affecting the demand for our products, the distribution methods of our products and content to our customers, the ways in which our customers can purchase and view our content and the growth of distribution platforms available to advertisers. For example, current and new wireless internet technologies (including 4G and 5G wireless broadband services and 5G fixed wireless networks) continue to evolve rapidly and may allow for greater speed and reliability for those services as compared with prior technologies. In addition, some companies and U.S. municipalities are building advanced fiber-based networks that provide very fast internet access speeds. We expect advances in communications technology to continue to occur in the future. If we choose technology or equipment that is not as effective or attractive to consumers as that employed by our competitors, if we fail to employ technologies desired by consumers before our competitors do so, or if we fail to execute effectively on our technology initiatives, our businesses and results of operations could be adversely affected. We also will continue to incur additional costs as we execute our technology initiatives, such as the deployment of multigigabit symmetrical speeds by leveraging our DOCSIS 4.0 technology and the development and enhancement of various streaming platforms. There can be no assurance that we can execute on these and other initiatives in a manner sufficient to grow or maintain our revenue or to successfully compete in the future. We also may generate less revenue or incur increased costs if changes in our competitors' product offerings require that we offer certain services or enhancements at a lower or no cost to our customers or that we increase our research and development expenditures.

A cyber attack, information or security breach, or technology disruption or failure may negatively impact our ability to conduct our business or result in the misuse of confidential information, all of which could adversely affect our business, reputation and results of operations.

Network and information systems and other technologies, including those that are related to our network management, customer service operations and programming delivery and are embedded in our products and services, are critical to our business activities. In the ordinary course of our business, there are constant attempts by third parties to cause systems-related events and security incidents and to identify and exploit vulnerabilities in security architecture and system design. These incidents include computer hackings, cyber attacks, computer viruses, worms or other destructive or disruptive software, denial of service attacks, phishing attacks, malicious social engineering, and other malicious activities. Incidents also may be caused inadvertently by us or our third-party vendors, such as process breakdowns and vulnerabilities in security architecture or system design.

Cyber threats and attacks are constantly evolving and are growing in sophistication and frequency, which increases the difficulty of detecting and successfully defending against them. Some cyber attacks have had, and in the future can have, cascading impacts that unfold with increasing speed across networks, information systems and other technologies across the world and create latent vulnerabilities in our and third-party vendors' systems and other technologies. Moreover, as we also obtain certain confidential, proprietary and personal information about our customers, personnel and vendors, and in some cases provide this information to third party vendors who agree to protect it, we face the risk that this information may become compromised through a cyber attack or data breach, misappropriation, misuse, leakage, falsification or accidental release or loss of information. Due to the nature of our businesses, we may be at a disproportionately heightened risk of these types of incidents occurring because we maintain certain information necessary to conduct our business in digital form. We also incorporate third-party software (including extensive open-source software), applications, and data hosting and cloud-based services into many aspects of our products, services and operations, as well as rely on service providers to help us perform our business operations, all of which expose us to cyber attacks on such third-party suppliers and service providers.

While we develop and maintain systems, and operate extensive programs that seek to prevent security incidents from occurring, these efforts are costly and must be constantly monitored and updated in the face of sophisticated and rapidly evolving attempts to overcome our security measures and protections. The occurrence of both intentional and unintentional incidents have in the past, and could in the future, cause a variety of potential adverse business impacts. These include degradation or disruption of our network, products and services, excessive call volume to call centers, theft or misuse of our intellectual property or other assets, disruption of the security of our internal systems, products, services or satellite transmission signals, power outages, and the compromise of confidential or technical business information or damage to our or our customers' or vendors' data, equipment and reputation. Moreover, the amount and scope of insurance we maintain against losses resulting from any of the foregoing events likely would not be sufficient to fully cover our losses or otherwise adequately compensate us for disruptions to our business that may result. In addition, any such events could lead to litigation or cause regulators in the United States and internationally to impose significant fines or other remedial measures, including with respect to relevant customer privacy rules, or otherwise have an adverse effect on our company. Despite our efforts, we expect that we will continue to experience such incidents in the future, and there can be no assurance that any such incident will not have an adverse effect on our business, reputation or results of operations.

Weak economic conditions may have a negative impact on our businesses.

A substantial portion of our revenue comes from customers whose spending patterns may be affected by prevailing economic conditions. Weak economic conditions in the United States, in Europe or globally could adversely affect demand for any of our products and services, including advertising, and have a negative impact on our results of operations. For example, weak economic conditions will likely impact our customers' discretionary spending and as a result, they may reduce the level of services to which they subscribe or may discontinue subscribing to one or more of our services altogether. This risk may be increased by the expanded availability of free or lower cost competitive services, such as certain DTC streaming and other OTT services, or substitute services for broadband and voice services, such as wireless and public Wi-Fi networks. Weak economic conditions also negatively impact our advertising revenue, the performance of our films and home entertainment releases, and attendance and spending in our theme parks. In particular, the success of our theme parks and theatrical releases largely depends on consumer demand for out-of-home entertainment experiences, which may be limited by weakened economic conditions.

Weak economic conditions and disruptions in the global financial markets may impact our ability to obtain financing or to refinance existing debt on acceptable terms, if at all, could increase the cost of our borrowings and may increase our exposure to currency fluctuations in countries where we operate. Further, inflationary pressures in the United States, in Europe and globally may also have negative impacts on our cost structure and pricing models and may impact the ability of third parties (including advertisers, customers, suppliers, wholesale distributors, retailers and content creators, among others) to satisfy their obligations to us.

Acquisitions and other strategic initiatives present many risks, and we may not realize the financial and strategic goals that we had contemplated.

From time to time, we make acquisitions and investments and may pursue other strategic initiatives, such as Peacock. In connection with such acquisitions and strategic initiatives, we may incur significant or unanticipated expenses, fail to realize anticipated benefits and synergies, have difficulty incorporating an acquired or new line of business, disrupt relationships with current and new employees, customers and vendors, incur significant debt, divert the attention of management from our current operations, or have to delay or not proceed with announced transactions or initiatives. These and other circumstances could also result in the impairment of goodwill and long-lived assets. Additionally, federal regulatory or antitrust agencies such as the FCC or DOJ or international regulators may impose restrictions on the operation of our businesses as a result of our seeking regulatory approvals for any significant acquisitions and strategic initiatives or may dissuade us from pursuing certain transactions. The occurrence of any of these events could have an adverse effect on our business and results of operations.

We face risks relating to doing business internationally that could adversely affect our businesses.

We operate our businesses worldwide. There are risks inherent in doing business internationally, including global financial market turmoil; economic volatility and global economic slowdown; currency exchange rate fluctuations and inflationary pressures; political risks; requirements of local laws and customs relating to the publication and distribution of content and the display and sale of advertising; import or export restrictions, tariffs, sanctions and trade regulations; difficulties in developing, staffing and managing foreign operations; issues related to occupational safety and adherence to diverse local labor laws and regulations; and potentially adverse tax developments. Additionally, although we employ foreign currency derivative instruments to hedge certain exposure to foreign currency exchange rate risks, including the British pound, Euro and Japanese yen, the use of such derivative instruments may not be sufficient to mitigate exchange rate fluctuations. Sky's businesses in particular are also subject to risks relating to uncertainties and effects of the United Kingdom's withdrawal from the European Union (referred to as "Brexit"), including financial, legal, tax and trade implications. In addition, doing business internationally subjects us to risks relating to political or social unrest, as well as corruption and government regulation, including U.S. laws such as the Foreign Corrupt Practices Act and the U.K. Bribery Act, that impose stringent requirements on how we conduct our foreign operations. Moreover, foreign enforcement of laws and contractual rights in certain countries where we do business can be inconsistent and unpredictable, which may affect our ability to enforce our rights or make investments that we believe otherwise make strategic sense. If any of these events occur or our conduct does not comply with such laws and regulations, our businesses may be adversely affected.

Natural disasters, severe weather and other uncontrollable events could adversely affect our business, reputation and results of operations.

Our services, products and properties are vulnerable to damage from the occurrence of certain events, including natural disasters, severe weather events such as hurricanes and wild fires, and a range of other unforeseeable events such as infectious disease outbreaks, including COVID-19, terrorist attacks or other similar events. Such events have in the past caused, and could in the future cause, a variety of adverse business impacts including degradation or disruption of our network, products and services, excessive call volume to call centers, a reduction in demand for our products, services and theme parks, disruption of our internal systems, products, services or satellite transmission signals, power outages, and damage to our or our customers' or vendors' equipment and properties. These events also may result in lost revenue and large expenditures to repair or replace damaged properties, products and services and could lead to litigation and fines, including if we inadvertently contributed to damages suffered by others. In addition, COVID-19 and corresponding governmental measures to prevent its spread across the globe have negatively impacted, and may continue to negatively impact, our businesses. For example, as a result of COVID-19, we have at times temporarily closed our theme parks or operated them with capacity restrictions.

The amount and scope of insurance we maintain against losses resulting from these types of events likely would not be sufficient to fully cover our losses or otherwise adequately compensate us for disruptions to our business that may result. We expect that we will continue to experience some or all of these events in the future, and there can be no assurance that any such event will not have an adverse effect on our business, reputation or results of operations.

The loss of key management personnel or popular on-air and creative talent could have an adverse effect on our businesses.

We rely on certain key management personnel in the operation of our businesses. While we maintain long-term and emergency transition plans for key management personnel and believe we could either identify internal candidates or attract outside candidates to fill any vacancy created by the loss of any key management personnel, the loss of one or more of our key management personnel could have a negative impact on our businesses.

In addition, NBCUniversal and Sky depend on the abilities and expertise of on-air and creative talent. If we fail to attract or retain on-air or creative talent, if the costs to attract or retain such talent increase materially, or if these individuals cause negative publicity or lose their current appeal, our businesses could be adversely affected.

Risks Related to Legal, Regulatory and Governance Matters

We are subject to regulation by federal, state, local and foreign authorities, which impose additional costs and restrictions on our businesses.

Our businesses are subject to various federal, state and local laws and regulations, with some also subject to international laws and regulations. In particular, the Communications Act and FCC regulations and policies affect significant aspects of our cable communications and broadcast businesses in the United States.

Legislators and regulators at all levels of government frequently consider changing, and sometimes do change, existing statutes, rules or regulations, or interpretations of existing statutes, rules or regulations, or prescribe new ones, any of which may significantly affect our businesses and ability to effectively compete. These legislators and regulators, along with some state attorneys general and foreign governmental authorities, have been active in conducting inquiries and reviews regarding our services. State legislative and regulatory initiatives can create a patchwork of different and/or conflicting state requirements, such as with respect to privacy and Open Internet/net neutrality regulations, that can affect our businesses and ability to effectively compete.

Legislative and regulatory activity has increased under the Biden Administration, particularly with respect to broadband networks. For example, Congress has approved tens of billions of dollars in new funding for broadband deployment and adoption initiatives, and may consider other proposals that address communications issues, including whether it should rewrite the entire Communications Act to account for changes in the communications marketplace and whether it should enact new, permanent Open Internet/net neutrality requirements. Federal agencies likewise may consider adopting new regulations for communications services, including broadband. States and localities are also increasingly proposing new regulations impacting communications services, including broader regulation of broadband networks. Any of these regulations could significantly affect our business and compliance costs. In addition, United States and foreign regulators and courts could adopt new interpretations of existing competition or antitrust laws or enact new competition or antitrust laws or regulatory tools that could negatively impact our businesses. Any future legislative, judicial, regulatory or administrative actions may increase our costs or impose additional restrictions on our businesses, some of which may be significant. We are unable to predict the outcome or effects of any of these potential actions or any other legislative or regulatory proposals on our businesses.

Failure to comply with the laws and regulations applicable to our businesses could result in administrative enforcement actions, fines, and civil and criminal liability. Any changes to the legal and regulatory framework applicable to any of our services or businesses could have an adverse impact on our businesses and results of operations. For a more extensive discussion of the significant risks associated with the regulation of our businesses, see Item 1: Business and refer to the "Legislation and Regulation" discussion within that section.

Unfavorable litigation or governmental investigation results could require us to pay significant amounts or lead to onerous operating procedures.

We are subject from time to time to a number of lawsuits both in the United States and in foreign countries, including claims relating to competition, intellectual property rights (including patents), employment and labor matters, personal injury and property damage, free speech, customer privacy, regulatory requirements, advertising, marketing and selling practices, and credit and collection issues. Greater constraints on the use of arbitration to resolve certain of these disputes could adversely affect our business. We also spend substantial resources complying with various regulatory and government standards, including any related investigations and litigation. We may incur significant expenses defending any such suit or government charge and may be required to pay amounts or otherwise change our operations in ways that could adversely impact our businesses, results of operations or financial condition.

Labor disputes, whether involving employees or sports organizations, may disrupt our operations and adversely affect our businesses.

Many of NBCUniversal's writers, directors, actors, technical and production personnel, as well as some of our on-air and creative talent employees, are covered by collective bargaining agreements or works councils. Most of NBCUniversal's collective bargaining agreements are industry-wide agreements, and we may lack practical control over the negotiations and terms of the agreements. If we are unable to reach agreement with a labor union before the expiration of a collective bargaining agreement, our employees who were covered by that agreement may have a right to strike or take other actions that could adversely affect us, which could disrupt our operations and reduce our revenue, and the resolution of any disputes may increase our costs. There can be no assurance that we will renew our collective bargaining agreements as they expire or that we can renew them on favorable terms or without any work stoppages.

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In addition, labor disputes in sports organizations with which we have programming rights agreements of varying scope and duration could have an adverse effect on our businesses.

Our Class B common stock has substantial voting rights and separate approval rights over several potentially material transactions, and our Chairman and CEO has considerable influence over our company through his beneficial ownership of our Class B common stock.

Our Class B common stock has a non-dilutable 33 1/3% of the combined voting power of our Class A and Class B common stock. This non-dilutable voting power is subject to proportional decrease to the extent the number of shares of Class B common stock is reduced below 9,444,375, which was the number of shares of Class B common stock outstanding on the date of our 2002 acquisition of AT&T Corp.'s cable business, subject to adjustment in specified situations. Stock dividends payable on the Class B common stock in the form of Class B or Class A common stock do not decrease the non-dilutable voting power of the Class B common stock. The Class B common stock also has separate approval rights over several potentially material transactions, even if they are approved by our Board of Directors or by our other shareholders and even if they might be in the best interests of our other shareholders. These potentially material transactions include mergers or consolidations involving us, transactions (such as a sale of all or substantially all of our assets) or issuances of securities that require shareholder approval, transactions that result in any person or group owning shares representing more than 10% of the combined voting power of the resulting or surviving corporation, issuances of Class B common stock or securities exercisable or convertible into Class B common stock, and amendments to our articles of incorporation or by-laws that would limit the rights of holders of our Class B common stock. Brian L. Roberts, our chairman and CEO, beneficially owns all of the outstanding shares of our Class B common stock and, accordingly, has considerable influence over our company and the potential ability to transfer effective control by selling the Class B common stock, which could be at a premium.

Item 1B: Unresolved Staff Comments

None.

Item 2: Properties

We believe our physical assets are generally in good operating condition and are suitable and adequate for our business operations. We own our corporate headquarters and Cable Communications segment headquarters, which are located in Philadelphia, Pennsylvania at One Comcast Center. Additionally, we own the Comcast Technology Center, which is adjacent to the Comcast Center, and is a center for Cable Communications' technology and engineering workforce, as well as the home of our NBCUniversal and Telemundo owned local broadcast stations in Philadelphia, Pennsylvania. We also have leases for numerous business offices, warehouses and properties throughout the United States that house divisional information technology operations.

Cable Communications Segment

Our principal physical assets consist of operating plant and equipment, including cable system signal receiving, encoding and decoding devices, headends and distribution networks. Our distribution network consists primarily of headends, content distribution servers, coaxial and fiber-optic cables, lasers, routers, switches and related electronic equipment. Our cable plant and related equipment generally are connected to utility poles under pole rental agreements with local public utilities, although in some areas the distribution cable is buried in underground ducts or trenches. The physical components of cable systems require periodic maintenance and replacement.

Our cable system signal reception sites, which consist primarily of antenna towers and headends, and our microwave facilities are located on owned and leased parcels of land, and we own or lease space on the towers on which certain of our equipment is located. We own most of our service vehicles.

Our broadband network consists of fiber-optic cables owned or leased by us and related equipment. We also operate national and regional data centers with equipment that is used to provide services, such as email and web services, to our broadband and voice customers, as well as cloud services to our video customers. In addition, we maintain network operations centers with equipment necessary to monitor and manage the status of our services and network.

We own or lease buildings throughout the United States that contain retail stores and customer service centers, warehouses and administrative space. We also own a building that houses our digital media center. The digital media center contains equipment that we own or lease, including equipment related to network origination, video transmission via satellite and terrestrial fiber-optics, broadcast studios, post-production services and interactive television services.

NBCUniversal Segments

NBCUniversal's corporate headquarters are located in New York, New York at 30 Rockefeller Plaza and surrounding campus and include offices and studios, which are used by Headquarters and Other and the Media segment. We own substantially all of the space we occupy at 30 Rockefeller Plaza. We also lease space in 10 Rockefeller Plaza that includes *The Today Show* studio, production facilities and offices used by the Media segment. Telemundo's leased headquarters and production facilities are located in Miami, Florida and are used by the Media segment and Headquarters and Other. The Universal City location in California includes offices, studios, and theme park and retail operations that are owned by NBCUniversal and used by all NBCUniversal segments. Our owned CNBC headquarters and production facilities and disaster recovery center are located in Englewood Cliffs, New Jersey and are used by the Media segment and Headquarters and Other. We also own or lease offices, studios, production facilities, screening rooms, retail operations, warehouse space, satellite transmission receiving facilities and data centers in numerous locations in the United States and around the world, including property for our owned local broadcast television stations. In addition, we own theme parks and own or lease related facilities in Orlando, Florida; Hollywood, California; Osaka, Japan; and Beijing, China, that are used in the Theme Parks segment, and we are developing a new theme park in Orlando, Florida.

Sky Segment

Sky's principal physical assets consist of operating plant and equipment, including leased satellite system signal receiving, encoding and decoding devices, and owned and leased headends and distribution networks, including coaxial, fiber-optic cables and other related equipment. In the United Kingdom, Sky uses a combination of its own core fiber network and wholesaling arrangements over third-party telecommunication providers' networks as the core network and also accesses the "last mile" network from third-party network operators for a fee to provide its services to customers. The physical components of cable systems require periodic maintenance and replacement.

We own Sky's corporate headquarters, which are located in Middlesex, U.K. We lease the Sky Deutschland headquarters located in Unterföhring, Germany and the Sky Italia headquarters located in Milan, Italy.

We also own or lease offices, production facilities and studios, broadcasting facilities, customer support centers and retail stores throughout Europe, including in the United Kingdom, Ireland, Germany, Italy and Austria. We opened the first stages of our new film and television studio facility in Elstree, U.K. in 2022, which is leased by Sky.

Other

The Wells Fargo Center, a large, multipurpose arena in Philadelphia, Pennsylvania that we own is the principal physical operating asset used by our other businesses.

[Item 3: Legal Proceedings](#)

See Note 15 included in this Annual Report on Form 10-K for a discussion of legal proceedings.

[Item 4: Mine Safety Disclosures](#)

Not applicable.

Part II

Item 5: Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Comcast's Class A common stock is listed on The Nasdaq Stock Market LLC under the symbol CMCSA. There is no established public trading market for Comcast's Class B common stock. The Class B common stock can be converted, on a share for share basis, into Class A common stock.

Dividends Declared

Month Declared:	2022	Dividend Per Share	Month Declared:	2021	Dividend Per Share
January	\$ 0.27		January	\$ 0.25	
May	\$ 0.27		May	\$ 0.25	
July	\$ 0.27		July	\$ 0.25	
October (paid in January 2023)	\$ 0.27		October (paid in January 2022)	\$ 0.25	
Total	\$ 1.08		Total	\$ 1.00	

We expect to continue to pay quarterly dividends, although each dividend is subject to approval by our Board of Directors. In January 2023, our Board of Directors approved a 7.4% increase in our dividend to \$1.16 per share on an annualized basis.

Holders of Class A common stock in the aggregate hold 66²/3% of the combined voting power of our common stock. The number of votes that each share of Class A common stock has at any given time depends on the number of shares of Class A common stock and Class B common stock then outstanding, with each share of Class B common stock having 15 votes per share. The Class B common stock represents 33¹/3% of the combined voting power of our common stock, which percentage is generally non-dilutable under the terms of our articles of incorporation. Mr. Brian L. Roberts beneficially owns all outstanding shares of Class B common stock. Generally, including as to the election of directors, holders of Class A common stock and Class B common stock vote as one class except where class voting is required by law.

Record holders as of January 15, 2023 are presented in the table below.

Stock Class	Record Holders
Class A Common Stock	336,649
Class B Common Stock	1

The table below summarizes Comcast's common stock repurchases during 2022.

Period	Total Number of Shares Purchased	Average Price Per Share	Total Number of Shares Purchased as Part of Publicly Announced Authorization	Total Dollar Amount Purchased Under the Publicly Announced Authorization	Maximum Dollar Value of Shares That May Yet Be Purchased Under the Publicly Announced Authorization ^(a)
First Quarter 2022	62,528,653	\$ 47.98	62,528,653	\$ 2,999,999,980	\$ 7,000,000,020
Second Quarter 2022	70,846,487	\$ 42.35	70,846,487	\$ 3,000,000,186	\$ 3,999,999,835
Third Quarter 2022	92,343,679	\$ 37.90	92,343,679	\$ 3,499,999,758	\$ 19,500,000,217
October 1-31, 2022	36,283,485	\$ 30.32	36,283,485	\$ 1,100,000,250	\$ 18,399,999,967
November 1-30, 2022	37,890,008	\$ 33.48	37,890,008	\$ 1,268,472,576	\$ 17,131,527,391
December 1-31, 2022	32,128,261	\$ 35.22	32,128,261	\$ 1,131,527,211	\$ 16,000,000,180
Total	332,020,573	\$ 39.15	332,020,573	\$ 12,999,999,960	\$ 16,000,000,180

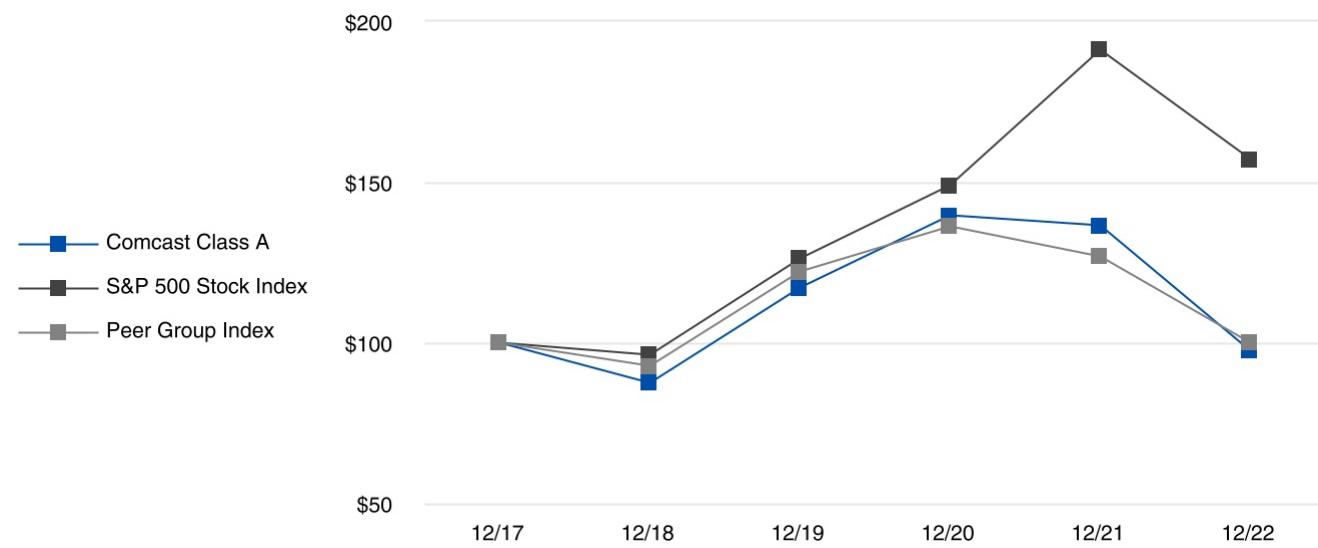
(a) Effective January 1, 2022, our Board of Directors increased our share repurchase program authorization to \$10 billion. In September 2022, our Board of Directors approved a new share repurchase program authorization of \$20 billion, effective September 13, 2022. Under the new authorization, which does not have an expiration date, we expect to repurchase additional shares of our Class A common stock in the open market or in private transactions, subject to market and other conditions.

Stock Performance Graph

The following graph compares the annual percentage change in the cumulative total shareholder return on Comcast's Class A common stock during the five years ended December 31, 2022 with the cumulative total returns on the Standard & Poor's 500 Stock Index and a select peer group consisting of us and other companies engaged in the cable, communications and media industries. This peer group consists of our Class A common stock and the common stock of AT&T Inc., Charter Communications, Inc., DISH Network Corporation (Class A), Lumen Technologies, Inc., T-Mobile US, Inc. and Verizon Communications Inc. (the "transmission and distribution subgroup"); and Warner Bros. Discovery Inc. (formerly Discovery Inc. Class A), Paramount Global (formerly ViacomCBS Inc.) (Class B) and The Walt Disney Company (the "media subgroup").

The peer group is constructed as a composite peer group in which the transmission and distribution subgroup is weighted 66% and the media subgroup is weighted 34% based on the respective revenue of our transmission and distribution and media businesses. The comparison assumes \$100 was invested on December 31, 2017 in our Class A common stock and in each of the following indices and assumes the reinvestment of dividends.

Comparison of 5 Year Cumulative Total Return



	2018	2019	2020	2021	2022
Comcast Class A	\$ 87	\$ 117	\$ 139	\$ 136	\$ 97
S&P 500 Stock Index	\$ 96	\$ 126	\$ 149	\$ 191	\$ 157
Peer Group Index	\$ 93	\$ 122	\$ 136	\$ 127	\$ 100

Item 6: [Reserved]

[Reserved]

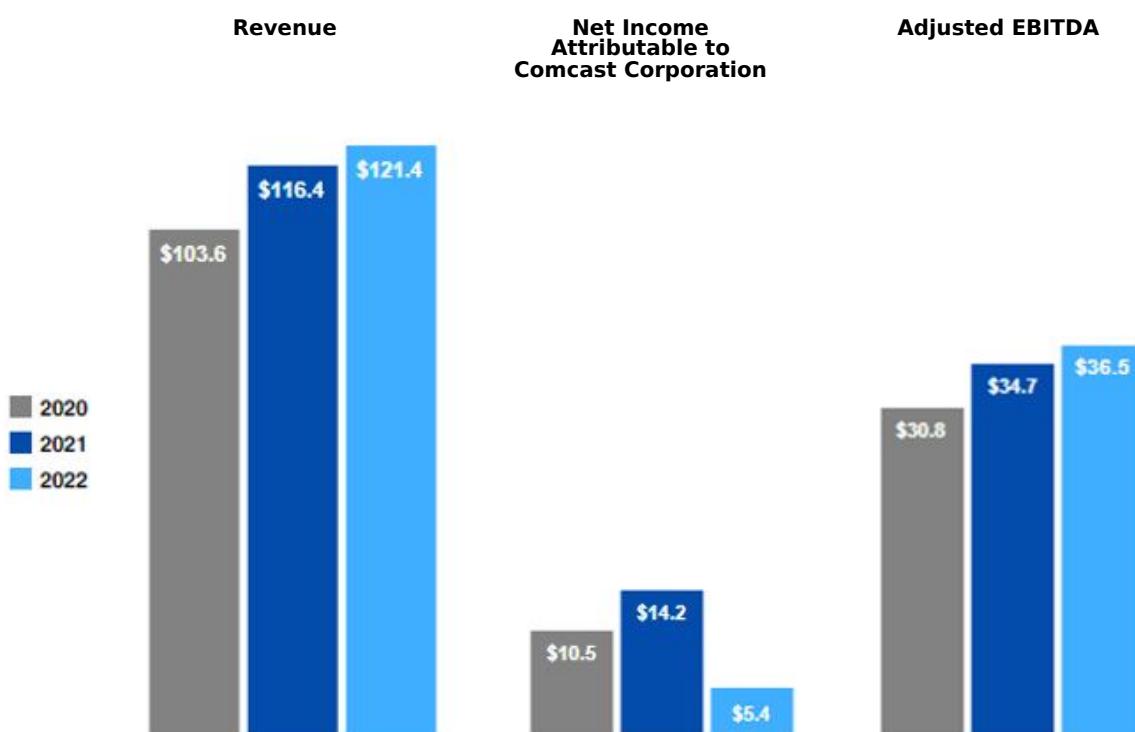
Item 7: Management's Discussion and Analysis of Financial Condition and Results of Operations

Management's discussion and analysis of financial condition and results of operations is provided as a supplement to, and should be read in conjunction with, the consolidated financial statements and related notes to enhance the understanding of our operations and our present business environment. For more information about our company's operations and the risks facing our businesses, see Item 1: Business and Item 1A: Risk Factors, respectively. Refer to Item 7: Management's Discussion and Analysis of Financial Condition and Results of Operations in our [2021 Annual Report on Form 10-K](#) for management's discussion and analysis of financial condition and results of operations for the fiscal year 2021 compared to fiscal year 2020.

Overview

We are a global media and technology company with three primary businesses: Comcast Cable, NBCUniversal and Sky. We present our operations in five reportable business segments (1) Comcast Cable in one reportable business segment, referred to as Cable Communications; (2) NBCUniversal in three reportable business segments: Media, Studios and Theme Parks (collectively, the "NBCUniversal segments"); and (3) Sky in one reportable business segment.

Consolidated Revenue, Net Income Attributable to Comcast Corporation and Adjusted EBITDA^(a)
(in billions)



(a) Adjusted EBITDA is a financial measure that is not defined by generally accepted accounting principles in the United States ("GAAP"). Refer to the "Non-GAAP Financial Measure" section on page 52 for additional information, including our definition and our use of Adjusted EBITDA, and for a reconciliation from net income attributable to Comcast Corporation to Adjusted EBITDA. Revenue, Net Income Attributable to Comcast Corporation and Adjusted EBITDA charts are not presented on the same scale.

2022 Developments

The following are the more significant developments in our businesses during 2022:

Cable Communications

- Revenue increased 3.1% to \$66.3 billion, reflecting increases in broadband, business services, wireless and advertising revenue, partially offset by declines in video, voice and other revenue.
- Adjusted EBITDA increased 4.6% to \$29.4 billion primarily due to increases in revenue and decreases in programming expenses, partially offset by increases in other expenses and in technical and product support expenses.

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- Operating margin increased from 43.7% to 44.3%.
- Total customer relationships increased by 75,000, total wireless lines increased by 1.3 million, total broadband customers increased by 250,000, and total video customers decreased by 2.0 million.
- Capital expenditures increased 9.2% to \$7.6 billion, reflecting increased spending on line extensions, scalable infrastructure, support capital and customer premise equipment.

NBCUniversal

- Total NBCUniversal revenue increased 14.2% to \$39.2 billion and total NBCUniversal Adjusted EBITDA increased 4.9% to \$6.0 billion.
- Media segment revenue increased 2.7% to \$23.4 billion and Adjusted EBITDA decreased 29.7% to \$3.2 billion, including the impact of our broadcasts of the Beijing Olympics, Super Bowl and FIFA World Cup in 2022 and the Tokyo Olympics in 2021. Excluding \$1.7 billion and \$1.8 billion of revenue associated with our broadcasts of the Beijing Olympics, Super Bowl and FIFA World Cup in 2022 and the Tokyo Olympics in 2021, respectively, revenue in the Media segment increased 3.0%, primarily due to increases in distribution and other revenue.
- Media segment results include the operations of Peacock, which in 2022 generated revenue of \$2.1 billion and costs and expenses of \$4.6 billion, compared to revenue of \$778 million and costs and expenses of \$2.5 billion in 2021. We continued to invest in content and grow our customer base during 2022.
- Studios segment revenue increased 23.0% to \$11.6 billion and Adjusted EBITDA increased 6.6% to \$942 million. Revenue increased due to increases in content licensing, theatrical, and home entertainment and other revenue. Studios revenue included licenses of content to our Media and other segments, which are eliminated in consolidation.
- Theme Parks segment revenue increased 49.3% to \$7.5 billion and Adjusted EBITDA increased from \$1.3 billion to \$2.7 billion, reflecting improved operating conditions related to COVID-19 compared to the prior year and the operations of Universal Beijing Resort, which opened in September 2021.

Sky

- Revenue decreased 11.5% to \$17.9 billion. Excluding the impact of foreign currency, Sky revenue decreased due to decreases in direct-to-consumer, content and advertising revenue.
- Adjusted EBITDA increased 7.0% to \$2.5 billion. Excluding the impact of foreign currency, Sky Adjusted EBITDA increased due to decreases in programming and production expenses, which more than offset increases in direct network costs and other expenses and the decreases in revenue.
- We recorded goodwill and long-lived asset impairments related to our Sky segment totaling \$8.6 billion in connection with our 2022 annual impairment assessment. The impairments primarily reflected an increased discount rate and reduced estimated future cash flows as a result of macroeconomic conditions in Sky's territories.

Other

- Our consolidated joint venture with Charter Communications, now named Xumo, was formed in June 2022 to focus on developing and offering a streaming platform on a variety of devices, including XClass TV smart televisions, and also operates the Xumo Play streaming service.
- SkyShowtime, our direct-to-consumer streaming service joint venture with Paramount Global, launched in select European markets beginning in September 2022 and will launch in additional European markets in 2023.
- Corporate and Other Adjusted EBITDA losses of \$1.4 billion remained consistent with the prior year primarily due to increased losses from Sky Glass and Xumo, offset by lower administrative costs.
- Our Board of Directors approved a new share repurchase program authorization of \$20 billion, effective September 13, 2022. Repurchased a total of 332 million shares of our Class A common stock for \$13.0 billion in 2022 compared to a total of 73.2 million shares of our Class A common stock for \$4.0 billion in 2021. Raised our dividend by \$0.08 to \$1.08 per share on an annualized basis in January 2022 and paid \$4.7 billion of dividends in 2022.

COVID-19 has impacted our businesses in a number of ways, affecting the comparability of periods included in this report. The most significant continuing impacts have resulted from temporary restrictions and closures at our international theme parks. The continuing effects of COVID-19, in addition to worsening U.S., European and global economic conditions and consumer sentiment, may adversely impact demand for our products and services, including advertising, and our results of operations over the near to medium term. In addition, changes in foreign currency exchange rates have impacted our results of operations in our Sky and Theme Parks segments as a result of the strengthening of the U.S. dollar in 2022 compared to the prior year.

Consolidated Operating Results

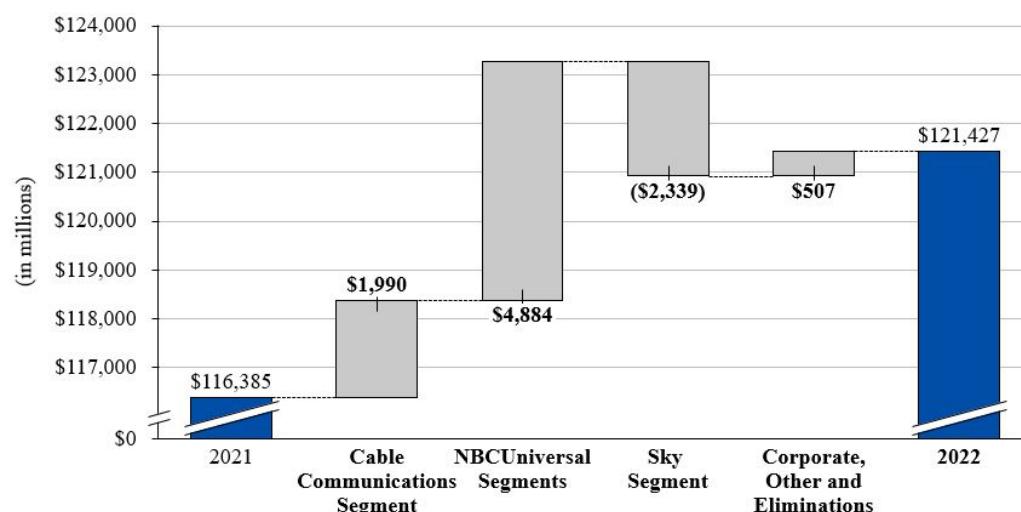
Year ended December 31 (in millions, except per share data)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Revenue	\$ 121,427	\$ 116,385	\$ 103,564	4.3 %	12.4 %
Costs and Expenses:					
Programming and production	38,213	38,450	33,121	(0.6)	16.1
Other operating and administrative	38,263	35,619	33,109	7.4	7.6
Advertising, marketing and promotion	8,506	7,695	6,741	10.5	14.2
Depreciation	8,724	8,628	8,320	1.1	3.7
Amortization	5,097	5,176	4,780	(1.5)	8.3
Goodwill and long-lived assets impairments	8,583	—	—	NM	NM
Total costs and expenses	107,385	95,568	86,071	12.4	11.0
Operating income	14,041	20,817	17,493	(32.5)	19.0
Interest expense	(3,896)	(4,281)	(4,588)	(9.0)	(6.7)
Investment and other income (loss), net	(861)	2,557	1,160	NM	120.4
Income before income taxes	9,284	19,093	14,065	(51.4)	35.7
Income tax expense	(4,359)	(5,259)	(3,364)	(17.1)	56.3
Net income	4,925	13,833	10,701	(64.4)	29.3
Less: Net income (loss) attributable to noncontrolling interests	(445)	(325)	167	36.9	NM
Net income attributable to Comcast Corporation	\$ 5,370	\$ 14,159	\$ 10,534	(62.1)%	34.4 %
Basic earnings per common share attributable to Comcast Corporation shareholders	\$ 1.22	\$ 3.09	\$ 2.30	(60.5)%	34.3 %
Diluted earnings per common share attributable to Comcast Corporation shareholders	\$ 1.21	\$ 3.04	\$ 2.28	(60.2)%	33.3 %
Adjusted EBITDA^(a)	\$ 36,459	\$ 34,708	\$ 30,826	5.0 %	12.6 %

Percentage changes that are considered not meaningful are denoted with NM.

(a) Adjusted EBITDA is a non-GAAP financial measure. Refer to the “Non-GAAP Financial Measure” section on page 52 for additional information, including our definition and our use of Adjusted EBITDA, and for a reconciliation from net income attributable to Comcast Corporation to Adjusted EBITDA.

Consolidated Revenue

The following graph illustrates the contributions to the change in consolidated revenue made by our Cable Communications, NBCUniversal and Sky segments, as well as by Corporate and Other activities, including eliminations.



The primary drivers of the change in revenue from 2021 to 2022 were as follows:

- Growth in our NBCUniversal segments driven by increased revenue in the Theme Parks, Studios and Media segments.
- Growth in our Cable Communications segment driven by increased broadband, business services, wireless and advertising, partially offset by decreased video, voice and other revenue.
- Growth in Corporate and Other revenue driven by sales of Sky Glass televisions, Spectacor revenue and Xumo revenue related to the Xumo Play streaming service.
- A decrease in our Sky segment driven by decreased direct-to-consumer, content and advertising revenue, as well as the impact of foreign currency translation.

Revenue for our segments and other businesses is discussed separately below under the heading "Segment Operating Results."

Consolidated Costs and Expenses

The following graph illustrates the contributions to the change in consolidated costs and expenses, excluding depreciation expense, amortization expense, and goodwill and long-lived asset impairments, made by our Cable Communications, NBCUniversal and Sky segments, as well as by Corporate and Other activities, including adjustments and eliminations.

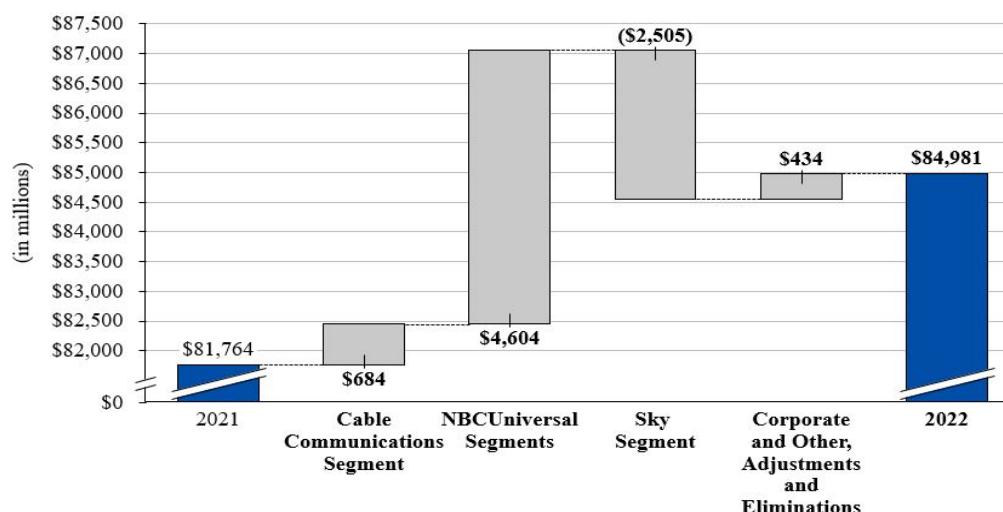


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The primary drivers of the change in consolidated costs and expenses, excluding depreciation expense, amortization expense, and goodwill and long-lived asset impairments, from 2021 to 2022 were as follows:

- An increase in NBCUniversal expenses due to increases in our Studios, Media and Theme Parks segments.
- An increase in Cable Communications segment expenses due to increased other expenses and technical and product support costs, partially offset by decreases in programming expense; franchise and other regulatory fees; advertising, marketing and promotion expenses; and customer service expenses.
- An increase in Corporate and Other expenses primarily due to costs related to Sky Glass, Xumo and Spectacor.
- A decrease in Sky segment expenses primarily due to a decrease in programming and production costs, partially offset by increases in direct network costs and other expenses, as well as the impacts of foreign currency translation.

Costs and expenses for our segments and our corporate operations, business development initiatives and other businesses are discussed separately below under the heading "Segment Operating Results."

Consolidated Depreciation and Amortization Expense

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Cable Communications	\$ 7,811	\$ 7,811	\$ 7,753	— %	0.7 %
NBCUniversal	2,562	2,466	2,307	3.9	6.9
Sky	3,169	3,379	3,034	(6.2)	11.4
Corporate and Other	279	147	6	89.8	NM
Comcast Consolidated	\$ 13,821	\$ 13,804	\$ 13,100	0.1 %	5.4 %

Percentage changes that are considered not meaningful are denoted with NM.

Corporate and Other depreciation and amortization increased primarily due to business development initiatives. NBCUniversal depreciation and amortization expense increased primarily due to the opening of Universal Beijing Resort in September 2021. Sky depreciation and amortization expense decreased primarily due to the impacts of foreign currency, partially offset by increased amortization of software. Cable Communications depreciation and amortization expense remained consistent with the prior year.

Amortization expense from acquisition-related intangible assets totaled \$2.2 billion, \$2.4 billion and \$2.3 billion for 2022, 2021 and 2020, respectively. Amounts primarily relate to customer relationship intangible assets recorded in connection with the Sky transaction in the fourth quarter of 2018 and the NBCUniversal transaction in 2011.

Consolidated Goodwill and Long-lived Asset Impairments

Goodwill and long-lived asset impairments included charges related to our Sky segment totaling \$8.6 billion for 2022 recognized in connection with our annual impairment assessment. The impairments primarily reflected an increased discount rate and reduced estimated future cash flows as a result of macroeconomic conditions in Sky's territories. See "Critical Accounting Judgments and Estimates" and Note 10 for further discussion.

Consolidated Interest Expense

Interest expense decreased in 2022 compared to 2021 primarily due to a decrease in average debt outstanding and \$204 million of charges recorded in 2021 related to the early redemption of senior notes, partially offset by higher weighted-average interest rates.

Consolidated Investment and Other Income (Loss), Net

Year ended December 31 (in millions)	2022	2021	2020
Equity in net income (losses) of investees, net	\$ (537)	\$ 2,006	\$ (113)
Realized and unrealized gains (losses) on equity securities, net	(320)	339	1,014
Other income (loss), net	(3)	211	259
Total investment and other income (loss), net	\$ (861)	\$ 2,557	\$ 1,160

The change in equity in net income (losses) of investees, net in 2022 compared to 2021 was primarily due to our investment in Atairos. The income (losses) at Atairos were driven by fair value adjustments on its underlying investments with income (loss) of \$(434) million and \$1.8 billion in 2022 and 2021, respectively. The change in realized and unrealized gains (losses) on equity securities, net in 2022 compared to 2021 was primarily due to gains on nonmarketable securities in the prior year, while losses on marketable securities were consistent in both years. The change in other income (loss), net in 2022 compared to 2021 primarily resulted from losses on insurance contracts and equity method investment impairments.

Consolidated Income Tax (Expense) Benefit

Our effective income tax rate in 2022 and 2021 was 47.0% and 27.5%, respectively.

Income tax expense for 2022 was affected by changes in our net deferred tax liabilities as a result of the enactment of tax law changes, including \$286 million of benefit in 2022 related to state taxes and \$498 million of expense in 2021 in the United Kingdom. Our effective income tax rate for 2022 was also impacted by the goodwill impairment, which was primarily not deductible for tax purposes. See Note 5 for additional information on our effective income tax rate.

Consolidated Net Income (Loss) Attributable to Noncontrolling Interests

The changes in net income (loss) attributable to noncontrolling interests in 2022 compared to 2021 was primarily due to the operations of our Xumo streaming platform joint venture in the current year and increased losses at Universal Beijing Resort due to operations in the current year compared to pre-opening costs in the prior year in advance of the park's opening in September 2021 (see Note 8).

Segment Operating Results

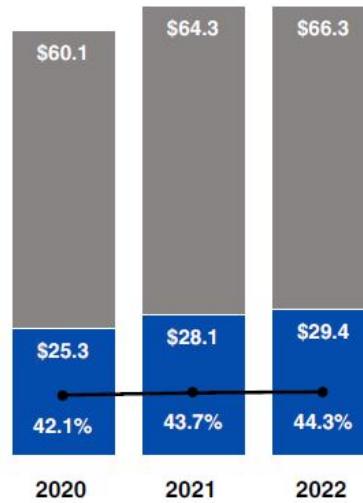
Our segment operating results are presented based on how we assess operating performance and internally report financial information. We use Adjusted EBITDA as the measure of profit or loss for our operating segments.

See Note 2 for our definition of Adjusted EBITDA and a reconciliation from the aggregate amount of Adjusted EBITDA for our reportable business segments to consolidated income before income taxes.

Cable Communications Segment Results of Operations

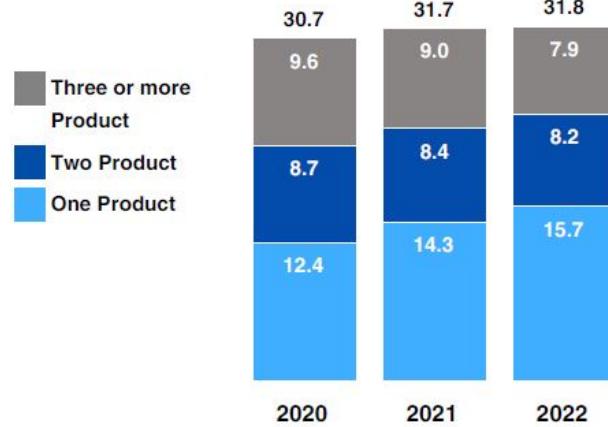
Revenue and Adjusted EBITDA

(in billions)



Residential Customer Relationships

(in millions)



Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Revenue					
Residential:					
Broadband	\$ 24,469	\$ 22,979	\$ 20,599	6.5 %	11.6 %
Video	21,314	22,079	21,937	(3.5)	0.6
Voice	3,010	3,417	3,532	(11.9)	(3.3)
Wireless	3,071	2,380	1,574	29.0	51.2
Business services	9,700	8,933	8,191	8.6	9.1
Advertising	3,067	2,820	2,594	8.8	8.7
Other	1,687	1,719	1,624	(1.9)	5.9
Total revenue	66,318	64,328	60,051	3.1	7.1
Costs and expenses					
Programming	13,884	14,285	13,498	(2.8)	5.8
Technical and product support	9,109	8,566	8,022	6.3	6.8
Customer service	2,292	2,347	2,432	(2.4)	(3.5)
Advertising, marketing and promotion	3,840	3,938	3,759	(2.5)	4.8
Franchise and other regulatory fees	1,637	1,806	1,625	(9.4)	11.1
Other	6,153	5,290	5,445	16.3	(2.8)
Total costs and expenses	36,915	36,231	34,781	1.9	4.2
Adjusted EBITDA	\$ 29,403	\$ 28,097	\$ 25,270	4.6 %	11.2 %

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Customer Metrics

Our customer relationships net additions were lower in 2022 as compared to 2021 primarily due to decreased growth in our broadband net additions and also reflected accelerated net losses in our video and voice customers. In a reversal from pandemic trends, our broadband net addition growth has slowed primarily reflecting continued low household move levels and an increasingly competitive environment.

(in thousands)	2022	2021	2020	Net Additions / (Losses)		
				2022	2021	2020
Customer relationships						
Residential customer relationships	31,782	31,728	30,692	54	1,036	1,569
Business services customer relationships	2,510	2,489	2,426	21	63	30
Total customer relationships	34,293	34,218	33,119	75	1,099	1,599
Residential customer relationships mix						
One product customers	15,652	14,330	12,408	1,322	1,922	2,187
Two product customers	8,188	8,407	8,734	(218)	(328)	(188)
Three or more product customers	7,942	8,992	9,550	(1,050)	(558)	(429)
Broadband						
Residential customers	29,812	29,583	28,326	230	1,257	1,937
Business services customers	2,339	2,318	2,248	21	70	34
Total broadband customers	32,151	31,901	30,574	250	1,327	1,971
Video						
Residential customers	15,554	17,495	18,993	(1,941)	(1,498)	(1,295)
Business services customers	589	681	852	(93)	(171)	(114)
Total video customers	16,142	18,176	19,846	(2,034)	(1,669)	(1,408)
Voice						
Residential customers	7,912	9,062	9,645	(1,150)	(583)	(289)
Business services customers	1,369	1,391	1,357	(22)	34	15
Total voice customers	9,282	10,454	11,002	(1,172)	(548)	(275)
Wireless						
Wireless lines	5,313	3,980	2,826	1,334	1,154	774

Customer metrics are presented based on actual amounts. Customer relationships represent the number of residential and business customers that subscribe to at least one of our services. One product, two product, and three or more product customers represent residential customers that subscribe to one, two, or three or more of our services, respectively. For multiple dwelling units ("MDUs"), including buildings located on college campuses, whose residents have the ability to receive additional services, such as additional programming choices or our HD video or DVR services, we count and report customers based on the number of potential billable relationships within each MDU. For MDUs whose residents are not able to receive additional services, the MDU is counted as a single customer. Residential broadband and video customer metrics include certain customers that have prepaid for services. Business customers are generally counted based on the number of locations receiving services within our distribution system, with certain offerings such as Ethernet network services counted as individual customer relationships. Wireless lines represent the number of activated, eligible wireless devices on customers' accounts. Individual customer relationships may have multiple wireless lines. Customer metrics in 2020 and 2021 did not include customers in certain pandemic-related programs through which portions of our customers temporarily received our services for free. These programs ended in December 2021, resulting in a one-time benefit to net additions in 2022.

	2022	2021	2020	% Change 2022 to 2021	% Change 2021 to 2020
Average monthly total revenue per customer relationship	\$ 161.33	\$ 159.22	\$ 154.84	1.3 %	2.8 %
Average monthly Adjusted EBITDA per customer relationship	\$ 71.53	\$ 69.55	\$ 65.16	2.9 %	6.7 %

Average monthly total revenue per customer relationship is impacted by rate adjustments and changes in the types and levels of services received by our residential and business services customers, as well as changes in advertising revenue. While revenue from our residential broadband, video, voice and wireless services is also impacted by changes in the allocation of revenue among services sold in a bundle, the allocation does not impact average monthly total revenue per customer relationship. Each of our services has a different contribution to operating margin. We use average monthly Adjusted EBITDA per customer relationship to evaluate the profitability of our customer base across our service offerings. We believe both metrics are useful to understand the trends in our business, and average monthly Adjusted EBITDA per customer relationship is useful particularly as we continue to focus on growing our higher-margin businesses.

Cable Communications Segment - Revenue

We are a leading provider of broadband, video, voice, wireless, and other services to residential customers in the United States under the Xfinity brand; we also provide these and other services to business customers and sell advertising. We market our services to residential and business customers individually and as bundled services at a discounted rate.

Residential revenue includes amounts earned for providing our broadband, video, voice and wireless services, including equipment and installation services. Residential broadband revenue also includes revenue earned related to our customers' use of Flex and streaming services, and wireless revenue also includes device sales. Revenue from each of our residential services is impacted by changes in the allocation of revenue among services sold in a bundle. Franchise and regulatory fees billed to our customers are included with the relevant service, which primarily relate to video and voice services.

Broadband revenue increased in 2022 primarily due to an increase in average rates and an increase in the number of residential broadband customers.

Video revenue decreased in 2022 primarily due to a decline in the number of residential video customers, partially offset by an increase in average rates. We expect that the number of residential video customers will continue to decline, negatively impacting video revenue as a result of the competitive environment and shifting video consumption patterns.

Voice revenue decreased in 2022 primarily due to a decline in the number of residential voice customers. We expect that the number of residential voice customers and voice revenue will continue to decline.

Wireless revenue increased in 2022 primarily due to an increase in the number of customer lines and device sales.

Business services revenue from our business customers includes our service offerings for small business locations, which primarily include broadband, voice and video services, as well as our solutions for medium-sized customers and larger enterprises, and cellular backhaul services to mobile network operators.

Business services revenue increased in 2022 primarily due to increases in average rates and customer relationships compared to the prior year and due to the acquisition of Masergy in October 2021.

Advertising revenue consists of the sale of advertising on linear television and digital platforms to local, regional and national advertisers, including where we represent the advertising sales efforts of other multichannel video providers, and revenue from our advanced advertising business.

Advertising revenue increased in 2022 primarily due to increases in political advertising and revenue from our advanced advertising business. These increases were partially offset by lower local and national advertising revenue, and by advertising revenue at our Xumo Play streaming service, which is a part of our Xumo streaming platform that has been reported in Corporate and Other since June 2022.

Other revenue primarily relates to our security and automation services and also includes revenue related to residential customer late fees and related to other services, such as the licensing of our technology platforms to other multichannel video providers.

Cable Communications Segment - Costs and Expenses

Programming expenses, which represent our most significant operating expense, are the fees we incur to provide content to our customers. These expenses represent the programming license fees charged by content providers, including the fees related to the distribution of cable and broadcast network programming and fees charged for retransmission of the signals from local broadcast television stations.

Programming expenses decreased in 2022 primarily due to a decline in the number of video subscribers, partially offset by contractual rate increases.

We expect that our programming expenses will be impacted by rate increases to a greater extent in 2023 compared to 2022 due to the timing of contract renewals, which will be offset by expected declines in the number of residential video customers.

Technical and product support expenses include costs to complete service call and installation activities; costs for network operations, product development, fulfillment and provisioning; the cost of wireless handsets, tablets and smart watches sold to customers; and monthly wholesale wireless access fees.

Technical and product support expenses increased in 2022 primarily due to increased costs associated with our wireless phone service resulting from increases in device sales and the number of customers receiving the service, and the acquisition of Masergy, partially offset by lower personnel costs.

Customer service expenses include the personnel and other costs associated with handling the sale of services to customers and customer service activity.

Customer service expenses decreased in 2022 primarily due to lower labor costs as a result of reduced call volumes.

Advertising, marketing and promotion expenses include the costs associated with attracting new customers and promoting our service offerings.

Advertising, marketing and promotion expenses decreased in 2022 primarily due to a decrease in spending.

Franchise and other regulatory fees represent the fees we are required to pay to federal, state and local authorities, including fees under the terms of our cable franchise agreements.

Franchise and other regulatory fees decreased in 2022 primarily due to a decrease in the revenue to which the fees apply and a decrease in the related rates of these fees.

Other expenses primarily include administrative personnel costs; fees paid to third-party channels for which Cable represents the advertising sales efforts; other business support costs, including building and office expenses, taxes and billing costs; and bad debt.

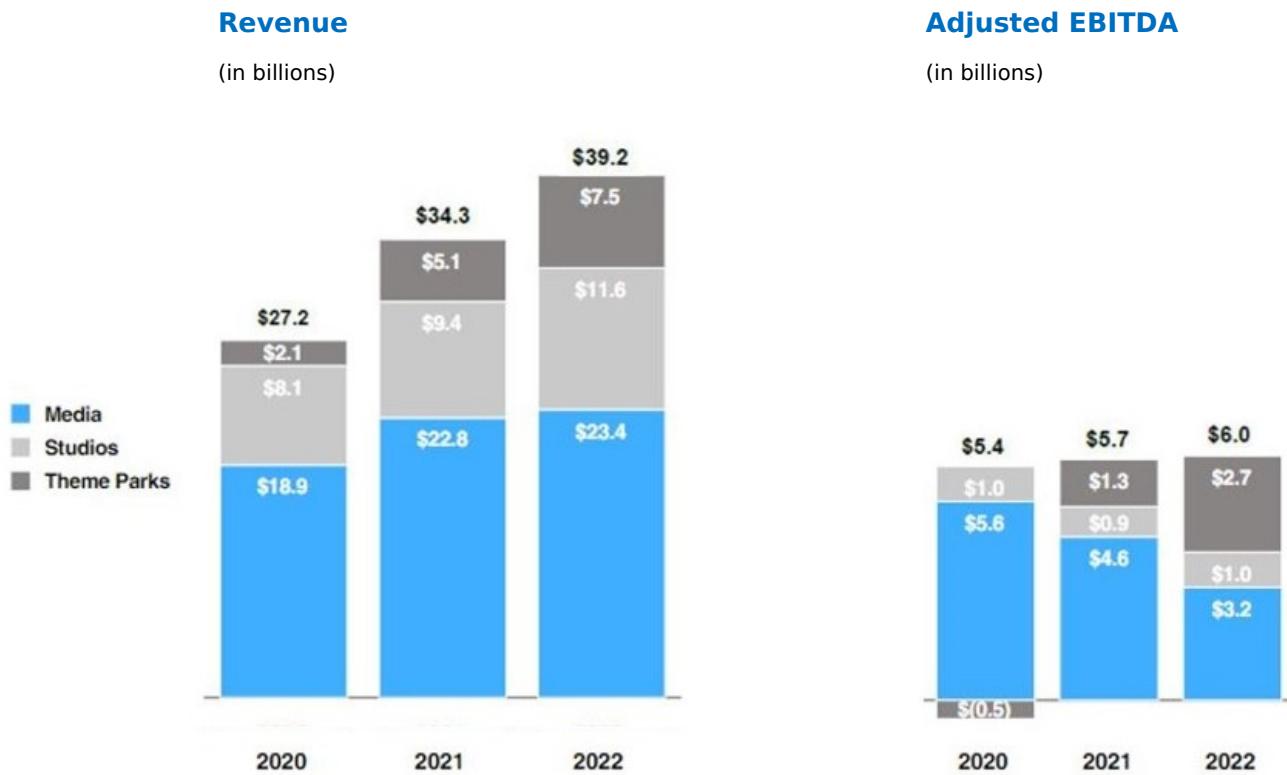
Other expenses increased in 2022 primarily due to lower levels of bad debt expense in the prior year and severance charges in the current year.

Cable Communications Segment - Operating Margin

Our operating margin is Adjusted EBITDA as a percentage of revenue. We believe this metric is useful particularly as we continue to focus on growing our higher-margin businesses and improving overall cost management. Our operating margin was 44.3%, 43.7% and 42.1% in 2022, 2021 and 2020, respectively.

NBCUniversal Segments Overview

2022 NBCUniversal Segments Operating Results^(a)



(a) Segment details in the charts exclude the results of NBCUniversal Headquarters and Other and Eliminations and therefore the amounts do not equal the total. Revenue and Adjusted EBITDA charts are not presented on the same scale.

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Revenue					
Media	\$ 23,406	\$ 22,780	\$ 18,936	2.7 %	20.3 %
Studios	11,622	9,449	8,134	23.0	16.2
Theme Parks	7,541	5,051	2,094	49.3	141.2
Headquarters and Other	75	87	53	(13.6)	63.8
Eliminations	(3,442)	(3,048)	(2,006)	(12.9)	(51.9)
Total revenue	\$ 39,203	\$ 34,319	\$ 27,211	14.2 %	26.1 %
Adjusted EBITDA					
Media	\$ 3,212	\$ 4,569	\$ 5,574	(29.7)%	(18.0)%
Studios	942	884	1,041	6.6	(15.1)
Theme Parks	2,683	1,267	(477)	111.7	NM
Headquarters and Other	(881)	(840)	(563)	(4.8)	(49.3)
Eliminations	(2)	(205)	(220)	99.1	6.5
Total Adjusted EBITDA	\$ 5,955	\$ 5,675	\$ 5,355	4.9 %	6.0 %

Percentage changes that are considered not meaningful are denoted with NM.

Media Segment Results of Operations

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Revenue					
Advertising	\$ 10,467	\$ 10,291	\$ 8,296	1.7 %	24.1 %
Distribution	10,881	10,449	8,795	4.1	18.8
Other	2,058	2,040	1,845	0.9	10.5
Total revenue	23,406	22,780	18,936	2.7	20.3
Costs and expenses					
Programming and production	14,723	13,337	9,319	10.4	43.1
Other operating and administrative	3,951	3,611	3,209	9.4	12.5
Advertising, marketing and promotion	1,520	1,264	834	20.3	51.4
Total costs and expenses	20,194	18,212	13,362	10.9	36.3
Adjusted EBITDA	\$ 3,212	\$ 4,569	\$ 5,574	(29.7)%	(18.0)%

Media Segment - Revenue

Advertising revenue consists of the sale of advertising on our television networks, Peacock and other digital properties.

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Advertising	\$ 10,467	\$ 10,291	\$ 8,296	1.7 %	24.1 %
<i>Advertising, excluding Olympics, Super Bowl and FIFA World Cup</i>	9,050	9,054	8,296	—	9.1

Advertising revenue increased in 2022 compared to 2021 and included our broadcasts of the Beijing Olympics, Super Bowl and FIFA World Cup in 2022, offset by our broadcast of the Tokyo Olympics in 2021. Excluding \$1.4 billion and \$1.2 billion of incremental revenue associated with the broadcasts of these events in 2022 and 2021, respectively, advertising revenue remained consistent with the prior year primarily due to a decrease in revenue at our networks, offset by increased revenue at Peacock. The decreases at our networks were primarily due to continued audience ratings declines and the impact of additional sporting events in the prior year, partially offset by higher pricing in the current year and increased political advertising.

Distribution revenue includes the fees received from the distribution of our cable and broadcast television network programming to traditional and virtual multichannel video providers and from NBC-affiliated and Telemundo-affiliated local broadcast television stations. Distribution revenue also includes distribution revenue associated with our periodic broadcasts of the Olympic Games and subscription fees received from Peacock subscribers.

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Distribution	\$ 10,881	\$ 10,449	\$ 8,795	4.1 %	18.8 %
<i>Distribution, excluding Olympics</i>	10,554	9,928	8,795	6.3	12.9

Distribution revenue increased in 2022 compared to 2021 and included our broadcast of the Beijing Olympics in 2022, offset by our broadcast of the Tokyo Olympics in 2021. Excluding \$327 million and \$522 million of incremental revenue associated with our broadcasts of the Beijing and Tokyo Olympics in 2022 and 2021, respectively, distribution revenue increased primarily due to increased revenue at Peacock. Distribution revenue at our networks remained consistent with the prior year due to contractual rates increases, offset by a decline in the number of subscribers.

Other revenue primarily relates to the licensing of our owned programming and revenue generated by various digital properties.

* * *

We expect the number of subscribers and audience ratings at our networks will continue to decline as a result of the competitive environment and shifting video consumption patterns. Media segment total revenue included \$2.1 billion and \$778 million related to Peacock in 2022 and 2021, respectively.

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Media Segment - Costs and Expenses

Programming and production costs include the amortization of owned and licensed programming, including sports rights, direct production costs, production overhead, on-air talent costs and costs associated with the distribution of our programming to third-party networks and other distribution platforms.

Programming and production costs increased in 2022 primarily due to higher programming costs at Peacock and costs associated with our broadcasts of the Beijing Olympics, Super Bowl and FIFA World Cup in 2022, partially offset by costs associated with our broadcast of the Tokyo Olympics in 2021.

Other operating and administrative expenses include salaries, employee benefits, rent and other overhead expenses.

Other operating and administrative expenses increased in 2022 primarily due to increased costs related to Peacock.

Advertising, marketing and promotion expenses consist primarily of the costs associated with promoting content on our networks, Peacock and other digital properties, as well as costs associated with promoting our platforms and digital properties.

Advertising, marketing and promotion expenses increased in 2022 primarily due to higher marketing costs related to Peacock.

* * *

Media segment total costs and expenses included \$4.6 billion and \$2.5 billion related to Peacock in 2022 and 2021, respectively. We expect to continue to incur significant costs related to additional content and marketing as we invest in the platform and attract new customers.

Studios Segment Results of Operations

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Revenue					
Content licensing	\$ 8,713	\$ 7,565	\$ 6,557	15.2 %	15.4 %
Theatrical	1,607	691	418	132.5	65.4
Home entertainment and other	1,302	1,193	1,159	9.2	2.9
Total revenue	11,622	9,449	8,134	23.0	16.2
Costs and expenses					
Programming and production	8,186	6,820	5,413	20.0	26.0
Other operating and administrative	797	667	813	19.4	(18.0)
Advertising, marketing and promotion	1,697	1,078	867	57.4	24.3
Total costs and expenses	10,680	8,565	7,093	24.7	20.7
Adjusted EBITDA	\$ 942	\$ 884	\$ 1,041	6.6 %	(15.1)%

Studios Segment - Revenue

Content licensing revenue relates to the licensing of our owned film and television content in the United States and internationally to cable, broadcast and premium networks and DTC streaming service providers, as well as through video on demand and pay-per-view services provided by multichannel video providers and OTT service providers.

Content licensing revenue increased in 2022 primarily due to the timing of when content was made available by our television and film studios under licensing agreements, including additional sales of content as production levels returned to normal, partially offset by the impact of a new licensing agreement for content that became exclusively available for streaming on Peacock in 2021.

Theatrical revenue relates to the worldwide distribution of our produced and acquired films for exhibition in movie theaters.

Theatrical revenue increased in 2022 primarily due to the strong performances of releases in our 2022 slate, including *Jurassic World: Dominion* and *Minions: The Rise of Gru*.

Home entertainment and other revenue consists of the sale of content on DVDs/Blu-ray discs and through digital distribution services, as well as the production and licensing of live stage plays and the distribution of content produced by third parties. The overall DVD/Blu-ray discs market continues to experience declines due to the maturation of the DVD/Blu-ray disc format from increasing shifts in consumer behavior toward digital distribution services and subscription rental services, both of which generate less revenue per transaction than DVD/Blu-ray disc sales, as well as due to piracy.

Home entertainment and other revenue increased in 2022 primarily due to increased revenue related to our live stage plays, which were adversely impacted by theater and entertainment venue closures in the prior year.

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Studios Segment - Costs and Expenses

Programming and production costs include the amortization of capitalized film and television production and acquisition costs, residuals and participations payments, and distribution expenses. The costs associated with producing film and television content have generally increased in recent years and may continue to increase in the future.

Programming and production costs increased in 2022 due to higher costs associated with content licensing sales and theatrical releases in the current year.

Other operating and administrative expenses include salaries, employee benefits, rent and other overhead expenses.

Other operating and administrative expenses increased in 2022 primarily due to higher costs associated with live stage plays.

Advertising, marketing and promotion expenses consist primarily of expenses associated with advertising for our theatrical releases and the marketing of DVDs/Blu-ray discs. The costs associated with marketing films have generally increased in recent years and may continue to increase in the future.

Advertising, marketing and promotion expenses increased in 2022 primarily due to higher spending on current period and upcoming theatrical film releases in the current year.

Theme Parks Segment Results of Operations

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Revenue	\$ 7,541	\$ 5,051	\$ 2,094	49.3 %	141.2 %
Costs and expenses	4,858	3,783	2,571	28.4	47.1
Adjusted EBITDA	\$ 2,683	\$ 1,267	\$ (477)	111.7 %	NM

Percentage changes that are considered not meaningful are denoted with NM.

Theme parks revenue primarily relates to guest spending at our theme parks, including ticket sales and in-park spending and our consumer products business.

Theme park segment revenue increased in 2022 primarily due to improved operating conditions compared to 2021, when our theme parks in Orlando, Hollywood and Japan were impacted by COVID-19 restrictions, as well as the operations of Universal Beijing Resort, which opened in September 2021. Results at our international theme parks in the current year have been negatively impacted by fluctuations in foreign currency exchange rates and by temporary restrictions and closures that were reinstated in certain periods due to COVID-19.

Theme parks costs and expenses consist primarily of theme park operations, including repairs and maintenance and related administrative expenses; food, beverage and merchandise costs; labor costs; and sales and marketing costs.

Theme park segment costs and expenses increased in 2022 primarily as a result of decreased operating costs in the prior year due to COVID-19 restrictions at our theme parks and due to operating costs associated with Universal Beijing Resort in the current year, which were higher than pre-opening costs in the prior year.

NBCUniversal Headquarters, Other and Eliminations

Headquarters and Other Results of Operations

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Revenue	\$ 75	\$ 87	\$ 53	(13.6)%	63.8 %
Costs and expenses	956	927	616	3.1	50.5
Adjusted EBITDA	\$ (881)	\$ (840)	\$ (563)	(4.8)%	(49.3)%

Headquarters and other expenses include overhead, personnel costs and costs associated with corporate initiatives. Expenses increased in 2022 primarily due to severance charges in the current year, partially offset by a decrease in employee-related costs compared to the prior year.

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Eliminations

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Revenue	\$ (3,442)	\$ (3,048)	\$ (2,006)	12.9 %	51.9 %
Costs and expenses	(3,440)	(2,843)	(1,786)	21.0	59.0
Adjusted EBITDA	\$ (2)	\$ (205)	\$ (220)	(99.1)%	(6.5)%

Amounts represent eliminations of transactions between our NBCUniversal segments, which are affected by the timing of recognition of content licenses between our Studios and Media segments. Prior year amounts include the impact of a new licensing agreement for content that became exclusively available for streaming on Peacock during the first quarter of 2021. Results of operations for NBCUniversal may be impacted as we continue to use content on our platforms, including Peacock, rather than licensing the content to third parties.

For the years ended 2022, 2021 and 2020, approximately 41%, 42% and 34%, respectively, of Studios segment content licensing revenue resulted from transactions with other segments, primarily with the Media segment. Eliminations will increase or decrease to the extent that additional content is made available to our other segments. Refer to Note 2 for further discussion of transactions between our segments.

Sky Segment Results of Operations

Year ended December 31 (in millions)	2022 Actual	2021 Actual	2020 Actual	% Change 2021 to 2022		% Change 2020 to 2021	
				Actual	Constant Currency Change ^(a)	Actual	Constant Currency Change ^(a)
Revenue							
Direct-to-consumer	\$14,621	\$16,455	\$15,223	(11.1)%	(0.8)%	8.1 %	2.0 %
Content	1,138	1,341	1,373	(15.2)	(5.5)	(2.3)	(7.4)
Advertising	2,187	2,489	1,998	(12.1)	(1.9)	24.6	18.4
Total revenue	17,946	20,285	18,594	(11.5)	(1.2)	9.1	3.1
Costs and expenses							
Programming and production	6,830	8,949	8,649	(23.7)	(15.0)	3.5	(1.3)
Direct network costs	2,652	2,612	2,086	1.5	13.1	25.2	17.1
Other	5,939	6,364	5,905	(6.7)	4.2	7.8	2.0
Total costs and expenses	15,420	17,925	16,640	(14.0)	(4.1)	7.7	2.2
Adjusted EBITDA	\$ 2,526	\$ 2,359	\$ 1,954	7.0 %	20.3 %	20.8 %	10.2 %

(a) Constant currency is a non-GAAP financial measure. Refer to the “Non-GAAP Financial Measures” section on page 52 for additional information, including our definition and our use of constant currency, and for a reconciliation of Sky’s constant currency growth rates.

Customer Metrics

(in thousands)	2022	2021	2020	Net Additions / (Losses)		
				2022	2021	2020
Total customer relationships	23,115	23,027	23,224	88	(198)	(56)

Customer metrics are presented based on actual amounts. Customer relationships represent the number of residential customers that subscribe to at least one of Sky’s four primary services of video, broadband, voice and wireless phone service. Sky reports business customers, including hotels, bars, workplaces and restaurants, generally based on the number of locations receiving our services.

	2022 Actual	2021 Actual	2020 Actual	% Change 2021 to 2022		% Change 2020 to 2021	
				Actual	Constant Currency Growth ^(a)	Actual	Constant Currency Growth ^(a)
Average monthly direct-to-consumer revenue per customer relationship	\$ 52.81	\$ 59.29	\$ 54.56	(10.9)%	(0.6)%	8.7 %	2.6 %

(a) Constant currency is a non-GAAP financial measure. Refer to the “Non-GAAP Financial Measures” section on page 52 for additional information, including our definition and our use of constant currency, and for a reconciliation of Sky’s constant currency growth rates.

Average monthly direct-to-consumer revenue per customer relationship is impacted by rate adjustments and changes in the types and levels of services received by Sky's customers. Each of Sky's services has a different contribution to Adjusted EBITDA. We believe average monthly direct-to-consumer revenue per customer relationship is useful in understanding the trends in our business across all of our direct-to-consumer service offerings.

Sky Segment - Revenue

Direct-to-consumer revenue primarily relates to video services provided to both residential and business customers, as well as broadband, voice and wireless services. Video service revenue includes both DTH video services and our NOW streaming service. Revenue from our wireless customers also includes device sales.

Direct-to-consumer revenue decreased in 2022 compared to 2021. Excluding the impact of foreign currency, direct-to-consumer revenue decreased primarily due to a lower number of customer relationships during the year and a decrease in average revenue per customer. The lower number of customer relationships was driven by a decrease in Italy, partially offset by increases in the United Kingdom and Germany. The decrease in average revenue per customer relationship reflects decreases in average rates in Italy and Germany, partially offset by an increase in average rates in the United Kingdom. The decline in customer relationships and average revenue per customer relationship in Italy included the effects of the reduced broadcast rights for Serie A, which we had held through the end of the 2020-21 season. Beginning with the 2021-22 season in the third quarter of 2021 and through the 2023-24 season, we have nonexclusive broadcast rights to fewer matches. Sky results have been affected by worsening macroeconomic conditions in the United Kingdom and continental Europe.

Content revenue relates to the distribution of our owned television channels on third-party platforms and the licensing of owned and licensed content.

Content revenue decreased in 2022 compared to 2021. Excluding the impact of foreign currency, content revenue decreased primarily due to lower sports programming licensing revenue driven by changes in licensing agreements in Italy and Germany, partially offset by timing of licensing of owned content to third-party platforms.

Advertising revenue consists of the sale of advertising across our platforms, including our owned television channels, and where we represent the sales efforts of third-party channels, as well as revenue from various technology, tools and solutions relating to our advertising business.

Advertising revenue decreased in 2022 compared to 2021. Excluding the impact of foreign currency, advertising revenue decreased primarily due to decreased advertising revenue associated with Serie A, partially offset by an overall market improvement in the United Kingdom in the first half of the year compared to the prior year.

Sky Segment - Costs and Expenses

Programming and production costs primarily relate to content broadcast on our channels. These costs include the amortization of owned and licensed programming, including sports rights, direct production costs, production overhead and on-air talent costs. These costs also include the fees associated with programming distribution agreements for channels owned by third parties.

Programming and production costs decreased in 2022 compared to 2021. Excluding the impact of foreign currency, these costs decreased primarily reflecting lower costs associated with Serie A in Italy as a result of the reduced broadcast rights and the timing of recognition of costs related to sporting events. The timing impacts included the delayed start of 2020-21 European football seasons due to COVID-19 and the shifting of certain football matches and the related programming expense to the first half of 2023 due to the 2022 FIFA World Cup, which occurred in the fourth quarter of 2022. Programming and production costs were also impacted by lower costs associated with other sports contracts in Germany in the current year.

Direct network costs primarily include costs directly related to the supply of broadband and voice services, including wireless services for wireless handsets and tablets, to our customers. This includes call costs, monthly wholesale access fees and other variable costs associated with our network. In addition, it includes the cost of wireless devices sold to customers.

Direct network costs increased in 2022 compared to 2021. Excluding the impact of foreign currency, these expenses increased primarily due to an increase in costs associated with Sky's broadband and wireless phone services as a result of increases in the number of customers receiving these services and wireless device sales.

Other expenses include costs related to marketing, fees paid to third-party channels for which Sky represents the advertising sales efforts, subscriber management, supply chain, transmission, technology, fixed networks and general administrative costs.

Other expenses decreased in 2022 compared to 2021. Excluding the impact of foreign currency, these expenses increased primarily due to higher administrative costs, including severance charges, partially offset by lower fees paid to third-party channels relating to advertising sales.

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Corporate, Other and Eliminations

Corporate and Other Results of Operations

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Revenue	\$ 863	\$ 461	\$ 248	87.1 %	86.1 %
Costs and expenses	2,223	1,819	2,033	22.3	(10.5)
Adjusted EBITDA	\$ (1,361)	\$ (1,358)	\$ (1,785)	(0.2)%	23.9 %

Corporate and Other primarily includes overhead and personnel costs, the results of other business initiatives and Comcast Spectacor, which owns the Philadelphia Flyers and the Wells Fargo Center arena in Philadelphia, Pennsylvania. Other business initiatives primarily include results associated with Sky Glass smart televisions and the related hardware sales and beginning in June 2022, the operations of Xumo, our consolidated streaming platform joint venture.

Corporate and Other revenue increased in 2022 primarily due to sales of Sky Glass smart televisions, increases at Comcast Spectacor compared to the prior year which included the impacts of COVID-19 and revenue at Xumo related to the Xumo Play streaming service.

Corporate and Other expenses increased in 2022 primarily due to costs related to Sky Glass and Xumo, partially offset by lower administrative costs. We expect to incur increased costs in 2023 related to Xumo.

Eliminations

Year ended December 31 (in millions)	2022	2021	2020	% Change 2021 to 2022	% Change 2020 to 2021
Revenue	\$ (2,903)	\$ (3,008)	\$ (2,540)	(3.5)%	18.5 %
Costs and expenses	(2,838)	(2,942)	(2,572)	(3.5)	14.4
Adjusted EBITDA	\$ (64)	\$ (65)	\$ 32	(1.7)%	NM

Percentage changes that are considered not meaningful are denoted with NM.

Amounts represent eliminations of transactions between Cable Communications, NBCUniversal, Sky and other businesses. Eliminations of transactions between NBCUniversal are presented separately. Amounts reflect increases in eliminations associated with the Beijing and Tokyo Olympics in 2022 and 2021, respectively. Refer to Note 2 for a description of transactions between our segments.

Non-GAAP Financial Measures

Consolidated Adjusted EBITDA

Adjusted EBITDA is a non-GAAP financial measure and is the primary basis used to measure the operational strength and performance of our businesses as well as to assist in the evaluation of underlying trends in our businesses. This measure eliminates the significant level of noncash depreciation and amortization expense that results from the capital-intensive nature of certain of our businesses and from intangible assets recognized in business combinations. It is also unaffected by our capital and tax structures, and by our investment activities, including the results of entities that we do not consolidate, as our management excludes these results when evaluating our operating performance. Our management and Board of Directors use this financial measure to evaluate our consolidated operating performance and the operating performance of our operating segments and to allocate resources and capital to our operating segments. It is also a significant performance measure in our annual incentive compensation programs. Additionally, we believe that Adjusted EBITDA is useful to investors because it is one of the bases for comparing our operating performance with that of other companies in our industries, although our measure of Adjusted EBITDA may not be directly comparable to similar measures used by other companies.

We define Adjusted EBITDA as net income attributable to Comcast Corporation before net income (loss) attributable to noncontrolling interests, income tax expense, investment and other income (loss), net, interest expense, depreciation and amortization expense, and other operating gains and losses (such as impairment charges related to fixed and intangible assets and gains or losses on the sale of long-lived assets), if any. From time to time, we may exclude from Adjusted EBITDA the impact of certain events, gains, losses or other charges (such as significant legal settlements) that affect the period-to-period comparability of our operating performance.



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We reconcile consolidated Adjusted EBITDA to net income attributable to Comcast Corporation. This measure should not be considered a substitute for operating income (loss), net income (loss), net income (loss) attributable to Comcast Corporation, or net cash provided by operating activities that we have reported in accordance with GAAP.

Reconciliation from Net Income Attributable to Comcast Corporation to Adjusted EBITDA

Year ended December 31 (in millions)	2022	2021	2020
Net income attributable to Comcast Corporation	\$ 5,370	\$ 14,159	\$ 10,534
Net income (loss) attributable to noncontrolling interests	(445)	(325)	167
Income tax expense	4,359	5,259	3,364
Investment and other (income) loss, net	861	(2,557)	(1,160)
Interest expense	3,896	4,281	4,588
Depreciation	8,724	8,628	8,320
Amortization	5,097	5,176	4,780
Goodwill and long-lived asset impairments	8,583	—	—
Adjustments ^(a)	13	87	233
Adjusted EBITDA	\$ 36,459	\$ 34,708	\$ 30,826

(a) Amounts represent the impact of certain events, gains, losses or other charges that are excluded from Adjusted EBITDA, including costs related to our investment portfolio, and Sky transaction-related costs in 2021 and 2020. 2020 also includes \$177 million related to a legal settlement.

Constant Currency

Constant currency and constant currency growth rates are non-GAAP financial measures that present our results of operations excluding the estimated effects of foreign currency exchange rate fluctuations. Certain of our businesses, including Sky, have operations outside the United States that are conducted in local currencies. As a result, the comparability of the financial results reported in U.S. dollars is affected by changes in foreign currency exchange rates. In our Sky segment, we use constant currency and constant currency growth rates to evaluate the underlying performance of the business, and we believe it is helpful for investors to present operating results on a comparable basis year over year to evaluate its underlying performance.

Constant currency and constant currency growth rates are calculated by comparing the prior year results adjusted to reflect the average exchange rates from the current year rather than the actual exchange rates that were in effect during the respective prior year.

Reconciliation of Sky Constant Currency Growth Rates

Year ended December 31 (in millions, except per customer data)	2022 Actual	2021 Constant Currency	% Change 2021 to 2022		2021 Actual	2020 Constant Currency	% Change 2020 to 2021
			Constant Currency Change	% Change			
Revenue							
Direct-to-consumer	\$ 14,621	\$ 14,739	(0.8)%	\$ 16,455	\$ 16,125	2.0 %	
Content	1,138	1,204	(5.5)	1,341	1,448	(7.4)	
Advertising	2,187	2,229	(1.9)	2,489	2,101	18.4	
Total revenue	17,946	18,172	(1.2)	20,285	19,675	3.1	
Costs and expenses							
Programming and production	6,830	8,031	(15.0)	8,949	9,064	(1.3)	
Direct network costs	2,652	2,344	13.1	2,612	2,230	17.1	
Other	5,939	5,698	4.2	6,364	6,239	2.0	
Total costs and expenses	15,420	16,074	(4.1)	17,925	17,533	2.2	
Adjusted EBITDA	\$ 2,526	\$ 2,099	20.3 %	\$ 2,359	\$ 2,142	10.2 %	
Average monthly direct-to-consumer revenue per customer relationship	\$ 52.81	\$ 53.11	(0.6)%	\$ 59.29	\$ 57.79	2.6 %	

Other Adjustments

From time to time, we present adjusted information, such as revenue, to exclude the impact of certain events, gains, losses or other charges. This adjusted information is a non-GAAP financial measure. We believe, among other things, that the adjusted information may help investors evaluate our ongoing operations and can assist in making meaningful period-over-period comparisons.

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Liquidity and Capital Resources

Year ended December 31 (in billions)	2022	2021	2020
Cash provided by operating activities	\$ 26.4	\$ 29.1	\$ 24.7
Cash used in investing activities	\$ (14.1)	\$ (13.4)	\$ (12.0)
Cash used in financing activities	\$ (16.2)	\$ (18.6)	\$ (6.5)
December 31 (in billions)		2022	2021
Cash and cash equivalents	\$ 4.7	\$ 8.7	
Short-term and long-term debt	\$ 94.8	\$ 94.8	

Our businesses generate significant cash flows from operating activities. We believe that we will be able to continue to meet our current and long-term liquidity and capital requirements, including fixed charges, through our cash flows from operating activities; existing cash, cash equivalents and investments; available borrowings under our existing credit facility; and our ability to obtain future external financing. Refer to the "Contractual Obligations" discussion below for additional information regarding our cash requirements. We anticipate that we will continue to use a substantial portion of our cash flows from operating activities in repaying our debt obligations, funding our capital expenditures and cash paid for intangible assets, investing in business opportunities, and returning capital to shareholders.

We maintain significant availability under our revolving credit facility and our commercial paper program to meet our short-term liquidity requirements. Our commercial paper program generally provides a lower-cost source of borrowing to fund our short-term working capital requirements. As of December 31, 2022, amounts available under our revolving credit facility, net of amounts outstanding under our commercial paper program and outstanding letters of credit and bank guarantees, totaled \$10.4 billion. We entered into a new revolving credit facility in March 2021 (see Note 6).

We are subject to customary covenants and restrictions set forth in agreements related to debt issued at Comcast and certain of our subsidiaries, including the indentures governing our public debt securities and the credit agreement governing the Comcast revolving credit facility. Our credit facility contains a financial covenant pertaining to leverage, which is the ratio of debt to EBITDA, as defined in the credit facility. Compliance with this financial covenant is tested on a quarterly basis under the terms of the credit facility. As of December 31, 2022, we met this financial covenant by a significant margin, and we expect to remain in compliance with this financial covenant and other covenants related to our debt. The covenants and restrictions in our revolving credit facility do not apply to certain entities, including Sky and our international theme parks.

Operating Activities

Components of Net Cash Provided by Operating Activities

Year ended December 31 (in millions)	2022	2021	2020
Operating income	\$ 14,041	\$ 20,817	\$ 17,493
Depreciation and amortization	13,821	13,804	13,100
Goodwill and long-lived asset impairments	8,583	—	—
Noncash share-based compensation	1,336	1,315	1,193
Changes in operating assets and liabilities	(3,006)	(1,499)	(178)
Payments of interest	(3,413)	(3,908)	(3,878)
Payments of income taxes	(5,265)	(2,628)	(3,183)
Proceeds from investments and other	316	1,246	190
Net cash provided by operating activities	\$ 26,413	\$ 29,146	\$ 24,737

The variance in changes in operating assets and liabilities in 2022 compared to 2021 was primarily related to the timing of amortization and related payments for our film and television costs, including the return to normal production levels and the timing of sporting events, as well as decreases in deferred revenue, partially offset by accruals related to severance in 2022.

The decrease in payments of interest in 2022 was primarily due to the debt exchange in August 2021, including the impact of timing of interest payments, reduced debt balances following repayments in the prior year and cash proceeds from the early settlement of interest rate swaps related to the collateralized obligation.

The increase in income tax payments in 2022 was primarily due to the tax benefit from our senior notes exchange in 2021, which reduced tax payments by \$1.3 billion in the prior year, higher taxable income and higher payments relating to the preceding tax year.

The decrease in proceeds from investments and other compared to 2021 was primarily due to decreased cash distributions received from equity method investments (see Note 8).

Investing Activities

Our most significant recurring investing activity has been capital expenditures, which are discussed further below. The increase in cash used in investing activities in 2022 compared to 2021 was primarily due to purchases of short-term investments throughout the current year, increased capital expenditures and increased cash paid for intangible assets related to software development. These increases were partially offset by the acquisition of Masergy in 2021, increased proceeds from the sale of investments, including maturities of short-term investments in the current year, and decreased cash paid related to the construction of Universal Beijing Resort in the current year.

In 2022, we formed the SkyShowtime joint venture with Paramount Global. The partners have committed to a multiyear funding plan, which began in 2022.

Capital Expenditures

Capital expenditures increased in 2022 primarily due to increased spending in our Theme Parks segment primarily related to Epic Universe and increases in our Cable Communications segment, partially offset by decreases in spending in our Sky segment. The costs associated with the construction of Universal Beijing Resort are presented separately in our consolidated statement of cash flows. See Note 8.

Our most significant capital expenditures are in our Cable Communications segment, and we expect that this will continue in the future. Cable Communications' capital expenditures increased primarily due to increased spending on line extensions, scalable infrastructure, support capital and customer premise equipment. The table below summarizes the capital expenditures we incurred in our Cable Communications segment in 2022, 2021 and 2020.

Year ended December 31 (in millions)	2022	2021	2020
Customer premise equipment	\$ 2,293	\$ 2,203	\$ 2,333
Scalable infrastructure	2,851	2,658	2,289
Line extensions	1,824	1,565	1,394
Support capital	600	503	589
Total	\$ 7,568	\$ 6,930	\$ 6,605

We expect our capital expenditures for 2023 will be focused on increased investment in scalable infrastructure as we increase capacity and execute our plans to upgrade our network to deliver multigigabit speeds, in line extensions for the expansion of both business services and residential passings in our Cable Communications segment, and in the continued deployment of wireless gateways. In addition, we expect to continue investment in existing and new attractions at our Universal theme parks, including the development of Epic Universe. Capital expenditures for subsequent years will depend on numerous factors, including competition, changes in technology, regulatory changes, the timing and rate of deployment of new services, the capacity required for existing services, the timing of new attractions at our theme parks and potential acquisitions.

Financing Activities

Net cash used in financing activities decreased in 2022 compared to 2021 primarily due to higher repurchases and repayments of debt in the prior year, the change in other financing activities and proceeds from short-term borrowings, net in the current year. These decreases were partially offset by increases in repurchases of common stock under our share repurchase program and employee plans and dividends paid in the current year. Other financing activities included payments related to the redemption of NBCUniversal Enterprise redeemable subsidiary preferred stock in the prior year, the settlement of derivative contracts and initial contributions related to our Xumo streaming platform joint venture received in the current year under a multiyear funding plan.

In 2022, we issued \$2.5 billion aggregate principal amount of fixed-rate senior notes maturing between 2025 and 2032, had net borrowings of \$665 million under our commercial paper program, and had borrowings of \$252 million under the Universal Beijing Resort term loan. In 2022, we made total debt repayments of \$2.3 billion, primarily related to senior notes maturing in 2022.

We have made, and may from time to time in the future make, optional repayments on our debt obligations, which may include repurchases or exchanges of our outstanding public notes and debentures, depending on various factors, such as market conditions. Any such repurchases may be effected through privately negotiated transactions, market transactions, tender offers, redemptions or otherwise. See Notes 6 and 8 for additional information on our financing activities.

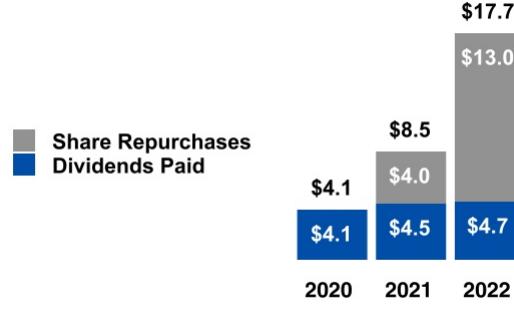
Share Repurchases and Dividends

In the second quarter of 2021, we restarted our share repurchase program, which had been paused since the beginning of 2019. In September 2022, our Board of Directors approved a new share repurchase program authorization of \$20 billion, effective September 13, 2022. During 2022, we repurchased a total of 332.0 million shares of our Class A common stock for \$13.0 billion. As of December 31, 2022, we had \$16.0 billion remaining under the new share repurchase program authorization. Under the new authorization, which does not have an expiration date, we expect to repurchase additional shares of our Class A common stock in the open market or in private transactions, subject to market and other conditions.

Our Board of Directors declared quarterly dividends totaling \$4.8 billion in 2022. We paid dividends of \$4.7 billion in 2022. In January 2023, our Board of Directors approved an 7.4% increase in our dividend to \$1.16 per share on an annualized basis. We expect to continue to pay quarterly dividends, although each dividend is subject to approval by our Board of Directors.

The chart below summarizes our share repurchases under our publicly announced share repurchase program authorization and dividends paid in 2022, 2021 and 2020. In addition, we paid \$321 million and \$674 million in 2022 and 2021, respectively, related to employee taxes associated with the administration of our share-based compensation plans.

Share Repurchases Under Share Repurchase Program Authorization and Dividends Paid (in billions)



Contractual Obligations

The following table summarizes our most significant contractual obligations as of December 31, 2022:

As of December 31, 2022 (in billions)	Total	Within the next 12 months	Beyond the next 12 months
Debt obligations ^(a)	\$ 101.0	\$ 1.7	\$ 99.2
Programming and production obligations	72.8	16.4	56.4

(a) Amounts represent the face value of debt and exclude interest payments and a collateralized obligation (see Note 8).

Our largest contractual obligations relate to our outstanding debt. As of December 31, 2022, our debt has a weighted-average time to maturity of approximately 17 years and, including the effects of our derivative financial instruments, our debt had a weighted-average interest rate based on the stated coupons of 3.59% and 93% of our debt obligations were fixed-rate debt. We typically fund and expect to continue to be able to fund debt maturities and interest payments with cash flows generated in our operations; existing cash, cash equivalents and investments; or proceeds from additional external financing. See Note 6 and Item 7A for additional information on our debt.

We also have significant contractual obligations associated with our programming and production expenses. NBCUniversal and Sky have multiyear agreements for broadcast rights of sporting events, such as for the NFL, the Olympics and European football leagues, which represent the substantial majority of our programming and production obligations. Cable Communications' programming expenses related to the distribution of third-party programmed channels are generally acquired under multiyear distribution agreements, with fees typically based on the number of customers that receive the programming and the extent of distribution. As a result, the amounts included in the table above under fixed or minimum guaranteed commitments for these distribution agreements are not material and we expect the total fees to be paid under these arrangements to be significantly higher than the amounts included above. We have funded and expect to continue to be able to fund our programming and production obligations with the cash generated from our operations. As of December 31, 2022, approximately 36% of cash payments related to our programming and production obligations are due after five years, of which the vast majority related to multiyear sports rights agreements. See Note 4 for additional information on programming and production costs.

Our other contractual obligations relate primarily to operating leases (see Note 15) and other arrangements recorded in our consolidated balance sheet and/or disclosed in the notes to our financial statements, including benefit plan obligations (see Note 11), liabilities for uncertain tax positions (see Note 5), our remaining unfunded capital commitment to Atairos (see Note 8) and a contractual obligation related to an interest held by a third party in the revenue of certain theme parks (see Note 15).

Guarantee Structure

Our debt is primarily issued at Comcast, although we also have debt at certain of our subsidiaries as a result of acquisitions and other issuances. A substantial amount of this debt is subject to guarantees by Comcast and by certain subsidiaries that we have put in place to simplify our capital structure. We believe this guarantee structure provides liquidity benefits to debt investors and helps to simplify credit analysis with respect to relative value considerations of guaranteed subsidiary debt.

Debt and Guarantee Structure

December 31 (in billions)	2022	2021
Debt Subject to Cross-Guarantees		
Comcast	\$ 88.4	85.9
Comcast Cable ^(a)	0.9	2.1
NBCUniversal ^(a)	1.6	1.6
	90.9	89.6
Debt Subject to One-Way Guarantees		
Sky	5.2	6.3
Other ^(a)	0.1	0.1
	5.3	6.5
Debt Not Guaranteed		
Universal Beijing Resort ^(b)	3.5	3.6
Other	1.3	1.2
	4.8	4.7
Debt issuance costs, premiums, discounts, fair value adjustments for acquisition accounting and hedged positions, net	(6.2)	(6.0)
Total debt	\$ 94.8	94.8

(a) NBCUniversal, Comcast Cable and Comcast Holdings (included within other debt subject to one-way guarantees) are each consolidated subsidiaries subject to the periodic reporting requirements of the SEC. The guarantee structures and related disclosures in this section, together with Exhibit 22, satisfy these reporting obligations.

(b) Universal Beijing Resort debt financing is secured by the assets of Universal Beijing Resort and the equity interests of the investors. See Note 8 for additional information.

Cross-Guarantees

Comcast, NBCUniversal and Comcast Cable (the “Guarantors”) fully and unconditionally, jointly and severally, guarantee each other’s debt securities. NBCUniversal and Comcast Cable also guarantee other borrowings of Comcast, including its revolving credit facility. These guarantees rank equally with all other general unsecured and unsubordinated obligations of the respective Guarantors. However, the obligations of the Guarantors under the guarantees are structurally subordinated to the indebtedness and other liabilities of their respective non-guarantor subsidiaries. The obligations of each Guarantor are limited to the maximum amount that would not render such Guarantor’s obligations subject to avoidance under applicable fraudulent conveyance provisions of U.S. and non-U.S. law. Each Guarantor’s obligations will remain in effect until all amounts payable with respect to the guaranteed securities have been paid in full. However, a guarantee by NBCUniversal or Comcast Cable of Comcast’s debt securities, or by NBCUniversal of Comcast Cable’s debt securities, will terminate upon a disposition of such Guarantor entity or all or substantially all of its assets.

The Guarantors are each holding companies that principally hold investments in, borrow from and lend to non-guarantor subsidiary operating companies; issue and service third-party debt obligations; repurchase shares and pay dividends; and engage in certain corporate and headquarters activities. The Guarantors are generally dependent on non-guarantor subsidiary operating companies to fund these activities.

As of December 31, 2022 and 2021, the combined Guarantors have noncurrent notes payable to non-guarantor subsidiaries of \$128 billion and \$126 billion, respectively, and noncurrent notes receivable from non-guarantor subsidiaries of \$30 billion. This financial information is that of the Guarantors presented on a combined basis with intercompany balances between the Guarantors eliminated. The combined financial information excludes financial information of non-guarantor subsidiaries. The underlying net assets of the non-guarantor subsidiaries are significantly in excess of the Guarantor obligations. Excluding investments in non-guarantor subsidiaries, external debt and the noncurrent notes payable and receivable with non-guarantor subsidiaries, the Guarantors do not have material assets, liabilities or results of operations.

One-Way Guarantees

Comcast provides full and unconditional guarantees of certain debt issued by Sky, including all of its senior notes, and other consolidated subsidiaries not subject to the periodic reporting requirements of the SEC.

Comcast also provides a full and unconditional guarantee of \$138 million principal amount of subordinated debt issued by Comcast Holdings. Comcast’s obligations under this guarantee are subordinated and subject, in right of payment, to the prior payment in full of all of Comcast’s senior indebtedness, including debt guaranteed by Comcast on a senior basis, and are structurally subordinated to the indebtedness and other liabilities of its non-guarantor subsidiaries (for purposes of this Comcast Holdings discussion, Comcast Cable and NBCUniversal are included within the non-guarantor subsidiary group). Comcast’s obligations as guarantor will remain in effect until all amounts payable with respect to the guaranteed debt have been paid in full. However, the guarantee will terminate upon a disposition of Comcast Holdings or all or substantially all of its assets. Comcast Holdings is a consolidated subsidiary holding company that directly or indirectly holds 100% and approximately 37% of our equity interests in Comcast Cable and NBCUniversal, respectively.

As of December 31, 2022 and 2021, Comcast and Comcast Holdings, the combined issuer and guarantor of the guaranteed subordinated debt, have noncurrent senior notes payable to non-guarantor subsidiaries of \$97 billion and \$96 billion, respectively, and noncurrent notes receivable from non-guarantor subsidiaries of \$28 billion and \$29 billion, respectively. This financial information is that of Comcast and Comcast Holdings presented on a combined basis with intercompany balances between Comcast and Comcast Holdings eliminated. The combined financial information excludes financial information of non-guarantor subsidiaries of Comcast and Comcast Holdings. The underlying net assets of the non-guarantor subsidiaries of Comcast and Comcast Holdings are significantly in excess of the obligations of Comcast and Comcast Holdings. Excluding investments in non-guarantor subsidiaries, external debt, and the noncurrent notes payable and receivable with non-guarantor subsidiaries, Comcast and Comcast Holdings do not have material assets, liabilities or results of operations.

Critical Accounting Judgments and Estimates

The preparation of our consolidated financial statements requires us to make estimates that affect the reported amounts of assets, liabilities, revenue and expenses, and the related disclosure of contingent assets and contingent liabilities. We base our judgments on our historical experience and on various other assumptions that we believe are reasonable under the circumstances, the results of which form the basis for making estimates about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We believe our judgments and related estimates associated with the valuation and impairment testing of goodwill and cable franchise rights and the accounting for film and television costs are critical in the preparation of our consolidated financial statements. Management has discussed the development and selection of these critical accounting judgments and estimates with the Audit Committee of our Board of Directors, and the Audit Committee has reviewed the related disclosures below. See also Notes 4 and 10.

Valuation and Impairment Testing of Goodwill and Cable Franchise Rights

We assess the recoverability of our goodwill and indefinite-lived intangible assets, including cable franchise rights, annually as of July 1, or more frequently whenever events or substantive changes in circumstances indicate that the assets might be impaired. The assessment of recoverability may first consider qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that the fair value of a reporting unit or an indefinite-lived intangible asset is less than its carrying amount. A quantitative assessment is performed if the qualitative assessment results in a more-likely-than-not determination or if a qualitative assessment is not performed. In connection with our impairment assessment process, in order to support our qualitative assessments, we typically perform quantitative assessments of our cable franchise rights and reporting units approximately once every four years.

Goodwill

Goodwill results from business combinations and represents the excess amount of the consideration paid over the identifiable assets and liabilities recorded in the acquisition. We test goodwill for impairment at the reporting unit level and have concluded that our reporting units are generally the same as our reportable segments. We evaluate the determination of our reporting units periodically or whenever events or substantive changes in circumstances occur. When performing a quantitative assessment, we estimate the fair values of our reporting units primarily based on a discounted cash flow analysis that involves significant judgment, including market participant estimates of future cash flows expected to be generated by the business and the selection of discount rates. When performing this analysis, we also consider multiples of earnings from comparable public companies and recent market transactions.

Pursuant to our practice of performing quantitative assessments of our reporting units approximately once every four years, our current year impairment testing for goodwill in our Cable Communications and NBCUniversal segments was based on quantitative assessments. Based on these assessments, the estimated fair values of these reporting units substantially exceeded their carrying values and no impairment was required. The goodwill in our Sky segment resulted from our acquisition of Sky in the fourth quarter of 2018 and has been in close proximity to its carrying value. We performed a quantitative assessment for goodwill in our Sky reporting unit in the current year and determined that the fair value had declined, resulting in an impairment of \$8.1 billion (see Note 10). In preparing the quantitative assessment, we estimated the fair value of the Sky reporting unit using a discounted cash flow analysis. The significant judgments in the discounted cash flow analysis for the Sky reporting unit included estimated future cash flows generated by the business, including the estimated impacts of macroeconomic conditions in the Sky territories, and the selection of the discount rate, which increased by 125 basis points compared to the analysis in 2021. We evaluated the fair value indicated under the discounted cash flow model considering multiples of earnings from comparable public companies and recent market transactions.

Changes in market conditions, laws and regulations, and key assumptions made in future quantitative assessments, including expected cash flows, competitive factors and discount rates, could negatively impact the results of future impairment testing and could result in the recognition of an additional impairment charge.

Cable Franchise Rights

Our cable franchise rights assets result from agreements we have with state and local governments that allow us to construct and operate a cable business within a specified geographic area. The value of a franchise is derived from the economic benefits we receive from the right to solicit new customers and to market additional services in a particular service area. The amounts we record for cable franchise rights are primarily a result of cable system acquisitions. Typically when we acquire a cable system, the most significant asset we record is the value of the cable franchise rights. Often these cable system acquisitions include multiple franchise areas. We currently serve more than 6,500 franchise areas in the United States.

We have concluded that our cable franchise rights have an indefinite useful life since there are no legal, regulatory, contractual, competitive, economic or other factors that limit the period over which these rights will contribute to our cash flows. Accordingly, we do not amortize our cable franchise rights.

For purposes of impairment testing, we have grouped the recorded values of our various cable franchise rights into our three Cable Communications divisions or units of account. We evaluate the unit of account periodically to ensure our impairment testing is performed at an appropriate level.

When performing a quantitative assessment, we estimate the fair values of our cable franchise rights primarily based on a discounted cash flow analysis that involves significant judgment, including the estimate of future cash flows and the selection of discount rates.

Pursuant to our practice of performing quantitative assessments of cable franchise rights approximately once every four years, our current year impairment testing was based on a quantitative assessment. Based on this assessment, the estimated fair values of our franchise rights substantially exceeded their carrying values and no impairment was required.

Changes in market conditions, laws and regulations and key assumptions made in future quantitative assessments, including expected cash flows, competitive factors and discount rates, could negatively impact the results of future impairment testing and could result in the recognition of an impairment charge.

Film and Television Content

We capitalize costs for owned film and television content, including direct costs, production overhead, print costs, development costs and interest, as well as acquired libraries. We have determined that the predominant monetization strategy for the substantial majority of our content is on an individual basis. Amortization for owned content predominantly monetized on an individual basis and accrued costs associated with participations and residuals payments are recorded using the individual film forecast computation method, which recognizes the costs in the same ratio as the associated ultimate revenue.

Our estimates of ultimate revenue for films generally include revenue from all sources that are expected to be earned within 10 years from the date of a film's initial release. These estimates are based on the distribution strategy and historical performance of similar content, as well as factors unique to the content itself. The most sensitive factor affecting our estimate of ultimate revenue for a film intended for theatrical release is the film's theatrical performance, as subsequent revenue from the licensing and sale of a film has historically exhibited a high correlation to its theatrical performance. Upon a film's release, our estimates of revenue from succeeding markets, including from content licensing across multiple platforms and home entertainment sales, are revised based on historical relationships and an analysis of current market trends.

With respect to television series or other owned television programming, the most sensitive factor affecting our estimate of ultimate revenue is whether the series can be successfully licensed beyond its initial license window. Initial estimates of ultimate revenue are limited to the amount of revenue attributed to the initial license window. Once it is determined that a television series or other owned television programming can be licensed beyond the initial license window, revenue estimates for these additional windows or platforms, such as U.S. and international syndication, home entertainment, and other distribution platforms, are included in ultimate revenue. Revenue estimates for produced episodes include revenue expected to be earned within 10 years of delivery of the initial episode or, if still in production, 5 years from the delivery of the most recent episode, if later.

We capitalize the costs of licensed content when the license period begins, the content is made available for use and the costs of the licenses are known. Licensed content is amortized as the associated programs are used, incorporating estimated viewing patterns. We recognize the costs of multiyear, live-event sports rights as the rights are utilized over the contract term based on estimated relative value. Estimated relative value is generally based on terms of the contract and the nature of and potential revenue generation of the deliverables within the contract.

Capitalized film and television costs are subject to impairment testing when certain triggering events are identified. The substantial majority of our owned content is evaluated for impairment on an individual title basis. Licensed content that is not part of a film group is tested for impairment primarily on a channel, network or platform basis, with the exception of our broadcast networks and owned local broadcast television stations, which are tested on a daypart basis. Sports rights are accounted for as executory contracts and are not subject to impairment. When performing an impairment assessment, we estimate fair value primarily based on a discounted cash flow analysis that involves significant judgment, including market participant estimates of future cash flows, which are supported by internal forecasts. Impairments of capitalized film and television costs were not material in any of the periods presented.

Item 7A: Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk Management

We maintain a mix of fixed-rate and variable-rate debt and we are exposed to the market risk of adverse changes in interest rates. In order to manage the cost and volatility relating to the interest cost of our outstanding debt, we enter into various interest rate risk management derivative transactions in accordance with our policy.

We monitor our exposure to the risk of adverse changes in interest rates through the use of techniques that include market valuation and sensitivity analyses. We do not engage in any speculative or leveraged derivative transactions.

Our interest rate derivative financial instruments, which primarily include cross-currency swaps and interest rate swaps, represent an integral part of our interest rate risk management program.

The effect of our interest rate derivative financial instruments to our consolidated interest expense was a decrease of \$66 million in 2022, a decrease of \$2 million in 2021, and a decrease of \$9 million in 2020. Interest rate derivative financial instruments may have a significant effect on consolidated interest expense in the future.

The table below summarizes by contractual year of maturity the principal amount of our debt, notional amount of our interest rate instruments, effective rates, and fair values subject to interest rate risk maintained by us as of December 31, 2022. We estimate interest rates on variable rate debt and swaps using the relevant average implied forward rates through the year of maturity based on the yield curve in effect on December 31, 2022, plus the applicable borrowing margin.

(in billions)	2023	2024	2025	2026	2027	Thereafter	Total	Estimated Fair Value as of December 31, 2022
Debt								
Fixed-rate debt	\$ 1.1	\$ 3.8	\$ 6.8	\$ 5.1	\$ 5.7	\$ 74.2	\$ 96.7	\$ 82.6
Average interest rate ^(a)	2.0 %	2.9 %	3.6 %	2.4 %	3.1 %	3.6 %	3.5 %	
Variable-rate debt	\$ 0.7	\$ 0.5	—	—	—	\$ 3.1	\$ 4.3	\$ 4.3
Average interest rate	4.6 %	5.6 %	— %	— %	— %	4.4 %	4.6 %	
Fixed-to-Variable Interest Rate Swaps								
Notional amount ^(b)	\$ —	\$ —	\$ —	\$ 1.3	\$ 0.3	\$ 1.0	\$ 2.5	\$ (0.3)
Average pay rate	— %	— %	— %	6.3 %	6.2 %	6.6 %	6.4 %	
Average receive rate	— %	— %	— %	3.3 %	3.6 %	4.2 %	3.7 %	

(a) Includes the effects of our fixed-to-fixed cross-currency swaps, which are discussed further below under the heading "Foreign Exchange Risk Management."

(b) Notional amounts are used to calculate the interest to be paid or received and do not represent our exposure to credit loss. The estimated fair value approximates the amount of payments to be made or proceeds to be received to settle the outstanding contracts, excluding accrued interest.

Additionally, we have a \$5.2 billion variable rate term loan presented separately as a collateralized obligation that will mature in March 2024. This term loan has an average interest rate of 5.7% estimated using December 31, 2022 implied forward rates through the year of maturity and its estimated fair value was \$5.2 billion. During 2022, we settled the variable-to-fixed interest rate swaps related to this collateralized obligation.

See Notes 1, 6 and 8 for additional information.

Foreign Exchange Risk Management

We have significant operations in a number of countries outside the United States through Sky and NBCUniversal, and certain of our operations are conducted in foreign currencies. The value of these currencies, primarily including the British pound, euro, Japanese yen and Chinese yuan, fluctuates relative to the U.S. dollar. These changes could adversely affect the U.S. dollar equivalent value of our non-U.S. dollar operations, which could negatively affect our business, financial condition and results of operations in a given period or in specific territories.

As part of our overall strategy to manage the level of exposure to the risk of foreign exchange rate fluctuations, we enter into derivative financial instruments related to a significant portion of our foreign currency exposure for transactions denominated in currencies other than the functional currency of the transacting entity. We enter into foreign currency forward contracts that change in value as currency exchange rates fluctuate to protect the functional currency equivalent value of non-functional currency denominated assets, liabilities, commitments, and forecasted non-functional currency revenue and expenses. In accordance with our policy, we hedge forecasted foreign currency transactions for periods generally not to exceed 30 months. As of December 31, 2022, we had foreign currency forwards designated as fair value hedges on \$5.4 billion of our foreign currency intercompany loans receivable, and the aggregate estimated fair value of these foreign currency forwards was a net liability of \$56 million. There were no foreign currency forwards designated as fair value hedges as of December 31, 2021. As of December 31, 2022 and 2021, we also had foreign currency forward contracts that were not designated as fair value hedges with a total notional value of \$4.9 billion and \$8.0 billion, respectively. As of December 31, 2022 and 2021, the aggregate estimated fair value of these foreign exchange contracts was a net asset of \$73 million and \$180 million, respectively.

We use cross-currency swaps as cash flow hedges for certain debt obligations denominated in a currency other than the functional currency of the issuer. Cross-currency swaps effectively convert foreign currency denominated debt to debt denominated in the functional currency, which hedge currency exchange risks associated with foreign currency denominated cash flows such as interest and principal debt repayments. As of December 31, 2022 and 2021, we had cross-currency swaps designated as cash flow hedges on \$752 million and \$1.6 billion of our foreign currency denominated debt, respectively, and the aggregate estimated fair value of these cross-currency swaps was a net liability of \$274 million and \$53 million, respectively.

We are also exposed to foreign exchange risk on the consolidation of our foreign operations. We have foreign currency denominated debt and cross-currency swaps designated as hedges of our net investments in certain of these subsidiaries. As of December 31, 2022 and 2021, the amount of foreign currency denominated debt designated as hedges of our net investment in foreign subsidiaries was \$7.6 billion and \$8.2 billion, respectively, and the notional amount of cross-currency swaps designated as hedges of our net investment in foreign subsidiaries was \$2.5 billion and \$3.6 billion, respectively. As of December 31, 2022 and 2021, the aggregate estimated fair value of these cross-currency swaps was a net asset of \$108 million and a net liability of \$104 million, respectively. The amount of pre-tax gains (losses) related to net investment hedges recognized in the cumulative translation adjustments component of other comprehensive income (loss) were losses of \$397 million in 2022, gains of \$760 million in 2021 and losses of \$686 million in 2020.

We have analyzed our foreign currency exposure related to our foreign operations as of December 31, 2022, including our hedging contracts, to identify assets and liabilities denominated in a currency other than their functional currency. For those assets and liabilities, we then evaluated the effect of a hypothetical 10% shift in currency exchange rates, inclusive of the effects of derivatives. The results of our analysis indicate that such a shift in exchange rates would not have a material impact on our 2022 net income attributable to Comcast Corporation.

Counterparty Credit Risk Management

We manage the credit risks associated with our derivative financial instruments through diversification and the evaluation and monitoring of the creditworthiness of counterparties. Although we may be exposed to losses in the event of nonperformance by counterparties, we do not expect such losses, if any, to be significant. We have agreements with certain counterparties that include collateral provisions. These provisions require a party with an aggregate unrealized loss position in excess of certain thresholds to post cash collateral for the amount in excess of the threshold. The threshold levels in our collateral agreements are based on our and the counterparty's credit ratings. As of December 31, 2022 and 2021, we were not required to post collateral under the terms of these agreements, nor did we hold any collateral under the terms of these agreements.

Item 8: Comcast Corporation Financial Statements and Supplementary Data

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Report of Management

Management's Report on Financial Statements

Our management is responsible for the preparation, integrity and fair presentation of information in the consolidated financial statements, including estimates and judgments. The consolidated financial statements presented in this report have been prepared in accordance with accounting principles generally accepted in the United States. Our management believes the consolidated financial statements and other financial information included in this report fairly present, in all material respects, the financial condition, results of operations and cash flows as of and for the periods presented in this report. The consolidated financial statements have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report, which is included herein.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining an adequate system of internal control over financial reporting. Our system of internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States.

Our internal control over financial reporting includes those policies and procedures that:

- Pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect our transactions and dispositions of our assets.
- Provide reasonable assurance that our transactions are recorded as necessary to permit preparation of our financial statements in accordance with accounting principles generally accepted in the United States, and that our receipts and expenditures are being made only in accordance with authorizations of our management and our directors.
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, a system of internal control over financial reporting can provide only reasonable assurance and may not prevent or detect misstatements. Further, because of changes in conditions, effectiveness of internal control over financial reporting may vary over time. Our system contains self-monitoring mechanisms, and actions are taken to correct deficiencies as they are identified.

Our management conducted an evaluation of the effectiveness of the system of internal control over financial reporting based on the framework in *Internal Control — Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, our management concluded that the system of internal control over financial reporting was effective as of December 31, 2022. The effectiveness of internal control over financial reporting has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report, which is included herein.

Audit Committee Oversight

The Audit Committee of the Board of Directors, which is comprised solely of independent directors, has oversight responsibility for our financial reporting process and the audits of the consolidated financial statements and internal control over financial reporting. The Audit Committee meets regularly with management and with our internal auditors and independent registered public accounting firm (collectively, the “auditors”) to review matters related to the quality and integrity of our financial reporting, internal control over financial reporting (including compliance matters related to our Code of Conduct), and the nature, extent, and results of internal and external audits. Our auditors have full and free access and report directly to the Audit Committee. The Audit Committee recommended, and the Board of Directors approved, that the audited consolidated financial statements be included in this Form 10-K.

/s/ BRIAN L. ROBERTS

Brian L. Roberts

Chairman and
Chief Executive Officer

/s/ JASON S. ARMSTRONG

Jason S. Armstrong

Chief Financial Officer and
Treasurer

/s/ DANIEL C. MURDOCK

Daniel C. Murdock

Executive Vice President, Chief
Accounting Officer and Controller

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Comcast Corporation

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Comcast Corporation and subsidiaries (the "Company") as of December 31, 2022 and 2021, the related consolidated statements of income, comprehensive income, cash flows, and changes in equity for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the "financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

Basis for Opinions

The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying *Management's Report on Internal Control Over Financial Reporting*. Our responsibility is to express an opinion on these financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures to respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Sky Goodwill - Refer to Note 10 to the financial statements

Critical Audit Matter Description

The Company's evaluation of goodwill for impairment involves the comparison of the fair value of the Sky reporting unit to its carrying value.

Report of Independent Registered Public Accounting Firm

The Company used the discounted cash flow model to estimate fair value, which requires management to make significant judgments related to discount rates and forecasts of expected cash flows. Changes in these assumptions could have a significant impact on either the fair value, the amount of any goodwill impairment charge, or both.

The goodwill balance was \$58.5 billion as of December 31, 2022, of which \$18.1 billion was allocated to the Sky reporting unit. The Company performed its annual goodwill impairment assessment as of July 1, 2022. As a result of an increased discount rate and reduced estimated future cash flows driven by macroeconomic conditions in the Sky territories, the Company recognized a goodwill impairment charge of \$8.1 billion in the third quarter of 2022 as the fair value of the Sky reporting unit was determined to be less than its respective carrying value.

We identified goodwill for Sky as a critical audit matter because of the significant judgments made by management to estimate the fair value of the Sky reporting unit. This required a high degree of auditor judgment and an increased extent of effort, including the need to involve our fair value specialists, when performing audit procedures to evaluate the reasonableness of management's estimates and assumptions related to the selection of the discount rate and forecasts of future expected cash flows for the Sky reporting unit.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the discount rate and forecasts of future expected cash flows used by management to estimate the fair value of Sky included the following, among others:

- We tested the effectiveness of controls over management's goodwill impairment evaluation, including those over the determination of the fair value of Sky, such as controls related to management's selection of the discount rate and forecasts of future expected cash flows.
- With the assistance of our fair value specialists, we evaluated the reasonableness of the (1) valuation methodology and (2) discount rate, including testing the source information underlying the determination of the discount rate, testing the mathematical accuracy of the calculation, and developing a range of independent estimates and comparing those to the discount rate selected by management.
- We evaluated management's ability to accurately forecast future revenue and cash flows by comparing prior year forecasts to actual results in the respective years.
- We evaluated the reasonableness of management's current revenue and cash flow forecasts by comparing such forecasts to historical results and to forecasted information included in Company press releases as well as in analyst and industry reports of the Company and companies in its peer group.

Film and Television Costs - Refer to Note 4 to the financial statements

Critical Audit Matter Description

The Company amortizes capitalized film and television production costs that are predominantly monetized on an individual basis using the individual film forecast computation method, which amortizes such costs using the ratio of current period revenue to the total remaining revenue forecasted to be realized, also known as "ultimate revenue." The estimates of ultimate revenue have a significant impact on the rate at which capitalized costs are amortized.

The determination of ultimate revenue for capitalized film and television costs requires the Company to make significant estimates of future revenue based on the distribution strategy and historical performance of similar content, as well as factors unique to the content itself. Given the judgments necessary to estimate ultimate revenue, auditing these estimates involved especially subjective judgment.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to forecasts of ultimate revenue for individual film or television productions included the following, among others:

- We tested the effectiveness of management's controls over its amortization of film and television costs, including controls over forecasts of ultimate revenue.
- We tested management's selection of inputs and assumptions, including considering the historical performance of similar titles, expected distribution platforms, factors unique to the individual film or television production, and third-party projections.
- We evaluated the historical accuracy of management's forecast of future revenues by comparing actual results to management's historical estimates of ultimate revenue.

/s/ Deloitte & Touche LLP

Philadelphia, Pennsylvania

February 3, 2023

We have served as the Company's auditor since 1963.

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Comcast Corporation

Consolidated Statement of Income

Year ended December 31 (in millions, except per share data)

	2022	2021	2020
Revenue	\$ 121,427	\$ 116,385	\$ 103,564
Costs and Expenses:			
Programming and production	38,213	38,450	33,121
Other operating and administrative	38,263	35,619	33,109
Advertising, marketing and promotion	8,506	7,695	6,741
Depreciation	8,724	8,628	8,320
Amortization	5,097	5,176	4,780
Goodwill and long-lived asset impairments	8,583	—	—
Total costs and expenses	107,385	95,568	86,071
Operating income	14,041	20,817	17,493
Interest expense	(3,896)	(4,281)	(4,588)
Investment and other income (loss), net	(861)	2,557	1,160
Income before income taxes	9,284	19,093	14,065
Income tax expense	(4,359)	(5,259)	(3,364)
Net income	4,925	13,833	10,701
Less: Net income (loss) attributable to noncontrolling interests	(445)	(325)	167
Net income attributable to Comcast Corporation	\$ 5,370	\$ 14,159	\$ 10,534
Basic earnings per common share attributable to Comcast Corporation shareholders	\$ 1.22	\$ 3.09	\$ 2.30
Diluted earnings per common share attributable to Comcast Corporation shareholders	\$ 1.21	\$ 3.04	\$ 2.28

See accompanying notes to consolidated financial statements.

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Comcast Corporation

Consolidated Statement of Comprehensive Income

Year ended December 31 (in millions)	2022	2021	2020
Net income	\$ 4,925	\$ 13,833	\$ 10,701
Currency translation adjustments, net of deferred taxes of \$ 310 , \$ 76 and \$(331)	(4,242)	(664)	1,213
Cash flow hedges:			
Deferred gains (losses), net of deferred taxes of \$(18), \$(36) and \$ 26	281	229	(101)
Realized (gains) losses reclassified to net income, net of deferred taxes of \$(3), \$(4) and \$ 31	(192)	(16)	(147)
Employee benefit obligations and other, net of deferred taxes of \$(11), \$(16) and \$ 20	33	54	(68)
Comprehensive income (loss)	805	13,436	11,598
Less: Net income (loss) attributable to noncontrolling interests	(445)	(325)	167
Less: Other comprehensive income (loss) attributable to noncontrolling interests	(29)	7	60
Comprehensive income attributable to Comcast Corporation	\$ 1,280	\$ 13,755	\$ 11,371

See accompanying notes to consolidated financial statements.

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Consolidated Statement of Cash Flows

Year ended December 31 (in millions)	2022	2021	2020
Operating Activities			
Net income	\$ 4,925	\$ 13,833	\$ 10,701
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	13,821	13,804	13,100
Goodwill and long-lived asset impairments	8,583	—	—
Share-based compensation	1,336	1,315	1,193
Noncash interest expense (income), net	309	482	697
Net (gain) loss on investment activity and other	1,177	(1,311)	(970)
Deferred income taxes	(834)	1,892	(550)
Changes in operating assets and liabilities, net of effects of acquisitions and divestitures:			
Current and noncurrent receivables, net	(1,327)	(1,335)	(20)
Film and television costs, net	(451)	(680)	(244)
Accounts payable and accrued expenses related to trade creditors	497	765	(266)
Other operating assets and liabilities	(1,623)	382	1,096
Net cash provided by operating activities	26,413	29,146	24,737
Investing Activities			
Capital expenditures	(10,626)	(9,174)	(9,179)
Cash paid for intangible assets	(3,141)	(2,883)	(2,455)
Construction of Universal Beijing Resort	(330)	(976)	(1,498)
Purchase of spectrum	—	—	(459)
Acquisitions, net of cash acquired	(12)	(1,374)	(233)
Proceeds from sales of businesses and investments	1,985	684	2,339
Purchases of investments	(2,274)	(174)	(812)
Other	258	451	250
Net cash provided by (used in) investing activities	(14,140)	(13,446)	(12,047)
Financing Activities			
Proceeds from (repayments of) short-term borrowings, net	660	—	—
Proceeds from borrowings	2,745	2,628	18,644
Repurchases and repayments of debt	(2,307)	(11,498)	(18,777)
Repurchases of common stock under repurchase program and employee plans	(13,328)	(4,672)	(534)
Dividends paid	(4,741)	(4,532)	(4,140)
Other	786	(544)	(1,706)
Net cash provided by (used in) financing activities	(16,184)	(18,618)	(6,513)
Impact of foreign currency on cash, cash equivalents and restricted cash	(86)	(71)	2
Increase (decrease) in cash, cash equivalents and restricted cash	(3,997)	(2,989)	6,179
Cash, cash equivalents and restricted cash, beginning of year	8,778	11,768	5,589
Cash, cash equivalents and restricted cash, end of year	\$ 4,782	\$ 8,778	\$ 11,768

See accompanying notes to consolidated financial statements.

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Comcast Corporation Consolidated Balance Sheet

December 31 (in millions, except share data)

2022

2021

Assets			
Current Assets:			
Cash and cash equivalents	\$ 4,749	\$ 8,711	
Receivables, net	12,672	12,008	
Other current assets	4,406	4,088	
Total current assets	21,826	24,807	
Film and television costs	12,560	12,806	
Investments	7,250	8,082	
Investment securing collateralized obligation	490	605	
Property and equipment, net	55,485	54,047	
Goodwill	58,494	70,189	
Franchise rights	59,365	59,365	
Other intangible assets, net	29,308	33,580	
Other noncurrent assets, net	12,497	12,424	
Total assets	\$ 257,275	\$ 275,905	
Liabilities and Equity			
Current Liabilities:			
Accounts payable and accrued expenses related to trade creditors	\$ 12,544	\$ 12,455	
Accrued participations and residuals	1,770	1,822	
Deferred revenue	2,380	3,040	
Accrued expenses and other current liabilities	9,450	9,899	
Current portion of long-term debt	1,743	2,132	
Total current liabilities	27,887	29,348	
Long-term debt, less current portion	93,068	92,718	
Collateralized obligation	5,172	5,170	
Deferred income taxes	28,714	30,041	
Other noncurrent liabilities	20,395	20,620	
Commitments and contingencies			
Redeemable noncontrolling interests	411	519	
Equity:			
Preferred stock—authorized, 20,000,000 shares; issued, zero	—	—	
Class A common stock, \$ 0.01 par value—authorized, 7,500,000,000 shares; issued, 5,083,466,045 and 5,396,576,978 ; outstanding, 4,210,675,017 and 4,523,785,950	51	54	
Class B common stock, \$ 0.01 par value—authorized, 75,000,000 shares; issued and outstanding, 9,444,375	—	—	
Additional paid-in capital	39,412	40,173	
Retained earnings	51,609	61,902	
Treasury stock, 872,791,028 Class A common shares	(7,517)	(7,517)	
Accumulated other comprehensive income (loss)	(2,611)	1,480	
Total Comcast Corporation shareholders' equity	80,943	96,092	
Noncontrolling interests	684	1,398	
Total equity	81,627	97,490	
Total liabilities and equity	\$ 257,275	\$ 275,905	

See accompanying notes to consolidated financial statements.

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Consolidated Statement of Changes in Equity

(in millions, except per share data)

		2022	2021	2020
Redeemable Noncontrolling Interests				
Balance, beginning of year	\$ 519	\$ 1,280	\$ 1,372	
Redemption of subsidiary preferred stock	—	(725)	—	
Contributions from (distributions to) noncontrolling interests, net	(77)	(77)	(51)	
Other	(80)	(10)	(190)	
Net income (loss)	49	51	149	
Balance, end of year	\$ 411	\$ 519	\$ 1,280	
Class A Common Stock				
Balance, beginning of year	\$ 54	\$ 54	\$ 54	
Repurchases of common stock under repurchase program and employee plans	(3)	—	—	
Balance, end of year	\$ 51	\$ 54	\$ 54	
Class B Common Stock				
Balance, beginning and end of year	\$ —	\$ —	\$ —	
Additional Paid-In Capital				
Balance, beginning of year	\$ 40,173	\$ 39,464	\$ 38,447	
Stock compensation plans	1,055	1,037	920	
Repurchases of common stock under repurchase program and employee plans	(2,431)	(596)	(143)	
Employee stock purchase plans	278	269	255	
Other	337	(2)	(15)	
Balance, end of year	\$ 39,412	\$ 40,173	\$ 39,464	
Retained Earnings				
Balance, beginning of year	\$ 61,902	\$ 56,438	\$ 50,695	
Cumulative effects of adoption of accounting standards	—	—	(124)	
Repurchases of common stock under repurchase program and employee plans	(10,897)	(4,088)	(407)	
Dividends declared	(4,757)	(4,613)	(4,250)	
Other	(10)	6	(10)	
Net income (loss)	5,370	14,159	10,534	
Balance, end of year	\$ 51,609	\$ 61,902	\$ 56,438	
Treasury Stock at Cost				
Balance, beginning and end of year	\$ (7,517)	\$ (7,517)	\$ (7,517)	
Accumulated Other Comprehensive Income (Loss)				
Balance, beginning of year	\$ 1,480	\$ 1,884	\$ 1,047	
Other comprehensive income (loss)	(4,091)	(404)	837	
Balance, end of year	\$ (2,611)	\$ 1,480	\$ 1,884	
Noncontrolling Interests				
Balance, beginning of year	\$ 1,398	\$ 1,415	\$ 1,148	
Other comprehensive income (loss)	(29)	7	60	
Contributions from (distributions to) noncontrolling interests, net	89	353	192	
Other	(280)	—	(3)	
Net income (loss)	(495)	(377)	18	
Balance, end of year	\$ 684	\$ 1,398	\$ 1,415	
Total equity	\$ 81,627	\$ 97,490	\$ 91,738	
Cash dividends declared per common share	\$ 1.08	\$ 1.00	\$ 0.92	

See accompanying notes to consolidated financial statements.

Comcast Corporation

Notes to Consolidated Financial Statements

Note 1: Summary of Significant Accounting Policies**Basis of Presentation**

The accompanying consolidated financial statements include all entities in which we have a controlling voting interest and variable interest entities ("VIEs") required to be consolidated, including Universal Beijing Resort (see Note 8).

We translate assets and liabilities of our foreign operations where the functional currency is the local currency into U.S. dollars at the exchange rate as of the balance sheet date and translate revenue and expenses using average periodic exchange rates. The related translation adjustments are recorded as a component of accumulated other comprehensive income (loss) in our consolidated balance sheet. Any foreign currency transaction gains or losses are included in our consolidated statement of income in investment and other income (loss), net. For disclosures containing future amounts where the functional currency is the local currency, we translate the amounts into U.S. dollars at the exchange rates as of the balance sheet date.

Reclassifications

Reclassifications have been made to our notes to consolidated financial statements for the prior year to conform to classifications used in 2022.

Accounting Policies

Our consolidated financial statements are prepared in accordance with GAAP, which require us to select accounting policies, including in certain cases industry-specific policies, and make estimates that affect the reported amount of assets, liabilities, revenue and expenses, and the related disclosure of contingent assets and contingent liabilities. Actual results could differ from these estimates. The following accounting policies are specific to the industries in which we operate:

- capitalization and amortization of film and television costs (see Note 4)
- costs for connecting customers to our cable systems (see Note 9)

Information on other accounting policies and methods that we use in the preparation of our consolidated financial statements are included, where applicable, in their respective footnotes that follow. The collateralized obligation related to our investment in Hulu is discussed in Note 8 and our other long-term debt is discussed in Note 6. Below is a discussion of accounting policies and methods used in our consolidated financial statements that are not presented within other footnotes.

Advertising Expenses

Advertising costs are expensed as incurred.

Derivative Financial Instruments

We use derivative financial instruments to manage our exposure to the risks associated with fluctuations in foreign exchange rates and interest rates. Our objective is to manage the financial and operational exposure arising from these risks by offsetting gains and losses on the underlying exposures with gains and losses on the derivatives used to economically hedge them.

Our derivative financial instruments are recorded in our consolidated balance sheet at fair value. We designate certain derivative instruments as fair value hedges of recognized assets or liabilities, such as non-functional currency receivables and payables, or as cash flow hedges of forecasted transactions, including foreign currency denominated cash flows associated with non-functional currency debt and non-functional currency revenue and expenses. Changes in the fair value of derivative instruments accounted for as fair value hedges are primarily recorded within earnings and changes in the fair value of cash flow hedges are recorded as a component of accumulated other comprehensive income (loss) until the hedged items affect earnings. We also designate certain derivative and non-derivative instruments as hedges of our net investments in certain foreign subsidiaries. Transaction gains and losses resulting from currency movements on debt and changes in the fair value of cross-currency swaps designated as net investment hedges are recorded within the currency translation adjustments component of accumulated other comprehensive income (loss). For derivatives not designated as hedges, changes in fair value are recognized in earnings.

Refer to Note 6 for further information on certain derivative instruments related to debt and intercompany funding arrangements. The impact of our remaining derivative financial instruments was not material to our consolidated financial statements in any of the periods presented.

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Comcast Corporation

Fair Value Measurements

The accounting guidance related to fair value measurements establishes a hierarchy based on the types of inputs used for the various valuation techniques. The levels of the hierarchy are described below.

- Level 1: Values are determined using quoted market prices for identical financial instruments in an active market.
- Level 2: Values are determined using quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs and significant value drivers are observable in active markets.
- Level 3: Values are determined using models that use significant inputs that are primarily unobservable, discounted cash flow methodologies or similar techniques, as well as instruments for which the determination of fair value requires significant management judgment or estimation.

We use the three tier fair value hierarchy to measure the fair value of certain financial instruments on a recurring basis, such as for investments (see Note 8); on a non-recurring basis, such as for acquisitions and impairment testing (see Note 10); and for disclosure purposes, such as for long-term debt (see Note 6). Our assessment of the significance of a particular input to the fair value measurement requires judgment and may affect the valuation and classification within the fair value hierarchy.

Recent Accounting Pronouncements

Government Assistance

In November 2021, the Financial Accounting Standards Board issued new accounting guidance related to the disclosure of certain types of government assistance. The guidance requires annual disclosure of the nature of the transactions, the related accounting policy, and the amounts and specific financial statement line items impacted by the transactions. We adopted the new guidance prospectively as of and for the year ended December 31, 2022. See Note 4 for information related to production tax incentives. The impacts of other government assistance programs were not material.

Note 2: Segment Information

We are a global media and technology company with three primary businesses: Comcast Cable, NBCUniversal and Sky. We present our operations for (1) Comcast Cable in one reportable business segment, referred to as Cable Communications; (2) NBCUniversal in three reportable business segments: Media, Studios and Theme Parks; and (3) Sky in one reportable business segment. See Note 3 for a description of the various products and services within each reportable segment.

Our other business interests consist primarily of the operations of Comcast Spectacor, which owns the Philadelphia Flyers and the Wells Fargo Center arena in Philadelphia, Pennsylvania, and other business initiatives.

Our financial data by reportable segment is presented in the tables below. We do not present a measure of total assets for our reportable business segments as this information is not used by management to allocate resources and capital.

(in millions)	Revenue ^(a)	Adjusted EBITDA ^(b)	Depreciation and Amortization	Capital Expenditures	Cash Paid for Intangible Assets
2022					
Cable Communications	\$ 66,318	\$ 29,403	\$ 7,811	\$ 7,568	\$ 1,496
NBCUniversal					
Media	23,406	3,212	963	121	234
Studios	11,622	942	45	6	16
Theme Parks	7,541	2,683	1,060	1,629	80
Headquarters and Other	75	(881)	494	543	184
Eliminations ^(a)	(3,442)	(2)	—	—	—
NBCUniversal	39,203	5,955	2,562	2,299	514
Sky ^(c)	17,946	2,526	3,169	560	815
Corporate and Other	863	(1,361)	279	199	316
Eliminations ^(a)	(2,903)	(64)	—	—	—
 Comcast Consolidated	\$ 121,427	\$ 36,459	\$ 13,821	\$ 10,626	\$ 3,141

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Comcast Corporation

(in millions)	Revenue ^(a)	Adjusted EBITDA ^(b)	Depreciation and Amortization	Capital Expenditures	Cash Paid for Intangible Assets
2021					
Cable Communications	\$ 64,328	\$ 28,097	\$ 7,811	\$ 6,930	\$ 1,438
NBCUniversal					
Media	22,780	4,569	1,030	100	163
Studios	9,449	884	53	5	11
Theme Parks	5,051	1,267	906	614	43
Headquarters and Other	87	(840)	478	366	143
Eliminations ^(a)	(3,048)	(205)	—	—	—
NBCUniversal	34,319	5,675	2,466	1,086	360
Sky	20,285	2,359	3,379	948	814
Corporate and Other	461	(1,358)	147	210	272
Eliminations ^(a)	(3,008)	(65)	—	—	—
Comcast Consolidated	\$ 116,385	\$ 34,708	\$ 13,804	\$ 9,174	\$ 2,883
2020					
Cable Communications	\$ 60,051	\$ 25,270	\$ 7,753	\$ 6,605	\$ 1,333
NBCUniversal					
Media	18,936	5,574	993	122	176
Studios	8,134	1,041	67	12	5
Theme Parks	2,094	(477)	772	1,171	56
Headquarters and Other	53	(563)	475	186	136
Eliminations ^(a)	(2,006)	(220)	—	—	—
NBCUniversal	27,211	5,355	2,307	1,491	373
Sky	18,594	1,954	3,034	959	741
Corporate and Other	248	(1,785)	6	124	8
Eliminations ^(a)	(2,540)	32	—	—	—
Comcast Consolidated	\$ 103,564	\$ 30,826	\$ 13,100	\$ 9,179	\$ 2,455

(a) Included in Eliminations are transactions that our segments enter into with one another. Our segments generally report transactions with one another as if they were stand-alone businesses in accordance with GAAP, and these transactions are eliminated in consolidation. When multiple segments enter into transactions to provide products and services to third parties, revenue is generally allocated to our segments based on relative value. The most significant transactions between our segments include content licensing revenue in Studios for licenses of owned content to Media and Sky; distribution revenue in Media for fees received from Cable Communications for the sale of cable network programming and under retransmission consent agreements; and advertising revenue in Media and Cable Communications. Revenue for licenses of content from Studios to Media and Sky is generally recognized at a point in time, consistent with the recognition of transactions with third parties, when the content is delivered and made available for use. The costs of these licenses in Media and Sky are recognized as the content is used over the license period. The difference in timing of recognition between segments results in an Adjusted EBITDA impact in eliminations, as the profits (losses) on these transactions are deferred in our consolidated results and recognized as the content is used over the license period.

A summary of revenue for each of our segments resulting from transactions with other segments and eliminated in consolidation is presented in the table below.

Year ended December 31 (in millions)	2022	2021	2020
Cable Communications	\$ 229	\$ 244	\$ 202
NBCUniversal			
Media	2,224	2,330	1,965
Studios	3,604	3,186	2,214
Theme Parks	1	2	—
Headquarters and Other	52	68	31
Sky	19	32	17
Corporate and Other	215	193	117
Total intersegment revenue	\$ 6,345	\$ 6,055	\$ 4,546

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Comcast Corporation

(b) We use Adjusted EBITDA as the measure of profit or loss for our operating segments. From time to time we may report the impact of certain events, gains, losses or other charges related to our operating segments, within Corporate and Other. Our reconciliation of the aggregate amount of Adjusted EBITDA for our reportable segments to consolidated income before income taxes is presented in the table below.

Year ended December 31 (in millions)	2022	2021	2020
Adjusted EBITDA	\$ 36,459	\$ 34,708	\$ 30,826
Adjustments	(13)	(87)	(233)
Depreciation	(8,724)	(8,628)	(8,320)
Amortization	(5,097)	(5,176)	(4,780)
Goodwill and long-lived asset impairments ^(c)	(8,583)	—	—
Interest expense	(3,896)	(4,281)	(4,588)
Investment and other income (loss), net	(861)	2,557	1,160
Income before income taxes	\$ 9,284	\$ 19,093	\$ 14,065

Adjustments represent the impact of certain events, gains, losses or other charges that are excluded from Adjusted EBITDA, including costs related to our investment portfolio, and Sky transaction-related costs in 2021 and 2020. Adjustments for 2020 also include \$ 177 million related to a legal settlement.

(c) Refer to Note 10 for a discussion of impairment charges related to goodwill and long-lived assets in our Sky segment.

Note 3: Revenue

Year ended December 31 (in millions)	2022	2021	2020
Residential:			
Broadband	\$ 24,469	\$ 22,979	\$ 20,599
Video	21,314	22,079	21,937
Voice	3,010	3,417	3,532
Wireless	3,071	2,380	1,574
Business services	9,700	8,933	8,191
Advertising	3,067	2,820	2,594
Other	1,687	1,719	1,624
Total Cable Communications	66,318	64,328	60,051
Advertising	10,467	10,291	8,296
Distribution	10,881	10,449	8,795
Other	2,058	2,040	1,845
Total Media	23,406	22,780	18,936
Content licensing	8,713	7,565	6,557
Theatrical	1,607	691	418
Home entertainment and other	1,302	1,193	1,159
Total Studios	11,622	9,449	8,134
Total Theme Parks	7,541	5,051	2,094
Headquarters and Other	75	87	53
Eliminations ^(a)	(3,442)	(3,048)	(2,006)
Total NBCUniversal	39,203	34,319	27,211
Direct-to-consumer	14,621	16,455	15,223
Content	1,138	1,341	1,373
Advertising	2,187	2,489	1,998
Total Sky	17,946	20,285	18,594
Corporate and Other	863	461	248
Eliminations ^(a)	(2,903)	(3,008)	(2,540)
Total revenue	\$ 121,427	\$ 116,385	\$ 103,564

(a) Included in Eliminations are transactions that our segments enter into with one another. See Note 2 for a description of these transactions.

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Comcast Corporation

We operate primarily in the United States but also in select international markets. The table below summarizes our consolidated revenue from customers in certain geographic locations.

Year ended December 31 (in millions)	2022	2021	2020
United States	\$ 96,441	\$ 90,926	\$ 80,327
United Kingdom	13,380	13,999	11,986
Other	11,606	11,460	11,251
Total revenue	\$ 121,427	\$ 116,385	\$ 103,564

Cable Communications Segment

Revenue is generated from the sale of our broadband, video, voice, wireless and other services to residential customers in the United States under the Xfinity brand, which we market individually and as bundled services at a discounted rate. We also provide these and other services to business customers and sell advertising.

Residential

We recognize revenue as the services are provided on a monthly basis. Subscription rates and related charges vary according to the services and features customers receive. Revenue from customers that purchase bundled services at a discounted rate is allocated between the separate services based on the respective stand-alone selling prices. The stand-alone selling prices are determined based on the current prices at which we separately sell the services. Significant judgment is used to determine performance obligations that should be accounted for separately and the allocation of revenue when services are combined in a bundle. Customers are typically billed in advance and pay on a monthly basis. Installation fees are deferred and recognized as revenue over the period of benefit to the customer, which is less than a year. While a portion of our customers are subject to contracts for their services, which are typically 1 to 2 years in length, based on our evaluation of the terms of these contracts, we recognize revenue for these services on a basis that is consistent with our customers that are not subject to contracts. Sales commissions are generally expensed as incurred, as the related period of benefit is less than a year.

Our services generally involve customer premise equipment, such as set-top boxes, cable modems and wireless gateways, which are generally considered part of our services for revenue recognition. We recognize revenue from the sale of wireless devices when they are transferred to the customer. Customers have the option under an equipment installment plan to finance wireless devices interest-free over 24 months. Equipment installment plan receivables under these arrangements are recorded net of imputed interest when the devices are transferred to the customer.

We also have arrangements to sell certain DTC streaming services to our customers. We have concluded we are the sales agent in these arrangements and we record net commission revenue as earned, which is generally as customers are billed on a monthly basis, within broadband revenue.

Under the terms of cable franchise agreements, we are generally required to pay the cable franchising authority an amount based on gross video revenue. We generally pass these and other similar fees through to our customers and classify these fees in the respective Cable Communications services revenue with the corresponding costs included in other operating and administrative expenses.

Business Services

Revenue is generated from subscribers to a variety of our products and services which are offered to businesses. Our service offerings for small business locations primarily include broadband services, as well as voice and video services, that are similar to those provided to our residential customers, and include certain other features specific to businesses. We also offer Ethernet network services, which connect multiple locations and other services to meet the needs of medium-sized customers and larger enterprises, and we provide cellular backhaul services to mobile network operators.

We recognize revenue as the services are provided over the contract period. Substantially all of our customers are initially under contracts, with terms typically ranging from 2 years for small and medium-sized businesses to up to 5 years for larger enterprises. At any given time, the amount of future revenue to be earned related to fixed pricing under existing agreements is equal to approximately half of our annual business services revenue, of which the substantial majority will be recognized within 2 years. Customers with contracts may only discontinue service in accordance with the terms of their contracts. We receive payments based on a billing schedule established in our contracts, which is typically on a monthly basis. Installation revenue and sales commissions are generally deferred and recognized over the respective contract terms.

Comcast Corporation**Advertising**

Revenue is generated from the sale of advertising and technology, tools and solutions relating to advertising businesses. As part of distribution agreements with cable networks, we generally receive an allocation of scheduled advertising time that we sell to local, regional and national advertisers. In most cases, the available advertising units are sold by our sales force. We also represent the advertising sales efforts of other multichannel video providers in some markets. Since we are acting as the principal in these arrangements, we record the advertising that is sold in advertising revenue and the fees paid to multichannel video providers in other operating and administrative expenses. In some cases, we work with representation firms as an extension of our sales force to sell a portion of the advertising units allocated to us and record the revenue net of agency commissions. In addition, we generate revenue from the sale of advertising on our digital platforms. We enter into advertising arrangements with customers and have determined that a contract exists once all terms and conditions are agreed upon, typically when the number of advertising units is specifically identified and scheduled. Advertisements are generally aired or delivered within one year once all terms and conditions are agreed upon. Revenue from these arrangements is recognized in the period in which advertisements are aired or delivered. Payment terms vary by contract, although terms generally require payment within 30 to 60 days from when advertisements are aired or delivered. In addition, we also provide technology, tools, data-driven services and marketplace solutions to customers in the media industry to facilitate advertisers more effectively engaging with their target audiences and recognize revenue when these services are provided.

NBCUniversal Segments**Advertising**

Media generates revenue from the sale of advertising on our television networks, Peacock and other digital properties.

We enter into advertising arrangements with customers and have determined that a contract exists once all terms and conditions are agreed upon, typically when the number of advertising units is specifically identified and scheduled. Advertisements are generally aired or delivered within one year once all terms and conditions are agreed upon. Revenue is recognized, net of agency commissions, in the period in which advertisements are aired or delivered and payment occurs thereafter, with payment generally required within 30 days. In some instances, we guarantee audience ratings for the advertisements. To the extent there is a shortfall in contracts where the ratings were guaranteed, a portion of the revenue is deferred until the shortfall is settled, typically by providing additional advertising units generally within one year of the original airing.

Distribution

Media generates revenue from the distribution of cable network programming in the United States and internationally to multichannel video providers, including both traditional providers of linear programming and virtual providers who provide streaming services for linear programming. Media also generates revenue from the fees received from multichannel video providers under NBC and Telemundo retransmission consent agreements and associated fees from NBC-affiliated and Telemundo-affiliated local broadcast television stations. Additionally, Media generates revenue from monthly subscription fees received from Peacock subscribers.

Monthly fees received under distribution agreements with multichannel video providers are generally under multiyear agreements and based on the number of subscribers. Payment terms and conditions vary by contract type, although terms generally include payment within 60 days. These arrangements are accounted for as licenses of functional intellectual property and revenue is recognized as programming is provided.

Content Licensing

Studios generates revenue from the licensing of our owned film and television content in the United States and internationally to cable, broadcast and premium networks and DTC streaming service providers, as well as through video on demand and pay-per-view services. Media also generates revenue from licensing of our owned television content, which is reported in other revenue. Our agreements generally include fixed pricing and span multiple years. For example, following a film's theatrical release, Studios may license the exhibition rights of a film to different customers over multiple successive distribution windows.

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We recognize revenue when the content is delivered and available for use by the licensee. When the term of an existing agreement is renewed or extended, we recognize revenue when the licensed content becomes available under the renewal or extension. Payment terms and conditions vary by contract type, although payments are generally collected over the license term. The amount of future revenue to be earned related to fixed pricing under existing third-party agreements at any given time equals approximately one-half year to 1 year of annual Studios content licensing revenue, which is the segment with the largest portion of this future revenue. The majority of this revenue will be recognized within 2 years. This amount may fluctuate from period to period depending on the timing of the releases and the availability of content under existing agreements and may not represent the total revenue expected to be recognized as it does not include revenue from future agreements or from variable pricing or optional purchases under existing agreements.

For our agreements that include variable pricing, such as pricing based on the number of subscribers to a DTC streaming service sold by our customers, we generally recognize revenue as our customers sell to their subscribers.

Theatrical

Studios generates revenue from the worldwide distribution of our produced and acquired films for exhibition in movie theaters. Our arrangements with exhibitors generally entitle us to a percentage of ticket sales. We recognize revenue as the films are viewed and exhibited in theaters and payment generally occurs within 30 days after exhibition.

Home Entertainment

Studios generates revenue from the sale of owned and acquired content on DVDs/Blu-ray discs and through digital distribution services. Media also generates revenue from the sale of owned content on DVDs/Blu-ray discs and through digital distribution services, which is reported in other revenue. We generally recognize revenue from DVD/Blu-ray disc sales, net of estimated returns and customer incentives, on the date that DVDs/Blu-ray discs are delivered to and made available for sale by retailers. Payment terms generally include payment within 60 to 90 days from delivery to the retailer.

Theme Parks

Theme Parks generates revenue primarily from guest spending at our Universal theme parks in Orlando, Florida; Hollywood, California; Osaka, Japan; and Beijing, China. Guest spending includes ticket sales and in-park spending on food, beverages and merchandise. We also generate revenue from our consumer products business. Additionally, we license the right to use the Universal Studios brand name and other intellectual property and provide other services to third parties, including the party that owns and operates the Universal Studios Singapore theme park on Sentosa Island, Singapore. We recognize revenue from ticket sales when the tickets are used, generally within a year from the date of purchase. For annual passes, we generally recognize revenue on a straight-line basis over the period the pass is available to be used. We recognize revenue from in-park spending and consumer products at the point of sale.

Sky Segment

Direct-to-Consumer

Revenue is generated from subscribers to our video services from both residential and business customers, primarily in the United Kingdom, Italy and Germany. We also provide broadband, voice and wireless phone services in select countries. Our services generally may be purchased individually or in bundles.

Generally, all of our residential customers are initially under contracts, with terms typically ranging from rolling monthly to 18 months, depending on the product and territory, and may only discontinue service in accordance with the terms of their contracts. Subscription rates and related charges vary according to the services and features customers receive and the types of equipment they use, and customers are typically billed in advance on a monthly basis. We recognize revenue from video, broadband, voice and wireless services as the services are provided over the contract period. At any given time, the amount of future revenue to be earned related to existing agreements is equal to less than half of our annual direct-to-consumer revenue, which generally will be recognized within 18 months. Sales commissions are generally deferred and recognized over the respective contract terms.

Our services generally involve customer premise equipment, such as set-top boxes and wireless hubs, which are generally considered part of our services for revenue recognition. We recognize revenue from the sale of wireless devices when they are transferred to the customer. Customers have the option under an equipment installment plan to finance wireless devices interest-free over periods ranging from 24 to 48 months. Equipment installment plan receivables under these arrangements are recorded net of imputed interest when the devices are transferred to the customer.

We also have arrangements to sell certain DTC streaming services to our customers. We have concluded we are the sales agent in these arrangements and we record net commission revenue as earned, which is generally as customers are billed on a monthly basis.



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Content

Revenue is generated from the distribution of our owned channels on third-party platforms and the licensing of owned and licensed content to third-party video providers. See the NBCUniversal segment discussion of distribution and content licensing revenue above for accounting policies for these types of arrangements.

Advertising

Revenue is generated from advertising across our platforms, including our owned television channels, and where we represent the sales efforts of third-party channels. We also generate revenue from various technology, tools and solutions relating to our advertising business. Revenue is recognized when the advertisement is aired or delivered. Since we are acting as the principal in the arrangements where we represent the sales efforts of third parties, we record the advertising that is sold in advertising revenue and the fees paid to the third-party channels in other operating and administrative expenses. Revenue earned from providing technology, tools and solutions relating to our advertising business is recognized when services are provided.

Consolidated Balance Sheet

The following table summarizes our accounts receivable:

December 31 (in millions)	2022	2021
Receivables, gross	\$ 13,407	\$ 12,666
Less: Allowance for credit losses	736	658
Receivables, net	\$ 12,672	\$ 12,008

The following table presents changes in our allowance for credit losses:

(in millions)	2022	2021	2020
Beginning balance	\$ 658	\$ 807	\$ 419
Current-period provision for expected credit losses	758	336	745
Write-offs charged against the allowance, net of recoveries and other ^(a)	(680)	(485)	(357)
Ending balance	\$ 736	\$ 658	\$ 807

(a) 2020 amount includes \$ 155 million related to the adoption of accounting guidance related to credit losses on financial instruments.

The following table summarizes our other balances that are not separately presented in our consolidated balance sheet that relate to the recognition of revenue and collection of the related cash, as well as the deferred costs associated with our contracts with customers:

December 31 (in millions)	2022	2021
Noncurrent receivables, net (included in other noncurrent assets, net)	\$ 1,887	\$ 1,632
Contract acquisition and fulfillment costs (included in other noncurrent assets, net) ^(a)	\$ 1,081	\$ 1,094
Noncurrent deferred revenue (included in other noncurrent liabilities)	\$ 735	\$ 695

(a) Amortization of contract acquisition and fulfillment costs totaled \$ 707 million, \$ 654 million and \$ 646 million in 2022, 2021 and 2020, respectively, included in advertising, marketing and promotion and other operating and administrative expenses.

Our accounts receivables include amounts not yet billed related to equipment installment plans, as summarized in the table below.

December 31 (in millions)	2022	2021
Receivables, net	\$ 1,388	\$ 1,145
Noncurrent receivables, net (included in other noncurrent assets, net)	1,023	805
Total	\$ 2,411	\$ 1,950

Note 4: Programming and Production Costs

Year ended December 31 (in millions)	2022	2021	2020
Video distribution programming	\$ 13,013	\$ 13,550	\$ 12,684
Film and television content:			
Owned ^(a)	10,765	8,957	7,973
Licensed, including sports rights	13,151	14,733	11,264
Other	1,283	1,210	1,200
Total programming and production costs	\$ 38,213	\$ 38,450	\$ 33,121

(a) Amount includes amortization of owned content of \$ 8.6 billion, \$ 7.3 billion and \$ 6.6 billion for the year ended December 31, 2022, 2021 and 2020, respectively, as well as participations and residuals expenses.

Video Distribution Programming Expenses

We incur programming expenses related to the license of the rights to distribute or integrate the third-party programmed channels, platforms and related content included in video services we sell to end consumers. Programming is generally acquired under multiyear distribution agreements, with fees typically based on the number of customers that receive the programming and the extent of distribution. Programming distribution arrangements are accounted for as executory contracts with expenses generally recognized based on the rates in the agreements and the arrangements are not subject to impairment.

Film and Television Content

We incur costs related to the production of owned content and the license of the rights to use content owned by third parties and sports rights on our owned networks and platforms, which are described as owned and licensed content, respectively. We have determined that the predominant monetization strategy for the substantial majority of our content is on an individual basis.

Capitalized Film and Television Costs

December 31 (in millions)	2022	2021
Owned:		
In production and in development	\$ 3,210	\$ 2,732
Completed, not released	130	536
Released, less amortization	4,634	3,726
	7,974	6,994
Licensed, including sports advances	4,586	5,811
Film and television costs	\$ 12,560	\$ 12,806

Production tax incentives reduced capitalized owned film and television costs by \$ 400 million as of December 31, 2022, and resulted in a reduction of programming and production costs of \$ 733 million in 2022. We have receivables related to our production tax incentives of \$ 1.5 billion as of December 31, 2022, a substantial majority of which are reflected in other noncurrent assets in our consolidated balance sheet.

The table below summarizes estimated future amortization expense for the capitalized film and television costs recorded in our consolidated balance sheet as of December 31, 2022.

(in millions)	Owned	Licensed
Completed, not released:		
2023	\$ 63	
Released and licensed content:		
2023	\$ 2,487	\$ 2,482
2024	749	1,189
2025	505	469

We have future minimum commitments for sports rights and licensed content that are not recognized in our consolidated balance sheet as of December 31, 2022 totaling \$ 59.1 billion and \$ 3.8 billion, respectively.

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Capitalization and Recognition of Film and Television Content

We capitalize costs for owned film and television content, including direct costs, production overhead, print costs, development costs and interest, as well as acquired libraries. Amortization for owned content predominantly monetized on an individual basis and accrued costs associated with participations and residuals payments are recorded using the individual film forecast computation method, which recognizes the costs in the same ratio as the associated ultimate revenue. Estimates of ultimate revenue and total costs are based on anticipated release patterns and distribution strategies, public acceptance and historical results for similar productions. Amortization for content predominantly monetized with other owned or licensed content is recorded based on estimated usage. In determining the method of amortization and estimated life of an acquired film or television library, we generally use the method and the life that most closely follow the undiscounted cash flows over the estimated life of the asset. We do not capitalize costs related to the distribution of a film in movie theaters or the licensing or sale of a film or television production, which primarily include costs associated with marketing and distribution.

We capitalize the costs of licensed content when the license period begins, the content is made available for use and the costs of the licenses are known. Licensed content is amortized as the associated programs are used, incorporating estimated viewing patterns.

Owned and licensed content are presented as noncurrent assets in film and television costs. We present amortization of owned and licensed content and accrued costs associated with participations and residuals payments in programming and production costs.

Film and television productions may be eligible for tax incentives from certain state, local or foreign jurisdictions. These incentives generally provide for transferable or redeemable tax credits upon meeting established levels of qualified production spending within a participating jurisdiction. We record a receivable for a production tax incentive program when there is a reasonable assurance of collection with a corresponding reduction of capitalized film and television costs, and the related amortization.

We may enter into cofinancing arrangements with third parties to jointly finance or distribute certain of our film productions. Cofinancing arrangements can take various forms, but in most cases involve the grant of an economic interest in a film to an investor who owns an undivided copyright interest in the film. The number of investors and the terms of these arrangements can vary, although investors generally assume the full risks and rewards for the portion of the film acquired in these arrangements. We account for the proceeds received from the investor under these arrangements as a reduction of our capitalized film costs and the investor's interest in the profit or loss of the film is recorded as either a charge or a benefit, respectively, in programming and production costs. The investor's interest in the profit or loss of a film is recorded each period using the individual film forecast computation method.

When an event or a change in circumstance occurs that was known or knowable as of the balance sheet date and that indicates the fair value of either owned or licensed content is less than the unamortized costs in the balance sheet, we determine the fair value and record an impairment charge to the extent the unamortized costs exceed the fair value. Owned content is assessed either individually or in identified film groups, for content predominantly monetized on an individual basis or with other content, respectively. The substantial majority of our owned content is evaluated for impairment on an individual title basis. Licensed content that is not part of a film group is generally assessed in packages, channels or dayparts. A daypart is an aggregation of programs broadcast during a particular time of day or programs of a similar type. Licensed content is tested for impairment primarily on a channel, network or platform basis, with the exception of our broadcast networks and owned local broadcast television stations, which are tested on a daypart basis. Estimated fair values of owned and licensed content are generally based on Level 3 inputs including analysis of market participant estimates of future cash flows. We record charges related to impairments or content that is substantively abandoned to programming and production costs.

Sports Rights

We recognize the costs of multiyear, live-event sports rights as the rights are utilized over the contract term based on estimated relative value. Estimated relative value is generally based on the terms of the contract and the nature of and potential revenue generation of the deliverables within the contract. Sports rights are accounted for as executory contracts and are not subject to impairment. When cash payments, including advanced payments, exceed the relative value of the sports rights delivered, we recognize an asset in licensed content. Production costs incurred in advance of airing are also presented with licensed content.

Note 5: Income Taxes**Income (Loss) Before Income Taxes**

Year ended December 31 (in millions)	2022	2021	2020
Domestic	\$ 19,329	\$ 21,243	\$ 16,211
Foreign	(10,045)	(2,150)	(2,146)
	\$ 9,284	\$ 19,093	\$ 14,065

Components of Income Tax Expense

Year ended December 31 (in millions)	2022	2021	2020
Current Expense (Benefit):			
Federal	\$ 4,025	\$ 2,355	\$ 2,824
State	961	669	836
Foreign	207	343	254
	5,193	3,367	3,914
Deferred Expense (Benefit):			
Federal	(281)	1,504	(111)
State	(483)	255	(71)
Foreign	(70)	133	(368)
	(834)	1,892	(550)
Income tax expense (benefit)	\$ 4,359	\$ 5,259	\$ 3,364

Our income tax expense (benefit) differs from the federal statutory amount because of the effect of the items detailed in the table below.

Year ended December 31 (in millions)	2022	2021	2020
Federal tax at statutory rate	\$ 1,950	\$ 4,009	\$ 2,954
State income taxes, net of federal benefit	454	464	265
Foreign income taxed at different rates	519	392	24
Adjustments to uncertain and effectively settled tax positions, net	179	238	344
Federal research and development credits	(104)	(85)	(164)
Excess tax benefits recognized on share-based compensation	(30)	(209)	(150)
Tax legislation	(287)	498	120
Goodwill impairment	1,666	—	—
Other	12	(48)	(29)
Income tax expense (benefit)	\$ 4,359	\$ 5,259	\$ 3,364

We base our provision for income taxes on our current period income, changes in our deferred income tax assets and liabilities, income tax rates, changes in estimates of our uncertain tax positions, tax planning opportunities available in the jurisdictions in which we operate and excess tax benefits or deficiencies that arise when the tax consequences of share-based compensation differ from amounts previously recognized in the statement of income. We recognize deferred tax assets and liabilities when there are temporary differences between the financial reporting basis and tax basis of our assets and liabilities and for the expected benefits of using net operating loss carryforwards. When a change in the tax rate or tax law has an impact on deferred taxes, we apply the change based on the years in which the temporary differences are expected to reverse. We record the change in our consolidated financial statements in the period of enactment.

The determination of the income tax consequences of a business combination includes identifying the tax basis of assets and liabilities acquired and any contingencies associated with uncertain tax positions assumed or resulting from the business combination. Deferred tax assets and liabilities related to temporary differences of an acquired entity are recorded as of the date of the business combination and are based on our estimate of the ultimate tax basis that will be accepted by the various tax authorities. We record liabilities for contingencies associated with prior tax returns filed by the acquired entity based on criteria set forth in the appropriate accounting guidance. We adjust the deferred tax accounts and the liabilities periodically to reflect any revised estimated tax basis and any estimated settlements with the various tax authorities. The effects of these adjustments are recorded to income tax expense.

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From time to time, we engage in transactions in which the tax consequences may be subject to uncertainty. In these cases, we evaluate our tax position using the recognition threshold and the measurement attribute in accordance with the accounting guidance related to uncertain tax positions. Examples of these transactions include business acquisitions and dispositions, including consideration paid or received in connection with these transactions, certain financing transactions, and the allocation of income among state and local tax jurisdictions. Significant judgment is required in assessing and estimating the tax consequences of these transactions. We determine whether it is more likely than not that a tax position will be sustained on examination, including the resolution of any related appeals or litigation processes, based on the technical merits of the position. A tax position that meets the more-likely-than-not recognition threshold is measured to determine the amount of benefit to be recognized in our consolidated financial statements. We classify interest and penalties, if any, associated with our uncertain tax positions as a component of income tax expense (benefit).

Components of Net Deferred Tax Liability

December 31 (in millions)	2022	2021
Deferred Tax Assets:		
Net operating loss and other loss carryforwards	\$ 3,325	\$ 3,194
Nondeductible accruals and other	3,210	3,246
Less: Valuation allowance	3,295	2,907
	3,240	3,533
Deferred Tax Liabilities:		
Differences between book and tax basis of property and equipment and intangible assets	29,688	30,584
Differences between book and tax basis of investments	265	526
Differences between book and tax basis of long-term debt	1,741	1,788
Differences between book and tax basis of foreign subsidiaries and undistributed foreign earnings	55	394
	31,749	33,292
Net deferred tax liability	\$ 28,509	\$ 29,759

The following table presents changes in our valuation allowance for deferred tax assets:

(in millions)	2022	2021	2020
Beginning balance	\$ 2,907	\$ 2,312	\$ 1,906
Additions charged to income tax expense and other accounts	433	635	430
Deductions from reserves	45	40	24
Ending balance	\$ 3,295	\$ 2,907	\$ 2,312

Changes in our net deferred tax liability in 2022 that were not recorded as deferred income tax expense (benefit) are primarily related to a decrease of \$ 505 million associated with items included in other comprehensive income (loss).

As of December 31, 2022, we had federal net operating loss carryforwards of \$ 178 million, and various state net operating loss carryforwards, the majority of which expire in periods through 2042. As of December 31, 2022, we also had foreign net operating loss carryforwards of \$ 10.4 billion related to our foreign operations, primarily at Sky and NBCUniversal, the majority of which can be carried forward indefinitely. The determination of the realization of the state and foreign net operating loss carryforwards is dependent on our subsidiaries' taxable income or loss, apportionment percentages, redetermination from taxing authorities, and state and foreign laws that can change from year to year and impact the amount of such carryforwards. We recognize a valuation allowance if we determine it is more likely than not that some portion, or all, of a deferred tax asset will not be realized. As of December 31, 2022 and 2021, our valuation allowance was primarily related to foreign and state net operating loss carryforwards.

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Uncertain Tax Positions

Reconciliation of Unrecognized Tax Benefits

(in millions)	2022	2021	2020
Gross unrecognized tax benefits, January 1	\$ 2,042	\$ 1,879	\$ 1,422
Additions based on tax positions related to the current year	380	352	436
Additions based on tax positions related to prior years	56	111	152
Reductions for tax positions of prior years	(145)	(181)	(31)
Reductions due to expiration of statutes of limitations	(148)	(107)	(76)
Settlements with tax authorities and other	(24)	(12)	(24)
Gross unrecognized tax benefits, December 31	\$ 2,161	\$ 2,042	\$ 1,879

Our gross unrecognized tax benefits include both amounts related to positions for which we have recorded liabilities for potential payment obligations and those for which tax has been assessed and paid. The amounts exclude the federal benefits on state tax positions that were recorded to deferred income taxes. If we were to recognize our gross unrecognized tax benefits in the future, \$ 1.7 billion would impact our effective tax rate and the remaining amount would increase our deferred income tax liability. The amount and timing of the recognition of any such tax benefit is dependent on the completion of examinations of our tax filings by the various tax authorities and the expiration of statutes of limitations. It is reasonably possible that certain tax contests could be resolved within the next 12 months that may result in a decrease in our effective tax rate. Accrued interest and penalties associated with our liability for uncertain tax positions were not material in any period presented.

The IRS has completed its examination of our income tax returns for all years through 2016. Various states are examining our state tax returns and the tax years of those tax returns currently under examination vary by state, with most of the periods relating to tax years 2011 and forward. Various foreign jurisdictions are examining our tax returns and the tax years of those tax returns currently under examination vary by country, with most of the periods relating to tax years 2010 and forward.

Note 6: Long-Term Debt

Long-Term Debt Outstanding

December 31 (in billions)	Weighted-Average Interest Rate as of December 31, 2022	Weighted-Average Interest Rate as of December 31, 2021	2022 ^(b)	2021 ^(b)
Commercial paper	4.56 %	— %	\$ 0.7	\$ —
Term loans	4.41 %	4.41 %	3.1	3.1
Senior notes with maturities of 5 years or less, at face value	3.32 %	3.50 %	22.6	18.4
Senior notes with maturities between 5 and 10 years, at face value	3.15 %	3.16 %	20.1	23.0
Senior notes with maturities greater than 10 years, at face value	3.77 %	3.67 %	52.8	54.5
Finance lease obligations and other			1.8	1.7
Debt issuance costs, premiums, discounts, fair value adjustments for acquisition accounting and hedged positions, net			(6.2)	(6.0)
Total debt	3.90 % ^(a)	3.74 % ^(a)	94.8	94.8
Less: Current portion			1.7	2.1
Long-term debt			\$ 93.1	\$ 92.7

(a) Rate represents an effective interest rate and includes the effects of amortization of debt issuance costs, premiums, discounts, fair value adjustments for acquisition accounting and hedged positions, as well as the effects of our derivative financial instruments.

(b) As of December 31, 2022, included in our outstanding debt were foreign currency denominated senior notes and term loans with principal amounts of £ 2.6 billion, € 7.5 billion and ¥ 21.6 billion RMB. As of December 31, 2021, included in our outstanding debt were foreign currency denominated senior notes and term loans with principal amounts of £ 2.6 billion, € 7.5 billion and ¥ 20 billion RMB.

Our senior notes are unsubordinated and unsecured obligations and are subject to parent and/or subsidiary guarantees. As of December 31, 2022 and 2021, our debt had an estimated fair value of \$ 86.9 billion and \$ 109.3 billion, respectively. The estimated fair value of our publicly traded debt was primarily based on Level 1 inputs that use quoted market value for the debt. The estimated fair value of debt for which there are no quoted market prices was based on Level 2 inputs that use interest rates available to us for debt with similar terms and remaining maturities.

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Principal Maturities of Debt

(in billions)

2023	\$	1.7
2024	\$	4.3
2025	\$	6.8
2026	\$	5.1
2027	\$	5.7
Thereafter	\$	77.3

We use derivative contracts, such as foreign currency forwards and cross-currency swaps, to hedge our exposure to foreign exchange rate fluctuations resulting from certain foreign currency denominated debt obligations and intercompany funding arrangements denominated in a currency other than the functional currency of the transacting entity. As of December 31, 2022, we had foreign currency forwards designated as fair value hedges on \$ 5.4 billion of our foreign currency intercompany loans receivable, and the aggregate estimated fair value of these foreign currency forwards was a net liability of \$ 56 million. There were no foreign currency forwards designated as fair value hedges as of December 31, 2021. As of December 31, 2022 and 2021, we had cross-currency swaps designated as cash flow hedges on \$ 752 million and \$ 1.6 billion of our foreign currency denominated debt, respectively, and the aggregate estimated fair value of these cross-currency swaps was a net liability of \$ 274 million and \$ 53 million, respectively. The other income (loss), net component of investment and other income (loss), net included net pre-tax gains (losses) from these derivative contracts of \$ 0.6 billion, \$ 0.3 billion, and \$(0.1) billion for 2022, 2021 and 2020, respectively. These amounts offset foreign currency remeasurement (losses) gains from foreign currency denominated debt obligations and intercompany funding arrangements denominated in a currency other than the functional currency of the transacting entity of \$(0.6) billion, \$(0.3) billion and \$ 0.2 billion for 2022, 2021 and 2020, respectively.

We are also exposed to foreign exchange risk on the consolidation of our foreign operations. We have foreign currency denominated debt and cross-currency swaps designated as hedges of our net investments in certain of these subsidiaries. As of December 31, 2022 and 2021, the amount of foreign currency denominated debt designated as hedges of our net investment in foreign subsidiaries was \$ 7.6 billion and \$ 8.2 billion, respectively, and the notional amount of cross-currency swaps designated as hedges of our net investment in foreign subsidiaries was \$ 2.5 billion and \$ 3.6 billion, respectively. As of December 31, 2022 and 2021, the aggregate estimated fair value of these cross-currency swaps was a net asset of \$ 108 million and a net liability of \$ 104 million, respectively. The amount of pre-tax gains (losses) related to net investment hedges recognized in the cumulative translation adjustments component of other comprehensive income (loss) were losses of \$ 397 million in 2022, gains of \$ 760 million in 2021 and losses of \$ 686 million in 2020.

We also use derivative contracts, such as interest rate swaps, to hedge our exposure to changes in interest rates. As of December 31, 2022 and 2021, we had fixed-to-variable interest rate swaps designated as fair value hedges on \$ 2.5 billion of our fixed rate debt obligations. As of December 31, 2022 and 2021, the aggregate estimated fair value of interest rate swaps designated as fair value hedges was a net liability of \$ 282 million and \$ 24 million, respectively.

Revolving Credit Facility and Commercial Paper Program

In March 2021, we entered into a new \$ 11 billion revolving credit facility, as it may be amended from time to time, due March 30, 2026 with a syndicate of banks that may be used for general corporate purposes. We may increase the commitments under the revolving credit facility up to a total of \$ 14 billion, as well as extend the expiration date to no later than March 30, 2028, subject to approval of the lenders. The interest rate on the revolving credit facility consists of a benchmark rate plus a borrowing margin that is determined based on Comcast's credit rating. As of December 31, 2022, the borrowing margin for borrowings based on an Adjusted Term Secured Overnight Financing Rate was 1.00 %. Our revolving credit facility requires that we maintain a certain financial ratio based on debt and EBITDA, as defined in the revolving credit facility. We were in compliance with this financial covenant and other covenants related to our debt for all periods presented. The new revolving credit facility replaced an aggregate \$ 9.2 billion of existing revolving credit facilities due May 26, 2022, which were terminated.

Our commercial paper program is supported by our revolving credit facility and provides a lower cost source of borrowing to fund short-term working capital requirements.

As of December 31, 2022, \$ 665 million was outstanding under our commercial paper program. There were no borrowings outstanding under our commercial paper program as of December 31, 2021. As of December 31, 2022 and 2021, we had no borrowings outstanding under our revolving credit facility. As of December 31, 2022, amounts available under our revolving credit facility, net of amounts outstanding under our commercial paper program and outstanding letters of credit and bank guarantees, totaled \$ 10.4 billion.

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Letters of Credit and Bank Guarantees

As of December 31, 2022, we and certain of our subsidiaries had undrawn irrevocable standby letters of credit and bank guarantees totaling \$ 237 million to cover potential fundings under various agreements.

Note 7: Significant Transactions

Acquisitions

In October 2021, we acquired Masergy, a provider of software-defined networking and cloud platforms for global enterprises, for total cash consideration of \$ 1.2 billion. The acquisition accelerates our growth in serving large and mid-sized companies, particularly U.S.-based organizations with multi-site global enterprises. Masergy's results of operations are included in our consolidated results of operations since the acquisition date and are reported in our Cable Communications segment. We have recorded Masergy's assets and liabilities at their estimated fair values with \$ 853 million recorded to goodwill and the remainder primarily attributed to software and customer relationship intangible assets. The acquisition was not material to our consolidated results of operations.

Note 8: Investments and Variable Interest Entities

Investment and Other Income (Loss), Net

Year ended December 31 (in millions)	2022	2021	2020
Equity in net income (losses) of investees, net	\$ (537)	\$ 2,006	\$ (113)
Realized and unrealized gains (losses) on equity securities, net	(320)	339	1,014
Other income (loss), net	(3)	211	259
Investment and other income (loss), net	\$ (861)	\$ 2,557	\$ 1,160

The amount of unrealized gains (losses), net recognized in 2022, 2021 and 2020 that related to marketable and nonmarketable equity securities still held as of the end of each reporting period was \$(394) million, \$(80) million and \$ 339 million, respectively.

Investments

December 31 (in millions)	2022	2021
Equity method	\$ 5,421	\$ 6,111
Marketable equity securities	96	406
Nonmarketable equity securities	1,653	1,735
Other investments	972	803
Total investments	8,142	9,055
Less: Current investments	402	368
Less: Investment securing collateralized obligation	490	605
Noncurrent investments	\$ 7,250	\$ 8,082

Equity Method

We use the equity method to account for investments in which we have the ability to exercise significant influence over the investee's operating and financial policies, or in which we hold a partnership or limited liability company interest in an entity with specific ownership accounts, unless we have virtually no influence over the investee's operating and financial policies. Equity method investments are recorded at cost and are adjusted to recognize (1) our share, based on percentage ownership or other contractual basis, of the investee's net income or loss after the date of investment, (2) amortization of the recorded investment that exceeds our share of the book value of the investee's net assets, (3) additional contributions made and dividends or other distributions received, and (4) impairments resulting from other-than-temporary declines in fair value. For some investments, we record our share of the investee's net income or loss one quarter in arrears due to the timing of our receipt of such information. Gains or losses on the sale of equity method investments are recorded to other income (loss), net. If an equity method investee were to issue additional securities that would change our proportionate share of the entity, we would recognize the change, if any, as a gain or loss to other income (loss), net. Cash distributions received from equity method investments are considered returns on investment and presented within operating activities in the consolidated statement of cash flows to the extent of cumulative equity in net income of the investee. Additional distributions are presented as investing activities. Distributions presented within operating activities totaled \$ 162 million, \$ 1.1 billion and \$ 66 million for 2022, 2021 and 2020, respectively.

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Atairos

On January 1, 2016, we established Atairos Group, Inc., a strategic company focused on investing in and operating companies in a range of industries and business sectors, both domestically and internationally. Atairos is controlled by management companies led by our former CFO through interests that carry all of the voting rights. We are the only third-party investor in Atairos.

In November 2020, we amended our agreement with Atairos, which primarily extended the investment term of the agreement from up to 12 years to up to 16.5 years, extended the period in which capital can be recycled to the full investment period and decreased our commitment to fund Atairos from up to \$ 5 billion to up to \$ 4.5 billion in the aggregate at any one time, subject to certain offsets, with the maximum amount of annual capital calls reduced to \$ 400 million, plus certain amounts previously distributed. In addition, we have separately committed to fund Atairos \$ 45 million annually for a management fee, subject to certain adjustments. The management company investors have committed to fund from \$ 50 million to \$ 100 million, with at least \$ 40 million to be funded by our former CFO, subject to his continued role with Atairos. Our economic interests do not carry voting rights and obligate us to absorb approximately 99 % of any losses and they provide us the right to receive approximately 86 % of any residual returns in Atairos, in either case on a cumulative basis.

We have concluded that Atairos is a VIE, that we do not have the power to direct the activities that most significantly impact the economic performance of Atairos as we have no voting rights and only certain consent rights, and that we are not a related party with our former CFO or the management companies. We therefore do not consolidate Atairos and account for our investment as an equity method investment. Certain distributions retained by Atairos on our behalf are accounted for as advances and classified within other investments. Atairos may pledge our remaining unfunded capital commitment as security to lenders in connection with certain financing arrangements. This has no effect on our funding commitments. There are no other liquidity arrangements, guarantees or other financial commitments between Comcast and Atairos, and therefore our maximum risk of financial loss is our investment balance and our remaining unfunded capital commitment of \$ 1.5 billion as of December 31, 2022.

Atairos follows investment company accounting and records its investments at their fair values each reporting period with the net gains or losses reflected in its statement of operations. We recognize our share of these gains and losses in equity in net income (losses) of investees, net. In 2022, 2021 and 2020, we made cash capital contributions totaling \$ 52 million, \$ 47 million and \$ 383 million, respectively, to Atairos. As of December 31, 2022 and 2021, our investment, inclusive of advances classified within other investments, was \$ 4.3 billion and \$ 4.7 billion, respectively.

Hulu and Collateralized Obligation

In May 2019, we entered into a series of agreements (the "Hulu Transaction") with The Walt Disney Company and certain of its subsidiaries, whereby we relinquished our board seats and substantially all voting rights associated with our investment in Hulu, and Disney assumed full operational control. We also acquired additional ownership interest in Hulu previously held by AT&T, increasing our interest to approximately 33 %.

Following the Hulu Transaction, future capital calls are limited to \$ 1.5 billion in the aggregate each year, with any excess funding requirements funded with member loans. We have the right, but not the obligation, to fund our proportionate share of these capital calls, and if we elect not to fund our share of future equity capital calls, our ownership interest will be diluted, subject to an ownership floor of 21 %. The Hulu Transaction agreements include put and call provisions regarding our ownership interest in Hulu, pursuant to which, as early as January 2024, we can require Disney to buy, and Disney can require us to sell our interest, in either case, for fair value at that future time subject to a minimum equity value of \$ 27.5 billion for 100 % of the equity of Hulu. The minimum total equity value and ownership floor guarantee minimum proceeds of approximately \$ 5.8 billion upon exercise of the put or call.

In August 2019, we entered into a financing arrangement with a syndicate of banks whereby we received proceeds of \$ 5.2 billion under a term loan facility due March 2024. The principal amount of the term loan is secured by the proceeds guaranteed by Disney under the put/call provisions related to our investment in Hulu. The proceeds from the put/call provisions are available only for the repayment of the term loan and are not available to us unless and until the bank lenders are fully paid under the term loan provisions. The bank lenders have no rights to proceeds from the put/call provisions in excess of amounts owed under the term loan. As a result of this transaction, we now present our investment in Hulu and the term loan separately in our consolidated balance sheet in the captions "investment securing collateralized obligation" and "collateralized obligation", respectively. The recorded value of our investment reflects our historical cost in applying the equity method, and as a result, is less than its fair value. As of December 31, 2022, our collateralized obligation had both a carrying value and estimated fair value of \$ 5.2 billion. The estimated fair value was based on Level 2 inputs that use interest rates for debt with similar terms and remaining maturities.

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Marketable Equity Securities

We classify investments with readily determinable fair values that are not accounted for under the equity method as marketable equity securities. The changes in fair value of our marketable equity securities between measurement dates are recorded in realized and unrealized gains (losses) on equity securities, net. The fair values of our marketable equity securities are based on Level 1 inputs that use quoted market prices.

Nonmarketable Equity Securities

We classify investments without readily determinable fair values that are not accounted for under the equity method as nonmarketable equity securities. The accounting guidance requires nonmarketable equity securities to be recorded at cost and adjusted to fair value at each reporting period. However, the guidance allows for a measurement alternative, which is to record the investments at cost, less impairment, if any, and subsequently adjust for observable price changes of identical or similar investments of the same issuer. We apply the measurement alternative, adjusting the investments for observable price changes of identical or similar investments of the same issuer, to a majority of our nonmarketable equity securities. When an observable event occurs, we estimate the fair values of our nonmarketable equity securities primarily based on Level 2 inputs that are derived from observable price changes of similar securities adjusted for insignificant differences in rights and obligations. The changes in value are recorded in realized and unrealized gains (losses) on equity securities, net.

Other Investments

Other investments also includes investments in certain short-term instruments with maturities over three months when purchased, such as commercial paper, certificates of deposit and U.S government obligations, which are generally accounted for at amortized cost. These short-term instruments totaled \$ 304 million as of December 31, 2022 and there were no such investments as of December 31, 2021. The carrying amounts of these investments approximate their fair values, which are primarily based on Level 2 inputs that use interest rates for instruments with similar terms and remaining maturities.

AirTouch

In April 2020, Verizon Americas, Inc., formerly known as AirTouch Communications, Inc. ("AirTouch"), redeemed the two series of preferred stock we previously held and we received cash payments totaling \$ 1.7 billion. Subsequently, we redeemed and repurchased the related three series of preferred shares issued by one of our consolidated subsidiaries and made cash payments totaling \$ 1.8 billion.

Impairment Testing of Investments

We review our investment portfolio, other than our marketable equity securities, each reporting period to determine whether there are identified events or circumstances that would indicate there is a decline in the fair value. For our nonpublic investments, if there are no identified events or circumstances that would have a significant adverse effect on the fair value of the investment, then the fair value is not estimated. For our equity method investments, if an investment is deemed to have experienced an other-than-temporary decline below its cost basis, we reduce the carrying amount of the investment to its quoted or estimated fair value, as applicable, and establish a new cost basis for the investment. For our nonmarketable equity securities, we record the impairment to realized and unrealized gains (losses) on equity securities, net. For our equity method investments, we record the impairment to other income (loss), net.

Consolidated Variable Interest Entity

Universal Beijing Resort

In 2018, we entered into an agreement with a consortium of Chinese state-owned companies to build and operate a Universal theme park and resort in Beijing, China ("Universal Beijing Resort"), which opened in September 2021. We own a 30 % interest in Universal Beijing Resort and the construction was funded through a combination of debt financing and equity contributions from the partners in accordance with their equity interests. The debt financing, which is being provided by a syndicate of Chinese financial institutions, contains certain covenants and a maximum borrowing limit of ¥ 29.7 billion RMB (approximately \$ 4.3 billion). The debt financing is secured by the assets of Universal Beijing Resort and the equity interests of the investors. As of December 31, 2022, Universal Beijing Resort had \$ 3.5 billion of debt outstanding, including \$ 3.1 billion principal amount of a term loan outstanding under the debt financing agreement.

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We have concluded that Universal Beijing Resort is a VIE based on its governance structure, and we consolidate it because we have the power to direct activities that most significantly impact its economic performance. There are no liquidity arrangements, guarantees or other financial commitments between us and Universal Beijing Resort, and therefore our maximum risk of financial loss is our 30 % interest. Universal Beijing Resort's results of operations are reported in our Theme Parks segment. Our consolidated statement of cash flows includes the costs of construction and related borrowings in the "construction of Universal Beijing Resort" and "proceeds from borrowings" captions, respectively, and equity contributions from the noncontrolling interests are included in other financing activities.

As of December 31, 2022, our consolidated balance sheet included assets and liabilities of Universal Beijing Resort totaling \$ 8.2 billion and \$ 7.3 billion, respectively. The assets and liabilities of Universal Beijing Resort primarily consist of property and equipment, operating lease assets and liabilities, and debt.

Note 9: Property and Equipment

December 31 (in billions)	Weighted-Average Original Useful Life as of December 31, 2022	2022		2021
		\$	\$	
Distribution systems	11 years	\$ 43.0	\$	41.8
Customer premise equipment	6 years	25.4		25.8
Buildings, theme park infrastructure and leasehold improvements	32 years	20.1		20.3
Other equipment	11 years	17.4		17.0
Construction in process	N/A	4.9		3.1
Land	N/A	1.7		1.7
Property and equipment, at cost		112.4		109.7
Less: Accumulated depreciation		56.9		55.6
Property and equipment, net		\$ 55.5	\$	54.0

The table below summarizes our property and equipment by geographic location.

December 31 (in billions)	2022	2021
United States	\$ 44.2	\$ 41.2
Other	11.3	12.9
Property and equipment, net	\$ 55.5	\$ 54.0

Property and equipment are stated at cost. We capitalize improvements that extend asset lives and expense repairs and maintenance costs as incurred. We record depreciation using the straight-line method over the asset's estimated useful life. For assets that are sold or retired, we remove the applicable cost and accumulated depreciation and, unless the gain or loss on disposition is presented separately, we recognize it as a component of depreciation expense. Capital expenditures for the construction of Universal Beijing Resort are presented separately in our consolidated statement of cash flows.

Cable Communications capitalizes the costs associated with the construction of and improvements to our cable transmission and distribution facilities, including scalable infrastructure and line extensions; costs associated with acquiring and deploying new customer premise equipment; and costs associated with installation of our services, including the customer's connection to our network, in accordance with the accounting guidance related to cable television companies. Costs capitalized include all direct costs for labor and materials, as well as various indirect costs. Costs incurred in connection with subsequent disconnects, and reconnects of previously deployed customer premise equipment, are expensed as they are incurred.

We evaluate the recoverability of our property and equipment whenever events or substantive changes in circumstances indicate that the carrying amount may not be recoverable. The evaluation is based on the cash flows generated by the underlying asset groups, including estimated future operating results, trends or other determinants of fair value. If the total of the expected future undiscounted cash flows were less than the carrying amount of the asset group, we would recognize an impairment charge to the extent the carrying amount of the asset group exceeded its estimated fair value. Unless presented separately, the impairment charge is included as a component of depreciation expense.

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Certain of our cable franchise agreements and lease agreements contain provisions requiring us to restore facilities or remove property in the event that the franchise or lease agreement is not renewed. We expect to continually renew our cable franchise agreements and therefore cannot reasonably estimate liabilities associated with such agreements. A remote possibility exists that franchise agreements could be terminated unexpectedly, which could result in us incurring significant expense in complying with restoration or removal provisions. We do not have any material liabilities related to asset retirement obligations recorded in our consolidated financial statements.

Note 10: Goodwill and Intangible Assets

Goodwill

(in billions)	NBCUniversal										Corporate and Other	Total
	Cable Communications	Cable Networks	Broadcast Television	Filmed Entertainment	Media	Studios	Theme Parks	Sky				
Balance, December 31, 2020	\$ 15.3	\$ 14.0	\$ 1.1	\$ 3.3	\$ —	\$ —	\$ 7.1	\$ 30.0	\$ —	\$ —	\$ 70.7	
Segment change	—	(14.0)	(1.1)	(3.3)	14.7	3.7	—	—	—	—	—	—
Acquisitions	0.9	—	—	—	—	—	—	—	—	—	—	1.0
Foreign currency translation and other	—	—	—	—	—	—	(0.6)	(0.8)	—	—	—	(1.5)
Balance, December 31, 2021	16.2	—	—	—	14.7	3.7	6.4	29.2	—	—	70.2	
Impairment	—	—	—	—	—	—	—	(8.1)	—	—	—	(8.1)
Foreign currency translation and other	—	—	—	—	—	—	(0.7)	(3.0)	—	—	—	(3.6)
Balance, December 31, 2022	16.2	—	—	—	14.7	3.7	5.8	26.0	—	—	66.4	
Goodwill	16.2	—	—	—	14.7	3.7	5.8	26.0	—	—	66.4	
Accumulated impairment losses^(a)	—	—	—	—	—	—	—	(7.9)	—	—	(7.9)	
	\$ 16.2	\$ —	\$ —	\$ —	\$ 14.7	\$ 3.7	\$ 5.8	\$ 18.1	\$ —	\$ —	\$ 58.5	

(a) Amount relates to 2022 impairment and is impacted by foreign currency translation each period.

Goodwill is calculated as the excess of the consideration transferred over the identifiable net assets acquired in a business combination and represents the future economic benefits expected to arise from anticipated synergies and intangible assets acquired that do not qualify for separate recognition, including increased footprint, assembled workforce, noncontractual relationships and other agreements. We assess the recoverability of our goodwill annually, or more frequently whenever events or substantive changes in circumstances indicate that the carrying amount of a reporting unit may exceed its fair value. We test goodwill for impairment at the reporting unit level. To determine our reporting units, we evaluate the components one level below the segment level and we aggregate the components if they have similar economic characteristics. We evaluate the determination of our reporting units used to test for impairment periodically or whenever events or substantive changes in circumstances occur. The assessment of recoverability may first consider qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that the fair value of a reporting unit is less than its carrying amount. A quantitative assessment is performed if the qualitative assessment results in a more-likely-than-not determination or if a qualitative assessment is not performed. The quantitative assessment considers whether the carrying amount of a reporting unit exceeds its fair value, in which case an impairment charge is recorded to the extent the reporting unit's carrying value exceeds its fair value. Unless presented separately, the impairment charge is included as a component of amortization expense.

We assess the recoverability of our goodwill annually as of July 1, and as a result, in the third quarter of 2022, we recorded a goodwill impairment of \$ 8.1 billion in our Sky reporting unit. The fair value of the reporting unit was estimated using a discounted cash flow analysis. When performing this analysis, we also considered multiples of earnings from comparable public companies and recent market transactions. The decline in fair value primarily resulted from an increased discount rate and reduced estimated future cash flows as a result of macroeconomic conditions in the Sky territories. The impairment is presented in goodwill and long-lived asset impairments in the consolidated statement of income.

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Intangible Assets

December 31 (in billions)	Weighted-Average Original Useful Life as of December 31, 2022	2022		2021	
		Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Indefinite-Lived Intangible Assets:					
Franchise rights	N/A	\$ 59.4	\$ 59.4		
FCC licenses	N/A	2.8	2.8		
Finite-Lived Intangible Assets:					
Customer relationships	14 years	20.4	\$ (11.4)	22.1	\$ (10.6)
Software	5 years	20.9	(12.7)	20.3	(11.5)
Other agreements and rights	28 years	11.1	(1.8)	11.9	(1.4)
Total		\$ 114.5	\$ (25.9)	\$ 116.5	\$ (23.5)

Indefinite-Lived Intangible Assets

Indefinite-lived intangible assets consist primarily of our cable franchise rights. Our cable franchise rights represent the values we attributed to agreements with state and local authorities that allow access to homes and businesses in cable service areas acquired in business combinations. We do not amortize our cable franchise rights because we have determined that they meet the definition of indefinite-lived intangible assets since there are no legal, regulatory, contractual, competitive, economic or other factors that limit the period over which these rights will contribute to our cash flows. We reassess this determination periodically or whenever events or substantive changes in circumstances occur. The purchase of spectrum rights is presented separately in our consolidated statement of cash flows.

We assess the recoverability of our cable franchise rights and other indefinite-lived intangible assets annually, or more frequently whenever events or substantive changes in circumstances indicate that the assets might be impaired. Our three Cable Communications divisions represent the unit of account we use to test for impairment of our cable franchise rights. We evaluate the unit of account used to test for impairment of our cable franchise rights and other indefinite-lived intangible assets periodically or whenever events or substantive changes in circumstances occur to ensure impairment testing is performed at an appropriate level. The assessment of recoverability may first consider qualitative factors to determine whether it is more likely than not that the fair value of an indefinite-lived intangible asset is less than its carrying amount. A quantitative assessment is performed if the qualitative assessment results in a more-likely-than-not determination or if a qualitative assessment is not performed. When performing a quantitative assessment, we estimate the fair value of our cable franchise rights and other indefinite-lived intangible assets primarily based on a discounted cash flow analysis that involves significant judgment. When analyzing the fair values indicated under the discounted cash flow models, we also consider multiples of Adjusted EBITDA generated by the underlying assets, current market transactions and profitability information. If the fair value of our cable franchise rights or other indefinite-lived intangible assets were less than the carrying amount, we would recognize an impairment charge for the difference between the estimated fair value and the carrying value of the assets. Unless presented separately, the impairment charge is included as a component of amortization expense.

Finite-Lived Intangible Assets

Estimated Amortization Expense of Finite-Lived Intangible Assets

(in billions)		
2023		\$ 5.0
2024		\$ 4.3
2025		\$ 3.6
2026		\$ 2.6
2027		\$ 1.5

Finite-lived intangible assets are subject to amortization and consist primarily of customer relationships acquired in business combinations, software, trade names and intellectual property rights. Our finite-lived intangible assets are amortized primarily on a straight-line basis over their estimated useful life or the term of the associated agreement.

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We capitalize direct development costs associated with internal-use software, including external direct costs of material and services and payroll costs for employees devoting time to these software projects. We also capitalize costs associated with arrangements that constitute the purchase of, or convey a license to, software licenses. We generally amortize them on a straight-line basis over a period not to exceed five years. We expense maintenance and training costs, as well as costs incurred during the preliminary stage of a project, as they are incurred. We capitalize initial operating system software costs and amortize them over the life of the associated hardware.

We evaluate the recoverability of our finite-lived intangible assets whenever events or substantive changes in circumstances indicate that the carrying amount may not be recoverable. The evaluation is based on the cash flows generated by the underlying asset groups, including estimated future operating results, trends or other determinants of fair value. If the total of the expected future undiscounted cash flows were less than the carrying amount of the asset group, we would recognize an impairment charge to the extent the carrying amount of the asset group exceeded its estimated fair value. Unless presented separately, the impairment charge is included as a component of amortization expense.

In connection with our annual goodwill impairment assessment, in the third quarter of 2022 we also recorded impairments of intangible assets related to our Sky segment, which primarily related to customer relationship assets. These impairments totaled \$ 485 million and are presented in goodwill and long-lived asset impairments in the consolidated statement of income.

Note 11: Employee Benefit Plans

Deferred Compensation Plans

Year ended December 31 (in millions)	2022	2021	2020
Benefit obligation	\$ 4,158	\$ 4,002	\$ 3,648
Interest expense	\$ 272	\$ 265	\$ 293

We maintain unfunded, nonqualified deferred compensation plans for certain members of management and nonemployee directors. The amount of compensation deferred by each participant is based on participant elections. Participant accounts are credited with income primarily based on a fixed annual rate. Participants are eligible to receive distributions from their account based on elected deferral periods that are consistent with the plans and applicable tax law.

We have purchased life insurance policies to recover a portion of the future payments related to our deferred compensation plans. As of December 31, 2022 and 2021, the cash surrender value of these policies, which is recorded to other noncurrent assets, net, was \$ 449 million and \$ 549 million, respectively.

Pension and Postretirement Benefit Plans

We sponsor several 401(k) defined contribution retirement plans that allow eligible employees to contribute a portion of their compensation through payroll deductions in accordance with specified plan guidelines. We make contributions to the plans that include matching a percentage of the employees' contributions up to certain limits. In 2022, 2021 and 2020, expenses related to these plans totaled \$ 632 million, \$ 595 million and \$ 599 million, respectively.

We participate in various multiemployer benefit plans, including pension and postretirement benefit plans, that cover some of our employees and temporary employees who are represented by labor unions. We also participate in other multiemployer benefit plans that provide health and welfare and retirement savings benefits to active and retired participants. If we cease to be obligated to make contributions or were to otherwise withdraw from participation in any of these plans, applicable law would require us to fund our allocable share of the unfunded vested benefits, which is known as a withdrawal liability. In addition, actions taken by other participating employers may lead to adverse changes in the financial condition of one of these plans, which could result in an increase in our withdrawal liability. Total contributions we made to multiemployer benefit plans and any potential withdrawal liabilities were not material in any of the periods presented.

Comcast Corporation**Note 12: Equity****Common Stock**

In the aggregate, holders of our Class A common stock have 66^{2/3}% of the voting power of our common stock and holders of our Class B common stock have 33^{1/3}% of the voting power of our common stock, which percentage is generally non-dilutable under the terms of our articles of incorporation. Each share of our Class B common stock is entitled to 15 votes. The number of votes held by each share of our Class A common stock depends on the number of shares of Class A and Class B common stock outstanding at any given time. The 33^{1/3}% aggregate voting power of our Class B common stock cannot be diluted by additional issuances of any other class of common stock. Our Class B common stock is convertible, share for share, into Class A common stock, subject to certain restrictions.

Shares of Common Stock Outstanding

(in millions)	Class A	Class B
Balance, December 31, 2019	4,544	9
Stock compensation plans	20	—
Employee stock purchase plans	7	—
Balance, December 31, 2020	4,571	9
Stock compensation plans	21	—
Repurchases and retirements of common stock	(73)	—
Employee stock purchase plans	5	—
Balance, December 31, 2021	4,524	9
Stock compensation plans	12	—
Repurchases and retirements of common stock	(332)	—
Employee stock purchase plans	7	—
Balance, December 31, 2022	4,211	9

Weighted-Average Common Shares Outstanding

Year ended December 31 (in millions)	2022	2021	2020
Weighted-average number of common shares outstanding – basic	4,406	4,584	4,574
Effect of dilutive securities	24	70	50
Weighted-average number of common shares outstanding – diluted	4,430	4,654	4,624
Antidilutive securities	176	35	92

Weighted-average common shares outstanding used in calculating diluted earnings per common share attributable to Comcast Corporation shareholders ("diluted EPS") considers the impact of potentially dilutive securities using the treasury stock method. Our potentially dilutive securities include potential common shares related to our stock options and our restricted share units ("RSUs"). Diluted EPS excludes the impact of potential common shares related to our stock options in periods in which the combination of the option exercise price and the associated unrecognized compensation expense is greater than the average market price of our common stock. Antidilutive securities represent the number of potential common shares related to our share-based compensation plans that were excluded from diluted EPS because their effect would have been antidilutive.

Accumulated Other Comprehensive Income (Loss)

December 31 (in millions)	2022	2021
Cumulative translation adjustments	\$ (3,093)	\$ 1,119
Deferred gains (losses) on cash flow hedges	193	104
Unrecognized gains (losses) on employee benefit obligations and other	290	257
Accumulated other comprehensive income (loss), net of deferred taxes	\$ (2,611)	\$ 1,480

Note 13: Share-Based Compensation

Recognized Share-Based Compensation Expense

Year ended December 31 (in millions)	2022	2021	2020
Restricted share units	\$ 734	\$ 729	\$ 628
Stock options	327	314	294
Employee stock purchase plans	39	38	38
Total	\$ 1,100	\$ 1,081	\$ 960

Our share-based compensation plans consist primarily of awards of RSUs and stock options to certain employees and directors as part of our approach to long-term incentive compensation. Awards generally vest over a period of 5 years and, in the case of stock options, have a 10 year term. Additionally, through our employee stock purchase plans, employees are able to purchase shares of our common stock at a discount through payroll deductions. As of December 31, 2022, virtually all of our stock options outstanding were net settled stock options, which result in fewer shares being issued and no cash proceeds being received by us when the options are exercised.

Stock Options and Restricted Share Units

As of December 31, 2022, unless otherwise stated (in millions, except per share data)	Stock Options	RSUs
Awards granted during 2022	56	21
Weighted-average exercise price of awards granted during 2022	\$ 44.78	
Stock options outstanding and nonvested RSUs	239	45
Weighted-average exercise price of stock options outstanding	\$ 41.56	
Weighted-average fair value at grant date of nonvested RSUs	\$ 45.73	

The cost associated with our share-based compensation is based on an award's estimated fair value at the date of grant and is recognized over the period in which any related services are provided. RSUs are valued based on the closing price of our common stock on the date of grant and are discounted for the lack of dividends, if any, during the vesting period. We use the Black-Scholes option pricing model to estimate the fair value of stock option awards.

The table below presents the weighted-average fair value on the date of grant of RSUs and stock options awarded under our various plans and the related weighted-average valuation assumptions.

Year ended December 31	2022	2021	2020
RSUs fair value	\$ 45.20	\$ 54.52	\$ 41.71
Stock options fair value	\$ 8.77	\$ 9.72	\$ 6.61
Stock Option Valuation Assumptions:			
Dividend yield	2.4 %	1.8 %	2.2 %
Expected volatility	25.0 %	22.8 %	21.0 %
Risk-free interest rate	1.8 %	0.9 %	1.0 %
Expected option life (in years)	5.8	5.9	6.0

As of December 31, 2022, we had unrecognized pretax compensation expense of \$ 1.2 billion related to nonvested RSUs and unrecognized pretax compensation expense of \$ 613 million related to nonvested stock options that will be recognized over a weighted-average period of approximately 1.5 and 1.7 years, respectively. In 2022, 2021, and 2020, we recognized \$ 30 million, \$ 209 million and \$ 150 million, respectively, as a reduction to income tax expense as a result of excess tax benefits associated with our share-based compensation plans.

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Note 14: Supplemental Financial Information

Cash Payments for Interest and Income Taxes

Year ended December 31 (in millions)	2022	2021	2020
Interest	\$ 3,413	\$ 3,908	\$ 3,878
Income taxes	\$ 5,265	\$ 2,628	\$ 3,183

Noncash Activities

During 2022:

- we acquired \$ 2.0 billion of property and equipment and intangible assets that were accrued but unpaid
- we recorded a liability of \$ 1.1 billion for a quarterly cash dividend of \$ 0.27 per common share paid in January 2023

During 2021:

- we acquired \$ 2.0 billion of property and equipment and intangible assets that were accrued but unpaid
- we recorded a liability of \$ 1.1 billion for a quarterly cash dividend of \$ 0.25 per common share paid in January 2022

During 2020:

- we acquired \$ 1.9 billion of property and equipment and intangible assets that were accrued but unpaid
- we recorded a liability of \$ 1.1 billion for a quarterly cash dividend of \$ 0.23 per common share paid in January 2021

Cash, Cash Equivalents and Restricted Cash

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported in the consolidated balance sheet to the total of the amounts reported in our consolidated statement of cash flows.

December 31 (in millions)	2022	2021
Cash and cash equivalents	\$ 4,749	\$ 8,711
Restricted cash included in other current assets	21	56
Restricted cash included in other noncurrent assets, net	12	12
Cash, cash equivalents and restricted cash, end of year	\$ 4,782	\$ 8,778

Our cash equivalents consist primarily of money market funds and U.S. government obligations, as well as commercial paper and certificates of deposit with maturities of three months or less when purchased. The carrying amounts of our cash equivalents approximate their fair values, which are primarily based on Level 1 inputs.

Note 15: Commitments and Contingencies

Sports Rights and Licensed Content

Our most significant fixed-price purchase obligations relate to long-term commitments for sports rights and licensed content. Refer to Note 4 for additional information.

Leases

Our leases consist primarily of real estate, vehicles and other equipment. We determine if an arrangement is a lease at inception. Lease assets and liabilities are recognized upon commencement of the lease based on the present value of the future minimum lease payments over the lease term. The lease term includes options to extend the lease when it is reasonably certain that we will exercise that option. We generally utilize our incremental borrowing rate based on information available at the commencement of the lease in determining the present value of future payments. The lease asset also includes any lease payments made and initial direct costs incurred and excludes lease incentives. Lease assets and liabilities are not recorded for leases with an initial term of one year or less.

For our operating leases recorded in the balance sheet, lease expense is based on the future minimum lease payments recognized on a straight-line basis over the term of the lease plus any variable lease costs. In 2022, 2021 and 2020, operating lease expenses, inclusive of short-term and variable lease expenses, recognized in our consolidated statement of income were \$ 1.2 billion, \$ 1.2 billion and \$ 1.1 billion, respectively. These amounts do

not include lease costs associated with production activities or other amounts capitalized in our consolidated balance sheet, which were not material.

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Comcast Corporation

The table below summarizes the operating lease assets and liabilities recorded in our consolidated balance sheet.

December 31 (in millions)	2022	2021
Other noncurrent assets, net	\$ 5,997	\$ 6,467
Accrued expenses and other current liabilities	\$ 675	\$ 766
Other noncurrent liabilities	\$ 6,107	\$ 6,473

The table below summarizes our future minimum lease commitments for operating leases as of December 31, 2022.

(in millions)	December 31, 2022
2023	\$ 885
2024	849
2025	745
2026	650
2027	545
Thereafter	7,141
Total future minimum lease payments	10,814
Less: imputed interest	4,032
Total liability	\$ 6,782

The weighted-average remaining lease terms for operating leases and the weighted-average discount rates used to calculate our operating lease liabilities as of December 31, 2022 were 18 years and 3.97 %, respectively, and as of December 31, 2021 were 19 years and 3.94 %, respectively.

In 2022, 2021 and 2020, cash payments for operating leases recorded in the consolidated balance sheet were \$ 965 million, \$ 987 million and \$ 936 million respectively. We recognized operating lease assets and liabilities of \$ 2.8 billion related to Universal Beijing Resort in 2021. Lease assets and liabilities associated with other operating leases entered into or modified were not material in any period presented.

Contractual Obligation

We are party to a contractual obligation that involves an interest held by a third party in the revenue of certain theme parks. The arrangement provides the counterparty with the right to periodic payments associated with current period revenue which are recorded as an operating expense, and beginning in June 2017, the option to require NBCUniversal to purchase the interest for cash in an amount based on a contractual formula. The contractual formula is based on an average of specified historical theme park revenue at the time of exercise, which amount could be significantly higher than our carrying value. As of December 31, 2022, our carrying value was \$ 1.1 billion, and the estimated value of the contractual obligation was \$ 1.3 billion based on inputs to the contractual formula as of that date.

Redeemable Subsidiary Preferred Stock

In the first quarter of 2021, we redeemed all of the NBCUniversal Enterprise, Inc. preferred stock and made cash payments equal to the aggregate liquidation preference of \$ 725 million. The redeemable subsidiary preferred stock was presented in redeemable noncontrolling interests.

Contingencies

We are subject to legal proceedings and claims that arise in the ordinary course of our business. While the amount of ultimate liability with respect to such actions is not expected to materially affect our results of operations, cash flows or financial position, any litigation resulting from any such legal proceedings or claims could be time-consuming and injure our reputation.

Item 9: Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A: Controls and Procedures

Conclusions regarding disclosure controls and procedures

Our principal executive and principal financial officers, after evaluating the effectiveness of our disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) as of the end of the period covered by this report, have concluded that, based on the evaluation of these controls and procedures required by paragraph (b) of Exchange Act Rules 13a-15 or 15d-15, such disclosure controls and procedures were effective.

Management's annual report on internal control over financial reporting

Refer to Management's Report on Internal Control Over Financial Reporting on page 64.

Attestation report of the registered public accounting firm

Refer to Report of Independent Registered Public Accounting Firm on page 65.

Changes in internal control over financial reporting

There were no changes in internal control over financial reporting identified in connection with the evaluation required by paragraph (d) of Exchange Act Rules 13a-15 or 15d-15 that occurred during the last fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B: Other Information

None.

Item 9C: Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

Part III

Item 10: Directors, Executive Officers and Corporate Governance

Except for the information regarding executive officers required by Item 401 of Regulation S-K, we incorporate the information required by this item by reference to our definitive proxy statement for our annual meeting of shareholders. We refer to this proxy statement as the 2023 Proxy Statement.

The term of office of each of our executive officers continues until his successor is selected and qualified or until his earlier death, resignation or removal. The following table sets forth information concerning our executive officers, including their ages, positions and tenure, as of the date hereof.

Name	Age	Officer Since	Position with Comcast
Brian L. Roberts	63	1986	Chairman and Chief Executive Officer
Michael J. Cavanagh	57	2015	President
Jason S. Armstrong	46	2023	Chief Financial Officer and Treasurer
Jennifer Khoury	49	2023	Chief Communications Officer
Daniel C. Murdock	49	2017	Executive Vice President; Chief Accounting Officer and Controller
Thomas J. Reid	58	2019	Chief Legal Officer and Secretary

Brian L. Roberts has served as a director and as Chairman of the Board and Chief Executive Officer for more than five years. Mr. Roberts previously served as President until October 2022. As of December 31, 2022, Mr. Roberts had sole voting power over approximately 33¹/₃% of the combined voting power of our two classes of common stock. He is a son of our late founder, Mr. Ralph J. Roberts.

Michael J. Cavanagh has served as President since October 2022 and Chief Financial Officer between July 2015 and January 2023. Prior to joining our company, Mr. Cavanagh had been Co-President and Co-Chief Operating Officer for The Carlyle Group, a global investment firm, since 2014. Prior to that, Mr. Cavanagh was the Co-Chief Executive Officer of the Corporate & Investment Bank of JPMorgan Chase & Co. from 2012 until 2014; the Chief Executive Officer of JPMorgan Chase & Co.'s Treasury & Securities Services business from 2010 to 2012; and the Chief Financial Officer of JPMorgan Chase & Co. from 2004 to 2010.

Jason S. Armstrong has served as Chief Financial Officer since January 2023 and Treasurer since 2020. He had served as Deputy Chief Financial Officer since 2022 and had held various senior positions since joining our company in 2014, including as Chief Financial Officer of Sky Limited and as Senior Vice President of Investor Relations. Prior to that, Mr. Armstrong spent 14 years at Goldman Sachs & Co. LLC where he most recently served as Managing Director, Deputy Business Unit Leader of the firm's Technology, Media and Telecommunications Research Group.

Jennifer Khoury has served as Chief Communications Officer since February 2020. She had held various senior positions since joining our company in 1999, including Senior Vice President of Corporate and Digital Communications, leading communications for Comcast Cable and the corporation's digital and social media. Previously, Ms. Khoury led communications, public affairs and social responsibility programs and campaigns for AT&T Broadband and MediaOne and served as a strategic consultant for ML Strategies, LLC.

Daniel C. Murdock has served as an Executive Vice President since March 2020, Chief Accounting Officer since March 2017 and Controller since July 2015. Prior to joining our company, Mr. Murdock had been with the U.S. Securities and Exchange Commission where he served as the Deputy Chief Accountant in the agency's Office of the Chief Accountant since 2013. Prior to that, he was Deloitte & Touche's Audit/Industry Professional Practice Director for media and entertainment.

Thomas J. Reid has served as Chief Legal Officer and Secretary since April 2019. Prior to joining our company, Mr. Reid had served as the Chairman and Managing Partner of Davis Polk & Wardwell LLP, a global law firm, since 2011. Prior to that, Mr. Reid was a partner at Davis Polk & Wardwell LLP from 2003 to 2011 and a Managing Director in the Investment Banking Division of Morgan Stanley from 2000 to 2003.

Item 11: Executive Compensation

We incorporate the information required by this item by reference to our 2023 Proxy Statement.

Item 12: Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

We incorporate the information required by this item by reference to our 2023 Proxy Statement.

Item 13: Certain Relationships and Related Transactions, and Director Independence

We incorporate the information required by this item by reference to our 2023 Proxy Statement.

Item 14: Principal Accountant Fees and Services

We incorporate the information required by this item relating to our principal accountant, Deloitte & Touche LLP (PCAOB ID No. 34), by reference to our 2023 Proxy Statement.

Part IV

Item 15: Exhibits and Financial Statement Schedules

(a) Our consolidated financial statements are filed as a part of this report on Form 10-K in Item 8, Financial Statements and Supplementary Data, and a list of Comcast's consolidated financial statements are found on page 63 of this report. Financial statement schedules are omitted because the required information is not applicable, or because the information required is included in the consolidated financial statements and notes thereto.

(b) Exhibits required to be filed by Item 601 of Regulation S-K (all of which are under Commission File No. 001-32871, except as otherwise noted):

- [3.1](#) Amended and Restated Articles of Incorporation of Comcast Corporation (incorporated by reference to Exhibit 3.1 to Comcast's Current Report on Form 8-K filed on December 15, 2015).
- [3.2](#) Amended and Restated By-Laws of Comcast Corporation (incorporated by reference to Exhibit 3.1 to Comcast's Current Report on Form 8-K filed on December 27, 2022).
- [4.1](#) Specimen Class A Common Stock Certificate (incorporated by reference to Exhibit 4.1 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2002).
- [4.2](#) Indenture, dated January 7, 2003, between Comcast Corporation, the subsidiary guarantor party thereto, and The Bank of New York Mellon (f/k/a The Bank of New York), as trustee (incorporated by reference to Exhibit 4.4 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2008).
- [4.3](#) First Supplemental Indenture, dated March 25, 2003, to the Indenture between Comcast Corporation, the subsidiary guarantors party thereto, and The Bank of New York Mellon (f/k/a The Bank of New York), as trustee, dated January 7, 2003 (incorporated by reference to Exhibit 4.5 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2008).
- [4.4](#) Second Supplemental Indenture, dated August 31, 2009, to the Indenture between Comcast Corporation, the subsidiary guarantors party thereto, and The Bank of New York Mellon, as Trustee, dated January 7, 2003, as supplemented by a First Supplemental Indenture dated March 25, 2003 (incorporated by reference to Exhibit 4.1 to Comcast's Current Report on Form 8-K filed on September 2, 2009).
- [4.5](#) Third Supplemental Indenture, dated March 27, 2013, to the Indenture between Comcast Corporation, the subsidiary guarantors party thereto, and The Bank of New York Mellon (f/k/a The Bank of New York), as trustee, dated January 7, 2003, as supplemented by a First Supplemental Indenture dated March 25, 2003 and a second Supplemental Indenture dated August 31, 2009 (incorporated by reference to Exhibit 4.4 to Comcast's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013).
- [4.6](#) Fourth Supplemental Indenture, dated October 1, 2015, to the Indenture dated January 7, 2003 between Comcast Corporation, the subsidiary guarantors party thereto, and The Bank of New York Mellon (f/k/a The Bank of New York), as trustee, as supplemented by a First Supplemental Indenture dated March 25, 2003, a second Supplemental Indenture dated August 31, 2009 and a Third Supplemental Indenture dated March 27, 2013 (incorporated by reference to Exhibit 4.1 to Comcast's Quarterly Report on Form 10-Q for the quarter ended September 30, 2015).
- [4.7](#) Senior Indenture dated September 18, 2013, among Comcast Corporation, the guarantors party thereto and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4.3 to Comcast's Registration Statement on Form S-3 filed September 18, 2013).
- [4.8](#) First Supplemental Indenture dated as of November 17, 2015, to the Senior Indenture dated September 18, 2013, among Comcast Corporation, the guarantors party thereto, and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4.4 to Post Effective Amendment No. 2 to Comcast's Registration Statement on Form S-3 filed November 23, 2015).
- [4.9](#) Second Supplemental Indenture dated as of July 29, 2022, to the Senior Indenture dated September 18, 2013, among Comcast Corporation, the guarantors party thereto, and The Bank of New York Mellon, as trustee, as supplemented by a First Supplemental Indenture dated November 17, 2015 (incorporated by reference to Exhibit 4.4 to Comcast's Registration Statement on Form S-3 filed July 29, 2022).
- [4.10](#) Indenture, dated as of April 30, 2010, between NBC Universal, Inc. (n/k/a NBCUniversal Media, LLC) and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4 to the Registration Statement on Form S-4 of NBCUniversal Media, LLC (Commission File No. 333-174175) filed on May 13, 2011).

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- [4.11](#) First Supplemental Indenture, dated March 27, 2013, to the Indenture between NBCUniversal Media, LLC (f/k/a NBC Universal, Inc.) and The Bank of New York Mellon, as trustee, dated April 30, 2010 (incorporated by reference to Exhibit 4.3 to Comcast's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013).
- [4.12](#) Second Supplemental Indenture, dated October 1, 2015, to the Indenture dated April 30, 2010 between NBC Universal, Inc. (n/k/a NBCUniversal Media, LLC) and The Bank of New York Mellon, as trustee, as supplemented by a First Supplemental Indenture dated March 27, 2013 (incorporated by reference to Exhibit 4.2 to Comcast's Quarterly Report on Form 10-Q for the quarter ended September 30, 2015).
- [4.13](#) Trust Deed dated September 5, 2014 among BSKYB Finance UK plc, British Sky Broadcasting Group plc, the initial guarantors party thereto and BNY Mellon Corporate Trustee Services Limited, as trustee (incorporated by reference to Exhibit 4.13 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2018).
- [4.14](#) Supplemental Trust Deed dated March 18, 2015 among Sky Group Finance plc (f/k/a BSKYB Finance UK plc), Sky plc (f/k/a British Sky Broadcasting Group plc), the initial guarantors party thereto and BNY Mellon Corporate Trustee Services Limited, as trustee (incorporated by reference to Exhibit 4.14 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2018).
- [4.15](#) Description of Comcast Corporation's securities registered pursuant to Section 12 of the Securities Exchange Act.
- Certain instruments defining the rights of holders of long-term obligation of the registrant and certain of its subsidiaries (the total amount of securities authorized under each of which does not exceed ten percent of the total assets of the registrant and its subsidiaries on a consolidated basis), are omitted pursuant to Item 601(b)(4)(iii)(A) of Regulation S-K. We agree to furnish copies of any such instruments to the SEC upon request.
- [10.1](#) Credit Agreement dated as of March 30, 2021, among Comcast Corporation, the financial institutions party thereto, JPMorgan Chase Bank, N.A., as administrative agent, Citibank, N.A., as syndication agent, Bank of America, N.A., Mizuho Bank, Ltd., Morgan Stanley MUFG Partners, LLC and Wells Fargo Bank, National Association, as co-documentation agents (incorporated by reference to Exhibit 10.1 to Comcast's Current Report on Form 8-K filed on March 31, 2021).
- [10.2](#) Amendment No. 1 dated December 31, 2021, to Credit Agreement dated as of March 30, 2021, among Comcast Corporation, the financial institutions party thereto, JPMorgan Chase Bank, N.A., as administrative agent, Citibank, N.A., as syndication agent, Bank of America, N.A., Mizuho Bank, Ltd., Morgan Stanley MUFG Partners, LLC and Wells Fargo Bank, National Association, as co-documentation agents (incorporated by reference to Exhibit 10.2 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2021).
- [10.3](#) Amendment No. 2 dated as of December 9, 2022, to Credit Agreement dated as of March 30, 2021, among Comcast Corporation, the financial institutions party thereto, JPMorgan Chase Bank, N.A., as administrative agent, Citibank, N.A., as syndication agent, Bank of America, N.A., Mizuho Bank, Ltd., Morgan Stanley MUFG Loan Partners, LLC and Wells Fargo Bank, National Association, as co-documentation agents.
- [10.4](#) Comcast Select Deferred Compensation Plan, as amended and restated effective October 12, 2021 (incorporated by reference to Exhibit 10.3 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2021).
- [10.5*](#) Comcast Corporation 2003 Stock Option Plan, as amended and restated April 10, 2020 (incorporated by reference to Exhibit 10.4 to Comcast's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020).
- [10.6*](#) Comcast Corporation 2002 Deferred Compensation Plan, as amended and restated effective March 1, 2021 (incorporated by reference to Exhibit 10.2 to Comcast's Quarterly Report on Form 10-Q for the quarter ended March 31, 2021).
- [10.7*](#) Comcast Corporation 2005 Deferred Compensation Plan, as amended and restated effective July 13, 2021 (incorporated by reference to Exhibit 10.6 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2021).
- [10.8*](#) Comcast Corporation 2002 Restricted Stock Plan, as amended and restated effective March 1, 2021 (incorporated by reference to Exhibit 10.1 to Comcast's Quarterly Report on Form 10-Q for the quarter ended March 31, 2021).
- [10.9*](#) Comcast Corporation 2006 Cash Bonus Plan, as amended and restated effective February 18, 2015 (incorporated by reference to Exhibit 10.11 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2015).
- [10.10*](#) Comcast Corporation 2002 Non-Employee Director Compensation Plan, as amended and restated effective July 31, 2020 (incorporated by reference to Exhibit 10.2 to Comcast's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020).
- [10.11*](#) Comcast Corporation 2002 Employee Stock Purchase Plan, as amended and restated effective February 22, 2016 (incorporated by reference to Appendix C to our Definitive Proxy Statement on Schedule 14A filed on April 8, 2016).

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- [10.12*](#) Comcast-NBCUniversal 2011 Employee Stock Purchase Plan, as amended and restated effective February 22, 2016 (incorporated by reference to Appendix D to our Definitive Proxy Statement on Schedule 14A filed on April 8, 2016).
- [10.13*](#) Employment Agreement with Brian L. Roberts, dated as of July 26, 2017 (incorporated by reference to Exhibit 10.2 to Comcast's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017).
- [10.14*](#) Amendment No. 1 to Employment Agreement with Brian L. Roberts, dated as of December 16, 2019 (incorporated by reference to Exhibit 10.20 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2019).
- [10.15*](#) Employment Agreement dated as of December 27, 2022 between Comcast Corporation and Michael J. Cavanagh.
- [10.16*](#) Employment Agreement dated as of January 6, 2023 between Comcast Corporation and Jason S. Armstrong.
- [10.17*](#) Employment Agreement dated as of October 25, 2022 between Comcast Corporation and David N. Watson (incorporated by reference to Exhibit 10.1 to Comcast's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022).
- [10.18*](#) Employment Agreement dated as of February 19, 2020 between Comcast Corporation and Jeffrey Shell (incorporated by reference to Exhibit 10.2 to Comcast's Quarterly Report on Form 10-Q for the quarter ended June 30, 2021).
- [10.19*](#) Employment Agreement dated as of January 1, 2021 between Comcast Corporation and Dana Strong (incorporated by reference to Exhibit 10.1 to Comcast's Quarterly Report on Form 10-Q for the quarter ended June 30, 2022).
- [10.20*](#) Employment Agreement dated as of April 15, 2019 between Comcast Corporation and Thomas J. Reid (incorporated by reference to Exhibit 10.1 to Comcast's Quarterly Report on Form 10-Q for the quarter ended June 30, 2021).
- [10.21*](#) Form of Non-Qualified Stock Option and Long-Term Incentive Awards Summary Schedule under the Comcast Corporation 2003 Stock Option Plan (incorporated by reference to Exhibit 10.35 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2020).
- [10.22*](#) Form of Restricted Stock Unit Award and Long-Term Incentive Awards Summary Schedule under the Comcast Corporation 2002 Restricted Stock Plan (incorporated by reference to Exhibit 10.37 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2020).
- [10.23*](#) Form of Restricted Stock Unit Award and Long-Term Incentive Awards Summary Schedule under the Comcast Corporation 2002 Restricted Stock Plan.
- [10.24*](#) Form of Performance-Based Stock Option Award.
- [10.25*](#) Form of Airplane Time Sharing Agreement (incorporated by reference to Exhibit 10.60 to Comcast's Annual Report on Form 10-K for the year ended December 31, 2014).
- [10.26*](#) Form of Director Indemnification Agreement (incorporated by reference to Exhibit 10.3 to Comcast's Quarterly Report on Form 10-Q for the quarter ended June 30, 2009).
- [10.27](#) Fourth Amended and Restated Shareholders Agreement, dated as of April 15, 2022, among Atairos Group, Inc., Comcast AG Holdings, LLC, Atairos Partners, L.P., Atairos Management, L.P. and Comcast Corporation.
- [10.28](#) Consultant Agreement, dated as of January 20, 1987, between Steven Spielberg and Universal City Florida Partners (incorporated by reference to Exhibit 10.49 to the Registration Statement on Form S-4 of Universal City Development Partners, Ltd. and UCDP Finance, Inc. filed on January 20, 2010 (File No. 333-164431)).
- [10.29](#) Amendment dated February 5, 2001 to the Consultant Agreement dated as of January 20, 1987, between the Consultant and Universal City Florida Partners (incorporated by reference to Exhibit 10.50 to the Registration Statement on Form S-4 of Universal City Development Partners, Ltd. and UCDP Finance, Inc. filed on January 20, 2010 (File No. 333-164431)).
- [10.30](#) Amendment to the Consultant Agreement, dated as of October 18, 2009, between Steven Spielberg, Diamond Lane Productions, Inc. and Universal City Development Partners, Ltd. (incorporated by reference to Exhibit 10.52 to the Registration Statement on Form S-4 of Universal City Development Partners, Ltd. and UCDP Finance, Inc. filed on January 20, 2010 (File No. 333-164431)).
- [10.31](#) Letter Agreement dated July 15, 2003, among Diamond Lane Productions, Vivendi Universal Entertainment LLLP and Universal City Development Partners, Ltd. (incorporated by reference to Exhibit 10.51 to the Registration Statement on Form S-4 of Universal City Development Partners, Ltd. and UCDP Finance, Inc. filed on January 20, 2010 (File No. 333-164431)).

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<u>21</u>	List of subsidiaries.
<u>22</u>	Subsidiary guarantors and issuers of guaranteed securities and affiliates whose securities collateralize securities of the registrant.
<u>23</u>	Consent of Deloitte & Touche LLP.
<u>31</u>	Certification of Chief Executive Officer and Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
<u>32</u>	Certification of Chief Executive Officer and Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101	The following financial statements from Comcast Corporation's Annual Report on Form 10-K for the year ended December 31, 2022, filed with the Securities and Exchange Commission on February 3, 2023, formatted in Inline Extensible Business Reporting Language (iXBRL): (1) the Consolidated Statement of Income; (2) the Consolidated Statement of Comprehensive Income; (3) the Consolidated Statement of Cash Flows; (4) the Consolidated Balance Sheet; (5) the Consolidated Statement of Changes in Equity; and (6) the Notes to Consolidated Financial Statements.
104	Cover Page Interactive Data File (embedded within the iXBRL document)

* Constitutes a management contract or compensatory plan or arrangement.

Item 16: Form 10-K Summary

None.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized in Philadelphia, Pennsylvania on February 3, 2023.

By: _____ /s/ BRIAN L. ROBERTS
Brian L. Roberts
Chairman and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ BRIAN L. ROBERTS Brian L. Roberts	Chairman and Chief Executive Officer; Director (Principal Executive Officer)	February 3, 2023
/s/ JASON S. ARMSTRONG Jason S. Armstrong	Chief Financial Officer and Treasurer (Principal Financial Officer)	February 3, 2023
/s/ DANIEL C. MURDOCK Daniel C. Murdock	Executive Vice President, Chief Accounting Officer and Controller (Principal Accounting Officer)	February 3, 2023
/s/ KENNETH J. BACON Kenneth J. Bacon	Director	February 3, 2023
/s/ MADELINE S. BELL Madeline S. Bell	Director	February 3, 2023
/s/ EDWARD D. BREEN Edward D. Breen	Director	February 3, 2023
/s/ GERALD L. HASSELL Gerald L. Hassell	Director	February 3, 2023
/s/ JEFFREY A. HONICKMAN Jeffrey A. Honickman	Director	February 3, 2023
/s/ MARITZA G. MONTIEL Maritza G. Montiel	Director	February 3, 2023
/s/ ASUKA NAKAHARA Asuka Nakahara	Director	February 3, 2023
/s/ DAVID C. NOVAK David C. Novak	Director	February 3, 2023